ÄGYPTEN UND LEVANTE
EGYPT AND THE LEVANT

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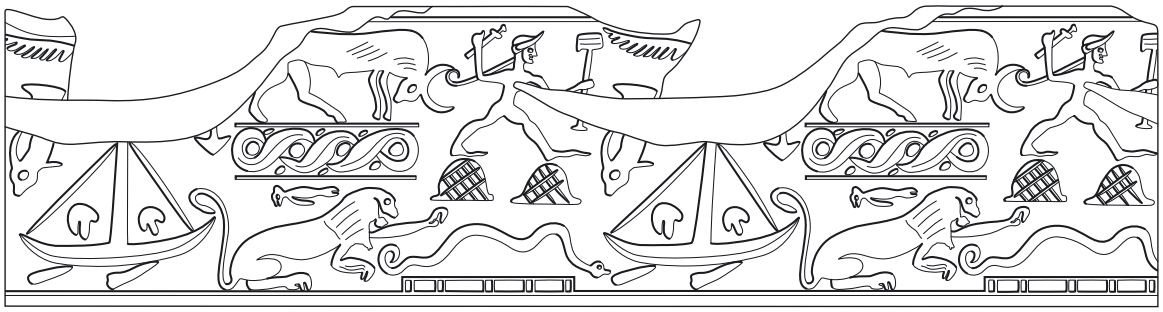
# ÄGYPTEN UND LEVANTE



# EGYPT AND THE LEVANT

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# Abkürzungen/Abbreviations

| | |
|---|---|
| *Ä&L(E&L)* | *Ägypten und Levante/Egypt and the Levant,* Wien |
| ÄA | Ägyptologische Abhandlungen, Wiesbaden |
| *AA* | *Archäologischer Anzeiger, Jahrbuch des Deutschen Archäologischen Instituts,* Berlin |
| *AAAS* | *Les Annales Archéologiques Arabes Syriennes. Revue d'Archeologie et d'Histoire,* Damaskus |
| *AASOR* | *Annual of the American Schools of Oriental Research,* Cambridge Mass. |
| ÄAT | Ägypten und Altes Testament. Studien zu Geschichte, Kultur und Religion Ägyptens und des Alten Testaments, Wiesbaden |
| *ABSA* | *The Annual of the British School at Athens,* London |
| ACE Reports | Australian Centre for Egyptology Reports, Macquarie University etc. |
| *ADAIK* | *Abhandlungen des Deutschen Archäologischen Instituts, Abteilung Kairo.* Glückstadt/Mainz/Berlin |
| *AEC* | *Ancient Egyptian Chronology*. Ed. by Erik Hornung, Rolf Krauss, and David A. Warburton. Handbook of Oriental Studies. Section I, The Near and Middle East, Leiden, Boston |
| ÄF | Ägyptologische Forschungen, Glückstadt, Hamburg, New York |
| AfOB | Archiv fur Orientforschung. Beiheft, Wien |
| Afr. Praehist | Africa Praehistorica, Köln |
| *AHL* | *Archaeology and History of the Libanon*, London. |
| *AHR* | *The American Historical Review,* Bloomington |
| *AJA* | *American Journal of Archaeology,* New York, Baltimore, Norwood |
| *AJL* | *The American Journal of Semitic Languages and Literatures,* Chicago. |
| *AJSL* | *The American Journal of Semitic Languages and Literatures,* Chicago |
| *Akkadica* | *Akkadica, Revue semestrielle de la Fondation Assyriologique Georges Dossin,* Brüssel. |
| AMAWL | Akademie der Wissenschaften und der Literatur. Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse, Mainz |
| AnOr | s. AO |
| *Antiquity* | *Antiquity: a quarterly review of archaeology,* Oxford |
| AO | Analecta Orientalia, Rome |
| AOAT | Alter Orient und Altes Testament |
| *AOF* | *Altorientalische Forschungen*, Berlin |
| APAW | Abhandlungen der Preußischen Akademie der Wissenschaften, Berlin |
| *AS* | *Anatolian Studies*, Journal of the British Institute of Archaeology at Ankara, London |
| *ASAE* | *Annales du Service des Antiquités de l'Égypte,* Cairo |
| ASE | Archaeological Survey in Egypt, London |
| *ASOR Diss. Ser.* | *American School of Oriental Research, Dissertation Series,* Boston. |
| *Atiqot* | *Atiqot*, Journal of the Israel Department of Antiquites, English Series, Jerusalem |
| AV (AVDAIK) | Archäologische Veröffentlichungen. Deutsches Archäologisches Institut, Abteilung Kairo, Berlin/Mainz am Rhein |
| *BA* | *Biblical Archaeologist*. ASOR, Atlanta. |
| *BAAL* | *Bulletin d'archéologie et d'architecture libanaises, Beirut* |
| *BACE* | *The Bulletin of the Australian Centre for Egyptology*, Sydney |
| BAe | Bibliotheca Aegyptiaca, Brussels |
| BAH | Bibliothèque Archéologique et Historique, Paris |
| BAR IS | British Archaeological Reports International Series, London, Oxford |
| *BAR* | *Biblical Archaeology Review*, Washington DC |
| BAR | British Archaeological Reports |
| *BASOR* | *Bulletin of the American Schools of Oriental Research*, New Haven |
| *BCH* | *Bulletin de correspondance hellénique*, Paris |
| BdE | Bibliothèque d'étude, Institut français d'archéologie Orientale, Kairo |
| *BE* | *Bibliothèque égyptologique,* Kairo |
| *Berytus* | *Berytus.* Archaeological Studies, Musée d'archéologie et université américaine de Beyrouth, Beirut |
| *BES* | *Brown Egyptological Studies, Oxford* |
| *BES* | *Bulletin of the Egyptological Seminar, New York* |
| *Bi.Ar.* | s. *BA* |
| *BIFAO* | *Bulletin de l'Institut français d'archéologie Orientale,* Kairo |
| *BiGen.* | *Bibliothèque générale, IFAO,* Le Caire |
| *BiOr* | *Bibliotheca Orientalis,* Leiden |
| *BMB* | *Bulletin du Musée de Beyrouth,* Beirut, Paris |
| *BMO* | *Barcino Monographica Orientalia,* Barcelona |
| *BMQ* | *British Museum Quarterly,* London |
| *BSA* | *The Annual of the British School at Athens*, London |
| BSAE | British School of Archaeology in Egypt, London |
| BSAK | Studien zur Altägyptischen Kultur (SAK), Beihefte, Hamburg |

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|---|---|
| *BSEG* | *Bulletin de la Société d'égyptologie de Genève,* Genf |
| *BSFE* | *Bulletin de la Société française d'égyptologie*, Paris |
| *CAARI* | Cyprus American Archaeological Research Institute (Leukosia) |
| *CCE* | *Cahiers de la céramique égyptienne,* Le Caire |
| CChEM | Contributions to the Chronology of the Eastern Mediterranean*,* Wien |
| CG | *Catalogue général des antiquités égyptiennes du Musée du Caire*, Kairo etc. |
| *CMAO* | *Contributi e Materiali di Archeologia Orientale,* Rom |
| CNIP | Carsten Niebuhr Institute Publications, Kopenhagen |
| *CRAI* | *Comptes Rendus de l'Académie des Inscriptions et Belles-Lettres,* Paris |
| *CRIPEL* | *Cahiers de recherches de l'institut de Papyrologie et d'Egyptologie de Lille;* Lille |
| *DamM* | *Damaszener Mitteilungen,* DAI, Mainz |
| *DE* | *Discussions in Egyptology,* Oxford |
| *E&L* | s. *Ä&L* |
| *EA* | *Egyptian Archaeology.* The Bulletin of the Egypt Exploration Society (EES), London |
| EEF | Egypt Exploration Fund, London |
| EES | Egypt Exploration Society, London |
| *Env. Arch.* | *Environmental Archaeology,* Leeds/London |
| ERA | Egyptian Research Account, London |
| *EVO* | *Egitto e Vicino Oriente*, Pisa |
| FIFAO | Fouilles de l'institut français d'archéologie orientale du Caire, Le Caire |
| *FoRa* | Forschungen in der Ramses-Stadt – Die Grabungen des Pelizaeus-Museums Hildesheim, Mainz |
| *GM* | *Göttinger Miszellen,* Göttingen |
| GOF | Göttinger Orientforschungen, IV. Reihe, Ägypten, Wiesbaden |
| HÄB | Hildesheimer Ägyptologische Beiträge*, Hildesheim* |
| *HdO* | *Handbuch der Orientalistik,* Leiden |
| *HISTORIA* | *HISTORIA, Zeitschrift für Alte Geschichte*, Stuttgart |
| IAA Reports | Reports of the Israel Antiquities Authority, Jerusalem |
| IBAES | Internet-Beiträge zur Ägyptologie und Sudanarchäologie*,* London |
| *IEJ* | *Israel Exploration Journal*, Jerusalem |
| IES | Israel Exploration Society |
| *IJNA* | *The International Journal of Nautical Archaeology* |
| *Iraq* | *Iraq, The British Institute for the Study of Iraq Journal*, London |
| *JAEI* | *Journal of Ancient Egyptian Interconnections,* Tucson, AZ |
| *JAOS* | *Journal of the American Oriental Society,* New Haven CT [and Baltimore MD] |
| *JARCE* | *Journal of the American Research Center in Egypt,* Boston/Princeton/New York/Cairo |
| *JAS* | *Journal of Archaeological Science*, Oxford, Amsterdam etc. |
| *JBL* | *Journal of Biblical Literature*, Atlanta, GA |
| *JEA* | *Journal of Egyptian Archaeology,* London |
| *JEH* | *Journal of Egyptian History,* Swansea |
| *JEOL* | *Jaarbericht van het Vooraziatisch-Egyptisch Genootschap (Gezelschap) "Ex Oriente Lux" Leiden,* Leiden |
| *JESHO* | *Journal of the Economic and Social History of the Orient,* Leiden |
| *JHS* | *Journal of Hellenic Studies,* London |
| *JNES* | *Journal of Near Eastern Studies*, Chicago |
| *JRAI* | *Journal of the Royal Anthropological Institute,* London |
| *JSOT* | *Journal for the Study of the Old Testament,* Sheffield |
| *JSSEA* | *Journal of the Society for the Study of Egyptian Antiquities,* Toronto |
| *Kêmi* | *Kêmi*. Revue de philologie et d'archéologie égyptienne et coptes, Paris |
| KRI | Kitchen, K.A., *Ramesside Inscriptions: historical and biographical* I–VIII, Oxford. 1975–1990. |
| *Kush* | *Kush. Journal of the Sudan Antiquities Service,* Khartum |
| *LÄ* | *Lexikon der Ägyptologie*, ed. by W. Helck, W. Westendorf, 7 vols. Wiesbaden 1972 ff. |
| *Levant* | *Levant.* Journal of the British School of Archaeology in Jerusalem and the British Institute at Amman for Archaeology and History, London |
| *MAA* | *Mediterranean Archaeology and Archaeometry,* Rhodos |
| MÄS | Münchner Ägyptologische Studien, Berlin, München, Mainz |
| *MDAIK* | *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo,* Mainz/Cairo/Berlin/Wiesbaden |
| *MDOG* | *Mitteilungen der Deutschen Orientgesellschaft*, Berlin, Leipzig |
| *Memnonia* | *Memnonia. Bulletin édité par l'association pour la sauvegarde du Ramesseum,* Le Caire |
| MHC | *Medinet Habu III. The Calendar, the 'Slaughterhouse', and Minor Records of Ramses III*, Epigraphic Survey, OIP 23, Chicago, 1934. |
| MHEM | Mesopotamian History and Environment Series 2, Chicago |
| MIFAO | Mémoires publiés par les membres de I'Institut français d'archéologie orientale du Caire, Kairo |
| MKT | Menschen - Kulturen - Traditionen. Studien aus den Forschungsclustern des Deutschen Archäologischen Instituts, Rahden, Westfahlen |
| MMAF | Mémoires publiés par les membres de la Mission Archéologique Française au Caire, Paris |
| *MMJ* | *Metropolitan Museum Journal,* New York |

MRE Monographies Reine Elisabeth, Brüssel

MRS Mission de Ras Shamra, Paris

*NEA* *Near Eastern Archaeology,* ASOR, Hanover, PA

*NeHeT* *Revue numérique d'Égyptologie,* Paris, Bruxelles

*NGWG* *Nachrichten von der Königlichen Gesellschaft der Wissenschaften zu Göttingen,* Göttingen

*Nyame Akuma* *Nyame Akuma. Bulletin of the Society of Africanist Archaeologists,* Houston Tx

ÖAI Österreichisches Archäologisches Institut, Wien

OBO Orbis Biblicus et Orientalis, Fribourg, Göttingen

OBOSA Orbis Biblicus et Orientalis, Series Archaeologica, Fribourgh, Göttingen

OIC Oriental Institute Communications, Chicago

OIMP Oriental Institute Museum Publications, Chicago

OIP Oriental Institute Publications, University of Chicago, Chicago

*OJA* *Oxford Journal of Archaeology,* Oxford

OLA Orientalia Lovaneinsia Analecta, Leuven

*OMRO* *Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden te Leiden,* Leiden

OP Occasional Publications (EES), London

*OpAth* *Opuscula Atheniensia*, Acta Instituti Atheniensis Regni Sueciae, Lund

*OrNS* *Orientaila, Nova Series*, Rom.

PÄ Probleme der Ägyptologie, Leiden

*PAM* *Polish Archaeology in the Mediterranean,* Warsaw

*PEQ* *Palestine Exploration Quarterly*, London

PMMA Publications of the Metroplitan Museum of Art Egyptian Expedition, New York

*PNAS* *Proceeding of the National Academy of Sciences, USA,* Washington, DC

*Qadmoniyot* *Qadmoniyot.* Journal for the Antiquities of Eretz-Israel and Bible Lands, Jerusalem

*QDAP* *Quarterly of the Department of Antiquities in Palestine,* Oxford

Qedem Qedem. Monographs of the Institute of Archaeology of the Hebrew University of Jerusalem

*RA* *Revue d'Assyriologie et d'Archéologie Orientale,* Paris

*Radiocarbon* *Radiocarbon. An International Journal of Cosmogenic Isotope Research,* Tucson, AZ

*RDAC* *Report of the Department of Antiquities of Cyprus*, Nicosia

*RdE* *Revue d'Égyptologie*, Paris

*REE* *Revista de Estudios de Egiptología,* Buenos Aires

RITA Kitchen, K.A., *Ramesside Inscriptions Translated and Annotated*, Translations, I–VII, 1993–2014, Oxford.

*RT* *Recueil de travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes: pour servir de bullletin à la Mission Française du Caire,* Paris

SAGA Studien zur Archäologie und Geschichte Altägyptens, Heidelberg

*SAK* *Studien zur Altägyptischen Kultur,* Hamburg

*SAOC* *Studies in Ancient Oriental Civilization,* Chicago

*SBA* *Saarbrücker Beiträge zur Altertumskunde*, Bonn.

SDAIK Sonderschriften des Deutschen Archäologischen Instituts, Abteilung Kairo, Mainz

SIMA *Studies in Mediterranean Archaeology*, Gothenburg, Jonsered, Uppsala

*StEb.* *Studia Eblaiti*, Rom.

*Sudan & Nubia* *Sudan & Nubia.* Bulletin of the Sudan Archaeological Research Society, London

*Syria* *Syria.* Revue d'art oriental et d'archéologie, Beirut, Paris

*TA* *Tel Aviv,* Tel Aviv

Tel Aviv, Mon. Ser. Tel Aviv University, Monograph Series, Tel Aviv.

TUAT O. Kaiser (ed.), Texte aus der Umwelt des Alten Testaments, Gütersloh

*UF* *Ugarit-Forschungen.* Internationales Jahrbuch für die Altertumskunde Syrien-Palästinas, Kevelaer, Neukirchen, Vluyn

*UMM* *University Museum Monographs,* University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia.

*Urk.* *Urkunden des ägyptischen Altertums, I–VIII,* begründet von G. Steindorff, Leipzig, Berlin, 1906–1958

UZK Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Institutes, Wien

*VHA* *Vegetation History and Archaeobotany,* New York

*WdO* *Die Welt des Orients,* Göttingen

WVDOG Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft, Berlin, Leipzig

*WZKM* *Wiener Zeitschrift für die Kunde des Morgenlandes*, Wien

*ZA* *Zeitschrift für Assyriologie und vorderasiatische Archäologie*, Leipzig/Berlin

*ZÄS* *Zeitschrift für ägyptische Sprache und Altertumskunde*, Leipzig, Berlin

*ZDMG* *Zeitschrift der Deutschen Morgenländischen Gesellschaft,* Leipzig, Wiesbaden

*ZDPV* *Zeitschrift des Deutschen Palästina-Vereins,* Stuttgart, WiesbadenGenf

# Vorwort

Dieser Band wird dem Generalthema der Zeitschrift über die Beziehungen zwischen Ägypten und Levante gerecht. Am Beginn steht ein Block von Grabungsvorberichten. Zwei umfangreiche Artikel über die Ergebnisse der Ausgrabungen des Österreichischen Archäologischen Institutes Kairo auf Tell el-Dabᶜa (Irene Forstner-Müller *et al*.) eröffnen den Band. Sie behandeln stratifizierte Siedlungsschichten der Hyksoszeit in der Nähe von ᶜEzbet Ruschdi (Areal R/III), die neben reichem Fundgut der Zweiten Zwischenzeit u.a. auch das bemerkenswerte Stück eines Fayence-Rhytons in Form eines Nilpferdes geliefert haben. Der zweite Bericht behandelt eine Sondage im Nordbereich des Hafenbeckens des alten Avaris (Areal R/IV). Der Befund zeigt, dass der Nordteil des Beckens bereits in der Zeit des späten Mittleren Reiches mit Sedimenten gefüllt war und ab der Zweiten Zwischenzeit auch als Siedlungs- und Bestattungsgrund genutzt wurde. Die Verfüllung eines künstlich angelegten Kanals der 13. Dynastie enthielt große Mengen an Importkeramik aus der Levante; im Uferbereich fand man zahlreiche ägyptische sowie einige vorderasiatische Siegelabdrücke. Aus einer späteren Nutzungsphase des Areals (damals gehörte dieser Bereich zum Südteil von Piramesse) stammt ramessidische Keramik, die von Pamela Rose untersucht wird. Diese Vorberichte werden durch den osteoarchäologischen Befund der Grabungen bei ᶜEzbet Rushdi ergänzt (G. Karl Kunst & Konstantina Saliari).

Es folgen umfassende Vorberichte der Grabungen der polnisch-slowakischen Mission auf Tell el-Retaba im Wadi Tumilat (Sławomir Rzepka, Joseph Hudec *et al*.). Dieser Platz besitzt eine teilweise vergleichbare Siedlungsabfolge wie Tell el-Dabᶜa mit Schichten aus der Zweiten Zwischenzeit, der 18. Dynastie, und der Ramessidenzeit, als an dieser Stelle eine mächtige Grenzfestung stand. Schließlich gibt es auch Siedlungsaufschlüsse aus der Dritten Zwischenzeit, die in Tell el-Daᶜa fast nicht vertreten ist. Ein osteologischer (Anna Gręzak) und ein archäobotanischer Befund (Claire Malleson) vervollständigen diesen Vorbericht, der eine Reihe von früheren ausführlichen Berichten aus Tell el-Retaba fortsetzt.

# Preface

This volume of *Egypt and the Levant* is in line with the main research programme of this journal, namely the relationship between Egypt and the Levant. First, there is a block of preliminary excavation reports. At the beginning we have two substantial accounts on the excavations of the Austrian Archaeological Institute in Cairo at Tell el-Dabᶜa (Irene Forstner-Müller *et al*.). They deal with stratified settlement contexts of the Hyksos Period near ᶜEzbet Ruschdi (Area R/III). Among the abundant finds was a rhyton in the shape of a hippopotamus. The second report reveals the results of a sondage within the northern part of the harbour basin of ancient Avaris (Area R/IV). The evidence shows that the northern part of the basin was filled up with sediments during the late Middle Kingsdom and was used already from the early Second Intermediate Period onwards as a burial-ground and for settlement. The filling of a canal of the 13th Dynasty contained among numerous pottery fragments many imports from the Levant. At its banks, numerous seal impressions were found, mostly Egyptian, but some also of Near Eastern origin. From a later phase of occupation, when this area belonged to the southern part of the famous Ramesside residence Piramesse, originate ceramic remains which are analysed by Pamela Rose. An osteological study from G. Karl Kunst and Konstantina Saliari complements the archaeological reports from Tell el-Dabᶜa/ ᶜEzbet Ruschdi.

Other preliminary reports follow from the Polish-Slovak Mission at Tell el-Retaba in the Wadi Tumilat (Sławomir Rzepka, Joseph Hudec *et al*.). This site has to some extent a comparable stratigraphy to Tell el-Dabᶜa with occupation layers of the late Middle Kingdom, the Second Intermediate Period, the 18th Dynasty and from the Ramesside Period, when the place was transformed to a formidable frontier fortress. Tell el-Retaba also contains settlement remains of the Third Intermediate Period, which are hardly represented at Tell el-Dabᶜa. An osteo-archaeological- (Anna Gręzak) and an archeo-botanical report (Claire Malleson) complete the archaeological results which continue former excavation reports on Tell el-Retaba in this journal.

Die sich anschließende Sammlung von Artikeln zu einer Reihe vorwiegend archäologisch/kunsthistorisch gewichteter Themen umfasst den Raum Ägyptens, des Vorderen Orients und Zyperns; die Beiträge umfassen einen Zeitraum von der Vorgeschichte (Math) bis zur römischen Kaiserzeit (Buongarzone).

Alexander Ahrens legt eine ausführliche Studie über den Fund von zwei ägyptischen Statuenfragmenten des Königs Sobekhotep IV und des Gaufürsten Djefaihapi vor, die bereits 1949/50 von Maurice Chéhab in Tell Hizzin in der *Beqaʿa* im Libanon entdeckt worden sind. Diese Funde führen uns wieder auf die Frage zurück, wie diese Skulpturen im Levanteraum zu erklären sind. Sind sie sekundär verhandeltes Raubgut oder Prestige Geschenke? Bekannterweise fand George A. Reisner auch eine Sitzstatue des Gaufürsten Djefaihapi und seiner Gemahlin Senui in einem Königsgrab der Zweiten Zwischenzeit in Kerma im Sudan. Es wird nun vermutet, dass dieses Fundgut, zu dem eine Unzahl von Statuen und anderer kostbarer Gegenstände gehört, nach einem Raubzug des Königreiches von Kusch nach Oberägypten in den Sudan gelangte.[1] In einer noch unveröffentlichten Studie kommt Karin Kopetzky zum Schluss, dass Prestigegüter des Mittleren Reiches in der Hyksoszeit und knapp davor in die Levante verhandelt wurden.[2]

Ein im Rahmen unserer Zeitschrift eher selten behandeltes Thema ist die Studie von Roberto Buongarzone über den Kopf einer römerzeitlichen Skulptur aus Medinet Madi im Fayum. Stilistisch den Kaiserportraits des 2. Jahrhunderts in einer lokalen Interpretation nahestehend, könnte es sich um die Ehrenstatue einer hochrangigen Persönlichkeit oder gar von Kaiser Hadrian selbst gehandelt haben.

Eine historische Studie von Roxana Flammini behandelt Herrschaftspraktiken der Hyksoszeit und zeigt auf, welch komplexes System an „Subordination practices“ hinter dem Schlagwort „Vasall“ steckt.

Ayelet Gilboa wirft anhand von Keramikfunden ein Licht auf die Handelsbeziehungen zwischen Ägypten und der Hafenstadt Dor, südlich

Thereafter follows a collection of articles, mainly with an archaeological or art-historical focus, dealing with the regions of Egypt, the Near East and Cyprus. The contributions encompass a time span from prehistory (Math) until the Roman Empire (Buongarzone).

Alexander Ahrens offers a detailed study on two sculpture fragments, one of king Sobekhotep IV of the 13th Dynasty and one of the nomarch Djefaihapi of Assiut from the time of the 12th Dynasty. Both were discovered already in 1949/50 by Maurice Chéhab at Tell Hizzin in the *Beqaʿa* in the Lebanon. These finds bring us back to the questions of when and how such sculptures reached the Levant. As we know, George A. Reisner already found a statue of this nomarch Djefaihapi and of his wife Senui in a royal tumulus of the Second Intermediate Period at Kerma and it is thought now, that the sculptures reached the Sudan with many other statuary after a plundering raid by the kingdom of Kush into Upper Egypt[1]. Karin Kopetzky in a still unpublished study comes to the conclusion that most of the prestige goods from the Middle Kingdom in Egypt originate from the looting of elite- and royal tombs of the Memphite area and were traded during the Hyksos era and already slightly before.[2]

A rare study in our journal is the article of Roberto Buongarzone about the head of a Roman sculpture from Medinet Madi in the Fayum. From a stylistic point of view it seems to have been fashioned in a local *interpretatio* after emperor's portraits of the 2nd century AD. It may have been the honorary statue of a local dignitary or of Emperor Hadrian himself.

In a historical study Roxana Flammini deals with the method of rule of the Hyksos and shows how the term "vassal" maskes a very complex system of "subordination practices".

Ayelet Gilboa brings the recent finds of Egyptian imported pottery in the ancient harbour-town Dor, south of Carmel, during the early Iron Age into context with the Late Egyptian story of Wenamun.

Raz Kletter and Yosi Levi discuss the evidence of simultaneous burials in Canaan during the Mid-

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1 W.V. Davies, *BSEF* 157, 2003, 38–44 & *Egyptian Archaeology* 23, 2003, 3–6.

2 K. Kopetzky, Some remarks on the relations between Egypt and the Levant during the Middle Kingdom and Second Intermediate Period, in W. Grajetzki and L. Miniaci, *The World of the Middle Kingdom* II, London, in print.

des Karmel, während der frühen Eisenzeit, die sie in Beziehung zum literarischen Rahmen der Wenamun-Erzählung bringt.

Raz Kletter und Yosi Levy studieren das seltsame Phänomen gleichzeitig erfolgter Bestattungen in der Mittleren Bronzezeit anhand des archäologischen Befundes aus Rishon-le-Zion südostlich von Tel Aviv. Einige solche Fälle von gleichzeitigen Bestattungen liegen auch aus Tell el-Dabᶜa vor.

Neue petrographische Befunde von Importkeramik der frühen Bronzezeit von Grabungen des DAI in Abydos geben Hinweise, woher diese Tongefässe aus der Levante stammen (Ulrich Hartung, Christiana Köhler *et al*.). Diese Befunde sind für die Rekonstruktion der Handelsbeziehungen zwischen Ägypten und der Levante von besonderer Bedeutung.

In Fortsetzung des früheren Chronologie-projektes SCIEM 2000 liegt von Rolf Krauss eine Chronologie-Diskussion der Ramessidenzeit und der Dritten Zwischenzeit vor. Außerdem wird eine neue astronomische Auswertung der Monddaten von Tuthmosis III. geboten.

Nicola Math erklärt den Übergang von der Badari zur Naqada-Kultur auf Basis der Assimilation.

In einem umfangreichen Artikel von Penelope A. Mountjoy und Hans Mommsen werden die Ergebnisse eines großangelegten Neutronenaktivierungsanalyse-Projektes von SH IIIC-Keramik aus Zypern und dem Vorderen Orient publiziert, auf dessen Basis eine präzise Herkunftsbestimmung importierter zyprischer Keramik des 12. Jahrhunderts v. Chr. in Anatolien und der Levante ermöglicht werden soll.

Vera Vasiljević schließlich untersucht Darstellungen von Sänftenträgern in Gräbern des Alten Reiches auf funktioneller Basis.

Der nächste Band wird Beiträge des OREA-Workshops *Abfallgruben oder kultische Ablagerungen* vom 5. Juni 2014 in den Räumen der Österreichischen Akademie der Wissenschaften in Wien umfassen. Außerdem werden neben fachspezifischen Artikeln wieder Grabungsvorberichte, diesmal u.a. auch aus Tell Basta aus dem Zeitraum 2010–2015 sowie eine Auswertung fernerkundlicher Daten für die Erforschung archäologischer Fundplätze und Landschaften des östlichen Nildeltas geboten.

Manfred Bietak
Für das Herausgebergremium

dle Bronze Age. They focus on the cemetery of Rishon-le-Zion, southeast of Tel Aviv. Similar burials have also been found at Tell el-Dabᶜa.

Recent petrographic analyses of imported ceramic vessels of Early Bronze Age, found by the excavations of the German Archaeological Institute in Abydos give indications from where in the Levant these containers come from (Ulrich Hartung, Christiana Köhler *et al*.). Such evidence is of special importance for the reconstruction of the trade connections between Egypt and Canaan.

In a continuation of the chronology project of the research programme SCIEM 2000, Rolf Krauss presents a discussion of Ramesside and Third Intermediate Period chronology and adds a new astronomic evaluation of the moon data of Thutmose III. Nicola Math explains the transition of the Badari to the Naqada Culture on the basis of assimilation.

In a substantial contribution, Penelope Mountjoy and Hans Mommsen present the results of a large scale NAA project that investigated the provenience of LH IIIC pottery from Cyprus and the Near East. This study enables the determination of the location of production of imported Cypriot pottery in Anatolia and the Levant during the 12th century BC.

Finally Vera Vasiljević analyses the representations of palanquin bearers on functional basis in an art-historical article.

The next volume of our journal will present contributions to the OREA-Workshop *Waste Pits or Cultic Deposits?* which took place on the 5th of June 2014 at the premises of the Austrian Academy in Vienna. Furthermore, besides specific articles dealing with Egypt and the Near East, this journal will again present preliminary excavation reports i.a. from Tell Basta from 2010–2015 and the evaluation of remote sensing of archaeological sites and landscapes of the Eastern Nile Delta.

Manfred Bietak
For the Editorial Board

# GRABUNGEN DES ÖSTERREICHISCHEN ARCHÄOLOGISCHEN INSTITUTS KAIRO IN TELL EL-DABᶜA/AVARIS

## A. Das Areal R/III, zweiter Vorbericht

*Irene Forstner-Müller, Clara Jeuthe, Vera Michel, Silvia Prell*

Das untersuchte Areal R/III liegt östlich des modernen Ortes ʻEzbet Rushdi (es-saghira) im Norden der Verbindungsstraße, die von der Hauptstraße abzweigend vom modernen Ort ʻEzbet Rushdi es-saghira aus nach Tell el-Dabᶜa führt (Abb. 1). Wie die meisten Areale von Avaris ist auch das Areal R/III durch moderne landwirtschaftliche Tätigkeit massiv bedroht.[1]

Die archäologische Untersuchung des Areals R/III wurde notwendig, als der Grundbesitzer eine großflächige Nivellierung des Landes mit mechanischen Maschinen startete. Aus diesem Grund wurde in Übereinstimmung mit dem ägyptischen Antikenministerium (vormals Supreme Council of Antiquities) eine Rettungsgrabung initiiert. Die Finanzierung erfolgte durch das Österreichische Archäologische Institut.

Wir danken dem Antikenministerium, besonders seiner Exzellenz Minister Mamdouh el Damati, Dr. ᶜAbd el-Maqsoud, dem Inspektorat in Zagazig und Faqus mit Herrn Ibrahim Suliman und den lokalen Inspektoren. Zu besonderem Dank sind wir der Österreichischen Botschaft in Kairo verpflichtet: vor allem Seiner Exzellenz Dr. Thomas Nader, dem früheren österreichischen Botschafter in Ägypten, Seiner Exzellenz DDr. Georg Stillfried, dem Erstzugeteilten der österreichischen Botschaft Kairo, Mag. Clemens Mantl und Dr. René-Paul Amry, stellvertretender Botschafter, für ihre wertvolle Unterstützung. Ebenso danken wir der Direktorin des Österreichischen Archäologischen Instituts, PD Dr. Sabine Ladstätter, für ihren unermüdlichen Beistand.

Archäologische Ausgrabungen in diesem Gebiet fanden erstmals im Herbst 2010 statt,[2] und wurden jeweils im Frühjahr 2011 und 2012 fortgesetzt.

Teilnehmerliste 2010–2012

| | |
|---|---|
| Forstner-Müller, Irene | Grabungsleiterin |
| Rose, Pamela | stellvertretende Grabungsleiterin |
| Bradshaw, Rebecca | Ägyptologin |
| Clapham, Alan | Archäobotaniker |
| Collet, Pieter | Zeichner |
| Collon, Dominique | Spezialistin für Glyptik |
| El-Senussi, Ashraf | Ägyptologe |
| Erci, Jessica | Studentin |
| Friesenegger, Ulrich | Student |
| Gresky, Julia | Anthropologin |
| Hassler, Astrid | Archäologin |
| Herbich, Tomasz | Geophysiker |
| Janulikoká, Barbara | Studentin |
| Jeuthe, Clara | Spezialistin für Lithik |
| Krause, Axel | Fotograf |
| Kunst, Günther-Karl | Archäozoologe |
| Marée, Marcel | Ägyptologe |
| Matić, Uroš | Ägyptologe |
| Monschein, Natalie | Studentin |
| Müller, Marcus | Ägyptologe |
| Müller, Sandra | Ägyptologin |
| Müller, Vera | Ägyptologin |
| Peintner, Erico | Restaurator |
| Prell, Silvia | Ägyptologin |
| Reali, Chiara | Ägyptologin |
| Roth, Markus | Student |
| Schulz, Christian | Archäologe |
| Tronchere, Hervé | Geograf |
| Weißl, Michael | Archäologe |
| Mahmoud Galal | Inspektor |
| Said Ahmed Ibrahim | Inspektor |
| Hani Fahim | Inspektor |
| Mohammed Zidane | Inspektor |

[1] Von dem 260-Hektar-Gebiet der österreichischen Grabungskonzession steht nur ein geringer Teil unter dem Schutz des Antikenministeriums, der Rest ist Agrar- oder Bauland in privatem Besitz. Neben der modernen Bautätigkeit ist das Abgraben und Einplanieren der Felder, um effizientere Landwirtschaft betreiben zu können, eine der Hauptbedrohungen archäologischer Schichten im Nildelta.

[2] Forstner-Müller/Rose 2012/2013, 55–66; Reali 2012/2013, 67–74. S. auch Forstner-Müller 2014a, 36–37.

Ägypten und Levante/Egypt and the Levant 25, 2015, 17–71


Abb. 1 Überblicksplan des Areals Tell el-Dab$^{c}$a, Stand 2015 (Astrid Hassler, Leila Masoud, © ÖAI)


Abb. 2 Ausschnitt der geomagnetischen Messung in Areal R/III, erstellt mit Cäsiummagnetometer (Christian Schweitzer, © ÖAI)

Dieser Teil der antiken Stadt Avaris wurde bereits zuvor im Rahmen einer magnetischen Prospektion mit einem Cäsiummagnetometer Scintrex Smartmag in Kooperation mit Christian Schweitzer untersucht. Der magnetische Survey in R/III zeigte ein dicht bebautes Areal mit Häusern und Straßen (Abb. 2).

Bei dem in Areal R/III freigelegten Stadtviertel handelt es sich um einen neuralgischen Punkt innerhalb der Stadt, der für das Verständnis der Entwicklung der Hauptstadt Avaris während der späteren Zweiten Zwischenzeit von großer Bedeutung ist (Abb. 3).

Die Besiedlung dieses Stadtteils begann im Westen (Beginn der 15. Dynastie). Erst im Laufe der Zweiten Zwischenzeit dehnt sich die Stadt allmählich nach Osten aus. Die Komplexe 1–3 datieren in die spätere Zweite Zwischenzeit.

Die einzelnen Bezirke sind, wie in dieser Zeit vorherrschend, NNO-SSW orientiert und voneinander durch NNO-SSW verlaufende Straßen (Straße 1 und 2) getrennt.

Insgesamt lassen sich drei durch Straßen getrennte Komplexe unterscheiden. Die Gebäude sind durchwegs aus mittel- bis dunkelgrauen Schlammziegeln unterschiedlichen Formats errichtet. Das gesamte Gebiet ist stark von großen Störungen durchzogen, von denen insbesondere der Bereich im Westen betroffen ist (Abb. 4). Diese Störungen stammen aus unterschiedlichen Perioden, wobei Aktivitäten der modernen Landwirtschaft überwiegen. Besonders deutlich zu erkennen sind die „Naville-Gruben“: ovale Gruben mit den ungefähren Maßen von 1,0 × 0,6 m, die systematisch von Edouard Naville im Rahmen seiner Untersuchungen an diesem Fundplatz angelegt wurden.[3]

Nach dem Ende der Zweiten Zwischenzeit wurde dieser Teil der Stadt aufgegeben. Lediglich die zahlreichen Gruben unterschiedlicher Zeitstellung bezeugen andauernde menschliche Aktivität in diesem Gebiet.

[3] Naville 1887, 21–23.


Abb. 3 Überblicksplan des Grabungsareals R/III (Astrid Hassler, Vera Michel, © ÖAI)

Abb. 4 Überblicksfoto Areal R/III (Foto Irene Forstner-Müller, © ÖAI)

**Komplex 1**

(Abb. 3, 5)

Komplex 1[4] kann vorsichtig als Verwaltungsbezirk bezeichnet werden. Er besteht aus mindestens einer weitläufigen Anlage, in der sich Höfe mit Speichern um einen zentralen erhöhten Teil, von dem nur noch die Substruktionen des Podiums erhalten sind, gruppieren. Insgesamt konnte eine Fläche von 703 m² freigelegt werden. Die ursprüngliche Ausdehnung und der Grundriss von Komplex 1 können nicht mehr rekonstruiert werden. Der nördliche Teil ist durch eine riesige, vermutlich durch rezenten Erdabbau entstandene Störung vernichtet. Der südliche Teil wurde durch den lokalen Landbesitzer 2010 zerstört, nach Osten hin ist Komplex 1 durch die Straße 1 begrenzt, im Westen verläuft ein moderner Weg. Westlich dieses Weges fällt das Gelände um ca. 1 m ab, die zeitgleichen Schichten sind abgegraben. Die Stärke der Mauern und Reste eines Treppenhauses verweisen auf eine im Kern mehrstöckige Anlage. In diesem Teil wurden keine Bestattungen angelegt. Die Rekonstruktion der Bebauung dieses Teils ist aufgrund der massiven Störungen äußerst schwierig. In keinem Bereich dieser Anlage sind Originalböden erhalten. Im nördlicher gelegenen, rechteckigen Hof (Hof 1) wurden in der südöstlichen Ecke zwei Speicher (S1 und S2) von unterschiedlicher Größe (Speicher 1: ø ca. 2,9 m, Speicher 2: ø ca. 2,2 m) errichtet. Im Osten ist Hof 1 von Bereich A eingefasst, bei dem es sich um ein Magazin handeln könnte (Abb. 6).

Dieser Bereich besteht aus fünf Räumen (R1–R5), vermutlich Substruktionen, deren Grundflächen nach Süden hin kleiner werden. Der südlichste Bereich ist durch eine ein Ziegel starke Zwischenmauer in zwei annähernd gleich große Räume unterteilt (westlicher Raum 4: 3,43 m², östlicher Raum 5: 3,88 m²). Der nördlich von Hof 1 gelegene Bereich D besteht aus mehreren Räumen, deren Architektur aufgrund des hohen Zerstörungsgrades nicht zur Gänze rekonstruiert werden kann. Im Nordwesten ist ein annähernd quadratischer Raum (R8) mit ca. 11 m² Grundfläche zu erkennen.

Ein weiterer, annähernd quadratischer, etwas größerer Raum (R9, ca. 13 m²) konnte an der westlichen Einfassung von Hof 1 freigelegt werden. Die restliche Architektur wurde noch stärker zerstört vorgefunden als im Norden. Südlich von Hof 1 grenzt der quadratische Hof 2 an. Seine Funktion ist nicht geklärt, auffälligerweise fanden sich keine Speicher. An seiner südlichen Begrenzungsmauer ist in der Mitte eine rechteckige Bank (4,9 m²) angefugt. An der Nordostecke von Hof 2 befindet sich ein von zwei Ziegeln starken Mauern eingefasster Raum (R6), bei dem es sich um eine Treppe handeln könnte, die ursprünglich in das

[4] Forstner-Müller/Rose 2012/2013, 55–66; s. auch Forstner-Müller 2012, 683–684, fig. 4.

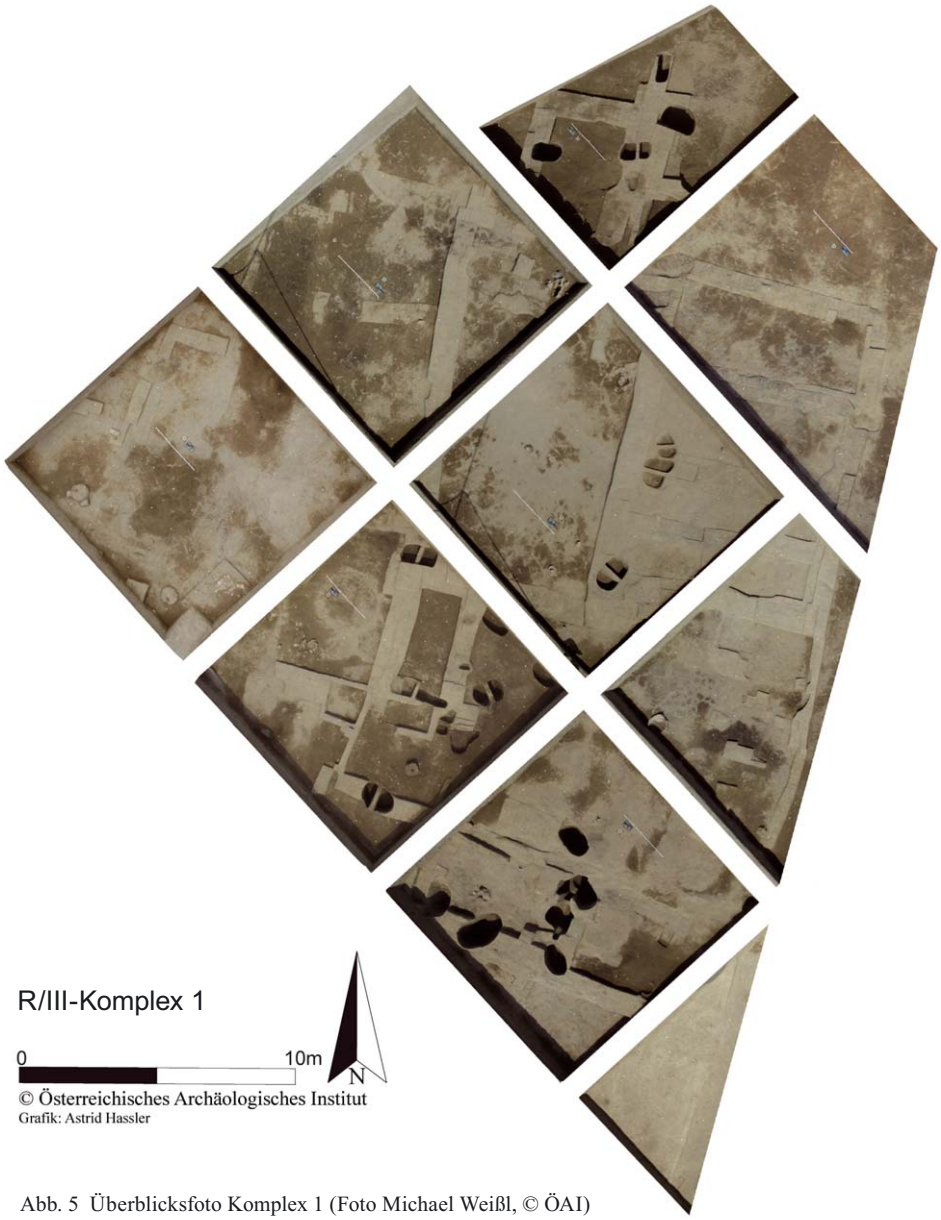


Abb. 5 Überblicksfoto Komplex 1 (Foto Michael Weißl, © ÖAI)

nicht erhaltene obere Stockwerk von Bereich A führte. Südlich davon liegt eine weitere rechteckige, aus zwei Ziegeln starken Mauern errichtete Konstruktion (R7).

Diese überdeckt eine eineinhalb Stein starke Mauer [M170], bei der es sich um eine ältere Phase der Begrenzungsmauer zu Straße 1 hin handelt.

Bereich B grenzt an den Hof 2 an und besteht aus mehreren Räumen, die nur im Westen archäologisch erfasst wurden, seine Südmauer [M64] böscht nach Süden (außen) hin ab (Abb. 7). Möglicherweise handelt es sich um die südliche Außenmauer von Komplex 1.

Bereich C kann als zentraler Verteiler bezeichnet werden, von dem man in Hof 2, Raum 10, den westlichen Bereich F des Komplexes 1 und vermutlich auch Bereich B gelangte. Am Eingang zu Raum 10 findet sich eine rechteckige, 1,39 $m^2$ große Eintiefung, in der der Abdruck einer Kalksteinplatte erhalten war (Abb. 8). Auffällig war die große Anzahl von Kalksteinfragmenten in diesem Bereich C.

Im Westen ist Hof 3 mit einem Speicher zu erkennen, das restliche Areal ist stark gestört, sodass die Zuordnung der Mauern zu einer Bauphase sehr schwierig ist.


Abb. 6 Detailfoto Bereich A in Komplex 1 (© ÖAI)

Abb. 8 Abdruck einer Kalksteinplatte vor Raum 10 (© ÖAI)

**Komplex 2**

(Abb. 3, 9)

Der mittlere Bezirk des Ostteils ist durch die beiden Straßen 1 und 2 (3,0–3,2 m) begrenzt. Zwei Hausanlagen (Gebäude 1 und 2) wurden in ihrer Gesamtheit ergraben. Die Häuser zeigen Charakteristika, die typisch für altägyptische Hausarchitektur, und auch von anderen Fundplätzen Ägyptens wie Illahun, Elephantine oder Amarna[5] be-

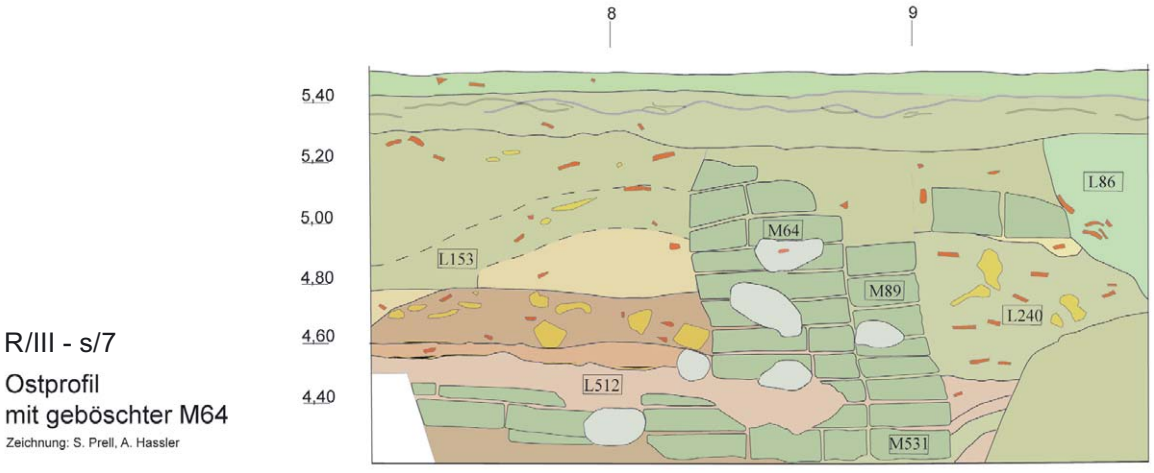


Abb. 7 Südliche Begrenzungsmauer des Komplexes 1 (© ÖAI)

[5] Bietak 1996; Ricke 1932.


Abb. 9 Überblicksfoto Komplex 2 (Foto Barbara Janulikova, © ÖAI)

kannt sind. Die Häuser bestehen aus einem Eingangsbereich, einem mittleren Teil mit einem Zentralraum und einem intimen hinteren Teil. Daran angefugt sind offene Flächen und Höfe. Im vorliegenden Fall sind die Häuser von Osten, von Straße 2 her, zugänglich. Solche Häuser haben in der Regel ein oberes Stockwerk oder zumindest ein begehbares Dach. Bei den Häusern 1 und 2 des Areals R/III wurden nur im Bereich der Eingänge Originalfußböden vorgefunden. Die erhaltenen Teile der Häuser waren vermutlich nur Substruktionen für obere Stockwerke und wurden nicht als echte Räume genutzt. Einen ungewöhnlichen Fund stellt ein Rhytongefäß in Gestalt eines Nilpferds aus Fayence dar, das in einem der Häuser (Gebäude 1) gefunden wurde (Abb. 10).[6]

Im nördlich von Gebäude 1 gelegenen Hof wurden mehrere kurzlebige Speicher errichtet, von denen zwei (S1 und S2) rekonstruiert werden konnten. Speicher 3 befindet sich im Westen und ist vom Hof durch halbe Stein starke Mauern abgetrennt.

In der SSW-Ecke des Hofes von Gebäude 4 sind drei Räume (R5–R7) mit eineinhalb Ziegel starken Mauern zu erkennen. Weiter nördlich befinden sich vier weitere Räume (R1–R4), die zum südlichen Bereich des nur teilweise ausgegrabenen Gebäudes 4 gehören. Die Außenmauern sind, wie bei Gebäude 1 und 2, zweieinhalb Ziegel stark. Der Eingang zu Gebäude 4 lag, wie bei den anderen beiden Häusern, vermutlich im Osten.

Der 85 cm breite Eingang zum Hofbereich von Gebäude 1 liegt an der Ostseite, genauer an dessen Nordende. Die ein Ziegel starken Mauern im Norden und Westen sowie die breiteren Verlängerungen der Außenmauern im Osten und Süden können als Begrenzungen des Hofes 1 (46,53 m²) mit dem Speicher 1 (ø ca. 2,2 m) sowie der Räume 1–4 (R1: 5,07 m², R2: 11,52 m², R3: 2,47 m², R4: 13,44 m²) angesehen werden. In der NNO-Ecke des Raumes 5 kann eine Treppe aus bearbeiteten Kalksteinen rekonstruiert werden (Abb. 11).

Die nördlichen und östlichen Außenmauern des Hauses sind zwei bis zweieinhalb Ziegel stark, und die östliche Mauer verläuft entlang der NNO-SSW verlaufenden Straße 2. Die Innenmauern haben eine Stärke von eineinhalb Ziegeln. Die westliche Außenmauer ist breiter (dreieinhalb Ziegel stark). Zu vermuten wäre ein Anbau der Räume 10–12 (R10: 5,1 m², R11: 2,47 m², R12: 7,25 m²) an das

Abb. 10 Rhytongefäß aus Fayence Inv.-Nr. 9587 in Form eines Nilpferdes (Foto Axel Krause, © ÖAI)

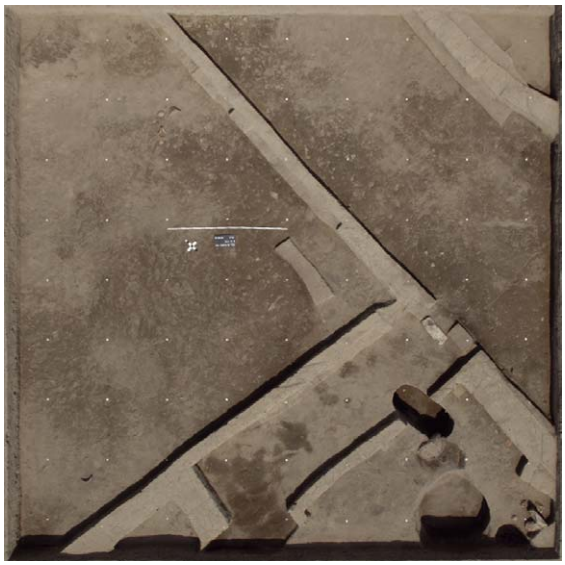

Abb. 11 Eingangssituation Gebäude 1 (Foto Barbara Janulikova, © ÖAI)

Kerngebäude mit den Räumen 5–9 (R5: 4,45 m², R6: 5,69 m², R7: 15,73 m², R8: 6,32 m², R9: 3,95 m²). Möglicherweise gehört der Anbau zu einem überdachten, separaten Wirtschaftsbereich; für diese Interpretation würde z. B. der Ofen in Raum 12 sprechen (Abb. 12).

An die südliche Außenmauer, die zwei Ziegel stark und zwei Ziegellagen hoch erhalten ist, fugt im Süden eine ein Ziegel starke Mauer an, die zu Gebäude 2 gehört. Die Nutzung der Außenmauer eines Hauses für die Bauzwecke eines weiteren ist bei gewachsenen Siedlungen nicht unüblich. Die

[6] S. unten Beitrag Prell.

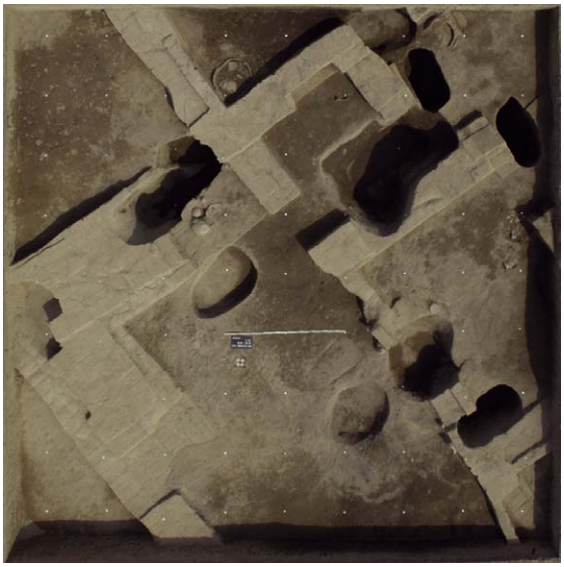

Abb. 12 Ofenraum in Gebäude 1 und Stiegenhaus in Gebäude 2 (Foto Barbara Janulikova, © ÖAI)

Verbindung von Raum 5 zu 6 ist an einer 85 cm breiten Ziegelrollschar zu erkennen und entspricht dem Haupteingang in Raum 1.

Der Grundriss von Gebäude 1 hat Parallelen zu den Hofhäusern in Elephantine (zentraler Raum, der auf mindestens zwei Seiten von kleineren Räumen umgeben ist).[7] In Elephantine konnte aufgezeigt werden, dass bei einer Mauerstärke von 50 cm und einer Tiefe des Raumes von etwa 5,27 m die Gesamtfläche einen Deckeneinzug sogar ohne Stützelemente erlaubt.[8] Wie bei Gebäude 1, dessen Außenmauern 80–94 cm und Innenmauern 67–71 cm breit sind, und das eine Raumtiefe von 5,19–2,63 m besitzt, kann ebenfalls ein Deckeneinzug und damit verbunden eine Dachnutzung oder ein oberes Stockwerk rekonstruiert werden.

Gebäude 2 ist, wie das nördlich davon anschließende Gebäude 1 im Osten (R1: 6,36 m²), von Straße 2 her zugänglich. Der Grundriss von Gebäude 2 ist aufgrund von verstärkt ausgerissenen Mauerzügen nicht vollständig zu erschließen. Es scheint aber ein anderes Grundrissschema als bei Gebäude 1 vorzuliegen. So fehlt der zentrale Raum, ferner findet sich das Stiegenhaus (R7) von Gebäude 2 in der NNW-Ecke. Seine Treppe kann als mehrläufige und halbgewendelte Konstruktion interpretiert werden. Die Fläche des südlich davon gelegenen Hofbereichs (28,88 m²) ist kleiner als die von Gebäude 1. Möglicherweise war die Bebauungsfläche durch Gebäude 5 im Süden bereits eingeschränkt. Die Räume 2–5 und 8–9 (R2: 6,42 m², R3: 7,65 m², R4: 20,7 m², R5: 24,9 m², R8: 7,18 m², R9: 9,28 m²) scheinen in vier Längsstreifen angeordnet zu sein.

Gebäude 5 wird durch einen länglichen Raum von Gebäude 2 abgegrenzt, der entweder als ein zum Gebäude zugehöriger Raum oder als kleine Gasse (Straße 5) definiert werden kann. Im Osten wurde ein Gebäude aus zwei Ziegel starken Mauern angeschnitten (R1: 35,34 m²) und im Westen ein Hof mit einem Speicher (ø ca. 2,6 m) und Räumen (R2–R5) aus ein Ziegel starken Mauern.

**Komplex 3**

(Abb. 3, 13)

Bei der östlichen Bebauung von Komplex 3 handelt es sich um einen domestischen Stadtteil mit dichter Wohnbebauung. Der östliche Bezirk stellt ein typisches Wohnviertel von Avaris dar, das dem für die Stadt üblichen Siedlungsmuster folgt. Nach Osten und Süden hin ändert sich das Besiedlungsmuster: es wird immer kleinteiliger, und die Häuser sind voneinander durch Nebenstraßen getrennt (Straßen 3 und 4), die von der Hauptstraße (Straße 2) im rechten Winkel abzweigen. Diese Nebenstraßen sind gleich breit (1,4–1,55 m).

Im Gegensatz zu dem mutmaßlichen Verwaltungsbezirk im Westen gab es hier Bestattungen. Dieses Phänomen, die Mischung aus funerärem und domestischem Bereich, ist aus anderen Arealen von Tell el-Dabᶜa bekannt und typisch für Avaris im Späteren Mittleren Reich und der Zweiten Zwischenzeit. Dieser Bereich wurde nur in den obersten Schichten untersucht, um ein Bild des Stadtplans östlich von Straße 2 zu erhalten.

Insgesamt konnten fünf Gebäude erkannt werden (Gebäude 3, 6–9).

Gebäude 3 wurde in seinem Südbereich freigelegt. Die Strukturen sind, ungewöhnlich für den Grabungsplatz Tell el-Dabᶜa, bis zu 1,5 m hoch erhalten. Das Haus wird im Norden von Straße 2 aus über eine Treppe aus Lehmziegeln betreten. Diese Treppe wurde im Verlauf der Nutzung des Hauses mindestens zweimal erneuert (Abb. 14).

Es ist deutlich zu erkennen, dass das Nutzungsniveau der Straße rascher gewachsen ist als das innerhalb des Hauses (Abb. 15). Der Gehniveau-

[7] Pilgrim 1996, 196ff., Abb. 85.

[8] Pilgrim 1996, 201f.

unterschied zwischen zeitgleichen Horizonten der Straße 2 und den Fußböden des Gebäudes 3 beträgt bis zu einem Meter. Dies ist ein Phänomen, das auch noch heute in den modernen Dörfern zu beobachten ist.


Abb. 13 Überblicksfoto Komplex 3 (Foto Barbara Janulikova, © ÖAI)

Abb. 14 Lehmziegeltreppe in Gebäude 3 innerhalb Komplex 3 (Foto Michael Weißl, © ÖAI)

Gebäude 3 erinnert in seinem Grundriss an Gebäude 1 in Komplex 2. Im Norden liegt ein rechteckiger, nicht vollständig ergrabener Raum (R1), von dem man in den weiteren Teil des Hauses (R2) gelangt. Von Raum 2 wird der fast rechteckige Raum 3 (5,18 m²) über einen 88 cm breiten Eingang betreten. Bei R4 und R5 handelt es sich möglicherweise nicht um eigene Räume, sondern um den hinteren Bereich von Raum 2, der durch eine halbe Ziegel starke Mauer abgeteilt ist.

Nach dem Auflassen des Gebäudes wurde in Raum 2 (Hof?) ein Grab [L1138] angelegt (Abb. 16).

Gebäude 9 wurde nur in seiner SW-Ecke freigelegt. Der Bereich zwischen Gebäude 3 und 9 war ursprünglich offen, in dieser Phase sind Gehhorizonte zu erkennen, und wurde später durch eine ondulierende Mauer [M619] zur Straße 3 hin abgemauert.

Im Süden werden die beiden Gebäude 3 und 9 von einer WNW-OSO verlaufenden, eineinhalb Ziegel starken Mauer [M613] eingefasst, die im Osten nach Norden abknickt. Diese Mauer bildet gleichzeitig die südliche Begrenzung von Straße 3. An diese Mauer angefugt liegt im Süden eine Anlage (Gebäude 6) mit einer Reihe von mindes-

Abb. 15 Begehungsniveauunterschied zwischen Straße 2 und Nutzungshorizonten des Gebäudes 3 (Foto Irene Forstner-Müller, © ÖAI)


Abb. 16 Grab [L1138] (Foto Irene Forstner-Müller, © ÖAI)


Abb. 17 Siegelabdruck des Hyksoskönigs Chajan, Inv.-Nr. 9464 (Foto Axel Krause, © ÖAI)


Abb. 18 Siegelabdruck des Wesirs Djedptah Dedetuseneb, Inv.-Nr. 9525V (Foto Axel Krause, © ÖAI)

tens vier Räumen (R1–R4) von unterschiedlicher Größe, die Räume 1 und 3 sind annähernd quadratisch.

Südlich davon verläuft Straße 4. Diese ist im Süden von einer schmalen, einhalb Ziegel starken, WNW-OSO verlaufenden Mauer [M617] begrenzt. Diese Mauer ist gleichzeitig die Nordfassadenmauer des Gebäudes 7. Gebäude 7 wurde nur im oberen Bereich erfasst, es besteht aus mindestens fünf Räumen. Im Süden des Hauses fugt das nächste Gebäude, Gebäude 8, an.

## Die Siegelabdrücke von Avaris und der Hyksosherrscher Chajan

In Areal R/III wurde eine große Anzahl von Siegelabdrücken gefunden. Die Hauptzahl der geborgenen Abdrücke besteht aus Stempelsiegeln mit ägyptischen und vorderasiatischen Motiven. Darunter fand sich eine Reihe von Siegelabdrücken, die den Namen von König Chajan tragen (Abb. 17).[9]

Weitere Siegelabdrücke, die mit diesem Königsnamen versehen sind, fanden sich bisher nur in einem anderen Areal von Avaris, der palatialen Anlage in F/II.[10] Dies ist von historischer Bedeutung, da erstmals nachgewiesen werden konnte, dass dieser bedeutende Hyksosherrscher nicht, wie bisher angenommen, in der zweiten, sondern bereits in der ersten Hälfte der Zweiten Zwischenzeit anzusetzen ist.[11] Neben den königlichen Siegelabdrücken fanden sich auch solche mit Beamtennamen, etwa dem eines Vezirs aus der 13. Dynastie (Abb. 18).[12]

## Nubische Keramik

In diesem Stadtteil fand sich auch ein im Vergleich zu anderen Vierteln hoher Anteil an nubischer Keramik. Nubische Keramik tritt, wie generell in Avaris, ausschließlich im domestischen, niemals im funerären Kontext auf. Unter anderem finden sich auch Fragmente von Kermabechern. Diese sind außerhalb von R/III auch in ‘Ezbet Helmi und F/II gefunden worden.[13]

[9] Die Siegelabdrücke des Areals R/III werden von Chiara Reali im Rahmen einer Dissertation an der Universität Wien bearbeitet. S. auch Reali 2012/2013, 67–74.

[10] Sartori 2009, 281–292.

[11] S. Forstner-Müller/Rose 2012/2013, 62; Reali 2012/2013, 69–70, fig. 4–9; Forstner-Müller/Reali, im Druck.

[12] Die Siegelabdrücke mit Beamtennamen werden von Marcel Marée (British Museum) bearbeitet; Marée 2012/2013, 76, Abb. 2A+B.

[13] Zum Forschungsstand der nubischen Keramik des Areals R/III bis 2010 s. Forstner-Müller/Rose 2012 mit weiterführender Literatur. Inzwischen sind noch weitere Fragmente zum Vorschein gekommen, diese werden von Pamela Rose und Vera Michel bearbeitet.

Abb. 19 Nubisches Keramikfragment, Inv.-Nr. 9478P, aus R/III-r/5, Locus [L31] (Foto Axel Krause, © ÖAI)


Abb. 20 Teil einer Fayencekachel mit Königsnamen Inv.-Nr. 9478A (Zeichnung Sarah Baumert, © ÖAI)

Das durchgehende Auftreten dieser Keramik in Fundkontexten der 15. Dynastie in Avaris bestätigt die Beziehungen zwischen den Hyksosherrschern der 15. Dynastie im Norden und dem Königreich von Kerma während der Zweiten Zwischenzeit, die durch historische Quellen überliefert sind, auch innerhalb der materiellen Kultur.[14]

-IFM, VM-

## Die Kleinfunde des Areals R/III

Zu den herausragendsten Fundstücken des Areals R/III gehört sicherlich das Fayence-Nilpferdrhyton Inv.-Nr. 9587, die an gleicher Stelle gefundene Patrix eines Nilpferdes mit Jungtier (Inv.-Nr. 9588) sowie das Auge einer weiteren Nilpferdfayence (Inv.-Nr. 9654E), die an anderer Stelle publiziert werden.[15]

Als weiteres außergewöhnliches Objekt soll eingangs das Bruchstück einer Fayenceeinlage oder einer kleinen Kachel mit Teilen eines nicht erhaltenen Königsnamens (Inv.-Nr. 9478A) vorgestellt werden (Abb. 20). Teile des originalen Randes der Kachel sind vorhanden, erhalten ist die Biene, unter ihr ist eine Brot-Hieroglyphe abgebildet. Da das Objekt in einer Model abgedrückt wurde, ist nicht von einer Datierung in die Zweite Zwischenzeit auszugehen, weil das Abformen von Objekten in einer Matrize erst in der 18. Dynastie eingeführt wird.[16] So entstammt das Objekt auch einer Grube, die in die früheren Schichten einschneidet.[17] Insgesamt ist für das Areal R/III eine Vermischung mit späterem Material unterschiedlicher Zeitstellung anzunehmen, einige Planquadrate sind durch große Grubensysteme gestört,[18] in denen auch ramessidische Keramik zutage getreten ist. Einige Funde aus dem Areal könnten zudem auf die 18. Dynastie verweisen (s.u.). [19] Zugehörige spätere Siedlungsschichten sind allerdings nicht erhalten, sofern sie einst überhaupt vorhanden waren.[20]

Das Fundgut (insgesamt 541 Objekte) beschränkt sich größtenteils auf Artefakte aus Knochen, wie plankonvexe Knöpfe, Einlagen oder Knochenspitzen, einfache handgeformte Statuetten von Menschen und Tieren, Spielsteine aus Fayence, Keramik oder ungebranntem Lehm, wenige Bronzeartefakte, zumeist Rundstifte oder Vierkante, aber auch Fragmente von Knebelkopfnadeln, einige Fayencegefäßbruchstücke, wenige

[14] Zur Interpretation der „Nubier in Avaris“ s. zuletzt zusammenfassend mit weiterführender Literatur Matić 2014. Zu möglicherweise aus Kerma importierten Fayencegefäßen vgl. den folgenden Abschnitt von Prell in diesem Beitrag.

[15] Die Objekte werden in einem Artikel von Forstner-Müller/Prell veröffentlicht, der in der Gedenkschrift Kaiser, einer Publikation des DAI, erscheinen wird. Für eine Abbildung des Rhytons vgl. Forstner-Müller 2014a, 37, Abb. 10 sowie Abb. 10 in diesem Beitrag.

[16] Vgl. Lucas/Harris 1962, 158 und Nicholson/Shaw 2000, 182. In ‘Ezbet Helmi wurden zahlreiche aus der 18. Dynastie stammende Fayencekacheln aufgefunden, die allerdings undekoriert sind bzw. mit Einlagen aus Kalzit verziert waren, vgl. Bietak *et al*. 2001, 101 mit Abb. 53. Die zahlreichen aus H/V stammenden Fayencekachelfragmente sind derzeit noch unbearbeitet. Für Fayencekacheln aus Qantir, z. T. ebenfalls mit Kalziteinlagen versehen, vgl. Müller 1981, 339–357. Für zugehörige Model vgl. Hamza 1930, 58–62. Für ein deutlich größeres Exemplar mit *njsw.t-bitj* Namen aus Qantir vgl. Ziegler 2004, 184, Nr. 81.

[17] L153 in Planquadrat s/7.

[18] Besonders Planquadrate p/7, s/5 und s/8.

[19] Zu Silexartefakten aus der frühen 18. Dynastie vgl. auch den Abschnitt von Jeuthe in diesem Beitrag.

[20] Vgl. Forstner-Müller/Rose 2012/2013, 66.

Steingefäßfragmente sowie Objekte aus ungebranntem Lehm von unbekannter Funktion. Davon sollen in diesem Beitrag nur die größeren Gruppen sowie einige besondere Objekte vorgestellt werden. Da die detaillierte Auswertung der Stratigraphie des Areals noch nicht abgeschlossen ist, wurden für diese Publikation Gesamtkartierungen angefertigt, welche Stücke aus allen, auch den gestörten archäologischen Schichten beinhalten. Der Großteil der Objekte in gesichertem archäologischen Zusammenhang ist den Straten D/3–D/2 zuzuweisen, lediglich aus dem Tiefschnitt in Planquadrat r/5 liegen auch einige Kleinfunde aus früheren Straten (E/1–E/2) vor.[21]

## Statuetten

### *Menschen*

11 menschliche Statuettenteile wurden in R/III gefunden, davon sind vier sicher als weiblich anzusprechen, weitere fünf scheinen männlich zu sein, bei zwei weiteren ist das Geschlecht unklar (Kartierung 1). Als Material tritt Keramik am häufigsten auf, ein Statuettenärmchen mit Hand besteht aus ungebranntem Lehm, ein mögliches Statuettenbeinchen wurde aus Knochen geschnitzt. Die Objekte aus Keramik sind relativ grob mit den Fingern geformt. Bemerkenswert ist Inv.-Nr. 9469J, bei der es sich um den Torso eines sitzenden Man-


Kartierung 1 Gesamtverteilung aller in R/III aufgefundenen Statuetten

[21] Die Publikation des Tiefschnittes durch I. Forstner-Müller und V. Michel ist in Vorbereitung.

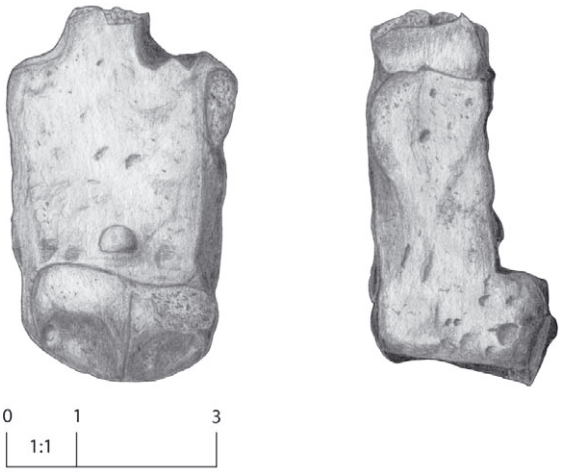


Abb. 21 Statuettentorso Inv.-Nr. 9469J (Zeichnung Sarah Baumert, © ÖAI)


Abb. 22 Statuettenkopf Inv.-Nr. 9656V (Foto Silvia Prell, © ÖAI)

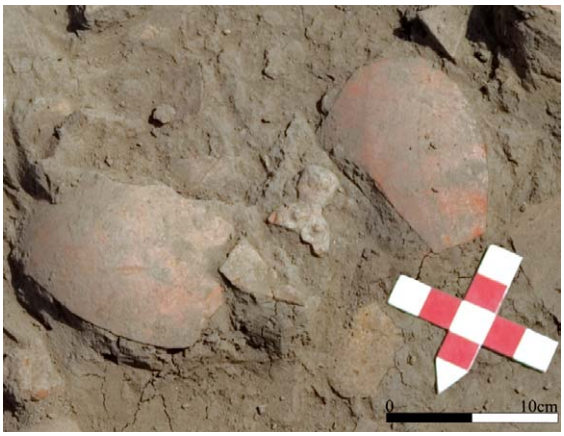


Abb. 23 Oberteil der Frauenstatuette Inv.-Nr. 9653O in Scherbenansammlung [L982] (Foto Irene Forstner-Müller, © ÖAI)

nes handelt (Abb. 21), der in der Straßenverfüllung von Straße 1 aufgefunden wurde.[22] Aus derselben Straße ist ein weiterer Torso bekannt (Inv.-Nr. 9471O). Bei zwei abgerissenen Statuettenköpfen scheint es sich ebenfalls um Teile von männlichen Statuetten zu handeln. Bei Kopf Inv.-Nr. 9656V sind die Haare durch zahlreiche kleine Einstiche verdeutlicht, die Augen sind durch aufgesetzte Tonklümpchen angegeben (Abb. 22).

Zu nennen ist des Weiteren das Oberteil einer Frauenstattuette (Inv.-Nr. 9653O). Augen und Brüste sind aufgesetzt sowie eine Verzierung aus Einstichen und Rillen aufgebracht, die offenbar eine Art Körperschmuck wiedergibt (Abb. 23). Das Objekt wurde in einer Scherbenansammlung aufgefunden,[23] die außer verschiedenen Gefäßfragmenten auch das Hinterteil eines Fischgefäßes (Inv.-Nr. 9653N) barg.[24]

Der Großteil der menschlichen Statuetten stammt aus unsicheren archäologischen Kontexten. Dies und die vergleichsweise geringe Anzahl lassen nicht wirklich ein Verteilungsmuster erkennen. Es ist jedoch zu bemerken, dass aus Komplex 1 im Westen lediglich eine Statuette bekannt ist, die zudem dem Ackerboden entstammt.

*Tiere*

Insgesamt wurden 31 Fragmente von Tierstatuetten geborgen, die größtenteils relativ grob mit den Fingern in Form gebracht sind (Kartierung 1).[25] An Materialien treten ungebrannter Lehm sowie Keramik auf, außerdem ist ein zerbrochenes Froschfigürchen aus Fayence bekannt (Inv.-Nr. 9660O). Insgesamt gesehen ist aufgrund der relativ nachlässigen Herstellungsweise sowie der schlechten Erhaltung die Tierart nur selten genau zu bestimmen. Bei Inv.-Nr. 9470W (Abb. 24) handelt es sich um das Figürchen eines Krokodils, das aus dem Tiefschnitt in Planquadrat r/5 stammt [L310]. Das Stück ist dem Stratum D/3 zuzuweisen.[26] Ein weiteres Krokodil könnte sich hinter Inv.-Nr.

[22] [L395] in Planquadrat q/6–7.

[23] [L982] in Planquadrat q/7.

[24] Bei zwei weiteren Objekten aus R/III (Inv.-Nr. 9655E und 9659E) könnte es sich jeweils um den abgebrochenen Schwanz eines ähnlichen Gefäßes handeln. Vgl. Forstner-Müller 2008, 348f., Nr. 4 für ein weiteres Fischgefäß (Stratum D/2) sowie Maguire 2009, 140f., Nr. 232 für einen zypriotischen Import.

[25] Bei acht Fragmenten ist es unsicher, ob es sich tatsächlich um Teile von Tierstatuetten handelt.

[26] Für die vorläufige Stratenzuweisung der Objekte aus dem Tiefschnitt sei Vera Michel herzlich gedankt.

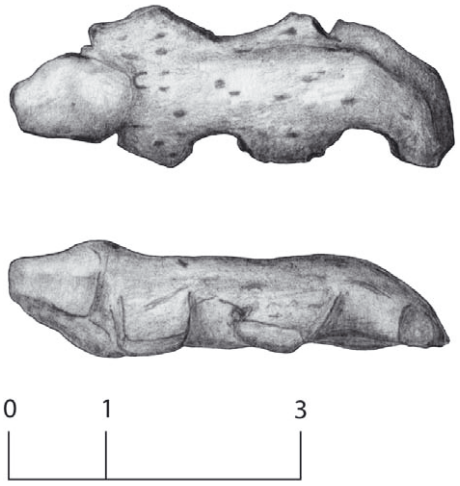


Abb. 24 Krokodilstatuette Inv.-Nr. 9470W (Zeichnung Sarah Baumert, © ÖAI)

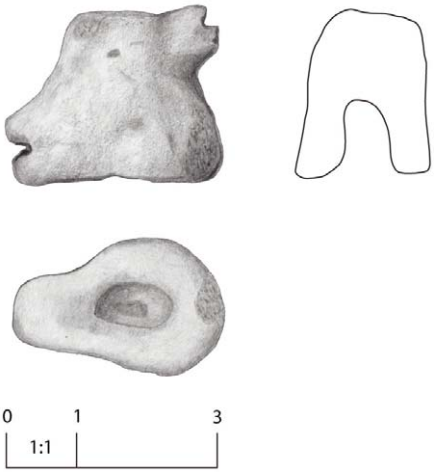


Abb. 26 Aufsatz in Form eines Kalbskopfes Inv.-Nr. 9470F (Zeichnung Sarah Baumert, © ÖAI)


Abb. 25 Huf einer Rinderstatuette Inv.-Nr. 9526I (Foto Axel Krause, © ÖAI)

9654J verbergen, für eine gesicherte Zuweisung ist das Objekt jedoch zu fragmentiert. Bei Inv.-Nr. 9661X scheint es sich um den Kopf eines Falken zu handeln, zwei weitere, nicht mit dem Kopf in Verbindung zu bringende Stücke könnten Vogelkrallen sein. Ein Objekt aus ungebranntem Lehm könnte einen Fischschwanz darstellen. Bei 12 Exemplaren sind nur der Torso oder Teile des Torsos eines Quadrupeden erhalten, drei von ihnen sind anhand der Ausprägung des Schwanzes als Pferde anzusprechen. Zudem sind acht Köpfe von Tierstatuetten und zwei abgebrochene Hörner bekannt, die keiner bestimmten Spezies zugeordnet werden können.

Um ein relativ qualitätvoll ausgeführtes Objekt aus feinem Mergelton handelt es sich bei Inv.-Nr. 9526I, einem abgebrochenen Rinderhuf (Abb. 25) aus dem Tiefschnitt in Planquadrat r/5 (aus Mauer [M267]), der einer früheren Belegungsphase des Areals (Stratum (E/2–)E/1) zuzuordnen ist. Die Details des Hufes sind in feiner Ritzverzierung verdeutlicht.

Bei Inv.-Nr. 9470F (Abb. 26) handelt es sich in dem Sinne nicht um eine Tierfigur. Wohl den Kopf eines Kalbes wiedergebend, ist die Unterseite des Halses ausgehöhlt – bei dem Stück scheint es sich also um einen Aufsatz unbekannter Funktion zu handeln.

Nur etwas mehr als die Hälfte der Objekte stammt aus gesichertem stratigraphischen Zusammenhang. Dennoch fällt bei Betrachtung der Gesamtverteilung auf, dass sich die Objekte auf Komplex 1 und 2 konzentrieren, Straße 1 jedoch völlig fundfrei ist. Aus den Schichten von Straße 2 sind zumindest drei Funde bekannt. In Komplex 1 konzentrieren sich die Tierstatuetten fast ausschließlich auf Planquadrat r/5, während sie in Komplex 2 relativ gleichmäßig verteilt sind. Aus dem östlichen Komplex liegen nur vier Tierfiguren vor, von denen zwei allerdings dem Ackerboden entstammen, eine weitere kommt aus einer Verbruchsschicht. Auch das singulär auftretende, bereits erwähnte Fayencefigürchen eines Frosches trat in gestörten archäologischen Schichten zutage. Tierfiguren scheinen also in Komplex 3 eine untergeordnete Rolle gespielt zu haben.

**Knochenartefakte**

Außer dem oben bereits angesprochenen möglichen Statuettenbeinchen sind aus R/III weitere 32 Knochenartefakte zu nennen (Kartierung 2). Hervorzuheben ist Inv.-Nr. 9469B, ein Entenkopf (Abb. 27), der als Teil eines Löffels anzusprechen ist und einst den Abschluss des Stiels bildete. Leider stammt er aus gestörtem archäologischen Kontext, Vergleichsstücke datieren in die 18. Dynastie.[27] Bei Inv.-Nr. 9473D könnte es sich um den Schnabel eines vergleichbaren Objektes handeln.

Aus R/III liegen auch fünf plankonvexe Knöpfe mit zentraler Durchbohrung vor, die eventuell als Zierde von Kistchen oder Teile von zugehörigen Knäufen zu interpretieren sind. Sie können, wie 9469D+E, mit Ritzverzierungen versehen sein oder sind, wie Inv.-Nr. 9653C, mit einer Kombination aus Kreis-Punkt-Muster dekoriert (Abb. 28), das mit dem Hohl- bzw. Drillbohrer angebracht wurde.[28] Teile von zwei länglichen, flachen Einlagen, ebenfalls mit einem Kreis-Punkt-Dekor versehen, könnten ebenfalls zu Kistchen gehören.[29]


Kartierung 2 Gesamtverteilung aller in R/III aufgefundenen Knochenartefakte

[27] Vgl. Wallert 1967, Tf. 10. Für ein weiteres Exemplar ohne Provenienz vgl. Bénédite 2005, Tf. XIII.C (CG45003).

[28] Vergleichsstücke sind nicht bekannt. Nach der Form könnte es sich um die Abschlussscheiben eines Streitwagens handeln, die zumindest beim Streitwagen in Florenz aus Holz, eventuell sogar aus Knochen bestehen, vgl. Herold 2006, 30. Der Durchmesser der aus Qantir belegten, steinernen Exemplare rangiert unterhalb von 5 cm, die aus R/III stammenden Objekte sind mit einem Durchmesser zwischen 2,0–2,6 cm allerdings deutlich kleiner. Ein ähnlich ausgeformter Knopf aus Fayence (Inv.-Nr. 9650C), mit schwarzen Doppellinien dekoriert, findet ein Vergleichsstück in Qantir, vgl. Herold 2006, 216, Nr. 219. Aus Knochen bestehende Objekte liegen aus Qantir allerdings nicht vor.

[29] Vgl. Ben-Tor 2012/2013, 324, Abb. 2d oder Andreu 2002, 79, Nr. 8.

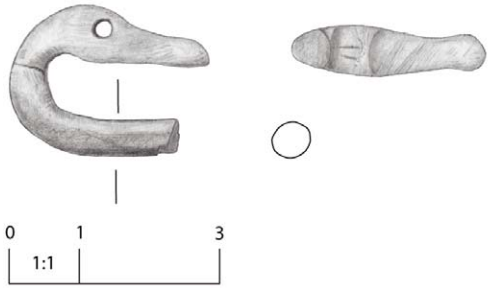


Abb. 27 Abschluss eines Löffelstiels (Inv.-Nr. 9469B) mit Ansicht der Bearbeitungsspuren auf der Unterseite des Schnabels (Zeichnung Sarah Baumert, © ÖAI)

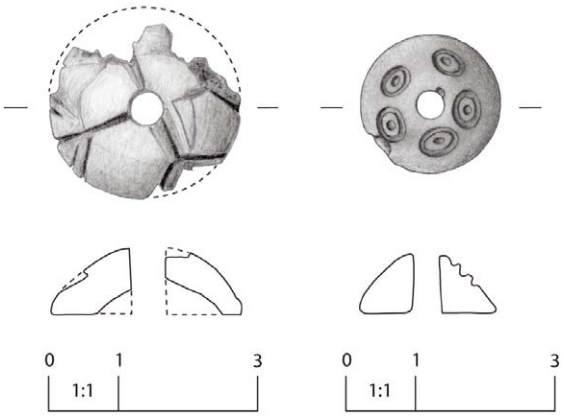


Abb. 28 Plankonvexer Knopf aus Knochen Inv.-Nr. 9469D+E (Zeichnung Sarah Baumert, © ÖAI) sowie plankonvexer Knopf Inv.-Nr. 9653C (Zeichnung Silvia Prell, © ÖAI)

Bei fünf Knochenspitzen mit einem Durchmesser zwischen 0,4 und 0,45 cm dürfte es sich um Teile von Nadeln oder Ahlen handeln, ein weiteres Objekt mit einem maximal erhaltenen Durchmesser von 0,6 cm (Inv.-Nr. 9651A) könnte eine Geschossspitze darstellen.[30] Weitere sieben Knochenstifte mit rundem Querschnitt sind ebenfalls als Fragmente von Nadeln anzusprechen, deren Spitzen nicht erhalten sind. Der Durchmesser beträgt in der Regel 0,4 cm, einmal sind auch 0,3 und 0,55 cm belegt. Des Weiteren wurden sechs Werkstücke aus Knochen geborgen, die klare Bearbeitungsspuren aufweisen, deren Funktion aber nicht bestimmt werden kann. Bei ihnen könnte es sich um Halbfabrikate handeln. Außerdem liegen zwei Kohlstäbe sowie Teile eines Stabes mit Ritzdekor aus R/III vor. Bei einem weiteren Fragment mit Ritzverzierung könnte es sich um Teile eines Amuletts handeln.

Bis auf einen Ausreißer jeweils in Komplex 1 und 3 beschränkt sich das Auftreten von Knochenspitzen und -stiften auf Komplex 2, wo sie relativ gleichmäßig verteilt sind. Auch insgesamt gesehen konzentrieren sich die Knochenartefakte auf den mittleren Komplex, ohne dass der Grund hierfür bekannt wäre.

## Bronzeartefakte

In R/III wurden insgesamt 31 bronzene Objekte geborgen (Kartierung 3).[31] Bei sechs Exemplaren handelt es sich um Fragmente von Knebelkopfnadeln,[32] die als Gewandverschluss anzusprechen sind. Keine von ihnen ist vollständig, als Beispiel sei das am besten erhaltene Exemplar Inv.-Nr. 9658F vorgestellt (Abb. 29).

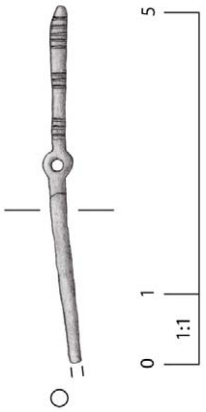


Abb. 29 Knebelkopfnadel Inv.-Nr. 9658F (Zeichnung Silvia Prell, © ÖAI)

Außerdem sind fünf Bronzenadeln oder Nagelschäfte bekannt, die sich auf einer Seite zur Spitze verjüngen. Ferner liegen acht Fragmente von einfachen bronzenen Rundstiften vor. Bei Inv.-Nr. 9527I könnte es sich um einen nicht durchlochten Rohling für eine Knebelkopfnadel handeln, da der Rundstift an einer Stelle flach geklopft ist. Letzterer wurde im Tiefschnitt in Planquadrat r/5 [L567] geborgen und ist einer früheren Belegungsphase zuzurechnen (Stratum E/2). Vier Vierkante wurden in R/III angetroffen, hinzu tritt ein Vierkant,

[30] Vgl. Prell 2011, 65–71 mit Abb. 17, 19 und 23.

[31] Hinzu treten zwei Bronzeklümpchen, bei denen es sich wohl um Gussreste handelt.

[32] Vgl. Philip 2006, 95–99. Sie datieren ab Phase E/3 und später. Mit ovoider Durchlochung treten sie nicht später als Phase E/2 auf. Zur Verbreitung der Nadeln in Ägypten und der Levante ebenda, 158–161.


Kartierung 3 Gesamtverteilung aller in R/III aufgefundenen Metallartefakte

der auf einer Seite zur Spitze ausgeschmiedet wurde (Inv.-Nr. 9471U), allerdings dem Abtrag des Ackerbodens entstammt. Des Weiteren liegen zwei Stücke Bronzedraht, ein Messerfragment, drei Blechreste und ein Angelhaken (Inv.-Nr. 9661M) aus R/III vor.[33]

Die drei Knebelkopfnadeln im Süden sowie die Nadel im Norden von Komplex 2 stammen aus unsicheren archäologischen Schichten, aus Komplex 1 ist überhaupt kein Exemplar bekannt. Die einfachen Bronzespitzen treten in Komplex 1 und 2 auf, aber nicht im Osten. Bis auf ein Objekt in Planquadrat p/9, das allerdings dem Ackerboden entstammt, wurden in Komplex 3 ebenfalls keine Rundstifte geborgen. Die beiden im Osten angetroffenen Vierkante sind ohne gesicherten archäologischen Zusammenhang. Insgesamt ist also zu bemerken, dass aus Komplex 3 lediglich wenige Bronzeartefakte vorliegen.

## Perlen

### *Fayence und Ägyptisch-Blau*

In Areal R/III wurden insgesamt 165 Fayenceperlen aufgefunden (Kartierung 4), die, wie sonst in Tell el-Dabᶜa häufig, nicht aus verworfenem funerären Kontext stammen, da in dem Areal nur vergleichsweise wenige Gräber angetroffen wurden.[34] Insgesamt sind neun Grablegen bekannt, darunter einfache Grubengräber, kleine Kammergräber oder Amphorenbestattungen von Kindern. Alle Gräber waren gestört. Bis auf drei waren alle entweder beigabenlos oder aber vollständig ausgeraubt. In zwei Grablagen fand sich ein Krüglein

[33] Vgl. Philip 2006, 122f.

[34] Vgl. dazu auch den Beitrag von Forstner-Müller und Michel mit Abb. 16 (Grab L1138).


Kartierung 4 Gesamtverteilung aller in R/III aufgefundenen Perlen (Fayence, Ägyptisch-Blau, Stein) sowie Anhänger

als Beigabe ([M292/L603] und [L324], beide in Planquadrat r/5). Bei [L1512] in Planquadrat p/6 waren zumindest noch die Reste einer Kette aus Fayencescheibenperlen, ein Skarabäus, zwei Kohlgefäße sowie mehrere Krüglein vorhanden.

Die Fayenceperlen weisen insgesamt eine schlechte Erhaltung auf, die Glasur ist in der Regel vollständig abgewittert und die ehemalige Farbe nur noch selten zu bestimmen. Bei manchen Exemplaren sind jedoch Reste schwarzer Bemalung zu bemerken.

Insgesamt wurden 37 Kugelperlen aufgefunden, die mit dem Durchmesser zwischen 0,4 und 1,3 cm sehr unterschiedlich in der Größe sind. Außerdem sind 21 Rippenperlen bekannt, von denen eine (Inv.-Nr. 9469A) noch Reste roter Glasur zeigt.[35] Die Durchmesser betragen 0,7–1,55 cm, sie können, je nach Größe und Ausführung, zwischen fünf und neun Rippen aufweisen.[36] Eine Rippenperle ist beidseitig mit Noppen rund um die Durchlochung versehen und mohnkapselförmig ausgeprägt (Inv.-Nr. 9657M).[37]

[35] Reste von rötlicher Glasur eventuell auch bei Inv.-Nr. 9660A. Rot glasierte Fayence tritt durchaus schon vor dem Neuen Reich auf, die Technik wird aber im Verlaufe des Neuen Reiches perfektioniert und die endgültige Farbgebung stabilisiert, s. Kaczmarczyk/Hedges 1983, 168 sowie A.93. Zur Färbung wird Mangan eingesetzt.

[36] Vgl. Forstner-Müller 2008, 251–253, Nr. 3 für eine Ketten-Kombination aus Kugel- und Rippenperlen aus Stratum E/1.

[37] Die in der hier gestörten Straßenverfüllung aufgefundene Perle ([L1163] in Planquadrat s/8) findet ein Vergleichsstück in einer Stampfgrube des Stratums D/3 im Areal A/II, s. Bietak 1991, 268, Abb. 238. Nr. 2.

In R/III traten auch 30 Scheibenperlen zutage, die sich relativ gleichmäßig über das Areal verteilten.[38] Sie haben einen Durchmesser von 0,5–1,3 cm und eine Dicke von 0,2–0,45 cm, fallen also, wie die anderen Perlen, in der Größe recht unterschiedlich aus.

Des Weiteren sind 57 Röhrenperlen bekannt, eine davon ist noch mit flächigen Resten der ehemals roten Glasur versehen (Inv.-Nr. 9648B), eine ist nahe des erhaltenen Randes umlaufend eingeschnürt (Inv.-Nr. 9527A), die anderen weisen eine einfache zylindrische Form auf. Sie stellen entweder Bestandteile von Ketten oder mehrreihigen Halskragen dar.[39] Häufig sind sie zumindest an einem Ende gebrochen, vollständig erhaltene Exemplare können bis zu 2,4 cm lang sein, die Durchmesser rangieren zwischen 0,4 und 0,65 cm. Eine Röhrenperle scheint mit roter Bemalung versehen gewesen zu sein (Inv.-Nr. 9655O). Bei zwei Exemplaren sind noch Spuren schwarzer Bemalung auszumachen, die umlaufend spiralförmig aufgebracht war.[40] Eine vergleichbare schwarze Bemalung findet sich auch bei vier der sechs Stabperlen, die den Röhrenperlen ähnlich sind, aber größer und massiver ausfallen und sich beidseitig zu den Enden hin verjüngen.

Außerdem traten in R/III zehn Tonnenperlen aus Fayence zutage. Lediglich eine davon (Inv.-Nr. 9653T) zeigt Reste von schwarzer Bemalung, die anderen scheinen undekoriert gewesen zu sein. Zusätzlich sind zwei linsenförmige Perlen sowie jeweils eine tropfen- und eine palmettenförmige zu nennen. Hervorzuheben ist ein kleiner rechteckiger Kettenschieber (Inv.-Nr. 9660F), der ebenfalls rot glasiert ist und eine beidseitige Rillenverzierung aufweist.

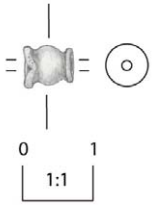


Abb. 30 Perle Inv.-Nr. 9469U aus Ägyptisch-Blau (Zeichnung Sarah Baumert, © ÖAI)

Insgesamt sind aus R/III fünf Perlen bekannt, die aus Ägyptisch-Blau bestehen. Inv.-Nr. 9469U ist mohnkapselförmig (Abb. 30), bei den anderen handelt es sich um einfache Röhrenperlen. Die Ägyptisch-Blau-Perlen sind alle nahezu unversehrt, die Röhrenperlen weisen Längen und Durchmesser von 0,4–0,8 cm auf.

Insgesamt verteilen sich die verschiedenen Gruppen der Fayenceperlen relativ gleichmäßig über das Areal, wobei auffällt, dass einige Planquadrate nur wenige Fayenceperlen zutage gefördert haben und mehrere Räume völlig fundfrei waren, was darauf hindeuten könnte, dass es sich um weniger frequentierte Bereiche handelte. Auch konzentrieren sich die Perlen nicht in den Planquadraten, aus denen Gräber bekannt sind, sodass, wie oben bereits angemerkt, nicht von einem funerären Kontext auszugehen ist, sondern die Perlen einfach verloren wurden oder bereits in dem Material enthalten waren, das als Füllschicht eingebracht wurde bzw. aus den späteren Störungen stammt. In die Straßenschichten können sie eingetreten worden sein. Eine Röhrenperle (Inv.-Nr. 9652L) wurde in einem Gefäß aufgefunden, das in eine Grube gesetzt war.[41] Mehrere Perlen stammen auch aus dem Tiefschnitt in Planquadrat r/5 und sind einer früheren Belegungsphase zuzurechnen (Übergang E/1 zu D/3). Größtenteils wurden sie in ein und derselben Schicht angetroffen [L261]. Es ist unklar, ob sie zu einer Kette gehörten, da die Größen der Scheiben- und Röhrenperlen leicht differieren, was aber nicht ungewöhnlich wäre, da Größen und Dicken der Perlen ein und derselben Kette, wie bei vollständigen Ensembles zu sehen,[42] durchaus unterschiedlich ausfallen konnten. Auch eine Tonnenperle wurde hier geborgen.

*Verschiedene Gesteine*

Aus R/III liegen insgesamt 15 Steinperlen vor. Es handelt sich um sechs Kugelperlen, die aus den Materialien Amazonit, Karneol, Bergkristall,

[38] Die Perlen von der Bestattung [L1512] nicht eingerechnet.

[39] Für einen mehrreihigen Halskragen aus der 11. Dynastie vgl. z. B. Andrews 1990, 66f., Abb. 50. Für andere Arten der Perlenzusammenstellung vgl. Hodjash 2001, 20f. (Beispiele späterer Zeitstellung).

[40] Vgl. Petrie 1924, Tf. XLIII.89 aus Mayana, Friedhof K.

[41] [L913] in Planquadrat p/7. Sie war dort mit einem Stück bearbeiteten Kalkstein, vielleicht Teil eines ehemaligen Gefäßdeckels, sowie einer Lehmwurst vergesellschaftet (Inv.-Nr. 9652M und 9652N).

[42] Vgl. z. B. Rzepka *et al.* 2012/2013, 261, Abb. 13, allerdings aus dem Neuen Reich stammend.

Quarz sowie Lapislazuli gefertigt wurden.[43] Darüber hinaus sind fünf Röhrenperlen aus Karneol, Steatit oder Serpentinit bekannt. Hinzu treten eine Scheibenperle aus Karneol, eine rechteckige Perle aus Steatit sowie eine Tonnenperle aus Amethyst. Außerdem wurden in R/III zwei Perlenrohlinge aufgefunden, die grob in ihrer Form zugerichtet, aber noch nicht durchbohrt sind. Bei einem handelt es sich um den Rohling einer Kugelperle aus Granat, das andere, aus Steatit bestehende Objekt, sollte einst eine Tonnenperle werden.

Aufgrund der geringen Objektfülle sind keine Aussagen zur Verteilung der steinernen Exemplare zu treffen, zumal sieben der Perlen keinem gesicherten archäologischen Zusammenhang entstammen. Zwei Perlen – die Tonnenperle und die rechteckige Perle – wurden in Schichten des Tiefschnitts in Planquadrat r/5 geborgen und sind einer früheren Belegungsphase zuzuordnen ([L310], Stratum D/3 bzw. [L473/L474], Stratum E/1). Sie wurden in anderen Schichten aufgefunden als die 13 ebenfalls von hier stammenden Fayenceperlen. Die anderen Objekte wurden vielleicht verloren – ein Zusammenhang mit den wenigen aus R/III bekannten Gräbern ist, wie schon für die Fayenceperlen bemerkt (s.o.), nicht anzunehmen.

## Amulette/Anhänger

Aus R/III sind nur sieben Objekte bekannt, die als Amulette bzw. Anhänger angesprochen werden können (Kartierung 4). Ein in der Model geformtes Udjat-Auge aus Keramik (Inv.-Nr. 9653G) ist wohl ramessidischer Zeitstellung.[44] Ramessidische Störungen innerhalb des Areals sind, wie bereits eingangs erwähnt, anhand der in Gruben aufgefundenen ramessidischen Keramik belegt und werden auch durch einen in der Model geformten Uschebti (Inv.-Nr. 9662D) und die eingangs vorgestellte Fayencekachel bestätigt, auch wenn keine zugehörigen Siedlungsschichten angetroffen wurden. Dass sich auf dem Gebiet von Tell el-Dabᶜa zahlreiche ramessidische Bestattungen befinden, ist allgemein bekannt,[45] im aktuellen Grabungsplatz R/IV sind auch ramessidische Siedlungsschichten erhalten.[46]


Abb. 31 Fayenceanhänger Inv.-Nr. 9527M in Form einer Muschel (Foto Axel Krause, © ÖAI)

Unter den sechs verbleibenden Anhängern ist sicherlich ein frei modellierter Fayenceanhänger in Form einer Muschel (Abb. 31) am bemerkenswertesten (Inv.-Nr. 9527M). Er stammt aus dem Tiefschnitt in Planquadrat r/5 [L587] und ist einer früheren Belegungsphase des Areals zuzuordnen (Stratum E/2). Der Anhänger war nicht mit den im Tiefschnitt aufgefundenen Fayenceperlen (s.o.) vergesellschaftet. Zudem liegen zwei weitere Anhänger aus Fayence vor, einmal in Form einer Lotusblüte, einmal von nicht zu identifizierender Ausprägung. Ein mögliches Amulettfragment aus Knochen wurde bereits erwähnt. Einfachere Typen sind eine am Schloss durchlochte Muschel sowie eine spitzovale, als Anhänger zugerichtete Keramikscherbe.

## Ungebrannte Lehmperlen

Bei 37 aus ungebranntem Lehm bestehenden, durchlochten Objekten handelt es sich in dem Sinne wohl nicht um Perlen, sondern eventuell um einfache Netzsenker, die mit den Fingern zurechtgedrückt, durchlocht und dann an der Luft getrocknet wurden (Kartierung 5).[47] 31 von ihnen weisen eine charakteristische bikonische Form auf (Abb. 32).[48] Außerdem sind zwei Stabperlen, eine Tonnenperle, eine linsenförmige Perle sowie zwei Scheibenperlen aus ungebranntem Lehm bekannt.

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[43] Bei der Kugelperle aus Amazonit handelt es sich um einen Streufund aus Areal R/III, der deshalb nicht kartiert wurde, jedoch wegen des Materials Erwähnung finden soll. Für eine aus Tell el-Dabᶜa stammende Kette aus Amazonitperlen aus der 13. Dynastie vgl. Hein 1994, 173, Nr. 171.

[44] Zur Einführung der Matrizentechnik in der 18. Dynastie vgl. Anm. 16.

[45] Bietak/Forstner-Müller 2007, 54, Abb. 34–37 und Bietak et al. 2009, 112f.

[46] Forstner-Müller 2014a, 41 und Forstner-Müller 2014b, 34.

[47] Allerdings sind gebrannte Exemplare auch aus Gräbern des Stratums D/3 des Areals A/II bekannt, s. Bietak 1991, 266, Abb. 237. Nr. 1.

[48] Zwei davon bestehen aus Keramik, ihr Brand ist u. U. als sekundär anzusehen. Sie wurden mit den anderen Perlen gemeinsam kartiert. Aus einer Feuerstelle ([L1006] in Planquadrat q/8) stammt z. B. Inv.-Nr. 9653Y, ist allerdings auf einer Seite nur leicht angebrannt. Für schlecht gebrannte Lehmperlen von ovaler Form vgl. Rzepka *et al.* 2012/2013, 261, Abb. 15 und 262 mit Anm. 23.


Kartierung 5 Gesamtverteilung aller in R/III aufgefundenen Lehmperlen

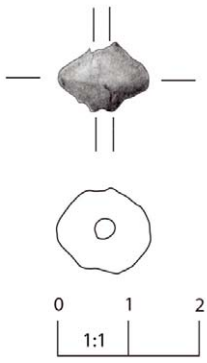



Abb. 32 Bikonische Lehmperle Inv.-Nr. 9468S (Zeichnung Sarah Baumert, © ÖAI)

Von den acht im Norden von Komplex 1 auftretenden Perlen entstammen lediglich zwei gesicherten Kontexten. Auch die beiden in Komplex 3 aufgefundenen Objekte wurden nicht in guten archäologischen Schichten angetroffen. Insgesamt zeichnet sich also, wie auch für Knochenartefakte (s.o.), eine Konzentration in Komplex 2 ab.

## Spielsteine

Aus R/III liegen 34 Spielsteine aus den Materialien Fayence, ungebrannter Lehm oder Keramik vor (Kartierung 6). Hinzu treten acht flache, aus Scherben gefertigte Objekte mit rundlicher Kontur, bei denen es sich allerdings nicht nur um Spielsteine, sondern auch um einfache Scherbendeckel handeln könnte.[49]

[49] Müller 2008, 175 versteht vergleichbare Objekte aus den Opfergruben jedoch ebenfalls als Spielsteine. Für einfache Spielsteine aus Scherben, allerdings aus ptolemäischer Zeit, vgl. Pusch 1979, Tf. 97a. Da die Keramikbearbeitung des Fundplatzes noch nicht abgeschlossen ist, wird sich die Gesamtanzahl entsprechender Objekte sicherlich erhöhen.


Kartierung 6 Gesamtverteilung aller in R/III aufgefundenen Spielsteine (Fayence, Lehm, Scherben)

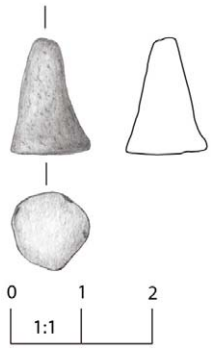



Abb. 33 Kegelförmiger Spielstein aus Fayence Inv.-Nr. 9473A (Zeichnung Sarah Baumert, © ÖAI)

Insgesamt zehn Spielsteine bestehen aus Fayence und sind entweder kegelförmig,[50] zylindrisch,[51] plankonvex oder flach mit runder Kontur. Mit sieben Exemplaren ist die konische Form am häufigsten vertreten (Abb. 33), die anderen Formen sind, aus Fayence bestehend, jeweils singulär in R/III belegt.

Außerdem wurden zehn kegelförmige Spielsteine sowie fünf plankonvexe, drei tetraederförmige,[52] ein kugeliger und ein quaderförmiger Spielstein aus ungebranntem Lehm geborgen. Vier weitere Spielsteine aus Keramik unterschiedlicher Ausformung sind wahrscheinlich sekundär gebrannt, da die Typen denen aus ungebranntem Lehm entsprechen.

50 Vgl. Friedman 1998, 84 Abb. oben und 186, Nr. 3 (aus der Zeit von Amenophis III.).

51 Für die zylindrische Form vgl. Pusch 1979, Tf. 74a.

52 Tetraederförmige Spielsteine sind in Tell el-Dabʿa auch aus Fayence bestehend bekannt, z. B. aus [L1421] in Areal F/II (unveröffentlicht).


Kartierung 7 Gesamtverteilung aller in R/III aufgefundenen Fayence- und Steingefäße

Lediglich drei der sieben kegelförmigen Spielsteine aus Fayence stammen aus gesichertem archäologischen Kontext, die anderen wurden in Verbruchsschichten oder Gruben aufgefunden. Letzteres gilt auch für die anderen Spielsteine aus Fayence. Allerdings ist zu bemerken, dass Spielsteine aus Fayence nur aus Komplex 2 und 3 bekannt sind.

Die verschiedenen Spielsteine aus ungebrannten Lehm konzentrieren sich ebenfalls auf Komplex 2 und 3, bei den vier aus dem Westen bekannten Exemplaren stammt eines aus dem Ackerboden. Auffällig ist auch das völlige Fehlen von Spielsteinen in den Füllschichten von Straße 1. Bis auf zwei Beispiele im Osten wurden alle übrigen aus Scherben zugerichteten Objekte im mittleren Komplex angetroffen.

## Fayencegefäße

Aus R/III stammen auch 19 meist sehr kleine und oftmals nicht orientierbare Fragmente von Fayencegefäßen (Kartierung 7), die teilweise Reste schwarzer Bemalung zeigen.[53] Bei vier von ihnen handelt es sich mit relativer Sicherheit um offene Formen, bei drei weiteren um geschlossene. Bei zweien scheint es sich um Salb- oder Kohlgefäße zu handeln,[54] von einem weiteren Gefäß ist der kugelige Boden erhalten.[55] Inv.-Nr. 9648M ist Teil eines Ringständers,[56] beim Rest ist der Erhal-

[53] Zu Fayencegefäßen in Tell el-Dabʿa allgemein vgl. Forstner-Müller 2008, 53f. mit Anmerkungen.

[54] Vgl. Friedman 1998, 39, Abb. 16 oder 139 oben, beide frühes NR, für eine vergleichbare Form zu Inv.-Nr. 9652J.

[55] Inv.-Nr. 9651J. Zur Form vgl. Petrie 1924, Tf. XLI.16.

[56] Vgl. Forstner-Müller 2008, 277f., Abb. 201.7.


Abb. 34 Rand eines Fayencegefäßes Inv.-Nr. 9649B, möglicherweise ein Import aus Kerma (Foto Axel Krause, © ÖAI)

tungszustand für eine Beurteilung zu gering. Ein außen mit Ritzdekor versehenes Objekt (Inv.-Nr. 9479B) zeigt Reste von gelber Glasur.[57] Reste gelber Glasur sind auch bei dem innen schwarz bemalten Gefäßbruchstück Inv.-Nr. 9654W erhalten. Da gelbe Glasur nicht vor der 18. Dynastie auftritt,[58] belegen diese beiden Objekte erneut die späteren Störungen innerhalb des Areals. Des Weiteren weisen neun Objekte Reste von schwarzer Bemalung auf der Außenseite auf, zwei weitere zeigen schwarze Bemalung innen wie außen, ein Exemplar ist innen bemalt und außen mit Ritzdekor versehen. Aufgrund der Fragmentierung sind zum Dekor wenige Aussagen zu treffen, es scheint sich größtenteils um lineare oder florale Muster zu handeln.[59] Ein Objekt (Inv.-Nr. 9652K) zeigt Reste einer farnartigen Dekoration.[60] Vor allem ein Exemplar sticht jedoch heraus: Bei Inv.-Nr. 9649B handelt es sich um den Rand eines Gefäßes, das innen verblasste, vertikal verlaufende Striche und außen eine umlaufende Spiraldekoration aufweist, die für die Fayenceproduktion der Zweiten Zwischenzeit in Kerma typisch ist (Abb. 34). [61] Leider entstammt das Objekt keinem gesicherten archäologischen Kontext. Zwei weitere Stücke (Inv.-Nr. 9472G und Inv.-Nr. 9661U) mit umlaufendem Blattdekor finden ebenfalls Vergleichsstücke in Kerma,[62] ähnliches Dekor ist allerdings auch aus Ägypten und Palästina bekannt.[63] Der Kontakt mit Nubien bereits in der Zweiten Zwischenzeit ist durch Funde nubischer Keramik in Tell el-Dabᶜa, u. a. auch aus Areal R/III, bestens belegt,[64] der Handel mit Kerma über die Oasen der Westwüste durch entsprechende Funde nachgewiesen.[65] Als Neuerung ist nun auch die Verhandlung von Fayencegefäßen bzw. deren Inhalt in Betracht zu ziehen.

Die Objekte verteilen sich relativ locker über das gesamte Areal und sind vereinzelt auch aus den Straßen bekannt. Eine leichte Konzentration scheint sich im mittleren Komplex abzuzeichnen, wenn hier auch zwei Objekte aus dem Ackerboden und eines aus einer späteren Grube stammen. Den beiden in Komplex 3 geborgenen Exemplaren ist kein gesicherter Fundkontext zuzuweisen, Fayencegefäße scheinen hier also eher keine Verwendung gefunden zu haben. Aufgrund der wenigen im Areal vorliegenden Gräber (s.o.) scheint es sich nicht um Teile von Grabausstattung, sondern um Alltagsgegenstände zu handeln.

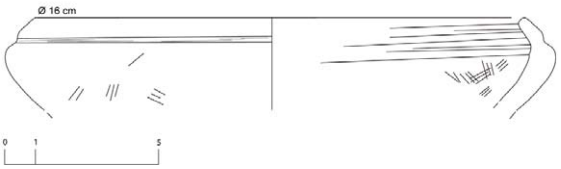



Abb. 35 Knickwandschale Inv.-Nr. 9655P aus Siltstein (Zeichnung Silvia Prell, © ÖAI)

57 Für ein Gefäß mit Ritzdekor aus der frühen 18. Dynastie vgl. Friedman 1998, 39, Abb. 15.

58 Kaczmarczyk/Hedges 1983, 146.

59 Für ein Objekt mit Lotusblumendekoration vgl. Hein/Janosi 2004, 43f., Abb. 16.2, dem Stratum D/3 zuzuordnen.

60 Vgl. dazu Friedmann 1998, 110 unten rechts (spätes MR bis frühes NR) oder Sagona 1980, Abb. 4.15 (Jericho) oder Abb. 5.17 (Sedment). Das Objekt aus R/III enstammt einer großen Grube, sodass eine Stratenzuweisung nicht möglich ist.

61 Vgl. Sagona 1980, 107, die auch ein einziges Objekt mit Spiralmuster aus Palästina nennt, die Spiralen sind hier jedoch abweichend gestaltet, vgl. ebenda 111, Abb. 2.4. Ihr ist ein singuläres, aus Abydos stammendes, ebenfalls in die Zweite Zwischenzeit datierendes Objekt aus Ägypten bekannt, vgl. Peet 1914, 61, Abb. 29, Taf. XIII.8, bei dem es sich ebenfalls um einen Import handeln könnte. Der umlaufende Blattdekor bei dem Objekt aus Abydos findet einen exakten Vergleich im Dekor der Wandscherbe des Fayencegefäßes Inv.-Nr. 9661U. Zur qualitätvollen Fayenceproduktion in Kerma vgl. auch Tite/Shortland 2008, 59 oder Bianchi 1979–80, 155–160. Für das Muster vgl. auch Reisner 1923, 143, Abb. 172 sowie Kaczmarczyk/Hedges 1983, Abb. 38d oder Friedman 1998, 46, Abb. 20.

62 Reisner 1923, 145, Abb. 174.

63 In Palästina ebenfalls lokal produziert, vgl. Sagona 1980, 101 und 109. Für Ägypten z. B. Kaczmarczyk/Hedges 1983, Abb. 31. Nr. (p)E.3279 aus dem MR oder Bissing 1902, 2, Nr. 3620 aus dem NR.

64 Vgl. Forstner-Müller/Rose 2012, 181–212 mit weiterführender Literatur sowie Forstner-Müller/Michel in diesem Beitrag.

65 Colin 2005, 35–47.

## Steingefäße

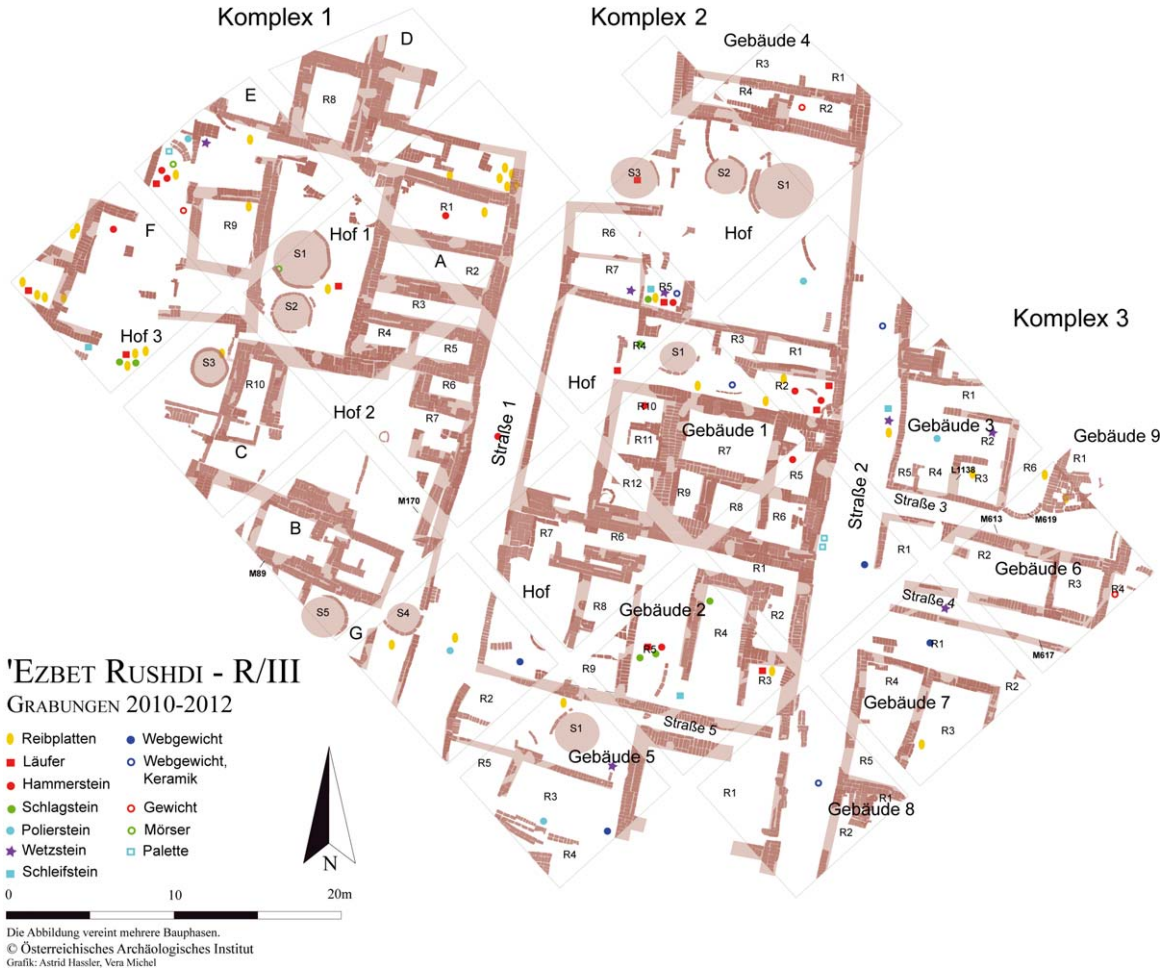
In Areal R/III wurden nur acht Fragmente von Steingefäßen geborgen.[66] Bei vier Gefäßen handelt es sich um Teile von Schalen aus Siltstein, zusätzlich sind zwei Kohlgefäße aus Kalzit belegt,[67] bei den anderen beiden Stücken sind Form und Material unsicher. Bei einem der Schalenfragmente aus Siltstein (Abb. 35) handelt es sich um eine Knickwandschale (Inv.-Nr. 9655P). [68]

Aufgrund der geringen Anzahl der Objekte können keine Aussagen über die Verteilung getroffen werden. Das Kalzittöpfchen Inv.-Nr. 9650H wurde gemeinsam mit Teilen eines nicht zugehörigen Deckels (Inv.-Nr. 9650G) in einer späten Grube in Planquadrat q/8 aufgefunden.[69] Auch das Salbtöpfchen Inv.-Nr. 9658E entstammt dem Ackerboden und somit keinem gesicherten Fundzusammenhang.[70]

-SPr-

## Die Makrolithik des Grabungsplatzes R/III

In Grabungsplatz R/III wurden insgesamt 90 Steinwerkzeuge (Kartierung 8) aufgefunden. Etwas mehr als ein Drittel der Objekte wird von




Kartierung 8 Gesamtverteilung aller in R/III aufgefundenen Steinwerkzeuge

[66] Zu Steingefäßen in Tell el-Dabᶜa vgl. Forstner-Müller 2008, 54f.

[67] Hinzu treten die beiden Kohlgefäße, die als Beigaben von Grablege [L1512] aufgefunden wurden.

[68] Ganz ähnlich, aber aus anderem Material und von geringeren Ausmaßen bei Hodjash 2005, 58, Nr. 211, Tf. 12. Es ist allerdings unklar, mit welcher Begründung sie das Objekt in die Zweite Zwischenzeit datiert.

[69] Zur Form vgl. Petrie 1924, Tf. XL.2 und XLI.2.

[70] Für ein vergleichbares Objekt aus der frühen 18. Dynastie s. Aston 1994, 147, Nr. 163.

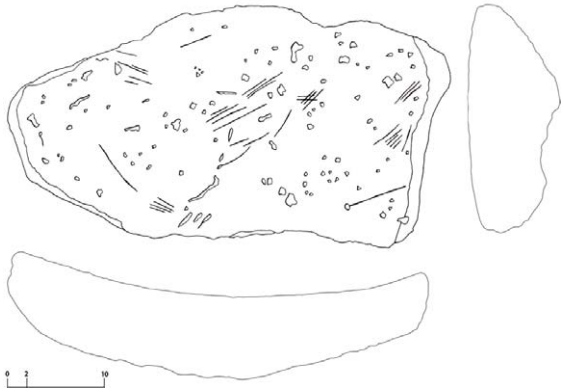


Abb. 36 Reibplatte Inv.-Nr. 9692U mit deutlich abgenutzter, konkaver Reibfläche (Zeichnung Silvia Prell, © ÖAI)


Abb. 37 Reibplattenbruchstück Inv.-Nr. 9691U, in Vorratsgefäß [L707] aufbewahrt (Foto Michael Weißl, © ÖAI)

Reibplatten gebildet (34 Exemplare), die ausnahmslos aus Quarzit bestehen. Sie weisen zumeist eine ovale Kontur auf, die Schnitte sind plankonvex.[71] Die Reibflächen können plan (z. B. Inv.-Nr. 9690V), schwach konvex (Inv.-Nr. 9690O), nach langer Nutzung aber auch deutlich konkav ausgeformt sein (z. B. Inv.-Nr. 9692U, Abb. 36). Reibplatten mit deutlicher Mulde, wie aus anderen Siedlungskontexten in Tell el-Dabᶜa bekannt (z. B. Areal E/I-E), [72] treten in R/III überhaupt nicht auf.[73] 22 Reibplatten stammen aus Komplex 1 und 2, doch auch in Komplex 3 im Osten wurden Reibplatten geborgen.

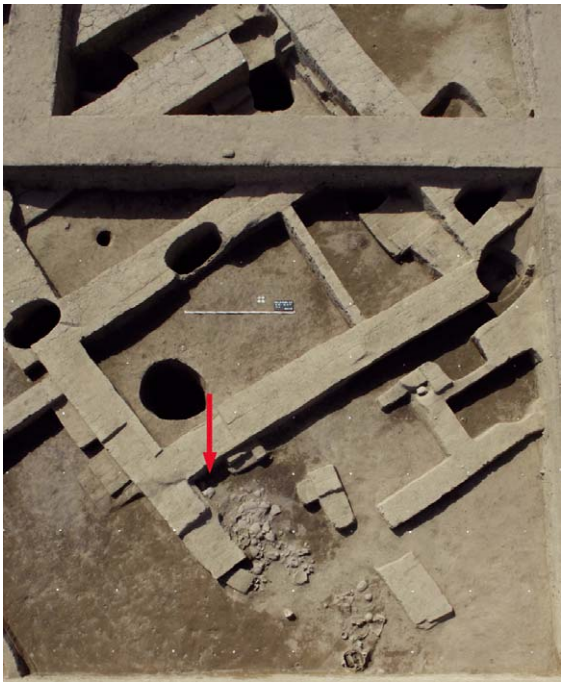


Abb. 38 Unterhalb Mauer [M200] befindliche Reibplattenfragmente in Planquadrat q/6-7 im Bereich der Keramikschüttung [L533] (Foto Michael Weißl, © ÖAI)

Lediglich eine fragmentierte Reibplatte (Inv.-Nr. 9691U) ist insofern als *in situ* befindlich anzusprechen, als dass sie in einem Vorratsgefäß ([L707] in Planquadrat s/5) aufbewahrt wurde (Abb. 37, 46). Alle anderen Reibplatten entstammen entweder den großen Störungen, die die archäologischen Schichten durchschneiden, oder fanden sich sekundär verzogen in intakten archäologischen Schichten. Nur sehr wenige Objekte sind als vollständig anzusprechen, zumeist sind sie mindestens an einer Seite gebrochen. Wenn auch größtenteils verworfen, so ist dennoch eine Konzentration der Reibplatten in Planquadrat s/5 zu bemerken (neun Objekte). Eine weitere Konzentration ist im Planquadrat q/6–7 festzustellen, aus dem insgesamt sieben Exemplare stammen. Vier davon – alles größere Bruchstücke – fanden sich teilweise unterhalb der Mauer [M200] als Teil der Keramikschüttung [L533] (Abb. 38) und wurden hier eventuell sekundär als Fundamentierung der Mauer verwendet. Obwohl grundsätzlich eine Vergesellschaftung der Reibplatten mit den Silos festzustellen ist,

[71] Zu den verschiedenen Formen von Reibplatten vgl. Prell 2011, 72, Abb. 25.

[72] Hein 1994, 159, Nr. 135.

[73] Die Makrolithik des aktuellen Grabungsplatzes R/IV wurde bereits flüchtig gesichtet, auch hier treten Reibplatten mit deutlichen Mulden nicht auf. Zu Reibplatten mit Mulden aus dem Neuen Reich vgl. Prell 2011, 76f.

Abb. 39 Zerbrochener Läufer Inv.-Nr. 9690Z (Foto Silvia Prell, © ÖAI)

wurde kein Objekt an seinem ursprünglichen Platz aufgefunden. Die beiden einzigen als vollständig anzusprechenden Stücke (Inv.-Nr. 9690O und Inv.-Nr. 9690V) entstammen den Verfüllungen von Gruben. Auch aus den Wohnquartieren im Osten sind keine *in situ* Befunde bekannt.

Des Weiteren wurden Teile von 11 Läufern geborgen, die, wie die Reibplatten, eine ovale bis rundliche Kontur mit planer Reibfläche und plankonvexe Querschnitte zeigen. Auch sie sind ausschließlich aus Quarzit gefertigt. Ein Läufer (Inv.-Nr. 9690A) trat in Planquadrat q/7 in einer mit Keramik verfüllten Grube zutage. Eine Hälfte des Läufers Inv.-Nr. 9690Z wurde in einem Gefäß deponiert aufgefunden,[74] die andere Hälfte lag direkt daneben. Das zerbrochene Objekt (Abb. 39) wurde sicher für die zukünftige Weiterverwendung als Schleif- oder Hammerstein, sozusagen als Rohstoff, hier aufbewahrt. Inv.-Nr. 9692Q stammt aus einer Grube [L612] im Tiefschnitt in Planquadrat r/5 und ist einer früheren Belegungsphase zuzuordnen (Stratum E/2). Zwar treten Reibplatten gelegentlich vergesellschaftet mit Läufern auf, aufgrund der stratigraphischen Gegebenheiten ist allerdings kein Ensemble von Reibplatte und Läufer auszumachen. Aus dem Gebäudekomplex ganz im Osten sind keine Läufer bekannt – ansonsten ist die Verteilung der der Reibplatten ähnlich.

Aus Areal R/III liegen 11 intentional zugerichtete Hammersteine vor, sechs davon bestehen ebenfalls aus Quarzit, die anderen aus unterschiedlichen Gesteinsarten. Formen können rad- oder würfelförmig, kugelig oder plankonvex sein.[75] Der plankonvexe Hammer Inv.-Nr. 9527K ist ein sehr ordentlich zugerichtetes Exemplar mit kombinierter Glättfläche und besteht aus dem für Steinwerkzeuge seltenen Material Gneiss (Abb. 40).[76] Das


Abb. 40 Plankonvexer, kombinierter Hammer- und Polierstein Inv.-Nr. 9527K (Foto Axel Krause, © ÖAI)

Objekt wurde ebenfalls im Tiefschnitt in Planquadrat r/5 aufgefunden und ist einer früheren Belegungsphase des Areals zuzurechnen (Stratum E/2). Gleiches gilt für den ebenfalls kombinierten Diorithammer Inv.-Nr. 9527L (beide aus [L582]). Zu den Hammersteinen treten sieben aus einfachen Geröllen bestehende, nicht zugerichtete Schlagsteine. Vier bestehen aus Knollenfeuerstein, zwei weitere aus Kalksteingeröllen und einer aus einem Dioritgeröll. Die Hammer- und Schlagsteine wurden aller Wahrscheinlichkeit nach zur Aufrauhung der Reibfläche nach wiederholter Abnutzung und Verglättung verwendet,[77] entsprechende Spuren sind auf Reibplatten und Läufern erhalten.

Sieben Objekte bestehen aus Quarzit oder Sandstein und können als Wetzsteine angesprochen werden, da ihre Oberfläche völlig verschliffen ist. Einer von ihnen, Inv.-Nr. 9699V (Abb. 41), entstammt wiederum dem Tiefschnitt in Planquadrat r/5 ([L311], Stratum D/3). Bei weiteren vier Objekten könnte es sich um Schleifsteine handeln – alle wurden aus Quarzit gefertigt.[78]

Fünf Objekte können als Poliersteine angesprochen werden und bestehen alle aus natürlichen Geröllen aus unterschiedlichen Gesteinsarten mit natürlicher sehr glatter Oberfläche. Inv.-Nr. 9661I, ein Siltsteingeröll (Abb. 42), wurde ebenfalls im

[74] Füllung [L1537] von Gefäß [L1538] in Planquadrat p/8.

[75] Für verschiedene Hammerformen vgl. Prell 2011, 31–40.

[76] Für einen weiteren, aus andersfarbigem Gneiss bestehenden Hammerstein aus Qantir vgl. Prell 2011, 40, Abb. 10.

[77] Tillmann 2007, 55.

[78] Für Schleifsteine vgl. Prell 2011, 44–48.

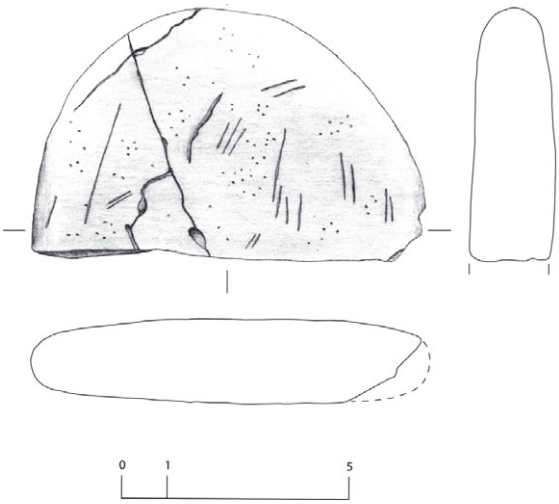



Abb. 41 Wetzstein Inv.-Nr. 9699V aus Quarzit (Zeichnung Silvia Prell, © ÖAI)

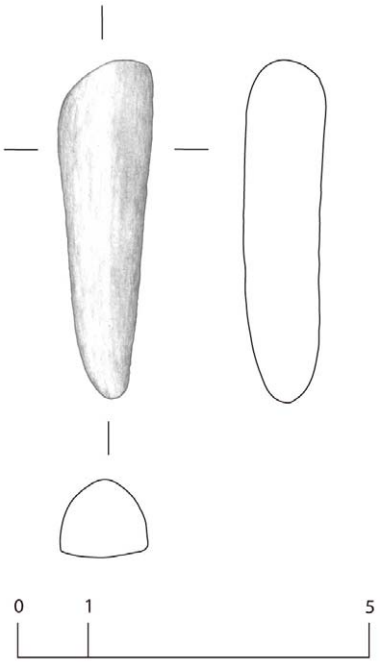



Abb. 42 Polierstein Inv.-Nr. 9661I aus Siltstein (Zeichnung Silvia Prell, © ÖAI)

Tiefschnitt in Planquadrat r/5 angetroffen und war dort in einer Amphore deponiert (FN 1 in [L311], Stratum D/3). Alle anderen Poliergerölle entstammen Füllschichten oder Störungen.

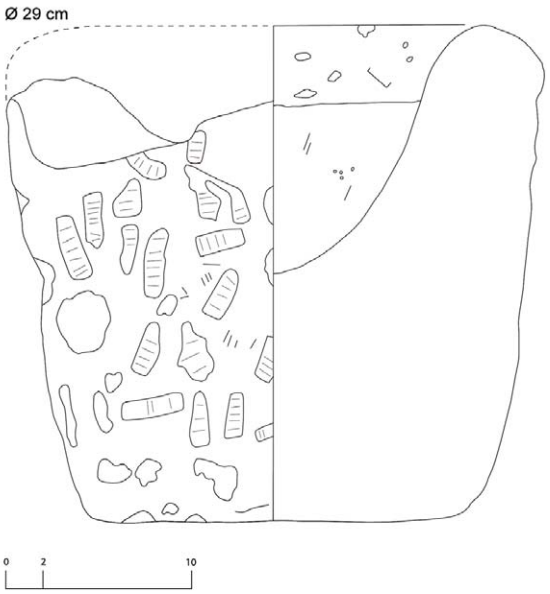



Abb. 43 Kalksteinmörser Inv.-Nr. 9699T (Zeichnung Silvia Prell, © ÖAI)

Zwei Mörser, einer aus Kalkstein (Inv.-Nr. 9699T), und ein schalenförmiger Mörser aus Quarzit (Inv.-Nr. 9692G) traten ebenfalls in Areal R/III zutage. Zwar waren an ihnen keine entsprechenden Spuren nachzuweisen, allerdings könnten Funde von Rötel im Areal auf die Verarbeitung von Pigmenten hindeuten. Das aus Kalkstein bestehende Objekt (Abb. 43) kam wiederum im Tiefschnitt in Planquadrat r/5 zutage ([L582], Stratum E/2) und zeigt die klassische, sich nach oben leicht öffnende Form. Das Objekt aus Quarzit (Abb. 44) ist aufgrund des gewählten Materials jedoch als singulär zu betrachten, wegen der völlig ungeglätteten Außenseite und des sehr groben Quarzits kann es sich eigentlich nicht um eine Schale handeln. Auf das Zerreiben von Pigmenten könnten auch drei Bruchstücke von Paletten hindeuten. Eine Kalksteinschale, von der Teile des Randes gefunden wurden, könnte ursprünglich ebenfalls einem solchen Zweck gedient haben.[79]

Drei Webgewichte (Abb. 45) sowie ein größeres Webgewicht oder Anker fanden sich in Komplex 2 und 3, hinzu treten vier einfache scheibenförmige Spinnwirtel aus Keramik bzw. ungebranntem Lehm,[80] die mit den anderen Objekten auf einen häuslichen Zusammenhang der Komplexe hindeuten. Ein Gewicht, bestehend aus Diorit, sowie zwei

[79] Für als Mörser verwendete Schalen aus Kalkstein vgl. Prell 2011, 89 mit Anm. 375.

[80] Vgl. z. B. Kemp/Vogelsang-Eastwood 2001, 274, aus Holz bestehend oder S. 288 aus verschiedenen Materialien.

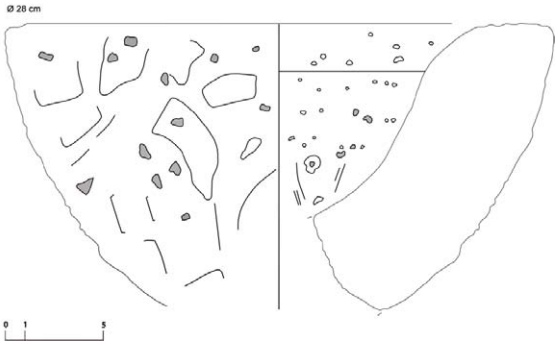



Abb. 44 Quarzitmörser Inv.-Nr. 9692G mit Einschlüssen von größeren Quarzkieseln, grau unterlegt (Zeichnung Silvia Prell, © ÖAI)

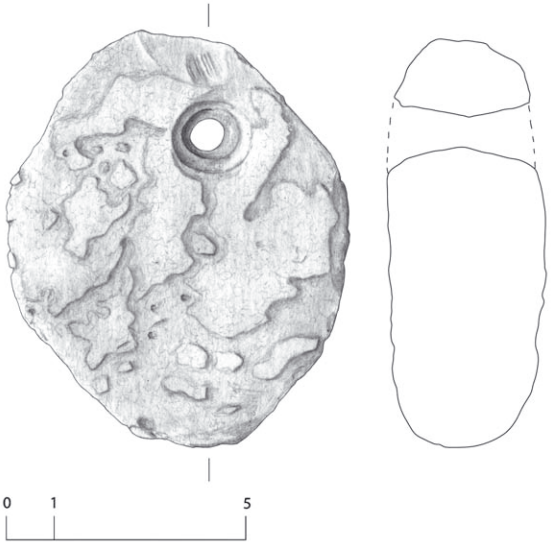



Abb. 45 Webgewicht Inv.-Nr. 9690Q aus Kalkstein mit lagerungsbedingter stark zerfressener Oberfläche (Zeichnung Silvia Prell, © ÖAI)

Gewichte aus Hämatit verweisen darauf, dass im Umfeld Rohmaterialien abgewogen wurden.

Eine spezifische Funktion kann den Steinwerkzeugen aus R/III nicht zugewiesen werden, in Verbindung mit den Silos und den Funden von Sichelklingen[81] ist die Funktion der Reibplatten, Läufer und Hammersteine in Hinblick auf die Verarbeitung von Getreide am wahrscheinlichsten. Auch für Datierungsfragen können die Objekte nicht herangezogen werden, da die einmal gefundene, funktional geprägte Form über die Zeiten hinweg mehr oder weniger unverändert bleibt. So unterscheidet sich die ramessidische, aus Qantir-Piramesse bekannte Makrolithik nicht entscheidend von den aus Tell el-Dabᶜa bekannten Typen.[82]

Interessant ist jedoch die Frage nach dem Material und den Ressourcen, die den Bewohnern von Avaris in der Zweiten Zwischenzeit zugänglich waren. Es ist auffällig, dass 65 % der Steinwerkzeuge aus R/III aus Quarzit bestehen, zwar ein für Reibplatten und Läufer übliches Material, das in Tell el-Dabᶜa aber auch verstärkt für Hammersteine oder gar einen Mörser (s.o.) eingesetzt wurde. Selbst für Wetzsteine, die sonst vornehmlich aus Sandstein gefertigt sind,[83] wurde hier teilweise das Material Quarzit gewählt; alle anderen Gesteinsarten liegen fast ausschließlich in Geröllform vor und sind als aufgelesene Flussgerölle, also Zufallsfunde anzusehen. Es wird somit deutlich, dass man nicht auf die Gesteinsressourcen im Süden des Landes zurückgreifen konnte (oder wollte), aber zu dem am nähesten gelegenen Quarzitsteinbruch, dem Gebel el-Ahmar bei Kairo Zugang hatte.[84] Interessant ist, dass zugerichtete Werkzeuge aus anderen hochwertigen Gesteinsarten wie Diorit, Gneiss und Kalkstein allerdings aus einer früheren Belegungsphase des Areals (E/2) bekannt sind – die Versorgungssituation an Gesteinen scheint sich in der späteren Hyksoszeit also zunehmend verschlechtert zu haben.

Auffällig ist zudem die überaus schlechte Qualität, die der Quarzit teilweise aufweist, der konglomeratische Einschlüsse von extrem großen Quarz- und Flintkieseln in der Matrix zeigt (Abb. 39, 46).[85] Zwar wurde die Bänderung im Gestein geschickt ausgenutzt, und die Reibfläche besteht in der Regel aus Quarzit von besserer Qualität.[86] Die Reibfläche wurde teilweise aber völlig abgearbeitet und das Objekt trotzdem weiterhin verwendet (vgl. Inv.-Nr. 9691U, Abb. 46). Solch schlechtes Material ist selbst in den Siedlungsschichten des Neuen Reiches in Qantir selten anzutreffen, lediglich eine Reibplatte aus dem

81 Vgl. den Abschnitt von Jeuthe in diesem Beitrag.

82 Zu den Steinwerkzeugen aus Qantir vgl. Prell 2011.

83 Vgl. Prell 2011, 48–52.

84 Vgl. Klemm/Klemm 1993, 284–287. Auch das aus R/III stammende Silexmaterial ist sehr homogen und verweist somit auf ein begrenztes Abbaugebiet, vgl. Jeuthe in diesem Beitrag.

85 Obwohl insgesamt von sehr guter Qualität, sind am Gebel el-Ahmar auch Bänder von überaus schlechter Qualität zu finden, vgl. Klemm/Klemm 1993, Tf. 8.5.

86 Für die Ausnutzung von unterschiedlich grob gekörnten Bänderungen im Gestein zur Schaffung von Schleifflächen unterschiedlicher Körnung an ein und demselben Objekt vgl. Prell 2011, 36 mit Abb. 7.

Abb. 46 Reibplatten Inv.-Nr. 9691U und Y als Beispiel für die schlechte Qualität des verwendeten Quarzits (Foto Silvia Prell, © ÖAI)

Siedlungkontext von Areal QIV weist eine derart minderwertige Qualität auf.[87] Dass die Palastwerkstätten des Areals QI auf völlig andere, nämlich staatliche Ressourcen zugreifen konnten, versteht sich von selbst, und auch die aus den Stallungen (ebenfalls QIV) stammenden Reibplatten zeigen eine bessere Gesteinsqualität. Zudem sind aus Qantir auch Reibplatten aus Granit bekannt – ein Material, das in Tell el-Dabᶜa überhaupt nicht für Steinwerkzeuge verwendet wurde und hier auch sonst in der Zweiten Zwischenzeit kaum auftritt.

Es stellt sich die Frage, inwiefern die Qualität des Gesteins die Wichtigkeit der im Areal befindlichen Institution widerspiegelt, oder ob sich daraus gar eine Möglichkeit zur Datierung ableiten lässt. Dieser Frage soll in Zukunft weiterhin nachgegangen werden. Eine erste Durchsicht der Makrolithik aus Areal R/IV zeigte wiederum sehr viel bessere Gesteinsqualität, allerdings sind hier auch ramessidische Siedlungsschichten vorhanden; die Untersuchungen sind noch nicht abgeschlossen. Im Delta, in das jedes Stück Stein importiert werden musste, verspricht die Frage nach dem Material für zukünftige Untersuchungen vielversprechende Ergebnisse.

-SPr-

## Die Silexartefakte der Zweiten Zwischenzeit

In den letzten Jahren wurden die Silexfunde[88] aus zwei Grabungsarealen aufgenommen. Aus den noch laufenden Untersuchungen des Areals R/IV stammen bislang 124 Objekte, datierend in das ausgehende Mittlere Reich bis zur ramessidischen Zeit, die jedoch vorerst ausgeklammert werden. Allerdings lassen sich diese Funde zumindest punktuell als Vergleich für das zweite Untersuchungsgebiet, Areal R/III, heranziehen. Aus dieser Grabung stammen 665 Artefakte, von denen 215 vollständig erhalten sind. Insgesamt handelt es sich um 375 Geräte (inklusive 55 Funde mit ausschließlicher Gebrauchsmodifikation) und 223 Artefakte ohne sichtbare Modifikationen. Hinzu treten 67 kleinere Trümmer/Absplitterungen oder nicht näher bestimmbare Fragmente und 5 Flintkieselchen, die sich möglicherweise nur zufällig in der Siedlung befinden.

Bei der überwiegenden Mehrheit (85 %) handelt es sich zwar um Funde aus gestörten und/oder vermischten Schichten, und nur 100 Artefakte stammen aus gut stratifizierten Kontexten. Aufgrund der relativ kurzen Laufzeit der Besiedlung können die Funde aber geschlossen betrachtet werden. Denn die Silexartefakte fallen überwiegend in die 2. Hälfte der Zweiten Zwischenzeit und nur neun kommen aus älteren Siedlungsschichten, aus dem sogenannten ‚Tiefschnitt',[89] und datieren in die frühere 15. Dynastie. Aus der Deckschicht und den ersten Abhüben ohne archäologischen Kontext (‚Stratum a') wurden nur exemplarisch Funde aufgenommen. Zwar datiert ein Teil der jüngeren Kontexte in die beginnende 18. Dynastie, in der das Gelände aufgelassen wurde, aber auch in die ramessidische Zeit. Das Silexmaterial aus diesen

[87] Zu den Reibplatten aus QIV vgl. Prell 2011, Kat.-Nr. 341–353.

[88] Die Bearbeitung wurde durch ein DAAD-Stipendium unterstüzt. ‚Silex' wird synonym für Flint und Hornstein verwendet, vgl. Hahn 1991, 7–11.

[89] Dessen Publikation durch I. Forstner-Müller und V. Michel ist in Vorbereitung.

Kontexten ist dennoch weitgehend homogen und scheint ursprünglich aus der Gebäudenutzung von R/III zu stammen, denn nur wenige Geräte verweisen aufgrund der Geräteform auf das (entwickelte) Neue Reich. Damit lässt sich der Korpus gut mit den bisherigen Untersuchungen in Tell el-Dabᶜa vergleichen.[90]

*Rohmaterialselektion*

Vorab sei erwähnt, dass sich gegenwärtig die Lithothèque des IFAO (Institut français d'archéologie orientale) im Aufbau befindet, für die Silexfunde von verschiedenen Fundplätzen Ägyptens (Tell el-Dabᶜa, Tell Iswid, Elephantine, Edfu u. a.) archäometrisch untersucht werden. Proben aus Tell el-Dabᶜa wurden bereits in eine erste Pilotstudie einbezogen, bei der durch XRF-Analysen die Elementarzusammensetzung verglichen wurde. Diese Proben weisen eine hohe Homogenität auf, was auf ein begrenztes Abbaugebiet deuten könnte,[91] eine Annahme, die aber noch verifiziert werden muss. Deswegen sind weitergehende Aussagen zu diesem Zeitpunkt verfrüht. Stattdessen werden die Rohmaterialien nur nach Hauptgruppen vorgestellt. Tillmanns Aufnahmeschlüssel[92] wurde zwar ursprünglich für die Aufnahme zu Grunde gelegt, letztendlich jedoch modifiziert, da detaillierte Beschreibungen und Farbabbildungen in den bisherigen Publikationen fehlen.

Bei 136 Artefakten konnte das Material nicht klassifiziert werden (vgl. Tab. 1, 2). Dies betrifft zum einen 27 schlecht erhaltene und/oder stark patinierte Fragmente, zum anderen die verbrannten Exemplare. Letztere sind zahlreich vertreten (16,4 % bzw. 22 % in den stratifizierten Kontexten). Ähnliches wurde auch in anderen Flächen der Zweiten Zwischenzeit beobachtet,[93] wohingegen das Aufkommen in R/IV mit bislang knapp 8 % deutlich geringer ausfällt. In R/III streuen diese Funde über die gesamte Fläche und treten in einem ähnlichen Verhältnis in den unterschiedlichen Gebäudekomplexen auf, sind jedoch nur selten mit spezifischen Befunden wie Feuerstellen oder Öfen verbunden. Auch finden sich gleichermaßen verschiedene Geräte und nicht modifizierte Grundformen unter den verbrannten Stücken, so dass sich keine funktional spezifische Erklärung anbieten würde. Der hohe Anteil mag hingegen auf vielfältige Umlagerungsprozesse hindeuten, wodurch kein direkter Bezug zu den Befunden mehr erkennbar ist.

Die restlichen 529 Funde, von denen 75 stratifiziert sind,[94] untergliedern sich wie folgt in die verschiedenen Hauptgruppen (Abb. 47):

1. Schotter (Tillmann 2007, zunächst Teil von Gruppe 1, später Gruppe 12; Tillmann 2004: nicht aufgeführt, Gruppe 12[?]). Insgesamt wurden 52 Artefakte aus Schotter gefunden, was 9,8 % der Funde ausmacht. Unter den stratifizierten Artefakten befinden sich sogar nur fünf Schotterfunde (6,7 %). Bei dem größeren Teil handelt es sich um Abfallprodukte aus der primären Produktion oder nicht näher bestimmbare Fragmente. Hingegen sind nur vier Artefakte (0,7 %) modifiziert, wobei es sich in zwei Fällen um Geröllgeräte handelt.

2. Opaker Silex (Tillmann 2004, Gruppe 20[?]). Dieser hellgelblich bis bräunliche, gleichfalls sehr feinkörnige und homogene Silex kann unterschiedliche Bänderungen in kräftigen Farben aufweisen (rötlich, weißlich, gräulich; Abb. 47: [L719]). Kortex ist nicht erhalten. Das Gesamtaufkommen von 22 Stücken bzw. 5 Artefakten aus den stratifizierten Kontexten (4,2 % bzw. 6,7 %) ist allerdings zu gering für eine weitere Unterteilung. Einige der Varianten könnten jedoch u. U. mit Tillmanns Codierungen gleichgesetzt werden, die auf den thebanischen Raum verweisen sollen. Modifizierte Stücke überwiegen mit 81,8 % bzw. 80 % eindeutig.

3. Opaker Silex (Tillmann 2004, Gruppe 18[?]). Hierbei handelt es sich um einen hellbraungrau bis hellgrauen, feinkörnigen und matten Silex mit verstärktem Auftreten von dunklen Eiseneinsprengseln und Bänderungen (Abb. 47: Inv.-Nr. 9642A).

[90] Tillmann 2007; Ders. 2004 für die Flächen A/V (132 Funde, vor allem spätere Zweite Zwischenzeit), F/I (484 Funde, vor allem 12./13. Dynastie) und A/II (158 Funde, vor allem frühere Zweite Zwischenzeit). Zudem wurden durch die Verfasserin Inventare weiterer Grabungsgebiete in Tell el-Dabᶜa gesichtet, aber noch nicht aufgenommen, und es fließen weitere Beobachtungen von anderen Siedlungsorten wie Edfu und Elephantine ein, die gleichfalls noch nicht publiziert sind.

[91] Wuttmann (†)/Baher in: Midant-Reynes/Buchez 2014, 214–218.

[92] Tillmann 2007, 82f., vgl. 30; Ders. 2004, 372.

[93] Tillmann 2007, 87.

[94] Diese bereinigten Zahlen liegen den folgenden prozentualen Angaben zu Grunde, nicht das Gesamtaufkommen der Funde.


Abb. 47 Übersicht über die verschiedenen Silexvarianten ([L719] Gruppe 2; Inv.-Nr. 9642A Gruppe 3; Inv.-Nr. 9591N bis 9592B Gruppe 4; Foto Axel Krause, © ÖAI)

Vereinzelt sind breitere bräunliche oder gräuliche Bänderungen nahe dem Kortex vorhanden. Der Kortex ist überwiegend rau, zum Teil aber auch glatt verschliffen und rötlich, was auf ein ausgewittertes Gestein hinweist. Mit 59 Funden ist dieser Silex ebenfalls relativ selten vertreten (11,2 % bzw. 6,7 % der stratifizierten Funde), wobei mehr als die Hälfte (57,6 % bzw. 100 %) modifiziert ist. Angesichts der Tatsache, dass nur zwei der unmodifizierten Artefakte vollständig erhalten sind, mag der Geräteanteil durchaus höher liegen. Diese Silexvariante ist an anderen Fundorten wie Edfu oder Elephantine bereits im Alten Reich bekannt, wobei es gegenwärtig ungeklärt ist, ob es sich um die gleichen Abbaugebiete handelt.

4. Transluzider Knollensilex (Tillmann 2007, Gruppe 14, 15; Tillmann 2004, Gruppe 14/17, 15/24). Mit insgesamt 368 Artefakten (69,6 % bzw. 76 % der stratifizierten Funde) dominiert diese Gruppe zweifellos und ist in einem ähnlichen Verhältnis auch unter den stratifizierten Funden vertreten (Abb. 47: Inv.-Nr. 9591N, 9589Z, 9589N, 9592B). Es handelt sich um eine sehr feinkörnige und homogene Silexvariante mit feinem, rauem Kortex, die verschiedene Varianten umfasst. Als Geräte können 63,9 % bzw. 57,9 % angesprochen werden, wobei auch hier der Anteil der vollständig erhalten Stücke ohne sichtbare Modifikation sehr gering ist.

Ein singulärer und aus einem anderen Grabungsareal, H/VI (18. Dynastie), stammender Fund einer größeren Silexknolle (Abb. 47: Inv.-Nr. 9645Q) zeigt einen konzentrischen Aufbau in verschiedenen Schattierungen von braunen und grauen Ringen. Auch an einigen Funden aus R/III konnten ähnliche Übergänge beobachtet werden (z. B. Inv.-Nr. 9592B). Deswegen ist es wahrscheinlich, dass zumindest ein Teil der Varianten der Gruppe 4 aus derselben Gesteinsformation stammt, was mit den oben erwähnten archäometrischen Untersuchungen überprüft werden muss.

Die Materialgruppe 4 umfasst zum einen eine transluzid bis glasige, hell- bis mittelbraune Variante mit seltenen rötlichen Schlieren oder einem leichten Rotstich, die 35,9 % ausmacht und Tillmanns Codierung 15 entsprechen könnte. Zum anderen tritt seltener eine hellgräuliche Variante auf (19,8 %; Tillmann 2004: Gruppe 24[?]), wobei die Übergänge fließend sind. Beide Varianten finden sich zudem in einer kaum transluziden, matten und häufig melierenden Ausprägung (braun 16,3 %; grau 14,7 %; Tillmann 2004 Gruppe 14/17), wohingegen die restlichen 11,1 % nicht eindeutig einer Untergruppe zugeordnet werden können. Besonders die transluzid bräunliche Variante ähnelt stark dem Material, dessen Abbaugebiete kürzlich in Galâlâ Nord in der Ostwüste, ca. 50 km südlich von Kairo und 20 km nördlich von Wadi Sheikh, entdeckt worden sind[95]. Diese Stein-

[95] Briois/Midant-Reynes 2015, fig. 2.

brüche scheinen überwiegend in das Alte Reich zu datieren, worauf auch entsprechende Kontaktfunde auf Elephantine hindeuten. Ein Abbau in der Zweiten Zwischenzeit ist zwar zum gegenwärtigen Zeitpunkt nicht bekannt, kann aber auch nicht ausgeschlossen werden. Jedoch kann erst nach weiteren Untersuchungen entschieden werden, ob diese Region als Herkunft für die Materialgruppe 4 in Frage kommt.

Des Weiteren wurden 28 Artefakte als ‚Varia' aufgenommen, die nicht in die etablierten Gruppen eingeordnet werden konnten. Auffällig ist, dass sie nur viermal in den stratifizierten Kontexten auftreten, hingegen achtmal bei Geräten, die tendenziell in das Neue Reich datieren. Die restlichen 15 Artefakte stammen aus gestörten Kontexten.

Ein Blick auf die Materialverteilung von R/IV zeigt, dass Gruppe 4 dort mit rund 70 % ebenfalls klar dominiert, wohingegen Schotter, Gruppe 3 und ‚Varia' nur selten auftreten und Gruppe 2 bislang nicht belegt ist. Die Auswahl der Zweiten Zwischenzeit ist also mit Gruppe 4 als bevorzugtes Material recht eingeschränkt, was bereits für die Funde der Fläche A/V beobachtet wurde[96].

*Primäre Produktion*

Es liegt eine reine Klingenindustrie vor (Abb. 48). Bei- und Abfallprodukte der primären Produktion sind eindeutig unterrepräsentiert (26,3 % bzw. 27 %; vgl. Tab. 1, Tab. 2). Kernsteine fehlen vollständig, und Trümmer, Fragmente und Splitter treten nur sehr selten auf. Das einzige Fragment einer Kernkappe ist aus Schotter und stammt aus einem gestörten Bereich. Auch von den sechs Kernscheibenfragmenten – keine ist vollständig erhalten – kommt nur eine aus einem stratifizierten Kontext, eine weitere datiert in die frühe 18. Dynastie. Bis auf eine Ausnahme gehören alle zu der Materialgruppe 4.

Mit Größen zwischen 4 × 2,6 × 0,9 cm und 9,5 × 6,2 × 0,8 cm könnten die Kernscheiben ähnlich wie die Präparationsabschläge zu werten sein. Denn bei diesen zeigen sich bei mehr als einem Drittel Modifikationen, wenn auch hauptsächlich nur Gebrauchsspuren. Der überwiegende Anteil gehört zu der Materialgruppe 4. Dabei handelt es sich mehrheitlich um größere, z. T. möglicherweise aus der bifazialen Produktion stammende, dünnere Abschläge (zwischen 1,9 × 2,5 × 0,4 cm und 8 × 5,3

Tab. 1 Klassifikation der Artefakte in Relation zu den Materialgruppen; in Klammern Anzahl der modifizierten Stücke (alle Funde)

| n = 665 (375) | Anteil im Inventar | Schotter n = 52 (4) | Gruppe 2 n = 22 (18) | Gruppe3 n = 59 (34) | Gruppe 4 n = 368 (235) | Varia n = 28 (18) | verbrannt n = 109 (60) | unbestimmt n = 27 (5) |
|---|---|---|---|---|---|---|---|---|
| Geröll n = 7 (2) | 1,1 % | 7 (2) | | | | | | |
| Kernkappe n = 1 (0) | 0,2 % | 1 (0) | | | | | | |
| Kernscheibe n = 6 (0) | 0,9 % | | | | 5 (0) | 1 (0) | | |
| Kortexabschlag n = 6 (1) | 0,9 % | 3 (0) | | | 1 (1) | 1 (0) | | 1 (0) |
| Präparationsabschlag n = 34 (13) | 5,1 % | 2 (0) | 2 (1) | 1 (0) | 26 (11) | | 2 (1) | |
| Klingenfußabschlag n = 2 (1) | 0,3 % | | | 1 (1) | | 1 (0) | | |
| Trümmer n = 10 (1) | 1,5 % | 5 (1) | | 1 (0) | 2 (0) | 1 (0) | 1 (0) | |
| Fragmente/Splitter n = 54 (0) | 8,1 % | 23 (0) | | | 10 (0) | | 11 (0) | 10 (0) |
| primäre Kernkantenklinge n = 1 (0) | 0,2 % | 1 (0) | | | | | | |
| sekundäre/tertiäre Kernkantenklinge n = 54 (36) | 8,1 % | | 2 (2) | 4 (2) | 37 (22) | 3 (2) | 6 (6) | 2 (2) |
| einseitige Kernkantenklinge n = 7 (3) | 1,1 % | 1 (0) | | | 3 (2) | | 3 (1) | |
| proximales Klingenende n = 3 (0) | 0,5 % | | | | 2 (0) | 1 (0) | | |
| distales Klingenende n = 2 (0) | 0,3 % | | | 1 (0) | 1 (0) | | | |
| Abschlag n = 21 (7) | 3,2 % | 7 (0) | | | 12 (6) | | 3 (1) | |
| Klinge n = 449 (302) | 67,5 % | 2 (1) | 17 (14) | 51 (31) | 260 (193) | 14 (10) | 82 (50) | 14 (3) |
| Thermalabsprünge n = 3 (3) | 0,5 % | | | | | 2 (2) | 1 (1) | |
| unbestimmt/bifazial n = 5 (5) | 0,8 % | | 1 (1) | | | 4 (4) | | |

[96] Tillmann 2007, 85, Tab. 81, 91; Ders. 2004, 359.

Tab. 2 Klassifikation der Artefakte in Relation zu den Materialgruppen; in Klammern Anzahl der modifizierten Stücke (stratifizierte Funde)

| n = 100 (61) | Anteil im Inventar | Schotter n = 5 (1) | Gruppe 2 n = 5 (4) | Gruppe 3 n = 5 (5) | Gruppe 4 n = 57 (33) | Varia n = 3 (0) | verbrannt n = 22 (15) | unbestimmt n = 3 (3) |
|---|---|---|---|---|---|---|---|---|
| Geröll n = 1 (1) | 1 % | 1 (1) | | | | | | |
| Kernkappe n = 0 | | | | | | | | |
| Kernscheibe n = 1 (0) | 1 % | | | | 1 (0) | | | |
| Kortexabschlag n = 2 (0) | 2 % | 2 (0) | | | | | | |
| Präparationsabschlag n = 4 (3) | 4 % | | | | 4 (3) | | | |
| Klingenfußabschlag n = 1 (1) | 1 % | | | 1 (1) | | | | |
| Trümmer n = 4 (0) | 4 % | 1 (0) | | | 2 (0) | 1 (0) | | |
| Fragmente/Splitter n = 1 (0) | 1 % | | | | 1 (0) | | | |
| primäre Kernkantenklinge n = 1 (0) | 1 % | 1 (0) | | | | | | |
| sekundäre/tertiäre Kernkantenklinge n = 9 (7) | 9 % | | 1 (1) | | 4 (2) | | 2 (2) | 2 (2) |
| einseitige Kernkantenklinge n = 4 (2) | 4 % | | | | 3 (2) | | 1 (0) | |
| proximales Klingenende n = 1 (0) | 1 % | | | | 1 (0) | | | |
| Distales Klingenende n = 1 (0) | 1 % | | | | 1 (0) | | | |
| Abschlag n = 3 (0) | 3 % | | | | 2 (0) | | 1 (0) | |
| Klinge n = 67 (47) | 67 % | | 4 (3) | 4 (4) | 38 (26) | 2 (0) | 18 (13) | 1 (1) |
| Thermalabsprünge n = 0 | | | | | | | | |
| unbestimmt/bifazial n = 0 | | | | | | | | |

× 1,1 cm; vgl. Abb. 48: Inv.-Nr. 9589J). Nur vier wurden in stratifizierten Schichten gefunden, weitere vier stammen aus Kontexten, die in das Neue Reich datieren könnten. Die Verwendung von Präparationsabschlägen als Gerät lässt sich auch in anderen (älteren) Siedlungen wie Adaïma und Elephantine nachweisen.[97] Dabei handelt es sich um importierte Abschläge, zumeist aus der bifazialen Produktion, und nicht um Belege einer lokalen Industrie. Ein ähnliches Bild scheint sich also auch für Tell el-Dabᶜa abzuzeichnen – die überwiegend regelmäßigen und großen Abschläge wurden bewusst ausgewählt. Primäre Kortexabschläge treten hingegen nur sehr selten auf. Zwei davon stammen aus stratifizierten Kontexten und zwei weitere könnten in das Neue Reich datieren. Dazu zählt der einzige modifizierte Kortexabschlag, der mit einer steilen Endretusche versehen ist.

Bei den wenigen als Abschlag klassifizierten Fragmenten konnte nur an sechs eine einfache Kantenretuschierung oder Gebrauchsmodifikation festgestellt werden; ein weiterer Abschlag wurde als Sicheleinsatz verwendet. Schotter wurde eher selten als Rohmaterial gewählt, vielmehr dominiert auch hier die Materialgruppe 4.

Kernkantenklingen gehören zwar zu den klassischen Produktionsabfällen der Klingentechnologie, was sich hier aber nur für die primären herausstellt.[98] Die wenigen, sehr unregelmäßigen Stücke aus der weiteren Klingenproduktion (Abb. 48: Inv.-Nr. 9634V, 9643M, 9591V; [L870]) fanden sich in den Oberflächenkontexten, und selbst sie tragen z. T. Modifikationen. Sekundäre, tertiäre und einseitige Kernkantenklingen, von denen Letztere hier überwiegend zu der Nachpräparation eines Kerns gehören und einen flachen Querschnitt aufweisen, sind durchaus als Gerät nutzbar (z. B. Abb. 48: Inv.-Nr. 9588O; Abb. 49: Inv.-Nr. 9588M). Tatsächlich sind von den insgesamt 61 Kernkantenklingen nur 22 ohne sichtbare Modifikation, obwohl ungefähr die Hälfte vollständig erhalten ist. Dabei treten keine Unterschiede zwischen den sekundären oder tertiären auf. Unter den 13 Kernkantenklingen aus stratifizierten Kontexten sind sogar nur 4 nicht erkennbar modifiziert. Dementsprechend können Kernkantenklin-

[97] Adaïma: Briois/Midant-Reynes 2008, 21ff., 29; Elephantine: Hikade 2014, 114.

[98] Vgl. auch Tillmann 2007, 92.

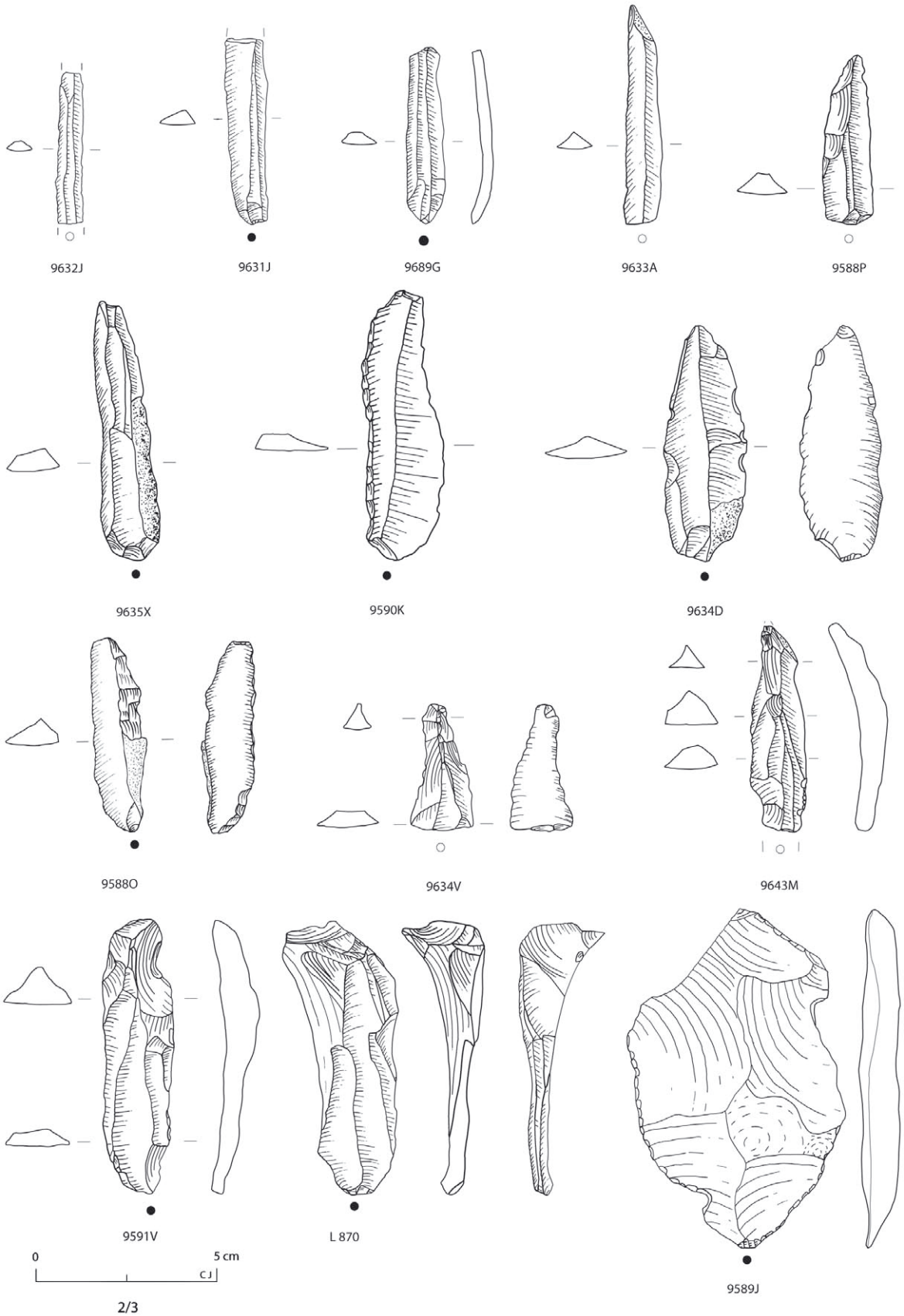



Abb. 48 Klingen und Débitage (Inv.-Nr. 9632J bis 9633A, Inv.-Nr. 9635X ohne sichtbare Modifikationen; Inv.-Nr. 9590K, Inv.-Nr. 9634D mit lateraler und Gebrauchsmodifikation; Inv.-Nr. 9588P, Inv.-Nr. 9588O bis 9591V Kernkantenklingen; [L870] Klingenkernfuß; Inv.-Nr. 9589J Präparationsabschlag) (Zeichnung Clara Jeuthe, © ÖAI)

gen mit Ausnahme der primären als Grundform gelten, auch wenn es sich bei ihnen streng technologisch betrachtet um Abfallprodukte handelt. Erneut dominiert die Materialgruppe 4, wohingegen die einzige primäre Kernkantenklinge aus Schotter hergestellt ist.[99]

*Klingentechnologie*

Zwar ist die Abgrenzung zwischen ‚regelmäßiger Klinge' – ‚Klinge' – ‚unregelmäßiger Klinge' subjektiv, sie zeigt dennoch eine Tendenz an: Nur ein kleinerer Anteil (11,1 %) der 449 Klingen hat eine unregelmäßigere Erscheinungsform, wohingegen 34,3 % als ‚sehr regelmäßig' mit sehr geradem Kantenverlauf klassifiziert wurden. In den folgenden Betrachtungen wird aber auf diese Unterscheidung verzichtet, da sich bislang weder eine klare Bindung an metrische Werte noch eine Materialselektion ableiten lässt. Alleine Materialgruppe 2 könnte eine gewisse Tendenz aufweisen, da die aus diesem Material bestehenden Klingen fast alle als ‚sehr regelmäßig' klassifiziert wurden. Da das Aufkommen sehr gering ist, kann beim momentanen Bearbeitungsstand nur darauf hingewiesen und eine mögliche Bindung hoffentlich zukünftig besser erfasst werden.

Aufgrund der hohen Zerstückelung des Inventars wurden die unmodifizierten Klingen und Kernkantenklingen – primäre ausgegliedert – zusammengeführt, zumal keine signifikanten Unterschiede zwischen den beiden Gruppen bezüglich ihrer Größe oder Schlagmerkmale usw. erkennbar sind (vgl. auch Tab. 4; Abb. 48). Obwohl der Korpus damit aus insgesamt 511 Artefakten besteht, sind nur 20 von 170 unmodifizierten Stücken vollständig erhalten. Die Aussagekraft zu den Längen ist damit sehr eingeschränkt, wohingegen die Angaben zur Breite und Stärke auf allen unmodifizierten Klingen bzw. Kernkantenklingen basieren.

Kurze Klingen sind nur selten vertreten, so waren nur vier unter 5 cm lang. Eine Länge zwischen 5 und 6 cm weisen neun Exemplare auf, und sieben waren länger als 6 cm. Dementsprechend überwiegen die eher langen und schmalen Klingen. Während die Längen in erster Linie für die Rekonstruktion der Kerngrößen hilfreich sind, ist der Grad der Normierung der Breiten und Stärken deutlich entscheidender. Bei den Breiten zeigt sich, dass sowohl sehr schmale als auch sehr breite Klingen eher selten auftreten; nur neun hatten eine Breite unter 1 cm und 15 waren über 2 cm breit. Die restlichen Breiten verteilen sich relativ regelmäßig zwischen 1 und 2 cm, wobei Breiten über 1,5 cm leicht dominieren. Bei den Stärken überwiegen ganz eindeutig die dünneren Stücke mit 88 Exemplaren zwischen 0,3 und 0,4 cm, wohingegen nur 18 Funde eine Stärke von mehr als 0,7 cm aufweisen. Dabei sind die Klingen, deren Kontexte in das Neue Reich datieren könnten, in der Regel breiter als 1,5 cm und gehören zu den massiveren Stücken. Eine Bindung zwischen Materialgruppe und metrischer Ausprägung kann momentan nicht eindeutig definiert werden; aber erneut fällt Materialgruppe 2 auf, in der die sehr schmalen Klingen stark vertreten sind.

Die Merkmalsanalyse deutet auf eine elaborierte Schlagtechnologie mit einem weichen direkten Schlag oder eventuell auf einen indirekten weichen Schlag hin.[100] Eine Materialbindung ließ sich erneut für keines der Merkmale feststellen. Unter den 166 erhaltenen Schlagflächenresten (SFR) dominieren die punktförmigen mit 73,5 % eindeutig, gefolgt von den oval-glatten mit 18,1 %. Die Ausprägung der Reduktion ist hingegen relativ gleichmäßig verteilt, allerdings etwas häufiger stärker ausgeführt. Dahingegen kann ein schwach

Tab. 3 Metrische Angaben (in cm) zu den unmodifizierten Klingen und Kernkantenklingen

| | Minimum | Maximum | Mittelwert |
|---|---|---|---|
| Längen (n = 20) | 3,2 | 7,2 | 5,60 ± 0,99 |
| Breiten (n = 170) | 0,5 | 2,5 | 1,45 ± 0,35 |
| Stärken (n = 170) | 0,2 | 1,2 | 0,40 ± 0,18 |
| Längen-Breiten-Ratio (n = 20) | 2:1 | 5,2:1 | 3,67:1 ± 0,82 |

[99] Die in Abb. 48 dargestellten Kernkantenklingen Inv.-Nr. 9634V, 9643M und 9591V gehören zu der Materialgruppe 4 und zeigen distal noch die Negative der primären Zurichtung.

[100] Vgl. z. B. Weiner 1989, 207–213. Allerdings zeigen Experimente, dass die Zuweisung der Schlagmerkmale an Klingen zu einer bestimmten Technik nicht ohne Zweifel möglich ist; z. B. ebenda, Anm. 75 oder Weiner 2011, 145f. mit weiterer Literaturangabe.

Tab. 4 Übersicht über die Häufigkeit von unterschiedlichen Schlagmerkmalen an Klingen und Kernkantenklingen

| | **SFR punkt-förmig** | **SFR glatt-oval** | **SFR linear** | **SFR zerklüftet** | **Lippe** | **Schlag-narbe** | **Reduktion gering** | **Reduktion mittel bis stark** |
|---|---|---|---|---|---|---|---|---|
| Klingen n = 450 | 107 | 22 | 9 | 1 | 23 | 26 | 56 | 84 |
| Kernkantenklingen n = 61 | 15 | 7 | 5 | 0 | 7 | 6 | 13 | 9 |
| Summe | 122 | 29 | 14 | 1 | 23 | 32 | 69 | 93 |
| | **Bulbus schwach** | **Bulbus mittel** | **Bulbus stark** | **Torsion rechts** | **Torsion links** | **bi/poly-direktional** | **distal spitz** | **distal gerade** |
| Klingen n = 450 | 103 | 35 | 6 | 67 (+43?) | 15 (+26?) | 15 | 71 | 25 |
| Kernkantenklingen n = 61 | 15 | 15 | 2 | 14 (+7?) | 8 (+15?) | 7 | 26 | 5 |
| Summe | 118 | 50 | 8 | 81 (+50?) | 23 (+41?) | 22 | 97 | 30 |

bis kaum wahrnehmbar Bulbus (67 %) zweifellos als charakteristisch gelten. An 23 Artefakten war die Lippe deutlich ausgeprägt; Schlagnarben wurden ebenfalls relativ selten beobachtet. Die Klingentorsion ließ sich oft nur unter Vorbehalt feststellen, da nur ein kleiner Teil der Klingen gut erhalten war; die nur bedingt zu definierende Torsion ist deswegen in Tab. 4 in Klammern aufgeführt. Dennoch deutet sich eine deutliche Tendenz zur rechtsdrehenden Torsion mit 67,2–77,9 % an. Bidirektionale Zurichtungsspuren, die Tillmann gleichfalls beobachtet hat,[101] treten vereinzelt an 18 Klingen bzw. Kernkantenklingen auf; in vier weiteren Fällen handelt es sich um eine polydirektionale Zurichtung. Es scheint sich aber weniger um einen bidirektionalen Abbau vom Kernstein zu handeln als vielmehr um eine distale Präparation (z. B. Abb. 48: Inv.-Nr. 9633A, 9635X; vgl. [L870]). Auffällig sind zudem die manchmal leicht schräg verlaufenden Klingennegative bzw. zum Teil Präparationsnegative an den Kernkantenklingen, was auf einen flach konischen Kern verweisen könnte (z. B. Abb. 48: Inv.-Nr. 9591V; Abb. 49: Inv.-Nr. 9590E). Die nur schwach ausgeprägte Krümmung der Klingen, die Form der distalen Enden und der eher flache Abbauwinkel um die 50° Grad deuten gleichfalls darauf hin.

Zu erwähnen sind zuletzt drei Thermalabsprünge. Diese natürlichen Grundformen sind vor allem in der Westlichen Wüste bekannt,[102] scheinen im Niltal und Delta aber nur selten aufzutreten. Alle sind als Sicheleinsatz verwendet worden, deren Form eindeutig auf das Neue Reich verweist (Abb. 49: Inv.-Nr. 9640M). Keines dieser Stücke kommt zudem aus einem stratifizierten Kontext, was ebenfalls für fünf bifaziale Fragmente gilt.

*Sekundäre Produktion und Geräteauswahl*

Der Begriff ‚Gerät' umschreibt eine modifizierte Grundform, wobei die Werkzeuge in standardisierte oder formale Geräte, non-formale und *ad hoc* Geräte unterteilt werden können. ‚*Ad hoc*' wird hier *sensu stricto* ausschließlich für Geräte verwendet, die nicht für eine bestimmte Tätigkeit hergestellt wurden. Darunter fallen z. B. sekundäre Verwendungen oder die spontane Verwendung unmodifizierter Grundformen, aber auch von Abfallprodukten. Dementsprechend lassen sich *ad hoc* Verwendungen nur selten direkt nachweisen, wenngleich z. B. das Auftreten einer hohen Anzahl unmodifizierter Abschläge dafür sprechen kann.[103] ‚Non-formal' bezieht sich auf einfache, überwiegend laterale Kantenretuschierungen, die in der Regel nicht kontinuierlich und oft unregelmäßig sind (z. B. Abb. 48: Inv.-Nr. 9590K; Abb. 49: Inv.-Nr. 9593Y). Formale bzw. standardisierte Geräte hingegen zeigen regelhaft definierbare Kriterien und basieren auf einer intentionalen Zurichtung.[104]

Problematisch ist die Definition der Gerätetypen jedoch im vorliegenden Fall, da auf regelhafte Kantenretuschierungen weitgehend verzichtet wurde und sich gekappte Klingenenden selten mit

[101] Tillmann 2007, 128; Ders. 2004, 362 zu den Unterschieden in der Torsion und der bidirektionalen Zurichtung als chronologisches Merkmal zwischen dem Mittleren Reich und der Zweiten Zwischenzeit.

[102] Vgl. Jeuthe 2012, 119; Riemer 2011, 76–82; im Folgenden als ‚TCP' abgekürzt für „thermo-clastic piece".

[103] Jeuthe 2012, 122ff., 128–134.

[104] Die Definitionen formaler Geräte basieren weitgehend auf Hahn 1991; Schön 1996, 6f.

Tab. 5 Übersicht über die Geräteklassen in Relation zu deren stratigraphischer Position

| | Anteil der Gerätefunde | Fundzahl | davon vollständig erhalten | davon stratifiziert | davon eventuell Neues Reich |
|---|---|---|---|---|---|
| **formal** | **77,3 %** | **290** | **153 (52,8 %)** | **43 (14,8 %)** | **28 (9,7 %)** |
| Sicheleinsätze | 33,6 % | 126 | 58 (46 %) | 25 (19,8 %) | 13 (10,3 %) |
| Segmente | 41,1 % | 154 | 92 (59,7 %) | 18 (11,7 %) | 9 (5,8 %) |
| Bohrer | 1,3 % | 5 | 3 (60 %) | | 1 (20 %) |
| bifazial | 1,3 % | 5 | | | 5 (100 %) |
| **non-formale** | **21,9 %** | **82** | **28 (34,1 %)** | **18 (22 %)** | **8 (9,8 %)** |
| Klinge/Abschlag lateral | 4,5 % | 17 | 3 (17,6 %) | 2 (11,8 %) | 1 (5,9 %) |
| Abschlag terminal | 0,8 % | 3 | 2 (66,7 %) | | 1 (33,3 %) |
| Klinge/Abschlag gezähnt | 0,5 % | 2 | 1 (50 %) | 1 (50 %) | |
| Klinge gekerbt | 1,3 % | 5 | 2 (40 %) | 1 (25 %) | |
| Klinge/Abschlag Gebrauchsspuren | 14,7 % | 55 | 20 (36,4 %) | 14 (25,5 %) | 6 (10,9 %) |
| Varia | 0,8 % | 3 | 1 (33,3 %) | | 1 (33,3 %) |
| **Summe** | **100 %** | **375** | **182 (48,5 %)** | **61 (16,3 %)** | **37 (9,9 %)** |

Sicherheit von gebrochenen unterscheiden lassen. Dementsprechend ist die Bewertung der Artefakte ohne sichtbare Modifikationen ausgesprochen schwierig, da es sich durchaus um Geräte handeln könnte. Mikroskopische Gebrauchsspurenuntersuchungen wären an dieser Stelle dringend notwendig, mussten bislang aber aus verschiedenen Gründen verschoben werden. Demzufolge können gegenwärtig nur bestimmte Artefaktgruppen aufgeführt werden, bei denen es sich nicht zwangsläufig um Gerätetypen handelt.

*Formale Werkzeuge*

Die Bandbreite der genormten Werkzeuge ist sehr eingeschränkt und setzt sich fast ausschließlich aus Segmenten (53,1 %) und Sicheleinsätzen (44,4 %) zusammen.

*Sicheleinsätze*

Genormte Sicheleinsätze treten regelmäßig in ägyptischen Siedlungen auf und scheinen von Sicheln aus Eisen frühestens nach dem Neuen Reich abgelöst zu werden.[105] Von den 126 Funden aus R/III können 17 als dreieckiger Einsatz definiert werden, weitere 10 Sicheleinsätze sind doppelt verwendet worden.

Während Endretuschen gegenüber unmodifizierten gekappten Enden überwiegen, ist eine Rückenbearbeitung eher als Ausnahme zu verstehen (Tab. 6). Gleiches gilt für eine laterale Retuschierung der Arbeitskante, die deutlich häufiger gezähnt ist oder nur Gebrauchsspuren aufweist. Denn dabei scheint es sich − soweit erkennbar − um Nachschärfungen zu handeln, die überwiegend ventral ausgeführt wurden. Auch der Sichelglanz, der an 118 Einsätzen vorhanden ist, ist dorsal meist stärker ausgeprägt als ventral. Beides deutet darauf hin, dass die Einsätze sich mit der Ventralseite nach oben in der Sichelnut befanden.[106] Eindeutige Hinweise auf eine sekundäre Verwendung zeigten sich nur an wenigen Einsätzen (z. B. Abb. 49: Inv.-Nr. 9636M). 12 Endretuschen bzw. gekappte Enden sind entweder gerundet oder häufiger schräg geformt und die Einsätze vergleichsweise kurz (z. B. Abb. 49: Inv.-Nr. 9594E, 9593W). Das Aufkommen ist zwar zu gering für weiterreichende Schlüsse, aber möglicherweise könnte dies ein Anzeichen für die Veränderungen der Sichelform sein, die Tillmann für die ramessidische Zeit beschreibt. Dabei werden die Sicheleinsätze kürzer, breiter und die Endretuschen verlaufen nicht mehr im rechten Winkel zur Arbeitskante.[107] Massige und gedrungene Sicheleinsätze in robuster Form

[105] Tillmann 2007, 173; Graves-Brown 2011, 23f. zu den wenigen Belegen nach dem Neuen Reich, wobei nicht auszuschließen ist, dass es sich z. T. um verlagerte Funde handelt.

[106] Vgl. auch Tillmann 2007, 88; Ders. 2004, 364f.

[107] Tillmann 2007, 79–73, 129ff.

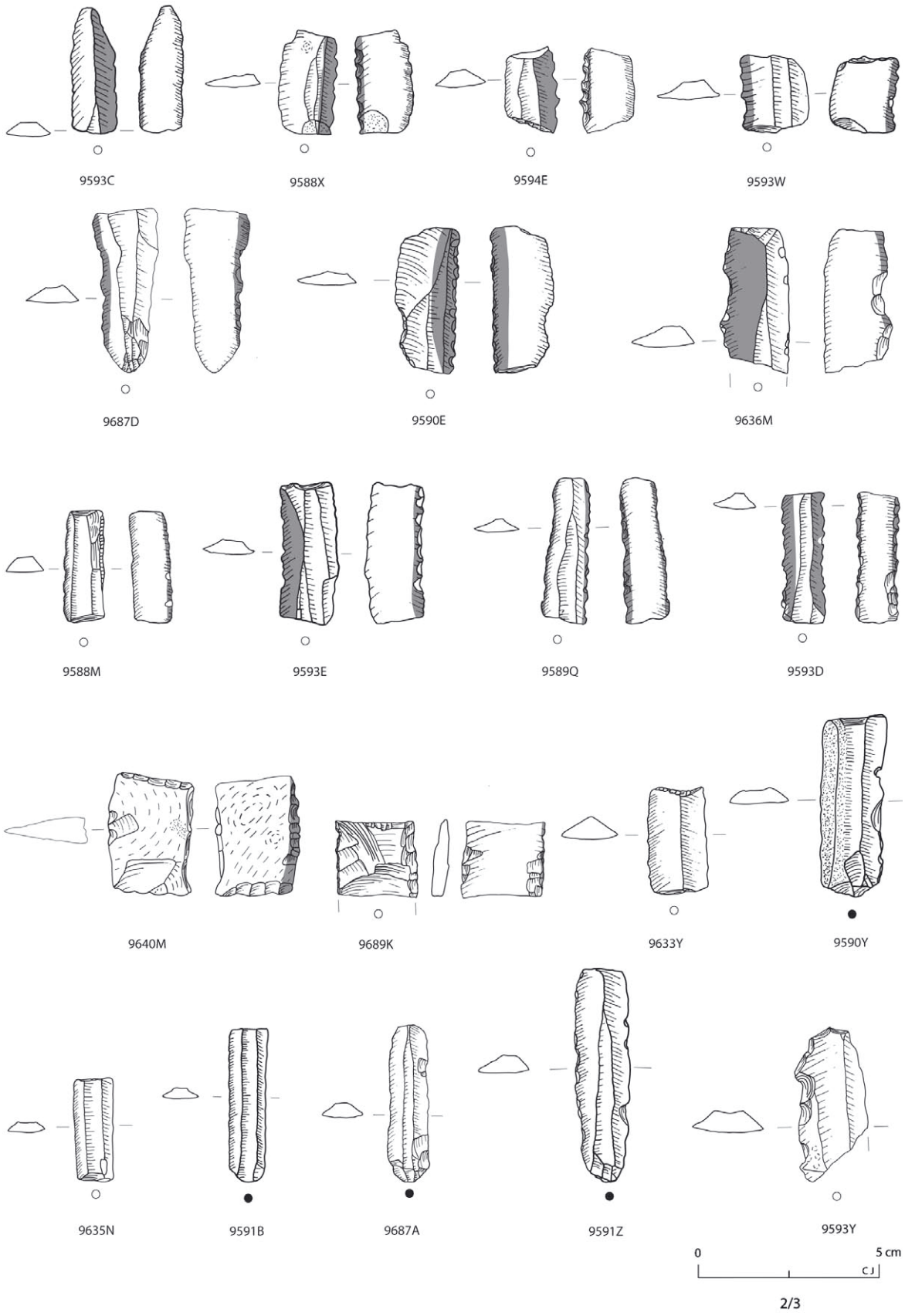



Abb. 49 Sicheleinsätze (Inv.-Nr. 9593C bis 9689K), endretuschierte und gekappte Stücke (Inv.-Nr. 9633Y bis 9591Z), gezähntes Stück (Inv.-Nr. 9593Y) (Zeichnung Clara Jeuthe, © ÖAI)

Tab. 6 Merkmale der verschiedenen Sicheleinsätze

| | rechteckiger Einsatz n = 99 | dreieckiger Einsatz n = 17 | doppelt genutzter Einsatz n = 10 | Summe n = 126 |
|---|---|---|---|---|
| Klinge | 89 | 14 | 10 | 113 (89,9 %) |
| Kernkantenklinge | 7 | 2 | | 9 (7,1 %) |
| Abschlag | 1 | | | 1 (0,5 %) |
| TCP | 2 | 1 | | 3 (2,4 %) |
| endretuschiert | 38 | 6 | 4 | 48 (38,1 %) |
| gekappte Enden | 29 | 6 | 4 | 39 (31 %) |
| gekappt/endretuschiert | 13 | | 1 | 14 (11,1 %) |
| rückenretuschiert | 14 | 8 | | 22 (17,5 %) |
| gezähnt | 66 | 7 | 8 | 81 (64,3 %) |
| Gebrauchsretusche | 24 | 2 | | 26 (20,6 %) |
| lateralretuschiert | 10 | 2 | 2 | 14 (11,1 %) |
| nachretuschiert | 48 | 6 | 7 | 61 (48,4 %) |
| sekundäre Verwendung | 1 | 1 | | 2 (1,6 %) |
| Sichelglanz ventral und dorsal | 85 | 10 | 10 | 105 (83,3 %) |
| Sichelglanz ventral | 4 | 3 | | 7 (5,6 %) |
| Sichelglanz dorsal | 4 | | | 4 (3,2 %) |

Tab. 7 Metrische Angaben (in cm) zu den Sicheleinsätzen

| **rechteckige Einsätze n = 42** | Minimum | Maximum | Mittelwert |
|---|---|---|---|
| Längen | 2,2 | 4,9 | 3,85 ± 0,70 |
| Breiten | 1 | 2,1 | 1,65 ± 0,32 |
| Stärken | 0,2 | 0,7 | 0,5 ± 0,15 |
| Längen-Breiten-Ratio | 1,5:1 | 4,7:1 | 2,44:1 ± 0,64 |
| **dreieckige Einsätze n = 11** | | | |
| Längen | 2,9 | 5,2 | 4,07 ± 0,83 |
| Breiten | 1,2 | 2,2 | 1,59 ± 0,34 |
| Stärken | 0,4 | 0,7 | 0,5 ± 0,09 |
| Längen-Breiten-Ratio | 2,3:1 | 2,9:1 | 2,61:1 ± 0,20 |

scheinen sich als charakteristisch für das Neue Reich, wahrscheinlich bereits ab der 18. Dynastie, zu erweisen.[108] Aus R/III stammen nur vier dieser Sicheleinsätze, drei aus Themalabsprüngen und einer aus einem Abschlag gefertigt (Abb. 49: Inv.-Nr. 9640M, 9689K). Auch wenn nur einer vollständig erhalten ist (3,3 × 2,4 × 0,7 cm), weisen alle eine deutlich gedrungene Form auf. Neben der robusteren Ausprägung zeigt sich, wie bei entsprechenden Objekten aus Qantir-Piramesse, eine regelhafte Kantenretuschierung. Alle anderen in möglichen Kontexten des Neuen Reichs angetroffenen Sicheleinsätze unterscheiden sich nicht von den anderen Funden und wurden deswegen in die metrische Auswertung aufgenommen.

Es wurde bereits an anderer Stelle mehrfach darauf hingewiesen, dass die Streuung der Längen eher zweitrangig für die Funktionstüchtigkeit einer Sichel ist.[109] Die wesentlich wichtigere Normierung in Breite und Stärke ähnelt der bei den unmodifizierten Klingen erfassten (s.o. Tab. 3), da eine Reduktion der Breite nicht durch die Herstellung des Gerätes, sondern bei dessen Nutzung bzw. Nachschärfung auftritt.[110] Doppelt genutzte Sicheleinsätze sind dementsprechend nur geringfügig schmäler. Dennoch scheinen hauptsächlich breitere Klingen als Sicheleinsatz verwendet worden zu sein, bzw. ist ein höherer Anteil der Klingen ohne sichtbare Modifikation etwas schmäler.

[108] Vgl. die Einsätze in Amarna bei Graves-Brown 2011, fig. 524.

[109] Jeuthe 2012, 139.

[110] Wobei Tillmann 2007, 89 für das Areal A/V einen Widerspruch zwischen den Maßen der Sicheleinsätze und der unmodifizierten Klingen feststellt.

Tab. 8 Merkmale der verschiedenen Segmente

| | endretuschiert n = 40 | gekappt n = 114 | Summe n = 154 |
|---|---|---|---|
| Klinge | 35 | 101 | 136 (88,3 %) |
| Kernkantenklinge | 5 | 13 | 18 (11,7 %) |
| Gebrauchsretusche | 13 | 35 | 48 (31,2 %) |
| lateralretuschiert | 9 | 3 | 12 (7,8 %) |
| bilaterale Retusche | | 2 | 2 (1,3 %) |
| rückenretuschiert | 4 | | 4 (2,6 %) |
| gezähnt | 3 | 2 | 5 (3,2 %) |
| gekerbt | 4 | 3 | 7 (4,5 %) |

Tab. 9 Metrische Angaben (in cm) zu den Segmenten

| **endretuschiert n = 23** | Minimum | Maximum | Mittelwert |
|---|---|---|---|
| Längen | 2,5 | 6,3 | 4,06 ± 1,03 |
| Breiten | 1,1 | 2,1 | 1,58 ± 0,29 |
| Stärken | 0,4 | 0,8 | 0,49 ± 0,12 |
| Längen-Breiten-Ratio | 1,6:1 | 4,8:1 | 2,61:1 ± 0,85 |
| **gekappt n = 68** | | | |
| Längen | 1,9 | 7,9 | 4,45 ± 1,19 |
| Breiten | 0,7 | 2,6 | 1,56 ± 0,36 |
| Stärken | 0,2 | 0,9 | 0,45 ± 0,13 |
| Längen-Breiten-Ratio | 1:1 | 6:1 | 3:1 ± 0,14 |

*Segmente*

Noch häufiger als die Sicheleinsätze treten segmentierte Klingen auf (s.o. Tab. 5), bei denen es sich überwiegend um gekappte Klingen (74 %) und deutlich seltener um endretuschierte Stücke handelt (26 %). Darunter fallen auch sieben Fragmente, bei denen ein Kurzende retuschiert, das andere nur gekappt ist. In fünf Fällen wurde eine gerundete oder schräge Form beobachtet. Bei der Mehrheit der vollständig erhaltenen Segmente wurden beide Enden bearbeitet, und lediglich knapp 30 % der gekappten und 38 % der endretuschierten Stücke sind zumeist nur terminal modifiziert.

Beide Gruppen weisen kaum weitere Modifikationen auf (Tab. 8). Gebrauchsspuren sind dabei zwar am häufigsten vertreten, dennoch aber nur an knapp 31 % der gekappten und an 22 % der endretuschierten Klingen festgestellt worden. Im Gegensatz zu den Sicheleinsätzen treten die lateralen Modifikationen hauptsächlich dorsal auf (z. B. Abb. 49: Inv.-Nr. 9590Y, 9591Z).

Während die endretuschierten Stücke nicht nur anhand der Modifikationen, wie die z. B. selten auftretende Rückenretusche, sondern auch in der metrischen Ausprägung stark den Sicheleinsätzen ähneln, sind die gekappten Stücke deutlich uneinheitlicher (Tab. 9). Die vergleichbare Normierung in der Breite ist bereits durch die Klingennormierung vorgegeben. Die Längen variieren allerdings sehr stark, was sich deutlich in der Streuung des Längen-Breiten-Verhältnisses ausdrückt. Insofern scheint es sich bei den endretuschierten Stücken überwiegend um Sicheleinsätze zu handeln, die wahrscheinlich direkt sekundär verwendet wurden. Auch bei den gekappten Segmenten kann ein gewisser Anteil so verstanden werden. Jedoch deutet die Inhomogenität dieser Gruppe auf unterschiedliche Funktionen der segmentierten Klingen hin, zumal die Zurichtung weder sonderlich originell noch aufwendig ist.[111] Letztendlich würde sich diese Gruppe nur durch Gebrauchsspurenanalysen funktional besser verstehen und untergliedern lassen.

*Bohrer*

Weitere formale Geräte treten kaum auf. Von den fünf Bohrern stammt keiner aus einem stratifizierten Kontext; einer könnte eventuell in das Neue

[111] Graves-Brown 2011, 398, vermutet einen Anstieg gekappter Segmente ab dem Mittleren Reich und geht gleichfalls nicht davon aus, dass es sich nur um ungenutzte Sicheleinsätze handelt; ebenda, 402f.

Reich datieren. Bis auf eine recht non-formale Modifikation eines Schottertrümmers handelt es sich um terminal modifizierte Klingen bzw. eine Kernkantenklinge, die alle nur geringfügig terminal zugerichtet wurden. Dementsprechend ist die Gerätelänge relativ hoch mit bis zu 7,6 cm, wobei der eigentliche Bohrer in allen Fällen kurz gehalten ist und einen Durchmesser von 0,25–0,56 cm aufweist (Abb. 50: Inv.-Nr. 9635V, 9634W).

*Bifaziale Fragmente*

Aus den gestörten Kontexten stammen fünf bifaziale Fragmente, die teilweise mit den formal auf das Neue Reich verweisenden Sicheleinsätzen vergesellschaftet waren (Abb. 50: Inv.-Nr. 9689P, 9687C). Zwei Exemplare stammen aus demselben Kontext, gehören aber zu unterschiedlichen Messern. Fast alle wurden aus nicht eindeutig klassifizierbaren Rohmaterialien hergestellt, nur eines kann der Materialgruppe 2 zugeordnet werden. Die Formen sind nur schlecht zu rekonstruieren, es scheint sich aber um eher langgestreckte und nicht stark bauchig ausgeprägte Messer zu handeln. Der Griffbereich ist bei keinem der Fragmente erhalten.

*Non-formale Werkzeuge*

Das Aufkommen nicht genormter Werkzeuge ist mit weniger als 25 % erstaunlich gering. Dabei dominieren die Geräte mit Gebrauchsspuren mit 64 % deutlich, gefolgt von den lateralretuschierten Stücken (20,9 %). Bei Letzteren handelt es sich nur in einem Fall um einen Abschlag, wohingegen bei den Gebrauchsretuschen 16 Abschläge bzw. Präparationsabschläge verwendet wurden. Auch bei den wenigen Objekten mit Zähnung oder Kerbung handelt es sich fast ausschließlich um Klingen und Kernkantenklingen. So lässt sich auch hier eine gewisse Bindung an die Grundform erkennen, bei der intentionell modifizierte Stücke − wie die genormten Werkzeuge − hauptsächlich aus Klingen bzw. sekundären und tertiären Kernkantenklingen bestehen (z. B. Abb. 48: Inv.-Nr. 9590K, 9588O; Abb. 49: Inv.-Nr. 9593Y).

*Varia*

Unter ‚Varia' fallen zwei Geröllgeräte, bei denen kleinere Schotterknollen (bis zu 6,4 cm Durchmesser) mit einer groben Retusche zu einem ‚chopper tool' modifiziert wurden (Abb. 50: Inv.-Nr. 9689V). Eines dieser Stücke fand sich in einem, soweit bekannt, ungestörten Kontext, das andere könnte möglicherweise aus dem Neuen Reich stammen.

Bei dem dritten hier aufgeführten Exemplar handelt es sich um eine verhältnismäßig große und breite, doppelseitig gekerbte Klinge (8,3 × 2,7 × 0,8 cm; Abb. 50: Inv.-Nr. 9590X) aus einem nicht stratifizierten Kontext. Sie wurde aus der Materialgruppe 4 hergestellt, wirkt aber nicht nur aufgrund ihrer Größe, sondern auch durch die sorgfältige Modifikation sehr fremd und könnte tendenziell eher in das Neue Reich datieren.[112]

*Zur Verteilung*

Beim gegenwärtigen Stand der feinstratigraphischen Auswertung und dem hohen Anteil an gestörten Fundkontexten wird an dieser Stelle nur ein kurzer Überblick zur Verteilung rein nach Gebäudekomplexen gegeben (Tab. 10; Abb. 51–54). Denn eine stratigraphische Aufschlüsselung ist erst nach der vollständigen Auswertung der keramischen Funde sinnvoll. Die Straßen und der ‚Tiefschnitt' werden bei den Kartierungen ausgeklammert, um ein möglichst geschlossenes Bild zu vermitteln. Die so vereinfachte Verteilung bezieht sich auf die Hauptfundgruppen, aber z. B. auch auf die selten auftretenden Bohrer. Als Gegenprobe wurden die Präparationsabschläge kartiert, da sie die größte Gruppe des klassischen Débitage darstellen. Damit sind etwas mehr als die Hälfte, 394 Artefakte, in die Kartierung einbezogen und können, da ihre Verteilungsmuster einander nicht widersprechen, durchaus als exemplarisch für das Gesamtaufkommen gelten.

Die Silexfunde streuen zwar über die gesamte Fläche, treten jedoch verstärkt im Komplex 2 in den Gebäuden 1, 2, 4 und 5 auf (Tab. 10). Die Gebäude im östlichen Komplex 3, Gebäude 3, 6, 7 und 8, sind nur im Ansatz in der Ausgrabung erfasst, was das geringere Aufkommen in diesem Areal u. a. erklärt. Der westliche Bereich, Komplex 1 um die großen Höfe 1 und 2, war z. T. sehr stark gestört. Dies alleine kann aber das geringe Aufkommen dort nicht begründen, wenn man es z. B. mit dem großen Hof südlich von Gebäude 4 vergleicht, der ebenfalls stark gestört war.

[112] Vgl. Tillmann 2007, 48f., 127f. zu den oftmals robusteren Klingen im Neuen Reich.

Bezieht man die Größen der ausgegrabenen Flächen mit ein, so scheinen sich zwar Komplex 1 und Komplex 3 auf den ersten Blick zu entsprechen. Denn von Komplex 1 wurde in etwa doppelt so viel geöffnet als von Komplex 3, was sich auch in der Fundmenge zu spiegeln scheint. Allerdings wurden in Komplex 1 mehrere Bereiche vollständig erfasst, wohingegen von Komplex 3 nur die Randbereiche ergraben wurden. Insofern kann von einem höheren Aufkommen in Komplex 3 als in Komplex 1 ausgegangen werden. Komplex 1 ist also auffallend arm an Funden, was insbesondere für die großen Hofbereiche und Bereich A gilt. Die anderen Bereiche sind zumeist zu unvollstän-

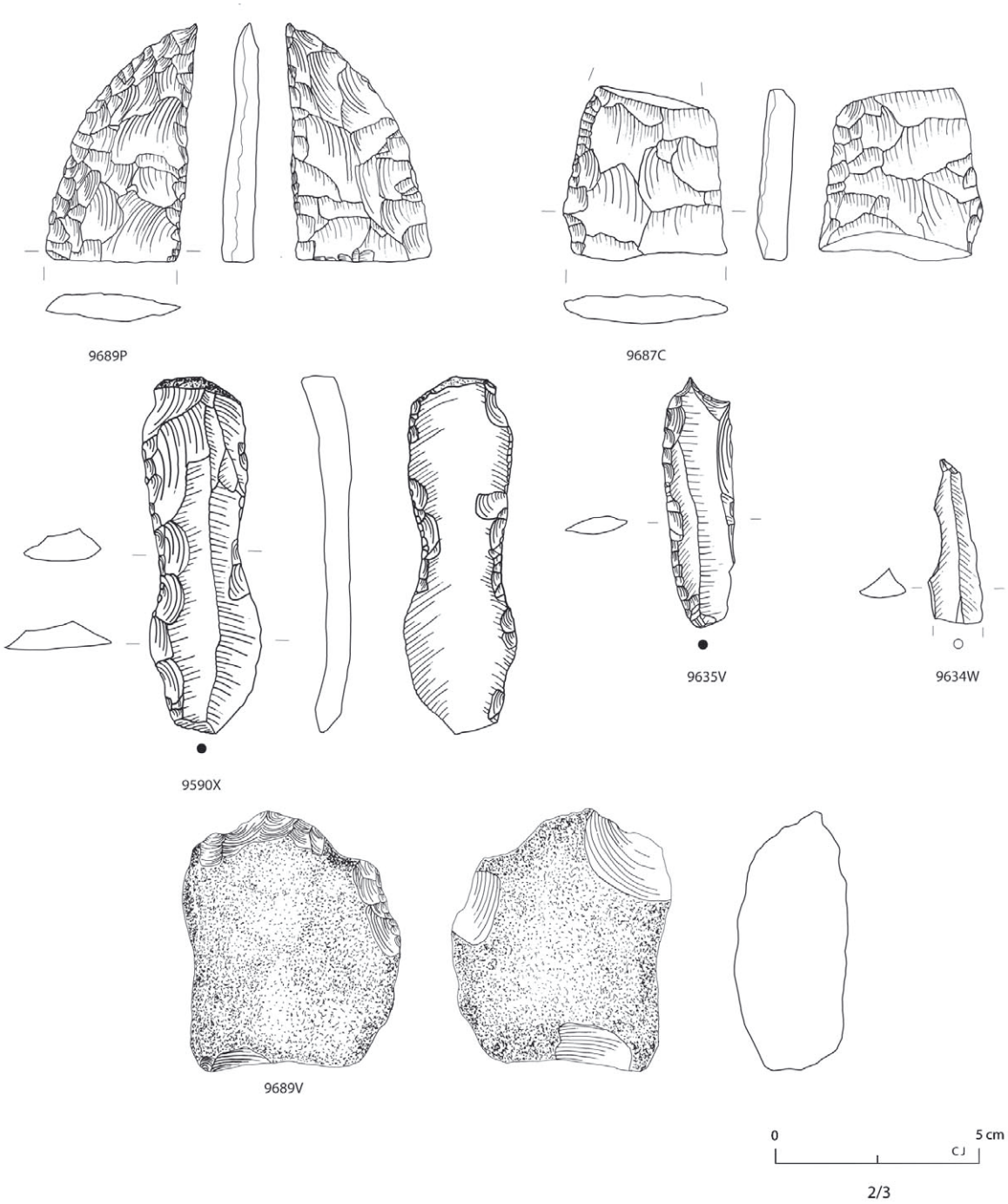



Abb. 50 Bifaziale Fragmente (Inv.-Nr. 9689P, 9687C), Bohrer (Inv.-Nr. 9635V, 9634W), doppelseitig gekerbte Großklinge (Inv.-Nr. 9590X), modifiziertes Schottergeröll (Inv.-Nr. 9689V) (Zeichnung Clara Jeuthe, © ÖAI)

Tab. 10 Aufschlüsselung der in die Verteilung einbezogenen Artefakte nach Komplexen und Verhältnisse innerhalb der Komplexe

| | unmodifizierte Klingen/Kernkantenklingen | Sicheleinsätze | Segmente | Bohrer | bifazial | Präparationsabschläge | Summe |
|---|---|---|---|---|---|---|---|
| **Komplex 1** | **21 (15,2 %)** | **32 (31,1 %)** | **26 (21,3 %)** | **0** | **0** | **6 (25 %)** | **85 (21,6 %)** |
| Hof 1 | 2 (9,5 %) | 3 (9,4 %) | 5 (19,2 %) | | | 1 (16,7 %) | 11 (12,9 %) |
| Hof 2 | 5 (23,8 %) | 3 (9,4 %) | 1 (3,8 %) | | | | 9 (10,6 %) |
| A | 1 (4,8 %) | 2 (6,3 %) | 1 (3,8 %) | | | | 4 (4,7 %) |
| B | | 2 (6,3 %) | 2 (7,7 %) | | | | 4 (4,7 %) |
| C | | 1 (3,1 %) | 4 (15,4 %) | | | | 5 (5,9 %) |
| D | | 8 (25 %) | 3 (11,5 %) | | | | 11 (12,9 %) |
| E | 1 (4,8 %) | 2 (6,3 %) | 3 (11,5 %) | | | 1 (16,7 %) | 7 (8,2 %) |
| F | 11 (52,4 %) | 10 (31,3 %) | 6 (23,1 %) | | | 4 (66,7 %) | 31 (36,5 %) |
| G | 1 (4,8 %) | 1 (3,1 %) | 1 (3,8 %) | | | | 3 (3,5 %) |
| **Komplex 2** | **100 (72,5 %)** | **58 (56,3 %)** | **86 (70,5 %)** | **2 (66,7 %)** | **2 (50 %)** | **17 (70,8 %)** | **265 (67,3 %)** |
| 1 | 19 (19 %) | 16 (27,6 %) | 14 (16,3 %) | | 1 (50 %) | 7 (41,2 %) | 57 (21,5 %) |
| 2 | 25 (25 %) | 14 (24,1 %) | 27 (31,4 %) | | 1 (50 %) | 6 (35,3 %) | 73 (27,5 %) |
| 4 | 41 (41 %) | 21 (36,2 %) | 39 (45,3 %) | 2 (100 %) | | 4 (23,5 %) | 107 (40,4 %) |
| 5 | 15 (15 %) | 7 (12,1 %) | 6 (7 %) | | | | 28 (10,6 %) |
| **Komplex 3** | **17 (12,3 %)** | **13 (12,6 %)** | **10 (8,2 %)** | **1 (33,3 %)** | **2 (50 %)** | **1 (4,2 %)** | **44 (11,2%)** |
| 3 | 9 (52,9 %) | 9 (69,2 %) | 6 (60 %) | 1 (100 %) | 2 (100 %) | | 27 (61,4 %) |
| 6 | 3 (17,6 %) | 1 (7,7 %) | 1 (0,7 %) | | | 1 (100 %) | 6 (13,4 %) |
| 7 | 5 (29,4 %) | 3 (23.1 %) | 3 (3,3 %) | | | | 11 (25 %) |
| 8 | | | | | | | 0 |
| **Summe** | **138** | **103** | **122** | **3** | **4** | **24** | **394** |

dig erfasst, sodass das Aufkommen in dem großflächig erfassten Bereich F aus diesen Gründen höher erscheinen mag. Dennoch wurden in Bereich F mehr Silexartefakte gefunden als in Hof 1, Hof 2 und Bereich A zusammen, was nur funktional zu erklären ist. Bereich F kann deswegen, eher wie die Gebäude in Komplex 2, als multifunktional mit verschiedenen Aktivitätszonen interpretiert werden. Für die anderen Bereiche B–G ist dies nicht ausgeschlossen, Bereich A unterscheidet sich aber zweifellos deutlich. Gleiches gilt im Vergleich zwischen den Höfen 1, 2 und Bereich A gegenüber Gebäude 4. In Letzterem ist das Aufkommen fast fünfmal so hoch wie in der gesamten ersten Gruppe, obwohl die bauliche Anlage sich nicht gravierend unterscheidet. Gebäude 4 hat dabei nicht nur das höchste Fundaufkommen, sondern die Sicheleinsätze und segmentierten Klingen wurden überdies in der direkten Umgebung der großen Silos gefunden (Abb. 51, 52). Die Funde in Komplex 1 streuen hingegen stärker und zeigen keine spezifischen Konzentrationen in der Umgebung der Silos, sondern das gegenteilige Bild. Dies spricht dafür, dass die meisten Sicheleinsätze nicht nur zufällig durch die Ernte in Komplex 1 gelangt sind, sondern sie scheinen dort offensichtlich anderweitig verwendet worden zu sein.

Betrachtet man die Verteilung der drei großen Fundgruppen – Sicheleinsätze, segmentierte Klingen und Klingen ohne Modifikation – unterscheiden sich die einzelnen Verteilungsmuster nicht wesentlich (Abb. 51–53). Nur in Gebäude 2 zeigt sich eine deutliche Verschiebung: unmodifizierte Stücke treten vor allem im Südosten auf (R3–R5), während die anderen beiden Gruppen mehr gestreut sind. Weniger deutlich ausgeprägt war der Unterschied in den Gebäuden 1, 4 und 5. Im großen Hof von Gebäude 4 scheinen die unmodifizierten Klingen mehr zu streuen; in Gebäude 5 wurden mehr unmodifizierte im nördlichen Raum 2, aber mehr modifizierte in der südlichen Raumgruppe R3–R5 gefunden. Die unmodifizierten Klingen auf der einen Seite und die Segmente und Sicheleinsätze auf der anderen Seite scheinen also zwei unterschiedliche Gruppen in der gebäudeinternen Verteilung zu bilden. Wie dieses zu interpretieren ist, ist zum gegenwärtigen Zeitpunkt nicht nur aufgrund der Störungen schwierig zu beurteilen. Erst nach der abschließenden Befund-


Abb. 51 Verteilung der Sicheleinsätze (Funde aus dem Neuen Reich mit „+1 NR“ gekennzeichnet)

auswertung und Gebrauchsspurenanalyse könnte diskutiert werden, ob für die Sicheleinsätze häufiger eine sekundäre Verwendung anzunehmen ist, oder ob sie eher zufällig mit dem Getreide in die Siedlung gelangten. Die gegenwärtig mögliche Verteilung der Sicheleinsätze könnte dahingehend interpretiert werden, dass deutliche Konzentrationen, wie in Gebäude 4, eher mit der Getreidelagerung verbunden sind, es sich bei Einzelfunden aber mehr um sekundäre Verwendungen handeln könnte. Folgt man diesem, so würde die Gesamtverteilung weitgehend gegen spezifische Aktivitätszonen sprechen. Alleine der südöstliche Hofbereich von Gebäude 4 könnte als Arbeitsbereich interpretiert werden, in dem unterschiedliche Silexwerkzeuge verwendet wurden. Dafür würde nicht nur das hohe Aufkommen sprechen, sondern auch die Verteilung der Bohrer. Denn zwei der fünf Bohrer stammen aus diesem Bereich und ein weiterer aus Straße 2 unmittelbar östlich des Hofes. Allerdings wurde ein vierter in Gebäude 3 gefunden, das auf der anderen Straßenseite anschließt. Der fünfte Bohrer aus Schottergeröll fand sich in einer Grube, die Komplex D und Straße 1 schneidet und nicht in die Verteilung aufgenommen wurde. Kein Bohrer stammt aus einem stratifizierten Kontext, die Konzentration in dem Bereich deutet jedoch auf entsprechende Aktivitäten in diesem Areal – möglicherweise in Gebäude 4 – hin.

Weitere raumbezogene Verteilungsschwerpunkte sind in Gebäude 1 sichtbar. Das Fundaufkommen ist im westlichen Hof und der nördlichen Raumgruppe R1–4 deutlich höher als in den (inneren) Räumen R5–12. Keines der Artefakte stammt aus dem zentralen Raum R7, wohingegen alle


Abb. 52 Verteilung der Segmente (grün = gekappt, gelb = endretuschiert)

Fundgruppen in R8 und R10/11 vorkommen. Allerdings fand sich in einer Ziegelbruchschicht in R7 neben einem Präparationsabschlag auch ein bifaziales Messerfragment.

Weniger deutlich ist die Verteilung der bifazialen Geräte. Zwar kommen zwei Fragmente von unterschiedlichen Werkzeugen aus einem gemeinsamen Kontext in Gebäude 3 und jeweils eines aus Gebäude 1 und Gebäude 2, doch scheint es sich um mehrfach umgelagerte Fragmente zu handeln. Gleiches gilt für das fünfte Exemplar, das aus derselben Störung stammt wie der oben erwähnte Bohrer aus Bereich D/Straße 1.

Die Präparationsabschläge, wenngleich eine kleinere Gruppe, treten zusammen mit den anderen Silexfunden auf und verweisen dementsprechend nicht auf eine Umlagerung von Schlagabfällen (Abb. 54). Die Gruppe der Kernscheiben ist für weitere Aussagen zu gering, wenngleich drei aus Bereich F stammen. Selbst eine Betrachtung der Schotterfunde führt zu keinem Ergebnis, und die Verteilung deutet nur auf Verlagerungen, aber keineswegs auf lokale Produktion im Grabungsgebiet oder außerhalb des Grabungsareals hin.

### *Zur Diskussion: Kontinuitäten der Zweiten Zwischenzeit*

Mit den Funden aus R/III steht nicht nur ein deutlich größeres Inventar der späteren Zweiten Zwischenzeit bis zur beginnenden 18. Dynastie zur Verfügung als bisher, es stammt auch aus funktional unterschiedlichen Komplexen. Trotz der Störungen erweist es sich als weitgehend homogen, nur wenige Funde sind eindeutig dem (fortgeschrittenen) Neuen Reich zuzusprechen, wie z. B. die robusten Sicheleinsätze. Auch die mit diesen Sicheleinsätzen teilweise vergesellschafteten bifa-


Abb. 53 Verteilung der Klingen ohne sichtbare Modifikation

zialen Fragmente sind aufgrund der Rohmaterialauswahl ein Fremdkörper in dem Inventar, wohingegen die Position der Bohrer nicht entschieden werden kann. Ihre Verteilung konzentriert sich zwar auf einen bestimmten Bereich, doch stammen sie alle aus gestörten Schichten und könnten deswegen auch auf spätere Aktivitäten verweisen. Hier bleibt eine Auswertung der vergesellschafteten Funde abzuwarten.

Auf der Basis der Funde aus R/III bietet es sich also an, einige der von Tillmann aufgeworfenen Fragestellungen neu zu diskutieren, wenngleich sich der Publikationsstand leider nicht entscheidend verbessert hat. Weiterreichende historische Aussagen sind weiterhin nur mit großen Vorbehalten möglich und könnten jederzeit durch neue Forschungen revidiert werden. Vergleichsmöglichkeiten mit anderen lithischen Inventaren der Zweiten Zwischenzeit im Delta fehlen, wohingegen in Oberägypten einer von zwei Fundorten noch nicht publiziert ist. Die Funde aus dem Bereich des Opettempels/Karnak sind zwar vorgelegt, werden aber als Gesamtinventar von der 11. Dynastie bis zum beginnenden Neuen Reich behandelt,[113] wohingegen die in etwa zeitgleichen Inventare in Edfu zwar aufgenommen sind, aber bislang noch nicht in Relation mit der Stratigraphie ausgewertet wurden.[114] Auf dieser sehr eingeschränkten Basis zeichnen sich keine starken Brüche zwischen dem Mittleren Reich und der Zweiten Zwischenzeit ab,

[113] Angevin 2012.

[114] Ich danke Nadine Möller für die Möglichkeit diese Inventare bearbeiten zu können.


Abb. 54 Verteilung der Präperationsabschläge

weitergehende Aussagen sind allerdings nicht möglich. In Karnak ist eine lokale Abschlagsindustrie im Fundmaterial nachgewiesen, die Klingenproduktion in der näheren Umgebung ist sehr wahrscheinlich. In Edfu dominiert diese hingegen eindeutig gegenüber der Abschlagsindustrie. Ob sich die metrische Ausprägung der Klingen und die Schlagtechnik ändern, muss gegenwärtig offen bleiben. Traditionen und Distribution scheinen sich seit dem fortgeschrittenen Alten Reich[115] aber nicht maßgeblich zu ändern. Diese Fundorte haben allerdings einen direkten Zugang zu den Rohmaterialien, was sich nicht mit der Situation im Delta vergleichen lässt. Importe herrschen dort zwangsläufig vor, entweder als Grundform oder als unbearbeitetes Material. Letzteres vermutet Tillmann, dessen Aussagen allerdings zum einen auf der Vorstellung einer absoluten Zweiteilung des Landes und einer eher ‚liberalen Marktwirtschaft' zu beruhen scheinen.[116] Dementsprechend bewertet er die Produktionsabfälle, wie die drei primären Kernkantenklingen und die Kernscheibe im Areal A/V, als Beleg für eine lokale Klingenproduktion in Avaris.[117] Allerdings wird nicht erwähnt, aus

[115] Gegenwärtig werden die Silexfunde auf Elephantine bezüglich ihrer Materialbindung durch die Verfasserin neu ausgewertet; ein Bruch in den Importen deutet sich dabei vor der 6. Dynastie an, scheint aber gleichzeitig an bestimmte Werkzeuge gebunden zu sein.

[116] Tillmann 2007, 151–170. S. zu Kontaktfunden zwischen den beiden Teilreichen auch Prell in diesem Beitrag sowie Möller/Marouard 2011, 106f.

[117] Tillmann 2007, 87; Ders. 2004, 364f., Tab. 3.

welchem Material diese Artefakte sind; die einzige in R/III gefundene primäre Kernkantenklinge ist aus Schotter, der nur eine sehr untergeordnete Rolle in der Materialselektion spielt. Zwar treten in R/III auch Produktionsabfälle und typisches Klingendébitage aus der bevorzugten Materialgruppe 4 auf, jedoch ist der Umfang so gering, dass eine lokale Produktion vor Ort oder in der direkten Umgebung ausgeschlossen werden kann. Denn z. B. Kortexabschläge sind stark unterrepräsentiert, obwohl Kortex nur an 82 Klingen vorhanden war und überdies mehrheitlich weniger als 25 % der Klinge bedeckte. Kerne aller Materialgruppen fehlen in allen bisher bekannten Inventaren der Zweiten Zwischenzeit, und es erscheint unlogisch davon auszugehen, dass sich bestimmte primäre Abfallprodukte verlagerten, andere hingegen nicht. Zweifellos ist das Aufkommen in R/III, aber auch A/V, zu gering und unvollständig, als dass es als Beleg für eine lokale Industrie herangezogen werden kann. Stattdessen scheinen klassische Abfallprodukte gleichfalls als Gerät genutzt worden zu sein, wobei die wenigen nicht nutzbaren Artefakte zufällig mit den Importen nach Avaris gelangt sein könnten.[118]

Letztendlich ist gleichfalls viel zu wenig über die Versorgung und Auswahl im Mittleren Reich bekannt, als dass man die Strategien vergleichen könnte. Der Nachweis einer sekundären Produktion ist schwierig, weil Kantenretuschierungen kaum durchgeführt wurden. Dennoch wären zumindest vereinzelt entsprechende Abfälle zu erwarten gewesen, zumal alle Schichten gesiebt wurden. Das Kappen der Klingen kann anhand von Klingenenden nachgewiesen werden, die aber gleichfalls kaum im Inventar vertreten sind. Die sekundäre Produktion, die Herstellung von Geräten, ist in R/III also ebenfalls unwahrscheinlich.

Gleiches gilt für die Schotterindustrie. Zwar sind eine Kernkappe und eine primäre Kernkantenklinge im Inventar vorhanden, stammen jedoch aus unterschiedlichen Schichtungen. Selbst wenn man Verlagerungen einbeziehen möchte, ist das Aufkommen von Trümmern und Splittern viel zu gering. Falls eine lokale Produktion stattfand – nur fünf Schotterfunde stammen aus stratifizierten Kontexten – könnte man höchstens von vereinzelten Aktionen ausgehen, auch wenn durch die primäre Kernkantenklinge auf entsprechendes Können verwiesen wird. Eine lokale Schotterindustrie könnte sich zwar für das Neue Reich als wesentlicher herausstellen, scheint aber im Mittleren Reich ähnlich selten aufzutreten.[119] Zusammenfassend zeigt sich also kein Bruch in den Traditionen während der Zweiten Zwischenzeit, sondern deutet sich erst für das entwickelte Neue Reich an.

Die Merkmale der Klingentechnologie der Zweiten Zwischenzeit unterscheiden sich kaum von den Beschreibungen Tillmanns für die Funde des Mittleren Reichs aus Tell el-Dabᶜa, wobei die dorsale Reduktion stärker an den älteren Funden der Fläche F/I auftritt. Tillmann hingegen sieht einen deutlichen Bruch in der Klingentechnologie zwischen dem Mittleren Reich und der Zweiten Zwischenzeit,[120] was möglicherweise auf einer zu geringen Materialmenge in seiner Studie basiert. Das überaus umfangreiche Inventar aus R/III lässt z. B. von einer Übertonung der Lippenausprägung oder bidirektionalen Zurichtung als Charakteristika abrücken. Zwar treten diese Kriterien alle auf, jedoch in einem zu geringen Umfang, als dass ein scharfer Bruch postuliert werden könnte, und eine Bindung bestimmter Schlagelemente an eine Materialgruppe lässt sich ebenfalls nicht erkennen. Tillmann vermutet überdies, dass im Mittleren Reich die indirekte weiche Schlagtechnik dominierte, eine Ansicht, die allerdings auf undatierten Kernen aus Wadi Sheikh beruht.[121] Auch die Klingen aus Qantir-Piramesse weisen die gleichen Charakteristika, wie den überwiegend punktförmigen Schlagflächenrest, schwach ausgeprägten Bulbus oder die Lippenbildung auf.[122] Die Schlag-

[118] Es ist vollkommen unklar, wie man sich den Ablauf der Distribution vorstellen sollte. Zwar scheint die Versorgung zumindest bis in die Erste Zwischenzeit von staatlicher Seite organisiert gewesen zu sein, die konkrete Abwicklung einer Lieferung bleibt jedoch offen, etwa ob es sich um Stückzahlen handelte, ob Siedlungen einen konkreten Bedarf anmeldeten oder einen Anteil zugewiesen bekamen usw. Mit den lokalen Industrien im Niltal auf der einen Seite und dem Import in das Delta auf der anderen Seite ist die Situation zu komplex und die Datengrundlage gleichzeitig zu gering, um eine Diskussion über mögliche Änderungen der Distribution in der Zweiten Zwischenzeit zu eröffnen.

[119] Tillmann 2007, 32ff., 91.

[120] Tillmann 2007, 92–95.

[121] Tillmann 2007, 123f. S. aber Weiner 2011, 145f., der dies anhand der Schlagmerkmale lediglich als Möglichkeit sieht und weder die Drucktechnik noch den weichen, direkten Schlag ausschließt. Zur Problematik der Datierung des von Weiner untersuchten Materials in Wadi Sheikh, ebenda, 151f., Anm. 144.

[122] Tillmann 2007, 48–51.

technologie scheint also kein besonders verlässliches chronologisches Kriterium zu sein, was insbesondere für die für den Import bestimmten Klingen gelten mag. Unterschiedliche Technologien und Traditionen können dabei durchaus nebeneinander existiert haben.

Allerdings ändert sich die metrische Ausprägung: so sind die Klingen im Neuen Reich kürzer und massiger, wohingegen die im Mittleren Reich überwiegend dünner und länger sein sollen. Eine kürzlich erschienene Übersicht suggeriert dabei eine relativ kontinuierliche Entwicklung, basiert aber auf wenigen Fundorten mit z. T. sehr kleinen Inventaren, die überdies nicht immer feinchronologisch aufgeschlüsselt sind. Zwar scheint sich die allgemeine Tendenz dennoch abzuzeichnen, muss aber mit einer gewissen Vorsicht betrachtet werden. Die Klingen des Mittleren Reichs aus Tell el-Dabᶜa unterscheiden sich z. B. von denen aus Harageh; die Neuen-Reichs-Klingen aus Gurob sind deutlich schmäler als andere in etwa zeitgleiche Klingen.[123] Diese Grundtendenz, aber auch Widersprüche, setzen sich dementsprechend in dem chronologischen Vergleich der Sicheleinsätze fort. Die Sicheleinsätze des Neuen Reichs wirken metrisch recht einheitlich, wohingegen die Funde aus dem Mittleren Reich eine größere Bandbreite aufweisen.[124] Nun ist nicht nur die geringe Fundplatzbasis, sondern auch die Fokussierung auf ein einzelnes Merkmal problematisch. Die Relation z. B. zwischen Gerät und Grundform sollte unbedingt eingebunden werden. Denn der Anteil von Sicheleinsätzen aus Abschlägen oder TCP steigt im Neuen Reich deutlich an.[125] Darin kann der eigentliche Bruch gesehen werden, während die Entwicklung der Klingen- und Gerätegrößen relativ kontinuierlich ist. Ob sie schon im Mittleren Reich oder erst anschließend einsetzt, kann aufgrund der vorliegenden Inventare nicht entschieden werden. Betrachtet man nur diejenigen aus Tell el-Dabᶜa, so unterscheiden sich Breiten und Stärken weder für die Klingen noch für die Sicheleinsätze wesentlich von den Artefakten aus dem Mittleren Reich.[126] Die Längen schwanken stärker, was auch durch die geringe Anzahl der vollständig erhaltenen Klingen begründet sein kann. Die rechteckigen Sicheleinsätze aus R/III sind aber im Durchschnitt nicht nur deutlich kürzer als die aus dem Mittleren Reich, sondern auch als entsprechende Objekte des Neuen Reichs aus Qantir-Piramesse.[127] Kürzere Einsätze scheinen sich also bereits in der späten Zweiten Zwischenzeit durchgesetzt zu haben und, wie oben erwähnt, beginnt sich die Form der Einsätze durch die schrägen Endretuschen ebenfalls zu ändern. In der Breite ähneln sowohl Klingen als auch Sicheleinsätze hingegen den Funden aus dem Mittleren Reich, scheinen aber mehr Abweichungen aufzuweisen. Das geringe Auftreten der Gruppen 2 und 3 könnte hingegen so interpretiert werden, dass es sich dabei um ältere Artefakte aus dem Mittleren Reich handeln könnte, zumal insbesondere Gruppe 2 sehr genormt erscheint. Allerdings unterscheiden sich auf der bisherigen Basis die jeweiligen Materialgruppen weder in Größe noch Schlagtechnik signifikant, was erneut gegen einen scharfen Bruch zwischen den Traditionen des Mittleren Reichs und der Zweiten Zwischenzeit spricht.

Eine schleichende Entwicklung von den langen, schmalen, oft sehr genormten Artefakten bis hin zu den unregelmäßigeren, massiven Stücken des Neuen Reichs ist damit wahrscheinlicher als ein scharfer Bruch, der letztendlich zu einer Veränderung der Sichelform geführt haben könnte. Letztendlich müssten dafür mehr Inventare mit den entsprechenden Übergängen vom Mittleren Reich betrachtet und mit Funden aus Oberägypten verglichen werden. Der wesentliche Unterschied zu den Funden des Neuen Reichs – die Wahl der Grundform – scheint eine gesamtägyptische Erscheinung zu sein. Sie mag eine Folge der breiteren Klingen sein, wodurch Abschläge besser zusammen mit Klingen genutzt werden konnten.

Daran knüpft sich ein letzter Diskussionsstrang, die Frage nach der Rohmaterialselektion, die mit der dominierenden Materialgruppe 4 sehr eingeschränkt ist. Soweit man Tillmann folgen kann, entspricht sie weder dem bevorzugtem Material im Mittleren noch im Neuen Reich. Obwohl er nur die Funde aus dem Neuen Reich eindeutig mit Wadi Sheikh in Verbindung bringen kann, vermutet er eine Änderung in der Beschaffung durch die politische Zweiteilung des Landes.[128] Die Machtausdehnung der Hyksos an bis-

[123] Graves-Brown 2011, 100–106, 394–397.

[124] Graves-Brown 2011, 426–432.

[125] S. Qantir-Piramesse, wo knapp ein Drittel aus Abschlägen hergestellt wurde; Tillmann 2007, 69.

[126] Vgl. Tillmann 2007, 93, 96.

[127] Vgl. Tillmann 2007, 71f.

[128] Tillmann 2007, 85, 91; Ders. 2004, 359f.

lang hypothetischen Abbaugebieten zu definieren, bleibt aber gegenwärtig unmöglich. Ohne eine Diskussion über die mögliche Abbauregion, aber auch Machtbereiche[129] führen zu wollen, sei zunächst angemerkt, dass Brüche in der Materialselektion z. B. auch im Alten Reich beobachtet werden können. Diese sind nicht mit einer veränderten politischen Lage in Verbindung zu bringen, sondern z. T. liegt eine Gerätebindung vor, z. T. kann eine Änderung im Distributionssystem die Ursache sein.[130] Die Unterschiede der Materialselektion für Tell el-Dabᶜa müssen also nicht zwangsläufig eine politische Ursache haben, zumal es sich in allen Fällen um hochwertigen Silex handelt. Warum Materialgruppe 4 laut Tillmann nicht mehr im Neuen Reich dominiert bleibt offen, jedoch handelt es sich weder um eine Frage der Zugänglichkeit noch um ein Qualitätsmerkmal. Sofern die Region um Galâlâ Nord (s.o.) tatsächlich als Abbaugebiet in Frage kommen sollte, ist die Distanz zu Wadi Sheikh mit 20–50 km ausgesprochen gering und lässt die Frage der Zugänglichkeit als fast zweitrangig erscheinen. Zuletzt bleibt auch offen, wann die Verschiebungen einsetzen und wie massiv sie sich äußern, d. h., ob es sich um einen relativ plötzlichen Wechsel handelte oder um eine schrittweise Veränderung. Auch dafür müssten erst weitere Vergleichsinventare aufgenommen werden, um die Lücke zwischen dem Mittleren Reich und der späteren Zweiten Zwischenzeit sowie dem frühen Neuen Reich schließen zu können.

Das Silexinventar aus R/III erweist sich also als ausgesprochen homogen und bietet zukünftig, hauptsächlich in der Raumverteilung, fundierte Aussagemöglichkeiten. Technologisch gesehen lassen sich Traditionen und Entwicklungen aus dem Mittleren Reich gut verfolgen, es zeigen sich aber auch bereits Elemente, die spätestens in der 19. Dynastie charakteristisch werden. Aus der lithischen Perspektive weist die späte Zweite Zwischenzeit so mehr Kontinuität als Diskontinuität auf. Alleine bei der Rohmaterialselektion zeigt sich ein deutlicher Bruch, der aber weder genauer zeitlich eingegrenzt noch interpretiert werden kann.

-CJ-

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[129] S. zum Stand der Diskussion zuletzt Möller/Marouard 2011, 106, 108f. mit weiterer Literatur.

[130] Dies bezieht sich auf gegenwärtig untersuchte Inventare hauptsächlich aus Elephantine, aber auch im geringeren Maße aus Ayn Asil und Edfu. Brüche in der späteren Entwicklung sind keineswegs auszuschließen, jedoch fehlen die entsprechenden Inventarvorlagen.

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# B. Der Hafen von Avaris – Das Areal R/IV, Erster Vorbericht

*Irene Forstner-Müller, Astrid Hassler, Uroš Matić, Pamela Rose*

Der aktuelle archäologische Forschungsschwerpunkt der Zweigstelle Kairo des Österreichischen Archäologischen Instituts liegt auf der Lokalisierung und Untersuchung der Häfen und Anlegestellen innerhalb der Stadt.[1] Seit der späten 12. Dynastie war Avaris eine wichtige Hafenstadt, in der Ramessidenzeit bildete Avaris den südlichen Teil von Piramesse, in dem sich der Hafen der Stadt befand (s. Abb. 1 im Abschnitt: A. Das Areal R/III, zweiter Vorbericht, p. 18). Archäologische Ausgrabungen in diesem Gebiet fanden erstmals im Frühjahr 2013 statt und wurden im Frühjahr 2014 fortgesetzt.[2]

Wir danken dem Ministerium für Antiken, besonders seienr Exzellenz Minister Mamdouh el-Damati, und den lokalen Inspektoraten in Zagazig und Faqus, insbesondere den Herrn Mahmud Galal und Hisham Mo'men sowie den lokalen Inspektoren. Zu besonderem Dank sind wir der Österreichischen Botschaft in Kairo verpflichtet, vor allem Seiner Exzellenz, DDr. Georg Stillfried, dem österreichischen Botschafter in Ägypten, und Dr. René-Paul Amry, stellvertretretender Botschafter, für ihre wertvolle Unterstützung. Ebenso danken wir der Direktorin des Österreichischen Instituts, PD Dr. Sabine Ladstätter, für ihre unermüdliche Unterstützung.

Teilnehmerliste 2013–2014

*Frühjahr 2013*

| | |
|---|---|
| Irene Forstner-Müller | Grabungsleiterin |
| Pamela Rose | stellvertretende Grabungsleiterin |
| Alan Clapham | Archäobotaniker |
| Piotr Czerwiński | Ägyptologe |
| Jean-Philippe Goiran | Geograf |
| Julia Gresky | Anthropologin |
| Astrid Hassler | Archäologin |
| Tomasz Herbich | Geophysiker |
| Axel Krause | Fotograf |
| Uroš Matić | Ägyptologe |
| Sandra Müller | Ägyptologin |
| Erico Peintner | Restaurator |
| Silvia Prell | Ägyptologin |
| Chiara Reali | Ägyptologin |
| David Schmid | Student |
| Laurent Schmitt | Geograf |
| Verena Wolfer | Ägyptologin |
| Amer Fatallah Ali | Inspektor |
| Mohammed Ahmed el-Beiz | Inspektor |

*Frühjahr 2014*

| | |
|---|---|
| Irene Forstner-Müller | Grabungsleiterin |
| Pamela Rose | stellvertretende Grabungsleiterin |
| Astrid Hassler | Archäologin |
| Clara Jeuthe | Spezialistin für Lithik |
| Uroš Matić | Ägyptologe |
| Vera Michel | Ägyptologin |
| Erico Peintner | Restaurator |
| Silvia Prell | Ägyptologin |
| Chiara Reali | Ägyptologin |
| Al-Sayed Ahmed Ibrahim Hassan | Inspektor |

Im Frühjahr 2013 wurden erstmals Arbeiten im vermuteten Haupthafen von Avaris unternommen. Das Areal ist mit dem Hauptarm des Nils durch zwei Kanäle, einem im Norden und einem im Süden, verbunden.[3] Dieser Bereich der Stadt, der

[1] Eine Übersicht über den Forschungsstand zu den Häfen von Avaris und weiterführende Literatur s. zuletzt Forstner-Müller/Herbich 2013, 257–272.

[2] Das Projekt erfolgt in Kooperation mit der Universität Warschau, Polnische Akademie der Wissenschaften (Leitung T. Herbich), Universität Lyon, UMR 5133 Archéorient, CNRS, Universität Strassburg UMR 7362 (Leitung Jean-Philippe Goiran und Laurent Schmitt). Die Finanzierung erfolgte durch das Österreichische Archäologische Institut und durch den FWF (Projekt „Function of an Egyptian Town", Projekt Nr. 25804-G19).

[3] Eine Spezialstudie zur Erforschung der Flussarme und der Häfen von Avaris wird in Kooperation mit der Universität Lyon 2, CNRS und der Universität Strassburg unter der Leitung von Jean-Philippe Goiran und Laurent Schmitt durchgeführt. S. H. Tronchère, F. Salomon, Y. Callot, J.-P. Goiran, L. Schmitt, I. Forstner-Müller und M. Bietak 2008, 327–340; H. Tronchère, J.-P. Goiran, L. Schmitt, M. Bietak und I. Forstner-Müller 2012, Nr. 2, 23–36.

Ägypten und Levante/Egypt and the Levant 25, 2015, 73–88

sich durch eine Depression im modernen Gelände abzeichnet, war bereits in der geophysikalischen Prospektion als großes (natürliches oder künstliches) Becken sichtbar. Zu Beginn der Grabung wurde ein 10 × 40 m breiter Schnitt vom Rande des Beckens zur Beckenmitte hin angelegt (Abb. 55). Dabei zeigte sich, dass der sich im Magnetometerbild anscheinend deutlich abzeichnende Rand durch die archäologischen Untersuchungen nicht verifiziert werden konnte. Das Hafenbecken scheint sich im Lauf des 2. Jahrtausends durch natürliche und durch Menschen verursachte Ablagerungen verkleinert zu haben. Dieses Phänomen des Zuwachsens der Fluss- und Gewässerränder kann noch im modernen Ägypten, insbesondere im Nildelta, beobachtet werden. Um den eigentlichen Rand des Hafenbeckens während seiner letzten Nutzungsphase untersuchen zu können, musste der Grabungsschnitt um weitere 30 m verlängert werden.

Die Untersuchungen am Rand des Hafenbeckens wurden im Frühjahr 2014 fortgesetzt. Der 2013 angelegte 10 × 40 m großer Schnitt am nördlichen Beckenrand wurde 2014 in seinem südlichen Bereich weiter untersucht (Abb. 56).

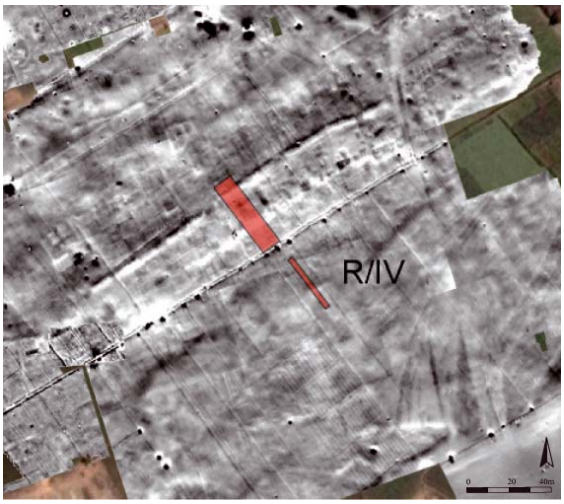


Abb. 55 Detailansicht mit Fläche R/IV (Grafik A. Hassler, © ÖAI)

Siedlungsabfolge:
Insgesamt konnte eine dichte Siedlungsabfolge vom Späteren Mittleren Reich bis vermutlich in die Ramessidenzeit mit einem Hiatus während der früheren 18. Dynastie festgestellt werden. Die bis-

Abb. 56 Überblick über die Fläche R/IV (Foto I. Forstner-Müller, © ÖAI)

Abb. 57 Kanalkonstruktion der 13. Dynastie
(Foto P. Rose, © ÖAI)

Abb. 58 Überblick über Planquadrat l/22
(Foto U. Matić, © ÖAI)

her früheste Belegung des Platzes datiert ins späte Mittlere Reich (13. Dynastie). Damals wurde in R/IV ein Kanal angelegt (Abb. 57). Aus der Verfüllung des Kanals wurde eine Reihe von Siegelabdrücken, und zwar sowohl ägyptische Stempelsiegelabdrücke mit Beamtennamen als auch vorderasiatische Rollsiegel, geborgen. Dies gibt Anlass zu der Vermutung, dass in der Nähe ein Umschlagplatz für Waren bestand, die mit Schiffen angeliefert wurden.[4]

In der folgenden Phase wurde das Areal locker mit Häusern und Gräbern bebaut und war offenbar Teil der Wohnstadt (Abb. 58).

Darüber, in der letzten Phase der 13. Dynastie, lag eine Schicht von dicht aneinander gebauten Speichern, deren Inneres teilweise mit Ziegelpflaster ausgestattet war (Abb. 59).

Dieser Speicherbereich war im Süden durch eine massive, ältere Mauer aus sandigen Lehmziegeln begrenzt, die eine Stärke von über drei Meter erreichte und entlang des nördlichen Beckenrandes verläuft. Die Mauer war im Magnetometerbild als negativ magnetische Anomalie sichtbar (Abb. 60). Detailliertere Untersuchungen sollen im nächsten Jahr (2015) erfolgen.

Die bereits 2013 festgestellte jüngere massive Mauer wurde während der 15. Dynastie errichtet

Abb. 59 Speicherschicht der 13. Dynastie
(Foto U. Matić, © ÖAI)

und bestand bis zum Ende der Zweiten Zwischenzeit als Landmarke (Abb. 61).

Weiters wurde der Bereich westlich der beiden großen Grabanlagen, die von dieser Mauer durch eine Straße getrennt sind, untersucht (Abb. 62).

[4] S. unten.

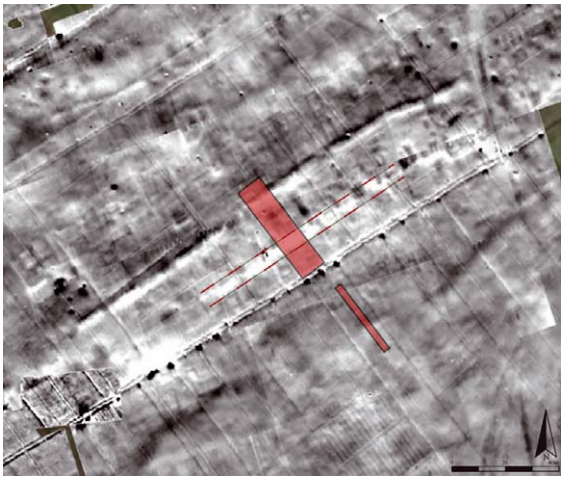

Abb. 60 Ältere Sandziegelmauer im Magnetometerbild (Grafik A. Hassler, © ÖAI)

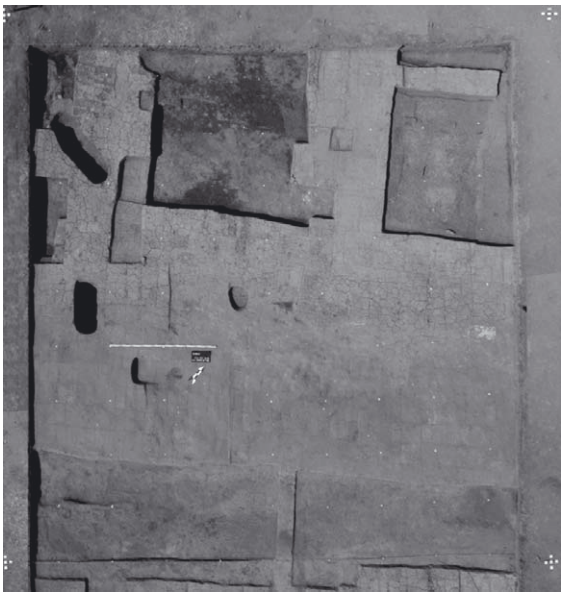

Abb. 61 Sandziegelmauer M1 (Foto U. Matić, © ÖAI)

Nach dem Ende der 15. Dynastie wird dieses Areal aufgelassen und vermutlich erst wieder in der 19. Dynastie besiedelt, als Avaris die südliche Vorstadt von Piramesse geworden war und dieser Bereich als Hafen der Stadt genutzt wurde.

## Das Layout der Fläche R/IV

Hervorstechendstes Merkmal der Fläche R/IV ist die massive, NO-SW verlaufende Sandziegelmauer M1 (siehe Abb. 61, 63 und 63a), deren weiterer Verlauf außerhalb des Grabungsareals anhand des Magnetometerbilds verfolgt werden kann: Dahingehend ist sie mindestens 500 m lang, der archäologische Befund weist ihr eine Breite von etwa 2 m und eine Erhaltungshöhe von etwa 70 cm zu. Die ursprüngliche Funktion dieser Mauer ist nicht hinlänglich geklärt,[5] doch wurde sie im Laufe der Zeit im Zuge von Nachnutzungen beständig wiederverwendet: Neben einer Ausbesserungsphase konnten an der nordwestlichen Seite mehrere direkt angebaute, mehrphasige Häuser nachgewiesen werden (s. Abb. 63, Nr. 1).

Abb. 62 Die großen Grabanlagen in Planquadrat l/21 (Foto U. Matić, © ÖAI)

Auf der südöstlichen Seite verläuft entlang der Mauer eine breite Straße mit zahlreichen Nutzungshorizonten, welche Zugang zu den anschließenden Gebäuden bot (Abb. 63, Nr. 2 und 3):

In eine frühe Nutzungsphase fallen die beiden großen Kammergräber [L347, L555] (Abb. 62); die Orientierung der Kammergräber und die Position ihrer Eingänge zeigen, dass der Zugang zu ihnen über ebendiese Straße erfolgte. Dass selbige zu dieser Zeit, der frühen 15. Dynastie, bereits tatsächlich existierte, konnte im Lauf der Grabungen anhand der mit den Gebäudemauern in Verbindung stehenden Gehhorizonten nachgewiesen werden (Abb. 64).

Beide Gräber wurden durch je ein späteres (Wohn-)Haus überbaut (Abb. 63, Nr. 2 und 3), wel-

[5] Forstner-Müller 2014a, 34; Forstner-Müller 2014b, 42–43.

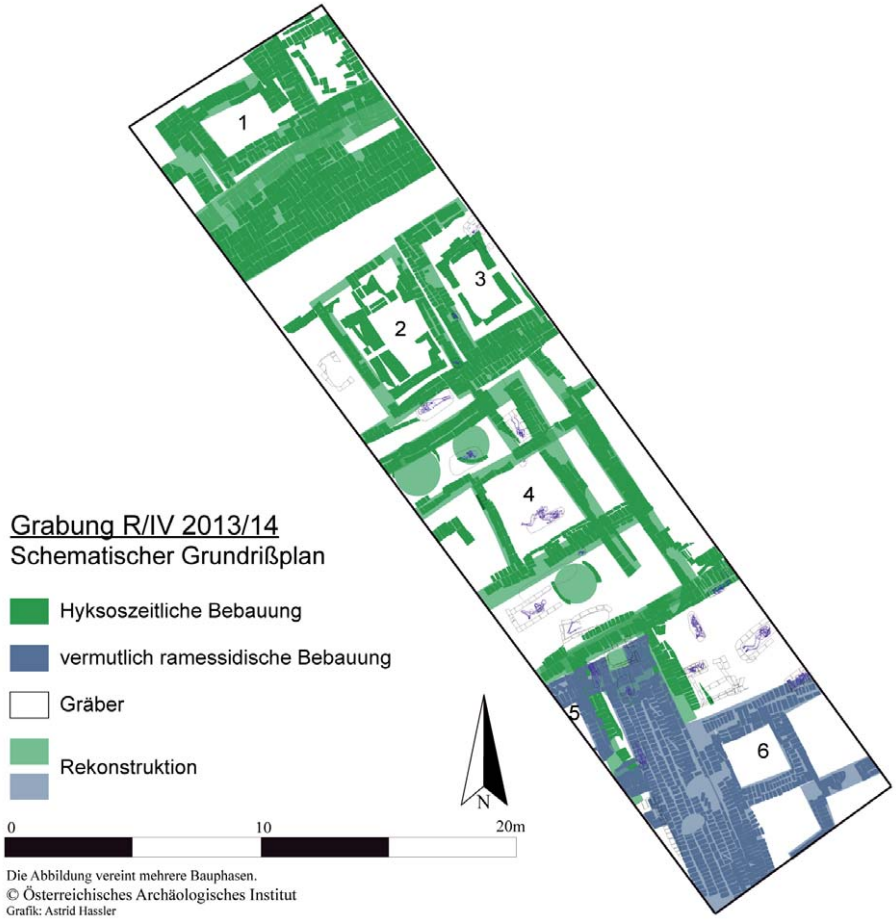


Abb. 63 Schematischer Überblicksplan über die Fläche R/IV (Grafik A. Hassler, © ÖAI)

ches ebenfalls Zugang von der Straße erhielt. Südöstlich daran anschließend folgt eine dichte Abfolge von (Wohn)-Bauten und Höfen (Abb. 63, Nr. 4) in verschiedenen Bauphasen, welche immer wieder von gleichzeitig oder später angelegten Gräbern durchsetzt sind. Die Höfe weisen mehrere kleine, dem domestischen Bereich zurechenbare Rundspeicher auf (Abb. 63, Silo 1–4). Diese Bauten stammen durchwegs aus der Zeit der 15. Dynastie.

Den äußersten Südosten der Fläche kennzeichnen zwei Gebäude (Abb. 63, Nr. 5 und 6), welche anhand der gefundenen Keramik vermutlich in die Ramessidenzeit zu datieren sind. Diese beiden bisher nur in Teilen ergrabenen Gebäude zeichnen sich durch sehr massive Mauerzüge aus, welche mit ausgeprägten Fundamenten versehen waren; selbige sind Richtung SO tiefer angelegt, um so das abfallende Gelände auszugleichen. Die Funktion der vermutlich ramessidischen Bauten ist bis dato noch nicht bekannt.

Der Schwerpunkt der Grabung 2014 lag auf der Frage, in welche Zeit die frühesten Besiedlungsschichten im Bereich der Fläche R/IV datieren; diese Schwerpunktgrabung wurde auf den Teilbereich rund um Sandziegelmauer und Straße beschränkt (Planquadrate l/20–21, s. Abb. 63 und 65), um die Befundlage in möglichst kleinteiliger Form dokumentieren zu können.

Nach dem vollständigen Abbau der großen Kammergräber der frühen 15. Dynastie zeigte sich, dass es bereits vor der Errichtung der massiven Sandziegelmauer M1 eine intensive Nutzung dieses Areals gab. Drei große gemauerte Rundspeicher (Abb. 65, Silo 1–3), zwei davon mit einer Pflasterung aus Sandziegeln, sind das bestimmende Merkmal der Bauaktivitäten unmittelbar bevor die große Mauer errichtet wurde (Abb. 59).

Die Speicher sind ob ihrer Größe (2,7–3,0 m Innendurchmesser) eher nicht im domestischen Rahmen anzusiedeln, sondern sprechen für eine

Abb. 63a Gesamtansicht der Fläche R/IV (Fotos U. Matić, © ÖAI)

Nutzung im gemeinwirtschaftlichen Bereich. Rundspeicher aller Ausdehnungen werden im Allgemeinen für die Lagerung aller Arten von Getreide genutzt,[6] man kann im Bereich dieses Areals also durchaus von einem größeren Lager- bzw. Umschlagplatz sprechen.

Leider ist dieser Bereich durch die tiefen Baugruben der späteren Kammergräber stark gestört, sodass weder genauere Aussagen über Zusammenhänge mit anderen Bauwerken noch die tatsächliche Anzahl der vorhandenen Speicherbauten getätigt werden können. Anhand der gefundenen Keramik lassen sich die Speicher in die späte 13. Dynastie datieren.

Unter dem Speicherhorizont befand sich ein Gebäude mit weitläufigen Räumen (siehe Abb. 65a, Nr. 1), dessen Struktur allerdings ebenfalls durch die Kammergräber weitgehend zerstört wurde (Abb. 65a; Abb. 66).

Die früheste architektonische Einrichtung stellt ein künstlich angelegter, tiefer Kanal dar (Abb. 57), für dessen Uferbefestigung zumindest zwei Ausbesserungsphasen archäologisch belegt sind. Weder seine Breite, noch wofür der Kanal explizit Verwendung fand, konnte bisher geklärt werden, doch weist seine Verfüllung eine überraschend hohe Anzahl von fragmentierten Importamphoren aus dem levantinischen Bereich auf. Die Fragmente können durchwegs in die frühe 13. Dynastie datiert werden, wodurch der Beginn der Bauaktivitäten in R/IV ebenfalls in diese Zeit zu setzen ist. Des Weiteren zeigt die Anwesenheit des Importgutes, dass am Ende des Mittleren Reiches die Stadt Avaris gute und aktive Handelskontakte mit der Levante pflegte.

## Die Siegel

Im Bereich des Kanalufers wurde eine große Zahl von ägyptischen Siegelabdrücken gefunden, teilweise mit Namen von möglicherweise in Avaris ansässigen Beamten.[7] Der erste namentlich zu identifizierende Siegelabdruck fällt dabei auf den „Aufseher der Lagerhäuser, Senebi der Ältere“

[6] Murray 2000, 527–528; Adams 2007.
Für Rundspeicher verschiedener Größen siehe auch im Vorbericht der Grabung R/III im vorliegenden Band den Grundrissplan der in der Nähe liegenden Fläche R/III, Abb. 3.

[7] Diese Fundgruppe soll von Marcel Marée in einem Spezialartikel detailliert vorgestellt werden.

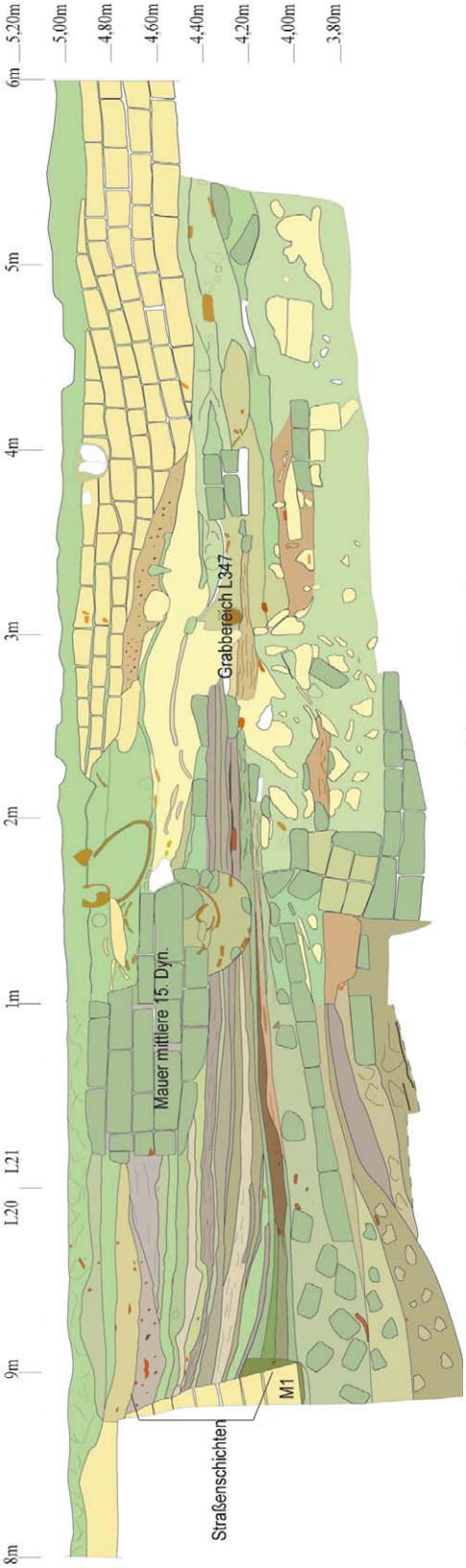


Abb. 64 Nordprofil mit Straßenhorizonten (Zeichnung und Grafik A. Hassler, © ÖAI)

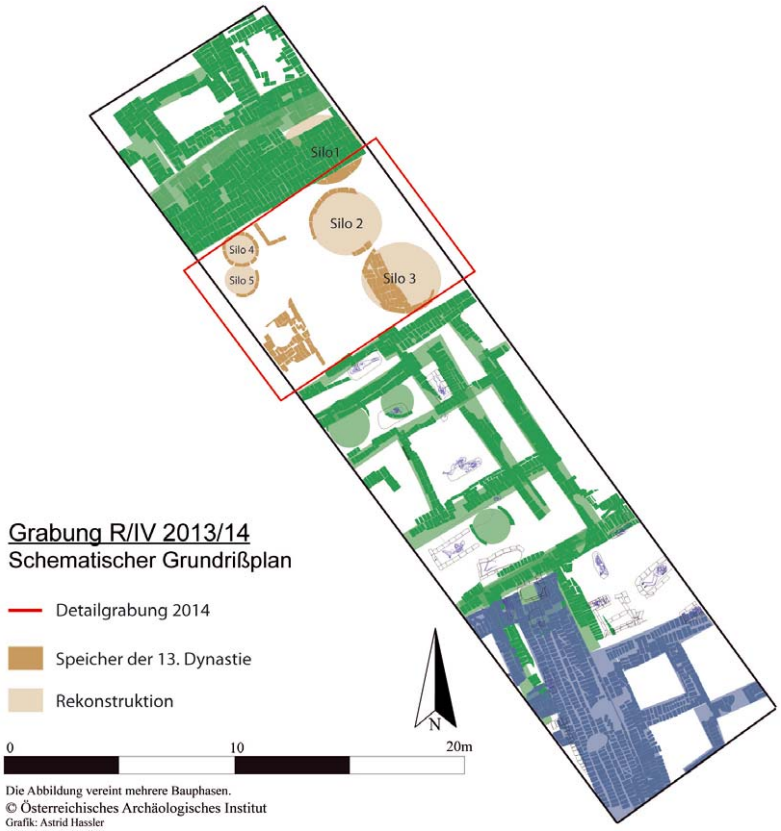


Abb. 65 Detailplan der Grabung 2014 (Grafik A. Hassler, © ÖAI)

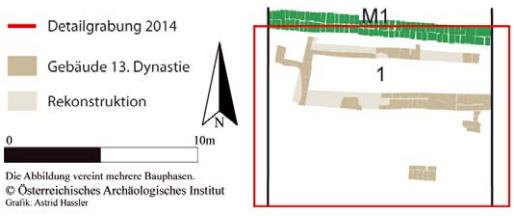


Abb. 65a Detailplan, Gebäude der frühen 13. Dynastie (Grafik A. Hassler, © ÖAI)

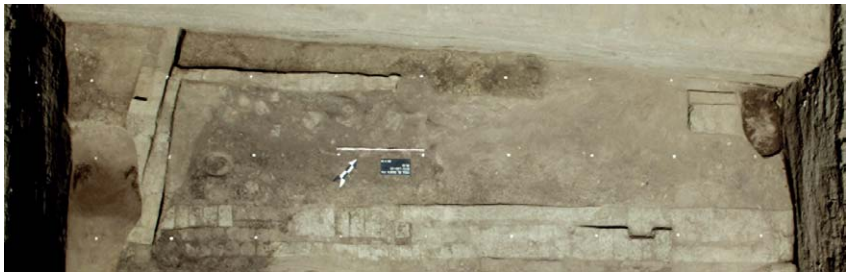

Abb. 66 Gebäudereste unterhalb der Speicherschicht, 13. Dynastie (Foto U. Matić, © ÖAI)


Abb. 67 Siegelabdruck (Foto N. Gail, © ÖAI)


Abb. 68 Siegelabdruck (Foto N. Gail, © ÖAI)


Abb. 69 Siegelabdruck (Foto N. Gail, © ÖAI)


Abb. 70 Siegelabdruck (Foto N. Gail, © ÖAI)


Abb. 71 Siegelabdruck (Foto A. Krause, © ÖAI)

(*jmj r3 st snbj wr*)[8] (Inv. Nr. 9708B-G; Abb. 67); Parallelen mit demselben Namen und Titel finden sich sowohl auf einem Skarabäus im Petrie Museum[9] als auch auf zwei Stelen aus der Zeit von Neferhotep I und Sobekhotep IV aus Abydos;[10] die Siegelabdrücke aus Tell el Dabᶜa lassen sich somit in die mittlere 13. Dynastie datieren.

Ein weiterer Beamter, dessen Identität durch ein am Kanalufer gefundenes Siegel (Inv. Nr. 9708A) bekannt ist, ist „Chenti-em-hat, Einbalsamierer des Tempels“ (*wtj n ḥwt-nṯr Ḫntj m ḥ3t*)[11]

[8] Für die Lesung und Informationen zu diesem Stück danken wir Marcel Marée.

[9] UC 11347. Wir danken Marcel Marée.

[10] Museum Kairo, CG 20030 bzw. Ägyptische Sammlung Tübingen Nr. 463. Wir danken Marcel Marée.

[11] Für die Lesung und Informationen zu diesem Stück danken wir Marcel Marée.

(Abb. 68); dieser spezielle Titel ist nur ein einziges Mal anderweitig auf einer Stele der späten 12. Dynastie belegt, allerdings nicht für diese Person.[12]

Ebenfalls aus den an das Kanalufer angrenzenden Schichten stammen mehrere nichtägyptische Rollsiegelabdrücke.[13]

Inv. Nr. 9708H (Abb. 69) ist in zwei übereinanderstehende Register geteilt:[14] Im unteren ist deutlich ein knieender Held an der Spitze einer Prozession zu sehen, welcher einem sich aufrichtenden Löwen entgegentritt. D. Collon verweist den Ursprung dieses Siegels an die syrische Küste und erwähnt Parallelen aus dem Umkreis von Ras Shamra/Ugarit.

Ein weiteres Siegel (Inv. Nr. 9708I; Abb. 70) aus derselben Schicht[15] zeigt die Hörner von Ibices, ein Motiv, welches aus dem mesopotamischen Raum stammt.

Aus einer Straßenschicht der 15. Dynastie stammt ein weiteres Rollsiegel[16] (Inv. Nr. 9662L; Abb. 71), auf welchem man klar eine stehende nackte Göttin erkennt, die von zwei bekleideten Göttinnen flankiert wird. Auch hier nimmt Collon wieder einen nordsyrischen Ursprung an, vermutlich aus dem Raum rund um Karkemish.[17]

## Die Gräber

Im Laufe der beiden Grabungskampagnen konnten etwa 45 Gräber freigelegt und dokumentiert werden.[18] Folgende Grabtypen sind bis jetzt aus R/IV bekannt:

1. Bestattungen in Tongefäßen/Amphorenbestattungen (I. F-M Typ 1; R. S Typ 2[19]) (Abb. 72).
2. Grubengräber (I. F-M Typ 2.1; R. S Typ 1[20]) (Abb. 73).
3. Kammergräber mit Firstdach (I. F-M Typ 3.1, Typ 3.2; R. S Typ 4[21]) (Abb. 74).

   Wie in anderen, bereits früher ergrabenen Arealen von Tell el-Dabᶜa sind diese drei Grabtypen innerhalb der Fläche R/IV in den Höfen der Häuser oder in den Höfen zwischen den Häusern zu finden.[22] Diese Einzelbestattungen bilden den größten Anteil der gefundenen Gräber, monumentalere Bauten werden durch die folgenden Typen repräsentiert:


Abb. 72 Amphorenbestattung [L418] (Foto U. Matić, © ÖAI)


Abb. 73 Grubengrab [L708] (Foto U. Matić, © ÖAI)


Abb. 74 Kammergrab mit Firstdach [L186] (Foto U. Matić, © ÖAI)

[12] Persönliche Mitteilung Marcel Marée.

[13] Diese Fundgruppe soll von Dominique Collon in einem Spezialartikel detailliert vorgestellt werden.

[14] Persönliche Mitteilung Dominique Collon.

[15] Persönliche Mitteilung Dominique Collon.

[16] Persönliche Mitteilung Dominique Collon.

[17] Wir danken D. Collon für ihre Hinweise und Einschätzung.

[18] Ein Schwerpunkt der Herbstkampagne 2014 lag auf der Untersuchung der funerären Anlagen des Areals R/IV. Diese wurde von Uroš Matič durchgeführt.

[19] Forstner-Müller 2008, 25, Abb. 2; Schiestl 2009, 39–40.

[20] Forstner-Müller 2008, 26, Abb. 3; Schiestl 2009, 39.

[21] Forstner-Müller 2008, 28, Abb. 5; Schiestl 2009, 44.

[22] Forstner-Müller 2008.

Abb. 75 Kammergrab [L347] (Foto U. Matić, © ÖAI)

Abb. 76 Kammergrab [L555] (Foto U. Matić, © ÖAI)

4. Zwei Grabbauten konnten als Kammergräber mit einfachem Ringschichtengewölbe (I. F-M. Typ 4; R.S. Typ 5[23]) identifiziert werden [L347, L985] (Abb. 75).
5. Das größte bis dato gefundene Kammergrab L555 stellt das bisher einzige Beispiel für ein Kammergrab mit gemauertem Eingangsschacht (I. F-M. Typ 7; R.S. Typ 10[24]) dar, es weist als zusätzlich hervorstechendes Merkmal ein zweischaliges Gewölbe auf (Abb. 76). Dieser Typ findet sich in Tell el-Dabᶜa gewöhnlich im Erdgeschoß von Wohnhäusern oder in Höfen und steht in enger Verbindung mit der Hausarchitektur.

Die Grabkammern von Typ 4 und 5 sind großzügig angelegt und für Mehrfachbestattungen geeignet. In der Nähe dieser großen Gräber wurden Opfergruben und Amphorenbestattungen angelegt, so dokumentiert im Fall von Kammergrab [L555] und der Amphorenbestattung [L798].

Beide Kammergräber wurden von der bereits erwähnten Straße aus betreten (Abb. 62 und 63), das größere, [L555], wies als Eingangssituation einen gemauerten Schacht auf, während Kammergrab [L347] durch eine große Grube vor dem Eingang zugänglich war, in welcher auch ein Gründungs-Tieropfer freigelegt werden konnte.

Die Datierung der Bestattungen aus R/IV reicht von Stratum F bis zum Stratum D/2, bzw. Mittelbronzezeit IIA bis IIB (13. bis Ende 15. Dynastie).[25] Bestattungen, die jünger als Stratum D/2 sind, sind bis jetzt nicht bekannt. Auf diese Phase folgen im archäologischen Befund direkt die Fundamente der Gebäude, welche die Strukturen des Stratum D/2 zerstörten und anhand der gefundenen Keramik vermutlich in die Ramessidenzeit datiert werden können.[26]

Das früheste in R/IV gefundene Grab [L1054] stammt aus der 13. Dynastie (Stratum F). Es handelt sich um eine Kinderbestattung in einem einfachen Kammergrab (Abb. 77). Die Beigaben, u. a. zwei handgemachte globuläre Tell el Yahudija-Krüglein (Typ N.2.1.c),[27] verweisen die Bestattung in das Ende des Mittleren Reiches (Abb. 78).[28]

Eine Nutzungskontinuität zeigen die wenig später errichteten Kammergräber: Auf Grundlage der gefundenen Keramik aus Gründungsgruben zeigte sich, dass Kammergrab [L555] in Stratum E/2 zu datieren ist und damit vor Kammergrab [L347] (Stratum E/1, wiederum durch Keramik fixiert) angelegt wurde. Der zeitliche Abstand beider Gräber ist vermutlich nicht allzu groß.

Die Verteilung der übrigen, kleineren Bestattungen in Areal R/IV innerhalb der offenen Höfe der Häuser und zwischen den Häusern ist ein bekanntes Merkmal von Bestattungssitten der Zweiten Zwischenzeit in Tell el-Dabᶜa. Es handelt

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23 Forstner-Müller 2008, 29, Abb. 6; Schiestl 2009, 45, Abb. 11–13.

24 Forstner-Müller 2008, 31, Abb. 9; Schiestl 2009, 53–54, Abb. 35.

25 Wir danken besonders Karin Kopetzky für die Datierung. Die Datierung der Gräber aus R/IV basiert zum jetzigen Zeitpunkt hauptsächlich auf Grabbeigaben aus Keramik, da die Ausgrabung des Areals selbst noch nicht abgeschlossen ist und sowohl Baubefund als auch Keramik und Kleinfunde noch weiter zu bearbeiten sind. Aus diesem Grund, und obwohl die Grabbeigaben aus geschlossenen Kontexten stammen, sind die Datierungen, welche hier vorgeschlagen werden, nicht als endgültig zu verstehen.

26 Forstner-Müller 2014a, 34; Forstner-Müller 2014b, 41.

27 Aston-Bietak 2012, 306.

28 Parallelen finden sich in Areal A/II in Bestattung 2 aus Grab 30, Grab 10 und Grab 13: Forstner-Müller 2008, 147; 207–208; 215–216, sowie in Areal F/I in Grab i 22-34, k 20-13: Kopetzky 1993, 63–64.


Abb. 77 Grab [L1054], 13. Dynastie
(Foto A. Hassler, © ÖAI)

Abb. 78 Krüglein, Inv. Nr. 9704 (Foto N. Gail, © ÖAI)

sich nicht um eine reine Nekropole, sondern vielmehr um Wohnbezirke mit integrierten Bestattungen, wie sie auch in den Arealen A/II und A/V zu finden sind.[29] Somit ist die Siedlung, von welcher Areal R/IV einen kleinen Ausschnitt bildet, als ein mit A/II, A/V und H/VI-Süd[30] vergleichbares suburbanes Stadtviertel zu verstehen.

## Beraubungen

Der Großteil der Gräber von R/IV, abhängig vom Grabtyp, war zumindest teilweise beraubt, die großen Kammergräber waren davon am meisten betroffen. Letztere waren von mehreren Raubgruben und -tunneln durchzogen, die ehemals reichen Beigaben beinahe völlig entfernt oder im Umkreis der Gräber verstreut; das ursprünglich grabzugehörige Skelettmaterial fand sich in Teilen ebenfalls außerhalb der Grabkammern.

Bemerkenswert ist, dass, wie in anderen Arealen, besonders die kleineren Kammergräber gezielt an den Stellen geöffnet wurden, wo die Räuber Kopf und Oberkörper des Bestatteten vermuteten, da hier Schmuck oder auch Waffen gehäuft deponiert worden waren. Dies weist vermutlich auf gute Kenntnis der Fundlage und eine Beraubung unmittelbar nach der Grablegung hin. Doch auch weit spätere, in die Ramessidenzeit zu datierende Beraubungen konnten anhand der Keramik aus den Raubgruben identifiziert werden.[31]

## Datierung und Zusammenfassung

Zum jetzigen Zeitpunkt lässt sich für R/IV eine Nutzungskontinuität von der frühen 13. bis in die späte 15. Dynastie feststellen, gekennzeichnet durch sowohl Wohnbauten als auch die fortgesetzte Errichtung von Gräbern, entweder in den noch aktiv genutzten Bauten selbst oder den bereits nicht mehr in Verwendung stehenden Ruinen. Für

[29] Forstner-Müller 2008, 119; Forstner-Müller 2010, 117; Hein und Jánosi 2004, 26.

[30] Forstner-Müller 2010, 111–115; Hein und Jánosi 2004, 26.

[31] Für die Datierung der Ramessidischen Keramik danken wir Pamela Rose, s. auch den anschließenden Beitrag.

die Zeit danach lässt sich keine Besiedlung oder anderweitige Nutzung des Gebietes feststellen, erst in der Ramessidenzeit kommt es zu einer neuerlichen Bebauung.

Die archäologischen Ergebnisse bestätigen weitgehend die historische Überlieferung, dass Avaris vom Mittleren Reich bis zum Beginn der 18. Dynastie ein wichtiges Handelszentrum und in der 19. Dynastie der Hafen der Hauptstadt Ägyptens war. Eine weitere Fragestellung ist, ob der Marinestützpunkt der früheren 18. Dynastie, Peru Nefer, in Memphis oder in Avaris lag.[32] Die Arbeiten im Areal R/IV erbrachten einstweilen keinen Nachweis für eine Nutzung des Areals in der 18. Dynastie.

– I. F.-M., A. H., U. M. –

## Preliminary report on the Ramesside pottery from Area R/IV

This report is intended to give a brief overview of the Ramesside ceramics from Area R/IV found during the spring 2013 season; material from more recent excavations has still to be examined. The sherds in question were selected by eye during a rapid overview of the ceramics from the excavated loci. The bulk of the ceramics from all loci was clearly earlier in date, belonging to the Second Intermediate Period, and the Ramesside pottery only ever formed a very small percentage of the whole; no loci were found in which Ramesside pottery formed a substantial proportion of the material. No quantified data were kept as to the exact proportion of Ramesside pottery in each assemblage, and indeed, given the manner of selection of the sherds, such data would not be meaningful.

The pieces identified as dating to the Ramesside period were in most cases marl clay wares and blue painted silt wares, these being the wares that stood out from the mass of the ceramics when the assemblage from each locus was spread out for viewing. Only rarely were other New Kingdom silt forms identified: this would have taken more time and required a more systematic examination of the assemblage. Since the essential aim was to establish the presence (or absence) of later ceramics this was not felt to be justified.

### Fabrics

The fabrics found in Area R/IV are directly comparable with those from Qantir.[33] By far the most common silt fabric is characterised by the very large quantities of rounded sand grains. It contains little plant material/chaff, but fine white dung threads were commonly noted. It is the equivalent of Qantir fabric I.E.01.[34] A second silt fabric was finer in texture, and sand was both a far less conspicuous constituent and was smaller in size. The fabric can be identified with Qantir I.B.02 and perhaps I.B.01 (the separation of the two fabrics is quantitative rather than qualitative).[35] In Area R/IV the fabric is used only for fine thin-walled bowls, most with a red polished slip and sometimes with blue painted decoration and in cream-slipped and blue-painted examples.

In addition, a fine dense very sandy fabric occurred which is comparable with one identified at Memphis, G6a,[36] and is recognised there as a fine siltware with a marl slip; it is used for forms that are otherwise made in marl clays. Laemmel relates this to Qantir group I.B.3 and the mixed fabric III.A.[37] Whilst she suggests that the fabric may be a local production of the eastern delta,[38] the apparent continuum of fabrics between the Marl D group and this ware that can be seen in the sherds from Area R/IV raises the possibility that they were products of the same area. The fabric is less common than the Marl D group in Area R/IV.

The Marl D group occurs in a number of variants, which, however, cannot be correlated exactly with the Qantir Group II.D.[39] Marl F occurs occasionally, and can be directly compared with Qantir II.F.02.[40] Marl A4, of Upper Egyptian origin, is rare and only one diagnostic piece was identified.

Imports were rare, and consist of two fragments of Levantine storage jars of Memphis fabrics P11 and (perhaps) P40.[41] Two pieces came from a vessel from the western oases but were too small to establish the type of vessel from which they came.

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[32] Siehe dazu auch ausführlich Forstner-Müller 2014a, 34; Forstner-Müller 2014b, 41 mit weiterführender Literatur.

[33] Aston 1998; Laemmel 2008.

[34] Aston 1998, 63.

[35] Aston 1998, 61.

[36] Bourriau *et al*. 2000, 17–18; Bourriau 2010, 24.

[37] Laemmel 2008, 176.

[38] Laemmel 2008, 176.

[39] Aston 1998, 65–66, 68.

[40] Aston 1998, 67.

[41] Bourriau 2010, 31.

## Forms

The nature of the selection process makes it inevitable that marl clay vessels predominate in the collection, as these both survive better as they are more robust, and stand out visually from the mass of silt sherds. The majority of the marl clay pieces come from so-called 'meat jars' and amphorae. The 'meat jars', large ovoid jars with externally folded rims (see Abb. 79, 1 and 2) are almost all made from Marl D, with single examples of rim sherds in Marl A4 and fabric G6a. One sherd from the lower body of one of these vessels had a potter's mark incised before the vessels was fired, but after the vessel was slipped. It showed a bird with a line (or possibly a *ḥtp*-sign) above it.

Amongst the amphorae there are a few fragments of slender conical bases in Marl F and Marl D, and two rim sherds of Marl F probably belong to this type (see Abb. 79, 3). More common, however, are wide bodied forms with a wide carinated or rounded base, a cylindrical or slightly bulging neck, and a range of rim forms (see Abb. 79, 4–7). These occur in both Marl D and its variants and in fabric G6a, the former being far more common than the latter. In most cases the amphorae have a thick cream slip painted onto the surface, and frequently show traces of burnish, the exception being the Marl F pieces. On the well-preserved vessel 61 (Abb. 79, 4) the burnish on the body is carried out using a 'rocker-stamp' motion, creating a somewhat irregular lattice pattern over the surface.

Thinner-walled forms in Marl D and its variants are present in the collection, and pieces from pilgrim flasks, short-necked jars and one-handled 'mugs' can be identified.

The blue-painted silt vessels cover a wider range of types and include both open and closed forms (Abb. 80). Amongst the blue-painted open forms are several fragments of particularly fine red-slipped and polished vessels, which are decorated with bands at the rim; the bands are executed over a very thin layer of cream slip (see Abb. 80, 1). Similar fine red-slipped and polished bowls also occur in undecorated examples (see Abb. 80, 2). Both decorated and undecorated vessels are of fine Nile B2. Such bowls with blue-painted decoration are known from Tell el-Retaba and Qantir;[42] undecorated examples are found at Qantir.[43] It is possible that they are a product of the delta region. Blue-painted closed forms are more varied and include biconical jars and other necked forms, ovoid jars, and neckless jars.

Like the fabrics, the style of decoration seen on the blue-painted sherds from Area R/IV is very close to examples from Qantir in terms of design and the use of decorative elements (see Abb. 80, 3). This includes the use of grooving to emphasise painted elements; wavy lines as a decorative motif; the use of ovoid blue spots (see Abb. 80, 4); and of blue rim bands on jar necks.

As already noted, undecorated silt forms were rarely identified in the overview, but include bowls, beer jars, biconical jars, and neckless jars with thickened rims. One particularly interesting feature was a number of silt sherds from bowls with simple rims, on which a thick clay layer was added to the exterior. This layer overlies the finished surface, is fired, and seems often to have a deliberately smoothed surface. The vessels themselves often appear particularly highly fired and sometimes warped. It is presumably evidence of something to do with manufacturing but what and why is unknown.

## Dating

The close similarity of the Area R/IV ceramics to the Qantir corpora confirms the Ramesside dating of the pottery. Given the absence of meaningful contextual associations for the R/IV sherds, it is not easy to refine this further, and the small size of the pieces mean it is not possible to consider complete profiles which would be useful for more specific dating. If the blue-painted sherds are taken to represent the time span of the whole assemblage, the dating can be restricted to the 19th into the 20th dynasties.[44] To what extent later forms may be present is unclear, although there is nothing unequivocally diagnostic of a late Ramesside date amongst the material. At Qantir, an apparent decline has been noted in the occurrence of the fabric IID group by the 20th dynasty, accompanied by an increase in the use of the mixed fabric IIIA and, according to Laemmel, vessels of fabric G6a, but the nature of the Area R/IV pottery makes this criterion impossible to apply.[45]

[42] Wodzinska 2008, 147–8; Aston 1998, 132–133.

[43] Aston 1998, 112–113, 132–133.

[44] Aston 1998, 354; Laemmel 2008, 177–178.

[45] Aston 1998, 457, 614; Laemmel 2008, 179.

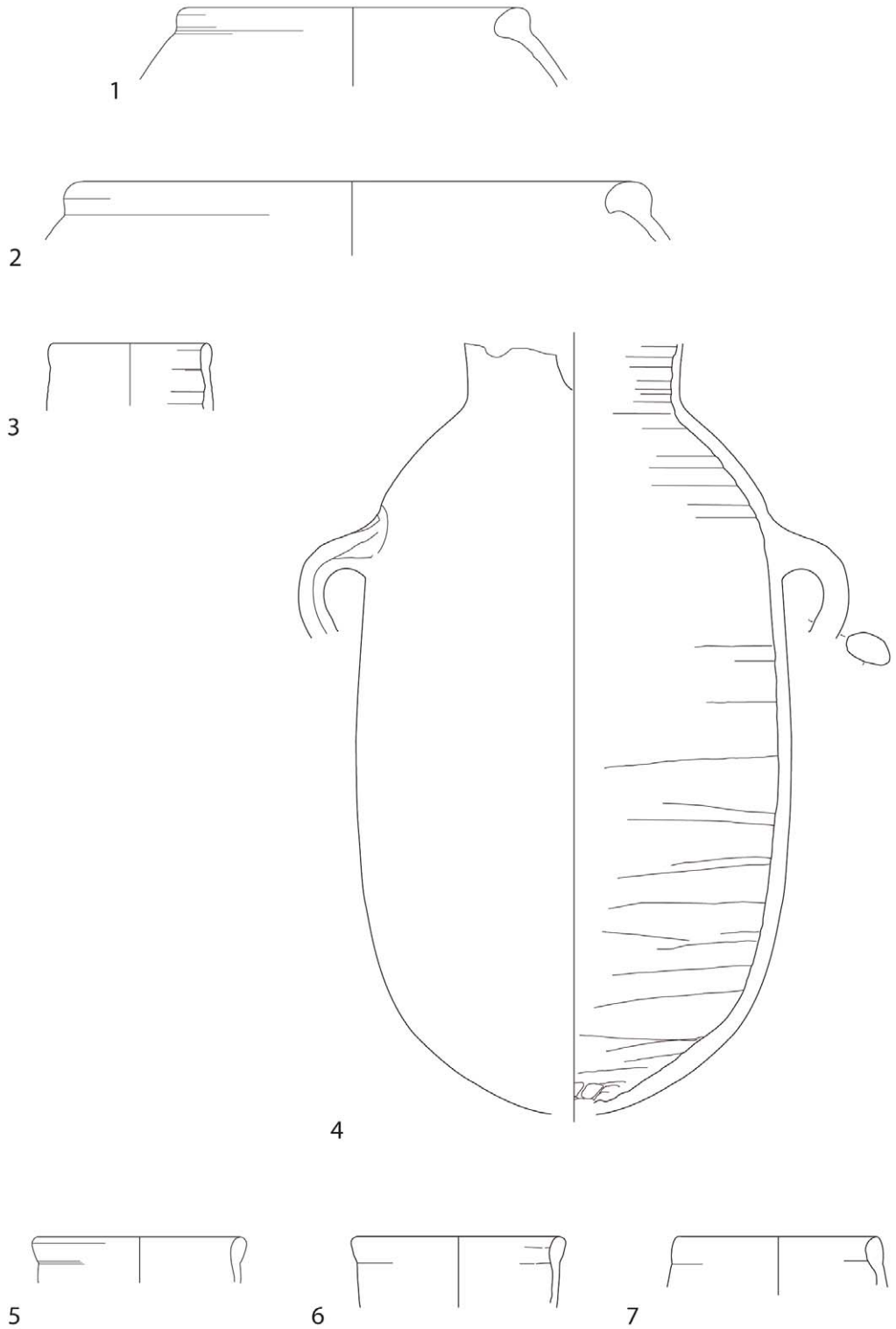


Abb. 79 1: Provenance R/IV-l/22 Pl. 4 locus [L354]; 2: Provenance R/IV-l/21 Pl. 4 locus [L30]; 3: Provenance R/IV-l/22 Pl. 4 locus [L324]; 4: Provenance R/IV-l/23 Pl. 1–3 loci [L240, L164, L138, L162]; 5: Provenance R/IV-l/21 Pl. 3–4 locus [L97]; 6: Provenance R/IV-l/23 Pl. 5–6 locus [L469]; 7: Provenance R/IV-l/23 Pl. 3 locus [L245]. (All: Scale 1:4; drawing P. Rose, © ÖAI)

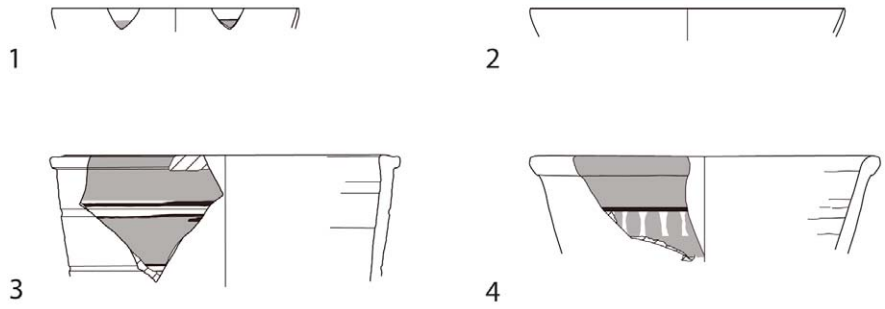


Abb. 80 1: Provenance R/IV-l/22 Pl. 3–4 locus [L211]; 2: Provenance R/IV-l/22 Pl. 3–4 locus [L211]; 3: Provenance R/IV-l/22 Pl. 3–4, 4 loci [L223, L324]; 4: Provenance R/IV-l/23 Pl. 5 locus [L426]. (All: Scale 1:4; drawing P. Rose, © ÖAI)

## Distribution

Ramesside sherds were found throughout the area excavated in 2013, and most came from square l/23, where the deepest deposits were preserved. The vast majority, if not all the pottery came from pits, including robbery pits penetrating the Second Intermediate Period burials, which thus provides a *terminus post quem* for the robbery of the graves. So far, none of the Ramesside sherds occurs in a context that provides a dating for any of the built structures with certainty.

Nothing can be said about the levels from which the Ramesside material derives, and these are otherwise entirely lost. Since the Ramesside sherds are rare compared to the quantity of earlier material, and joins between contexts, or indeed within contexts, are very few, this perhaps suggests that the Ramesside levels were already truncated by the time the pits were dug. The exception to this is the single largely reconstructable vessel 61 (see Abb. 79, 4) parts of which came from several closely-related loci; it is possible that this vessel originally held an infant burial.

P. R.

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# C. Vorbericht zu den Tierresten aus den Arealen Ezbet Rushdi III und IV (R/III; R/IV)

*Günther Karl Kunst, Konstantina Saliari*

Dieser Bericht gibt einen Überblick über die Ergebnisse der bisher erfolgten Untersuchungen an den Tierresten, die in den Arealen Rushdi III (R/III; Grabungskampagnen 2010, 2011 und 2012) und Rushdi IV (R/IV; Grabungskampagnen 2013 und 2014) geborgen wurden. Die Untersuchungen von R/III wurden von G.K. Kunst jeweils in den Frühjahrskampagnen 2011 und 2012, diejenigen am verbliebenen Material aus R/III und an den Resten aus R/IV von G.K. Kunst und K. Saliari in der Herbstkampagne 2014 gemeinsam durchgeführt. Während die Voruntersuchungen von R/III mit Ausnahme von einigen Sonderfunden, vornehmlich Molluskenresten, weitgehend abgeschlossen werden konnten, blieb von R/IV noch ein Rückstand, etwa im Ausmaß von zwei Tragekörben, unbearbeitet (Stand Ende Oktober 2014).

Die Untersuchungen erfolgten im Grabungshaus von Tell el-Dabᶜa, und zwar mit den folgenden logistischen Einschränkungen. Während bei den Großsäugern und den Mollusken die taxonomische und anatomische Bestimmung anhand des Vergleichsmaterials und des Erfahrungshintergrundes der Bearbeiter möglich war, wurden bei den Resten von Kleinsäugern, Vögeln und Fischen jeweils nur Zuweisungen zu den Großgruppen vorgenommen. Eine nähere Bestimmung, insbesondere des äußerst reichhaltigen Fischmaterials, muss daher einem weiteren Bearbeitungsschritt vorbehalten bleiben.

## Voraussetzungen

Wie aus den Publikationen (Forstner-Müller 2012, 683–684, Forstner-Müller & Rose 2013, Forstner-Müller 2014a, b) hervorgeht, weisen die Flächen R/III und R/IV eine dichte Bebauungsstruktur mit einem reichen Inventar an Befundtypen auf. In R/III, wo Verwaltungs- Wohn- und Verkehrsbereiche aus der Zweiten Zwischenzeit definiert werden konnten, sind unter anderem Schüttungen, Straßenschichten, Versturzschichten von Lehmziegelwänden, sowie Verfüllungen von Speicherbauten und Gruben zu nennen. In R/IV treten zu Wohnbebauung und Grabbauten aus der Zweiten Zwischenzeit noch Ramessidische Baustrukturen. Allgemein kann zwischen flächigen, ausgedehnten Befunden (*deposits*, Schüttungen,…) und lateral begrenzten, wie etwa Gruben und Feuerstellen, unterschieden werden. Hinsichtlich der Auswertung erscheint auch eine Unterscheidung in Straßen- bzw. Offenbereiche sowie Hof- und Innenflächen von Gebäuden wesentlich.

Es war zu erwarten, dass sich die Vielfalt an Befundtypen in einer entsprechenden Variabilität der Tierknochenproben niederschlägt. Deren Ursachen sind in den physischen Eigenschaften der Befunde (Größe, Tiefe), deren primärer Funktionalität (öffentlich, privat), besonders aber in den unterschiedlichen Entsorgungsprozessen, die während der Entstehung der Vergesellschaftungen relevant waren, zu suchen. Eine Aufgabe der Archäozoologie besteht im vorliegenden Fall sicher darin, in Übereinstimmung mit der Befundbearbeitung eine geeignete Kategorisierung von Auswertungseinheiten (*contextual aggregations* im Sinne von Marom & Bar-Oz 2013) zu treffen.

Diesem Vorhaben werden durch Materialmengen und –verteilung, weiters durch die Befundlage Grenzen gesetzt. So konnten in R/III zwar in 285 Befunden (*loci*) Tierreste aufgesammelt werden, die Gesamtmenge erscheint jedoch mit 6872 Stücken, von denen nur ca. ein Drittel einer höheren taxonomischen Kategorie (einschließlich „Vögel“ und „Fische“) zugewiesen werden konnten, in Anbetracht der ergrabenen Fläche als vergleichsweise gering – das Material findet in sechs Materialkistchen Platz. Das Gesamtgewicht aller Tierreste mit 16,7 kg zeigt zudem an, dass es sich hierbei überwiegend um sehr kleine Reste (Durchschnittsgewicht 2,4 g) handelt. Im Unterschied zu anderen Flächen in TD, wie etwa in F/II (Kunst 2013), scheinen hier größere Tierknochenkonzentrationen, insbesondere fundreiche Grubenverfüllungen, weitgehend zu fehlen. Eine geringe Funddichte ist in einem intensiv bebauten Bereich zwar zu erwarten, zudem ist aber die Fundverteilung innerhalb der Flächen sehr uneinheitlich. Rund die Hälfte der Tierreste aus R/III, die etwa auch die Hälfte des Gesamtgewichtes ausmachen, stammt

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aus den 30 fundstärksten *loci*. Aus R/IV liegen zwar mit 3676 Resten mit ca. 14 kg Gesamtgewicht aus insgesamt 165 *loci* im Mittelwert größere Fragmente vor. Davon konnten ca. 2000 Stück einer höheren taxonomischen Kategorie zugewiesen werden. In ähnlicher Weise erbrachten hier die 20 fundstärksten *loci* die Hälfte aller Funde, welche zusammen rund 40% des Gesamtgewichtes ausmachen.

Seitens der Befundbearbeitung wurden den Verfassern Angaben zu Datenqualität, Befundtyp und stratigraphischer Stellung von den meisten *loci* aus R/III zur Verfügung gestellt. Daraus konnten 21 Auswertungseinheiten zusammengestellt werden, für die aufgrund der Fundzahlen eine Detailbetrachtung sinnvoll erschien. Tatsächlich enthielten nur acht dieser Kontexte eine ausreichende Menge an bestimmbaren Tierresten, sodass ein intra-site Vergleich (innerhalb der Fundstelle) möglich ist. Für R/IV stehen Informationen zu Fundkontext und Datierung bisher aus, dennoch können Auffälligkeiten in der Zusammensetzung bestimmter Proben anhand der auf den Fundzetteln vorhandenen Daten beobachtet werden.

**Tierartenzusammensetzung im Allgemeinen (Tab. 1)**

Eine Diskussion der Probenzusammensetzung auf der Ebene der Grabungsareale (R/III, RIV) vermeidet zwar die Möglichkeiten einer kontextuellen Auswertung, gleichwohl vermitteln auch summarische Angaben doch Informationen über den Anfall an Tierknochen in definierten Bereichen. Wie oben erwähnt, trägt ohnehin nur ein Teil der Kontexte wesentlich zum Gesamtbild bei. Ebenso ist das Auftreten seltener Arten von Interesse, oder der Umstand, ob bestimmte Gruppen, wie Fische oder Schweine, stetig über viele Proben verteilt sind oder lokale Konzentrationen zeigen.

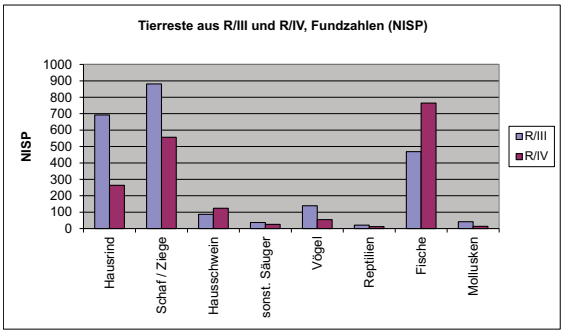
In Tab. 1 sind die Fundzahlen und Gewichte für die unter den Tierresten ausgewiesenen taxonomischen Einheiten und die wenigen menschlichen Reste angegeben. Die Kategorien der Größengruppen (*Bos*; *Ovis/Capra-Sus*) sind zwischen den beiden Flächen nicht vollständig vergleichbar, weil im Areal R/III zunächst mehr Reste allgemein unter „Mammalia indet." eingereiht wurden. Unter der Rubrik *unbestimmt/Größengruppe* (Tab. 1) sind diese Kategorien aber ohnehin zusammengeführt. Der Anteil der bestimmten Reste ist in R/IV höher als in R/III, was auch mit dem höheren durchschnittlichen Fragmentgewicht in R/IV zusammen hängen mag. Daher ist die Anzahl der, nach obigen Kriterien, „bestimmten" Reste in den beiden Flächen einander angenähert (2430 und 2012 Stücke), obwohl aus R/III insgesamt wesentlich mehr Einzelfragmente vorliegen. Aus der intensiv besiedelten Fläche in R/III liegen eben besonders viele kleine, stark beanspruchte und daher unbestimmbare Fragmente vor. Das Gesamtgewicht der bestimmten Reste ist in R/IV sogar höher als in R/III.

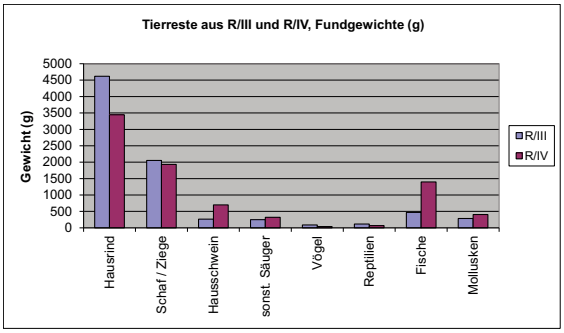
Bezüglich der Artenverteilung fällt in beiden Flächen die Dominanz der Wirtschaftstiere Rind, Schaf/Ziege und Schwein (Nutztiertriade) auf, die als Gruppe insgesamt jeweils knapp 70% (R/III) bzw. knapp 50% (R/IV) der näher bestimmten Reste ausmachen. In den Einzelkategorien treten aber die Fische in R/III noch vor den Vögeln und dem Schwein an die dritte Stelle, und in R/IV stellen diese überhaupt die mit Abstand zahlenstärkste Gruppe dar. Aber auch in R/III sind die Fische immerhin noch mehr als halb so häufig wie die Kleinwiederkäuer vertreten, welche in diesem Bereich die häufigste Einzelgruppe bilden. Der Übersichtlichkeit halber wurden in Tab. 1 die relativen Anteile der taxonomischen Gruppen als Prozente der Nutztiertriade (NR3) ausgedrückt. Unter den nicht zu Nahrungszwecken herangezogenen Haustieren sind in beiden Flächen der Hund und die Equiden, letztere wohl vorwiegend oder ausschließlich der Esel, nur durch sehr wenige, aber im Fall der Equiden recht vollständige und daher schwere Reste vertreten. Unter den Wildsäugetieren sind das Nilpferd, der Hase und die Gruppe der Kleinsäuger in beiden Arealen in ähnlichen, untergeordneten Mengen vorhanden. Das zahlenmäßig schwache, aber doch stetige Vorhandensein der beiden Wildsäuger Nilpferd und Hase deckt sich mit den bisher in Tell el-Dabᶜa gemachten Befunden (vgl. Zusammenfassung in Linseele & Van Neer 2009). Dabei begünstigen die guten Erhaltungsbedingungen für kleine Reste die Nachweise des Hasen, während das Nilpferd eher im Nachteil erscheint. Die auf das Nilpferd bezogenen Reste aus R/III zählen zu den schwersten Einzelfunden aus diesem Areal. Der ungünstigen Erhaltungsqualität könnte es auch zuzuschreiben sein, dass für die in Betracht kommenden wilden Paarhufer (Gazelle, Kuhantilope) aus beiden Bereichen keine Nachweise vorliegen.

Bemerkensweiterweise kommen Vögel in R/III absolut und relativ häufiger vor als in R/IV. Die bedeutende Anreicherung von Fischresten in R/IV

hat daher nicht primär mit der besseren Erhaltungsfähigkeit von kleinen und filigranen Skelettresten in dieser Fläche zu tun, sondern dürfte mit den herrschenden Konsum- und Entsorgungsgewohnheiten in Zusammenhang stehen. Tatsächlich machen die Fischreste nach der Fundzahl in R/III knapp 30%, in R/IV aber über 80% der Nutztiertriade aus. An Reptilien sind in beiden Bereichen Panzerplatten von der Afrikanischen Weichschildkröte (*Trionyx triunguis*) und einer Landschildkröte, wohl *Testudo kleinmanni*, in geringen Mengen vorhanden. Dazu treten noch in R/IV zwei Hautknochenplatten (Osteoderme) vom Nilkrokodil (*Crocodylus niloticus*), die bereits während der Grabung erkannt worden waren. Auch die Mollusken werden in Tab. 1 nur als Gruppe erfasst. In beiden Arealen bilden Schalenklappen von Süßwassermuscheln die Hauptmasse des Fundguts, es kommen aber jeweils auch marine Muscheln und Schnecken vor. Die angeführten Menschenknochen stammen vermutlich vorwiegend aus gestörten Grabbereichen, ihr zahlenmäßig stärkeres Auftreten in R/IV verwundert daher nicht. Für die weiteren Überlegungen sind die menschlichen Reste hier ohne Belang.

Allgemein lassen sich die Gesamtmaterialien aus den beiden Arealen wie folgt charakterisieren (Tab. 1; Abb. 1, 2): Dominanz der Wirtschaftiere Rind, Schaf/Ziege und der Fische, wobei letztere Gruppe durchwegs besser vertreten ist als das Schwein, das seltenste Element der Nutztiertriade; in R/III sind auch die Vögel häufiger als das Schwein; bei der Betrachtung der Knochengewichte erreichen auch die Mollusken und die übrigen Säuger erkennbare Anteile, was am Vorhandensein von relativ vollständigen Skelettteilen bzw. Schalenklappen liegt. Die wesentlichen Unterschiede zwischen den beiden Arealen sind einerseits in der Zusammensetzung der Nutztiertriade (siehe unten), andererseits in der führenden Stellung der Fische im Areal IV (nach der Fundzahl) zu sehen. Eine vergleichbare Dominanz der Fischreste war im Areal F/II nur in Einzelbefunden, etwa in der Opfergrube L695, zu verzeichnen (Kunst 2013).




Ein auffälliger Unterschied zwischen den beiden Arealen besteht in den durchschnittlichen Fragmentgewichten (Tab. 2). Dieses ist in R/IV, von wenigen unbedeutenden Ausnahmen abgesehen, durchwegs höher als in R/III. Bei den Resten des Hausrinds ist das Durchschnittsgewicht in R/IV sogar fast doppelt so hoch, bei den bestimmten und unbestimmten Resten um etwa ein Gramm höher als in R/III. Als Ursachen sind eine stärkere Fragmentierung im intensiv begangenen Siedlungsareal von R/III und das Vorhandensein von geräumigen, für die Erhaltung günstigen Befundstrukturen in R/IV zu vermuten. Ebenso war der Anteil der näher bestimmten Reste in R/IV mit 55% des gesamten Fundaufkommens deutlich höher als in R/III, wo dieser nur 35,4% ausmacht.

## Zusammensetzung der Nutztiertriade und Trends innerhalb der Areale

Für den Vergleich innerhalb der Fundstelle ist die Zusammensetzung des Wirtschaftstierbestandes, im vorliegenden Fall der „Nutztiertriade“ Rind, Kleinwiederkäuer (Schaf und Ziege) und Schwein, wesentlich. Einerseits werden hierdurch Konsumpräferenzen angezeigt, andererseits ist eine Interpretation der jeweiligen Kontexte möglich, weil die Reste der verschiedenen Gruppen im Konsum- und Entsorgungsverhalten unterschiedliche Wege gehen und damit als taphonomische Indikatoren gelten können. Erfahrungsgemäß reichern sich Rinderreste eher in peripheren, geräumigen Befundtypen an, während die kleineren Arten häufiger in den zentralen Aktivitätszonen verbleiben (Wilson 1996, Chaix & Méniel 2001:154ff., zu Tell el-Dabᶜa: Kunst 2013). Die beiden Areale unterscheiden sich nicht unwesentlich in der Zusammensetzung der Nutztiertriade.

Zwar nehmen die Kleinwiederkäuer jeweils die erste Stelle ein und machen ein wenig (R/III: 53%) oder deutlich (R/IV: 59%) mehr als die Hälfte der Nutztierfunde aus. Der Anteil der Rinder ist aber in R/III höher und derjenige der Schweine deutlich geringer als in R/IV. Der höhere Rinderanteil in R/III steht in einem gewissen Gegensatz zum niedrigeren durchschnittlichen Fragmentgewicht in diesem Areal. Man sollte annehmen, dass das Vorhandensein von größeren Fragmenten das Vorkommen und die Erkennbarkeit von Rinderresten erhöht.

Zusätzlich zur Ebene der Areale kann innerhalb von R/III anhand der von der Befundauswertung übermittelten Angaben auf einzelne Kontexte Bezug genommen werden. Hierbei wurden acht verschiedene *loci* oder Gruppen von *loci* zu Auswertungseinheiten zusammengefasst, wenn dies aufgrund der Angaben sinnvoll erschien und die Summe der Nutztiere mindestens 50 Stück (NISP) ausmachte. Es handelt sich hierbei durchwegs um Kontexte, die als „unsicher" eingestuft wurden. Leider können manche Befundtypen, insbesondere die als „sicher" eingestuften wie Begehungshorizonte, Straßenschichten und Feuerstellen wegen zu geringer Materialführung nicht einbezogen werden. Dadurch werden Schüttungen (*deposits*) und ähnliche Befundtypen, die vermutlich zeitlich und funktionell gemitteltes Material enthalten, bei der Überlieferung und Auswertung begünstigt. Angegeben sind jeweils die *locus*-Nummern, das/die Planquadrat(e), die Kontextbeschreibung und die Bauschicht(en).

*Loci 837, 838, 843, 861*: r/9, s/8, s/9 – Schüttung/Störung von oben, vermischtes Material – a/b, b, b/c.

*Locus 896*: r/9 – Schüttung Lehmziegelversturz – b.

*Locus 925*: p/8 – Schüttung im Hof – b/c.

*Loci 1047 und 1114*: p/8 – vermischtes Material, große Grube – b/c, b.

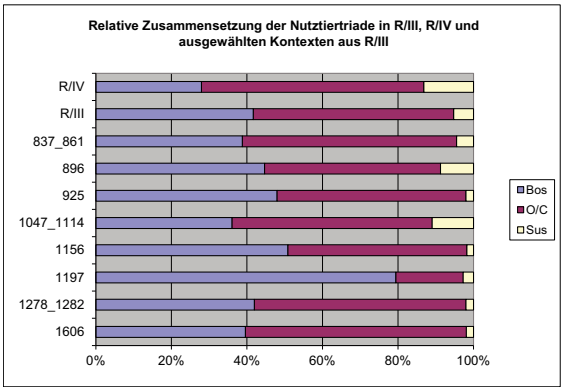
*Locus 1156*: s/9 – Schüttung/Störung von oben – b, b/c.

*Locus 1197*: s/9 – gestört im Osten durch Grube (Befundtyp?) – b.

*Loci 1278, 1279, 1280, 1282*: s/9 – Schüttung/Störung von oben, vermischt, Grube nicht erkannt – b, b/c.

*Locus 1606*: s/8 – wird von Grube L1745 gestört – b.

In Tab. 3 sind die Basisdaten aus den Auswertungseinheiten für die Nutztiertriade und die Fische angegeben. In Abb. 3 werden die relativen




Anteile der Nutztiergruppen aus den beiden Arealen den Ergebnissen aus den ausgewählten Kontexten aus R/III gegenübergestellt. Letztere zeigen an, dass innerhalb der Detailbefunde zwar durchaus eine Variabilität zu erkennen ist, das Ergebnis für das Gesamtareal aber im Wesentlichen den allgemein herrschenden Trend widerspiegelt. Dieses stellt somit nicht einen Mittelwert aus stark gegensätzlichen Trends dar. So entspricht die relative Zusammensetzung in der Schüttung *loci* 837–861 recht gut dem Gesamtresultat. In ähnlicher Weise trifft das auch für die Schüttung *loci* 1278–1282 und den Kontext *locus* 1606 zu, die allerdings mehr Kleinwiederkäuer und fast keine Schweine enthielten. Deutlich mehr Rinderreste als der Durchschnitt lieferten die Schüttungen *locus* 925 und *locus* 1156, wobei auch hier die Schweineanteile sehr stark zurücktreten. Die gegenüber dem Gesamtbefund am stärksten abweichende Zusammensetzung ist aber in *locus* 1197 mit einem Rinderanteil von fast 80% zu verzeichnen. In keinem der aus R/III ausgewählten Kontexte werden die durch geringe Rinder- und hohe Schweineanteile gekennzeichneten Bedingungen wie in R/IV erreicht. Die größte Annäherung ist in der großen Grube *loci* 1047 und 1114 gegeben, wo die niedrigsten Rinder- und die höchsten Schweineanteile dieser Auswahl vorliegen. Ein höherer Schweineanteil bei gleichzeitig erhöhter Rinderpräsenz liegt im Lehmziegelversturz *locus* 896 vor. Ein Blick auf die in den gleichen Einheiten vorhandenen Angaben für die Fische zeigt, dass höhere Relativwerte für die Fische keineswegs an erhöhte Schweine- und niedrige Rinderanteile gekoppelt sein müssen. Der von Rinderresten dominierte Kontext *locus* 1197 vermittelt zwar ein stimmiges Bild, weil er mit 8% den niedrigsten Fischanteil dieser Auswahl aufweist. Hier scheint tatsächlich ein grobstückiges Entsorgungsregime vorzuliegen. Die höchsten Fischanteile wurden in der Schüt-

tung *loci* 1278–1282 sowie im Lehmziegelversturz *locus* 896, jeweils mit über 40% der Nutztiertriade, beobachtet. Aber auch diese kommen an die hohen Anteile in Areal R/IV, wo ein durchschnittlicher Wert von über 80% vorliegt, nicht heran. Gleichwohl verteilen sich in Areal R/IV über 500, also rund zwei Drittel der insgesamt 765 Fischreste, auf die bloß 15 materialstärksten Proben (Abb. 4). Fischreste sind aber in 84 der insgesamt 165 Proben nachweisbar. Auch in R/III sind sie in 124 der insgesamt 274 Fundeinheiten, also ebenfalls in etwa der Hälfte der Proben, vorhanden. Sie sind hier aber weitaus gleichmäßiger verteilt und besondere Konzentrationen liegen nicht vor. Letztere bestehen in R/III aber anscheinend für das Schwein. So stammen 29 Reste, also immerhin über ein Drittel der im gesamten Areal R/III nachgewiesenen Schweinefunde, aus der Grube *loci* 1047–1114 und dem Lehmziegelversturz *locus* 896.

Die Erfassung der Variabilität der Tierartenverteilung innerhalb eines Areals, und die Klärung der Bedeutung von Proben mit auffälliger Zusammensetzung erscheinen als wichtige Grundlagen, um in Tell el-Dabᶜa die Rolle tierischer Ressourcen insgesamt und allfällige zeit- und befundabhängige und funktionale Trends (vgl. Boessneck & von den Driesch 1992: 49, Diagr. 1a und 1b) erfassen zu können.

Tab.1: Fundzahlen und Fundgewichte

| | | R/III | | | R/IV | | |
|---|---|---|---|---|---|---|---|
| | | N | % NR3 | Gewicht (g) | N | % NR3 | Gewicht (g) |
| *Bos* | Hausrind | 692 | 41,7 | 4616,5 | 264 | 28,0 | 3446,2 |
| *Ovis / Capra* | Schaf / Ziege | 881 | 53,1 | 2053,8 | 556 | 58,9 | 1932,8 |
| *Sus* | Hausschwein | 87 | 5,2 | 266,3 | 124 | 13,1 | 699,9 |
| Größe *Bos* | | 455 | 27,4 | 2225,9 | 470 | 49,8 | 2679,5 |
| Größe *Ovis / Sus* | | 549 | 33,1 | 811,6 | 681 | 72,1 | 1258,8 |
| *Equus* | Equide | 2 | 0,1 | 43,5 | 4 | 0,4 | 204,7 |
| *Canis familiaris* | Hund | 6 | 0,4 | 12 | 6 | 0,6 | 20,6 |
| Größe Hund / Hase | | 11 | 0,7 | 12,7 | 10 | 1,1 | 11,4 |
| Carnivora indet. | | 2 | 0,1 | 2 | | 0,0 | |
| *Hippopotamus* | Nilpferd | 2 | 0,1 | 180,8 | 3 | 0,3 | 88,8 |
| *Lepus* | Hase | 5 | 0,3 | 3,8 | 3 | 0,3 | 3,7 |
| Kleinsäuger | | 22 | 1,3 | 6,3 | 10 | 1,1 | 3,2 |
| Mammalia indet. | | 3427 | 206,4 | 5386,8 | 503 | 53,3 | 979,3 |
| *Aves* | Vögel | 139 | 8,4 | 85,7 | 55 | 5,8 | 40,9 |
| *Crocodylus* | Krokodil | | 0,0 | | 2 | 0,2 | 12 |
| *Trionyx* | Weichschildkröte | 12 | 0,7 | 97,4 | 8 | 0,8 | 55,9 |
| *Testudo* | Landschildkröte | 9 | 0,5 | 17,4 | 2 | 0,2 | 1 |
| *Pisces* | Fische | 469 | 28,3 | 470,5 | 765 | 81,0 | 1399,9 |
| Mollusca | Weichtiere | 42 | 2,5 | 284 | 14 | 1,5 | 405,5 |
| *Homo* | Mensch | 60 | 3,6 | 204,7 | 196 | 20,8 | 800,7 |
| Summe | | 6872 | 414,0 | 16781,7 | 3676 | 389,4 | 14044,8 |
| | | N | % bestimmt | Gewicht (g) | N | % bestimmt | Gewicht (g) |
| NR3 (Bos, Ovis / Capra, Sus) | | 1660 | 68,3 | 6936,6 | 944 | 47 | 6078,9 |
| | | N | % gesamt | Gewicht (g) | N | % gesamt | Gewicht (g) |
| bestimmte Reste | | 2430 | 35,4 | 8344,7 | 2012 | 55 | 9115,8 |
| unbestimmt / Größengruppe | | 4442 | 64,6 | 8437,0 | 1664 | 45 | 4929,0 |

Tab.2: Durchschnittsgewichte

| | | Durchschnitts-gewicht (g) | |
|---|---|---|---|
| | | R/III | R/IV |
| *Bos* | Hausrind | 6,7 | 13,1 |
| *Ovis / Capra* | Schaf / Ziege | 2,3 | 3,5 |
| *Sus* | Hausschwein | 3,1 | 5,6 |
| Größe *Bos* | | 4,9 | 5,7 |
| Größe *Ovis / Sus* | | 1,5 | 1,8 |
| *Equus* | Equide | 21,8 | 51,2 |
| *Canis familiaris* | Hund | 2,0 | 3,4 |
| Größe Hund / Hase | | 1,2 | 1,1 |
| Carnivora indet. | | 1,0 | |
| *Hippopotamus* | Nilpferd | 90,4 | 29,6 |
| *Lepus* | Hase | 0,8 | 1,2 |
| Kleinsäuger | | 0,3 | 0,3 |
| Mammalia indet. | | 1,6 | 1,9 |
| Aves | Vögel | 0,6 | 0,7 |
| *Crocodylus* | Krokodil | | 6,0 |
| *Trionyx* | Weichschildkröte | 8,1 | 7,0 |
| *Testudo* | Landschildkröte | 1,9 | 0,5 |
| *Pisces* | Fische | 1,0 | 1,8 |
| Mollusca | Weichtiere | 6,8 | 29,0 |
| *Homo* | Mensch | 3,4 | 4,1 |
| gesamt | | 2,4 | 3,8 |
| NR3 (Bos, Ovis / Capra, Sus) | | 4,2 | 6,4 |
| bestimmte Reste | | 3,4 | 4,5 |
| unbestimmt / Größengruppe | | 1,9 | 3,0 |

Abb. 4 Anreicherung von Fischresten in R/IV, Locus 823, Planquadrat i/20/21, humose Schicht.

Tab.3: Nutztiertriade und Fische in R/III und R/IV und in ausgewählten Kontexten

| | NISP | | | | %NR3 | | | Pisces | |
|---|---|---|---|---|---|---|---|---|---|
| | Bos | O/C | Sus | NR3 | Bos | O/C | Sus | NISP | %NR3 |
| 1606 | 21 | 31 | 1 | 53 | 39,6 | 58,5 | 1,9 | 18 | 34,0 |
| 1278_1282 | 21 | 28 | 1 | 50 | 42,0 | 56,0 | 2,0 | 21 | 42,0 |
| 1197 | 58 | 13 | 2 | 73 | 79,5 | 17,8 | 2,7 | 6 | 8,2 |
| 1156 | 29 | 27 | 1 | 57 | 50,9 | 47,4 | 1,8 | 14 | 24,6 |
| 1047_1114 | 66 | 97 | 20 | 183 | 36,1 | 53,0 | 10,9 | 63 | 34,4 |
| 925 | 24 | 25 | 1 | 50 | 48,0 | 50,0 | 2,0 | 14 | 28,0 |
| 896 | 46 | 48 | 9 | 103 | 44,7 | 46,6 | 8,7 | 42 | 40,8 |
| 837_861 | 26 | 38 | 3 | 67 | 38,8 | 56,7 | 4,5 | 22 | 32,8 |
| R/III | 692 | 881 | 87 | 1660 | 41,7 | 53,1 | 5,2 | 469 | 28,3 |
| R/IV | 264 | 556 | 124 | 944 | 28,0 | 58,9 | 13,1 | 765 | 81,0 |

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# FROM HYKSOS SETTLERS TO OTTOMAN PIPE SMOKERS. TELL EL-RETABA 2014

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Since 2007 a Polish-Slovak Archaeological Mission has been investigating Tell el-Retaba, a major archaeological site in northern Egypt.[1] Until 2012 every year a season of fieldwork took place. Due to the political situation in Egypt in 2013, the field works were suspended, but fortunately exploration could be resumed in 2014, when two field seasons took place, in spring and autumn.[2] These two seasons brought to light an abundance of new information about the long settlement history on the site. The first part of this report presents in chronological order the main results of excavations carried out in three areas: 4, 7 and 9, all concentrated in the western part of the site (see Fig. 1). Archaeological remains dated to a wide range of periods were revealed, the earliest being from the Hyksos Period and the most recent ancient remains datable to the Third Intermediate Period; also noteworthy are some archaeological remains belonging to the modern history of the site (17th–19th century AD), not included in reports from the previous seasons.

After several seasons it now seems possible to construct a phasing system encompassing the whole settlement history of the site (s. next page).

Excavations were not the only activity of the mission: the general archaeological report is followed by presentations of ceramic and anthropological studies, as well as results of geological, pedological, geophysical and engineering surveys.

## 1. Excavations

### 1.1. The Second Intermediate Period [phase G]

**Area 7**

*LH, JH*

#### 1.1.1. Hyksos cemetery

Research continued in the Hyksos cemetery located among the walls of the SIP settlement (Fig. 2). Three Hyksos graves were excavated during the 2014 season. One of them, a simple tomb [942][3] in square Y115X115, had already been recognised in the 2012 season, but remained unexplored. The newly discovered graves (1431) and (1428) are the first Hyksos graves without a mud brick casing found on the site.

**Grave of a young man [942]**

**Tomb structure [942]** erected in oval pit <933> was constructed of mud bricks bonded with a mortar (Fig. 3) whose composition was almost the same as the bricks. [942] was in fact a very simple wall of bricks leaning against the south wall of the grave pit and forming a kind of shelter over the burial – as in Type 2.2 at Tell el-Dabᶜa.[4] The wall, whose thickness measured half a brick, consisted of three courses of mud bricks. The western end of

[1] The mission is working under the auspices of the Polish Centre of Mediterranean Archaeology, University of Warsaw; involved are also: Institute of Archaeology, University of Warsaw; Slovak Academy of Sciences; Aigyptos Foundation, Bratislava. The works have been also supported by the Polish National Science Centre (grant 2012/05/B/HS3/03748) and by the Slovak Research and Development Agency (grant APVV-5970/12).
Reports from previous seasons can be found in: Rzepka *et al*. 2009, Rzepka *et al*. 2011, Rzepka *et al*. 2014.

[2] The team under the direction of Sławomir Rzepka and Jozef Hudec included: Bartosz Adamski, Miroslav Černý, Veronika Dubcová, František Engel, Emil Fulajtár, Anna Gręzak, Lucia Hulková, Barbara Jakubowska, Łukasz Jarmużek, Lukáš Kováčik, Claire Malleson, Martin Odler, Ľubomír Podhorský, Agnieszka Poniewierska, Renáta Rábeková, Agnieszka Ryś, Piotr Sójka, Alena Šefčáková, Eva Stopková, Ján Tirpák, Katarzyna Trzcińska, Jerzy Trzciński, and Anna Wodzińska. MSA representatives were Sameh Ahmed Elsaid Hashem and Mustafa Hassan.

[3] The system of recording excavated units in Tell el-Retaba is based on the system used in Tell el-Amarna. Numbers of fills and deposits are written in round brackets, e. g. (1250), structures in square brackets, e. g. [1624] and cuts in angle brackets, e. g. <1174>. Cf. Kemp and Stevens 2010, 9–10.

[4] Forstner-Müller 2008, 26.

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| phase | dating | main features |
|---|---|---|
| G | Second Intermediate Period | settlement and cemetery |
| F | 18th Dynasty | open (?) settlement existing until the time of Amenhotep II/Thutmosis IV |
| E4 | 19th Dynasty | earliest defence wall – core of Petrie's "Wall 1"; infant cemetery |
| E3 | 19th Dynasty | fortress of Ramesses II – extensions of "Wall 1"; barracks/workshops |
| E2 | 19th Dynasty | Fortress |
| E1 | 19th–20th Dynasty | settlement and cemetery in the ruins of the fortress |
| D4 | 20th Dynasty | ruins of 19th dynasty fortress levelled; fortress of Ramesses III – Petrie's "Wall 2" |
| D3 | 20th Dynasty | Petrie's "Wall 3", fortress |
| D2 | 20th Dynasty | Fortress |
| D1 | 20th Dynasty – Third Intermediate Period (TIP) | fortifications abandoned and ruined |
| C4 | TIP | Settlement |
| C3 | TIP | Settlement |
| C2 | TIP | Settlement |
| C1 | TIP | Settlement |
| B | Late Period | no architecture preserved, only some pottery on the surface |
| A | modern | i.a. Ottoman ovens and pipes |

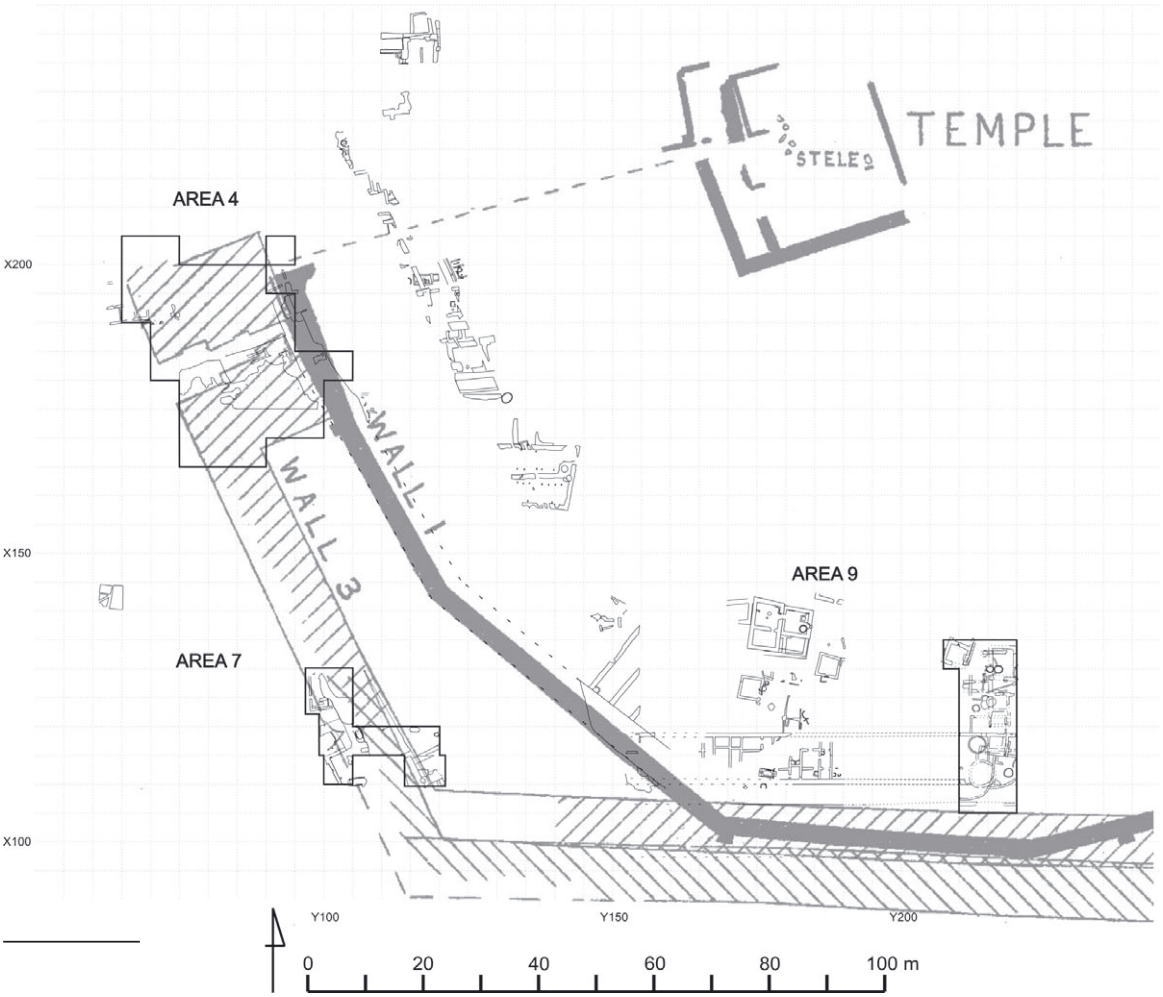


Fig. 1 General plan of the western part of the site with location of areas excavated in 2014 (drawing Ł. Jarmużek)

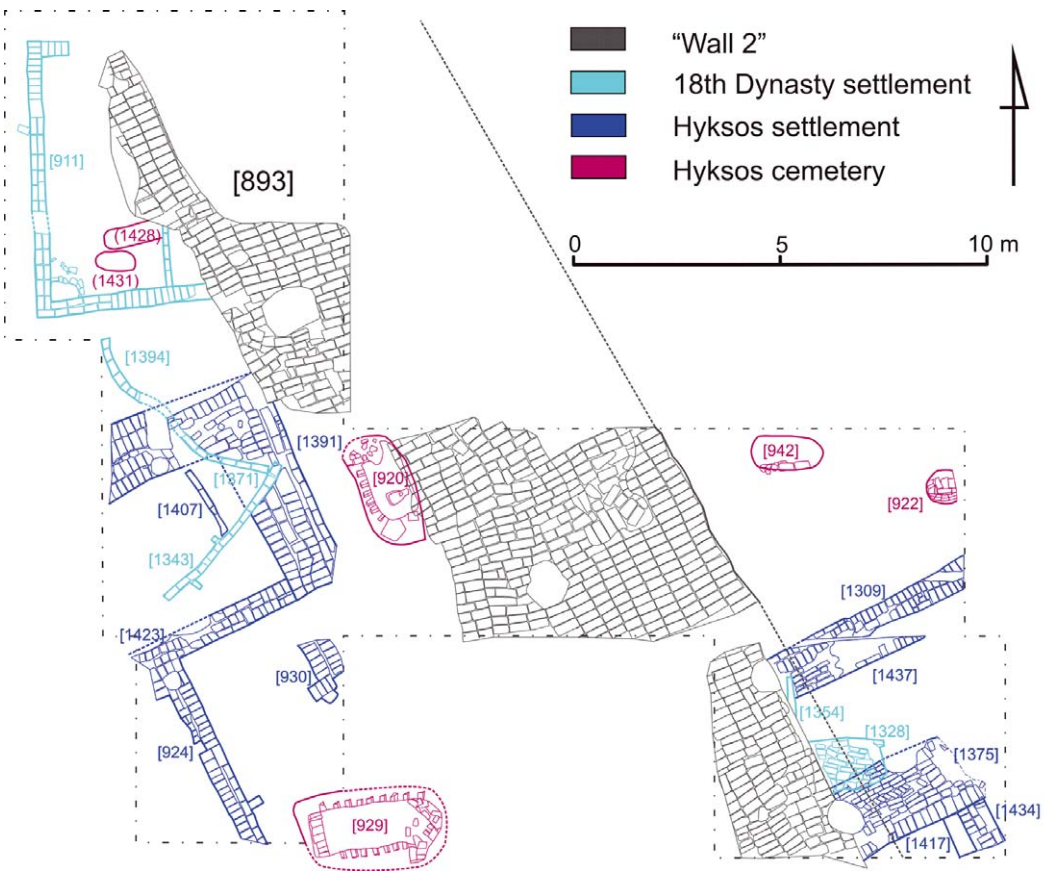


Fig. 2 Area 7 – plan (drawing E. Stopková/L. Hulková)

this wall turned slightly to the south, creating an extra cover for the head of the deceased. In the east, there seemed to be some kind of a corner-support structure, but it was too badly damaged to allow proper reconstruction. Further towards the west, two more backing stones were located. They were not built into the structure of the N wall, but merely attached to it with mortar. The uppermost bricks forming a roof over the burial were also held in position by masses of mortar on the inside and outside. One of these roofing bricks seemed to have been removed, and it was therefore assumed that the tomb was robbed, but further excavation rendered this assumption improbable. This structure is very similar to another simple tomb [922][5] found just a few meters to the north-east of [942].

An undisturbed **skeleton (**1425) of a juvenile individual was discovered inside tomb [942] (Fig. 4). The skeleton was partially covered with two mud bricks placed between the screen wall and the pit-wall. These bricks rested directly on the bones. The skeleton was lying on the left side in a strongly contracted position, the head to the west, facing north. The legs were flexed, with the knees pulled up tightly to the abdomen. There were no burial goods in the tomb or in the pit.

Fig. 3 Area 7 – Hyksos tomb [942] (photo L. Hulková)

[5] Rzepka *et al*. 2014, 43f.

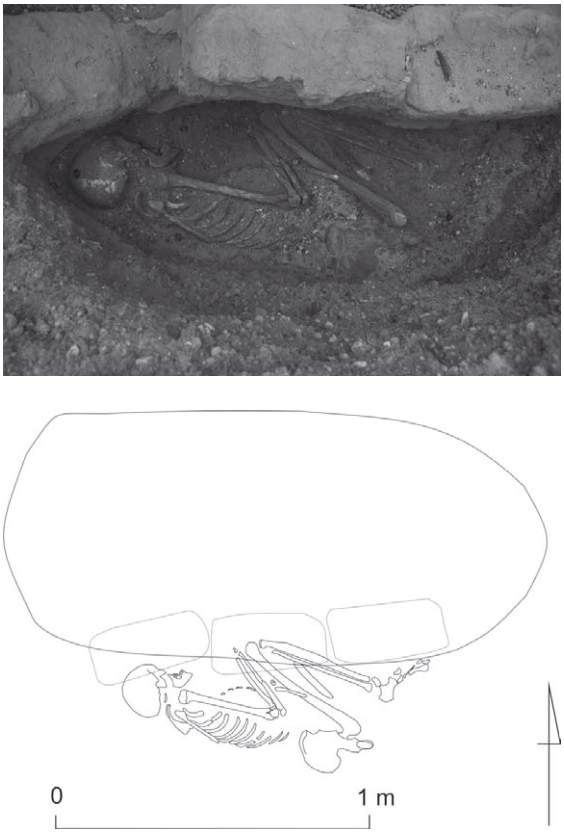


Fig. 4 Area 7 – skeleton (1425) inside Hyksos tomb [942] (photo L. Hulková, drawing E. Stopková/L. Hulková)

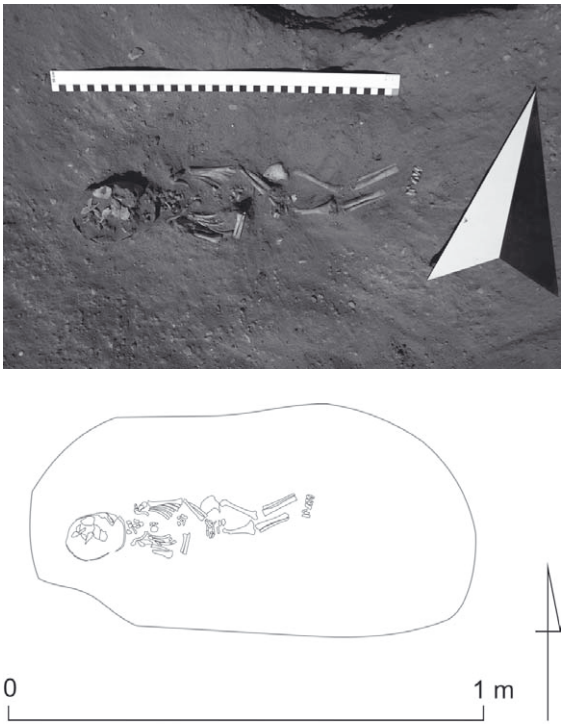


Fig. 5 Area 7 – child burial (1431) with skeleton (1432) (photo V. Dubcová, drawing E. Stopková/L. Hulková)

#### 1.1.1.2. Child burial (1431)

Two Hyksos graves were discovered below the foundation level of the south-western room of "black house" 3 (see below) (Y95X120), directly underneath the layer (1408), in a reddish coarse-grained gravel layer. The first one was a child **burial (1431)** interred in a shallow pit without any grave goods (Fig. 5). Directly above the grave two mud bricks were placed, possibly to cover the burial.

The **skeleton (1432)** belonging to a 0–0.5 year old child was lying supine. The remains lay extended on back, oriented E–W, with the skull towards the west. The left hand laid outstretched on the lap, while the bent right hand rested on the stomach area.

#### 1.1.1.3. Burial (1428)

Child burial (1431) was located ca 20 cm from the south-western edge of another **pit grave (1428)** in square Y95X120. The pit was roughly E-W oriented, dug out to a depth of 92 cm into the reddish sand-gravel geologic layer. However, the major part of the tomb pit could not be excavated, as it was covered by later strata with Petrie's "Wall 2" on top of them.

The uncovered western part of the tomb pit contained only outstretched legs of an adult female (?) **skeleton (1446)**. Based on their position, the deceased was probably deposited extended supine with the head in the east. Apart from a stone tool S1861 recovered from the fill of this part of the grave-pit no grave goods were found.

### 1.1.2. Settlement structures

Besides the three tombs, also several mud brick walls of SIP structures were uncovered in squares Y115X115, Y115X110, Y100X115, Y95X115 and Y100X120 (cf. Fig. 2).

It seems that both the cemetery and the settlement were established on an aggradation embankment/levee[6] of the ancient Nile tributary of Wadi

[6] See below, chapters 4 and 5 by J. Trzciński and E. Fulajtár.

Tumilat. The tributary was probably an ancestor of the canal which runs along Tell el-Retaba's western and southern sides nowadays. The embankment apparently dried faster after inudations and was therefore preferred as a settlement ground. This upland position explains why older occupational levels were exposed at a higher elevation than layers of the same date on the rest of the tell.

#### 1.1.2.1. Square Y115X115

Continuing the excavation from the point reached in 2012,[7] ashy layers on the bottom of the older settlement area were examined. Both these deposits and occupational layer (1315) were flanked by a mud brick wall [1309] partly uncovered on the southern side of the square in 2012. An occupational layer or floor (1315) belonging to the same phase as the wall extended approximately 1.4 m to the north of it and was covered by layers into which the pit of grave [942] was cut. Wall [1309], which also extended into square Y115X110, seems to be the oldest architectural feature in this part of the excavated area. The stratigraphy indicates that tomb [942] is more recent than the SIP settlement architecture. Wall [1309] should be also older than tomb [922], dated to the 15th Dynasty,[8] as its tomb-pit was also dug into layers that covered the wall.

#### 1.1.2.2. Square Y115X110

In square Y115X110 a later phase of the SIP settlement was dominated by structure [1375] (Fig. 6). This 1.9 m wide architectural feature seems to be a massive wall or a plastered floor of some kind. The interpretation of this feature is not unequivocal, as only one course of bricks remains preserved. The boundaries to the east and north are obscured by layers that might be mud brick detritus associated with a collapse of [1375].

Fig. 6 Area 7 – Hyksos settlement, walls [1375], [1434] (photo V. Dubcová)

Further north of [1375] is wall [1437]. Its northern face seems to be parallel to the above-mentioned earlier SIP structure [1309], but there is a destruction layer separating wall [1437] from wall [1309]. Therefore there probably is an older phase of SIP settlement underneath structures associated with walls [1375] and [1437]. Wall [1336] and deposits (1429), (1430) and (1434) also seem to have belonged to an older phase, but further excavation is needed to determine the relationship between them.

#### 1.1.2.3. Squares Y100X115 and Y95X115

Excavations confirmed the continuation of wall [924] from square Y100X110[9] into square Y100X115, where it met wall [1423] at a right angle. The beginning of wall [1423] was also uncovered in 2012. The wall seems to continue westwards, probably substantially widening on the southern side. At the eastern end of wall [1423] a probably more recent wall [1391] was added (Fig. 7). The wall [1391] partially overlies an older ashy layer (1405) (a fireplace?) and other layers associated with it. Only one course of mud bricks remains and no foundation trench is recognisable. The wall [1391] was of considerable size, measuring170 × 530 cm and 170 × 250 cm (dimensions of bricks ca 17 × 35 × 10 cm). It probably represents an outer corner of a large building (see Fig. 2). On the eastern side of the wall some additional courses of mud bricks seem to be preserved, therefore it cannot be excluded that wall [1391] was additionally reinforced or widened. Wall [930], excavated in 2012,[10] also very probably belonged to the mentioned large building, but its full extent and connection to [1391] have not yet been established.

Relatively few finds were discovered in the SIP layers. The assemblage included some flint tools (S1800, 1801), stone tools (S1850) from fireplace (1405), some bronze/copper fragments, and bronze/copper toggle pin S1862 (Fig. 8).[11]

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7 Rzepka *et al*. 2014, 52ff.

8 Rzepka *et al*. 2014, 43f.

9 Rzepka *et al.* 2014, 54f.

10 Hudec in: Rzepka *et al*. 2014, 52–56, Fig. 10, 27.

11 Abd el-Maksoud 1998, 263, no. 476; Thomas 1981, Vol. I, 87 (made of gold), Vol. II, Pl. 40, no. 754.

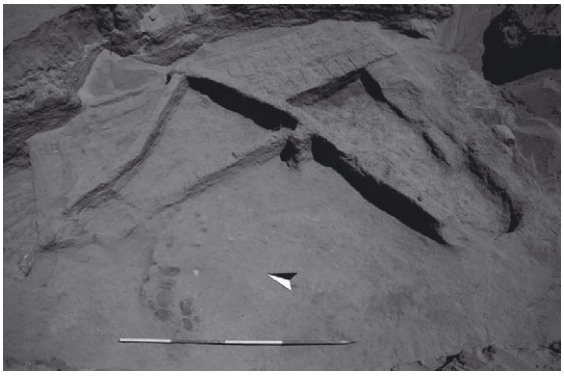

Fig. 7 Area 7 – Hyksos settlement, walls [1423], [1391], and 18th Dynasty settlement above, wall [1371] (photo V. Dubcová)

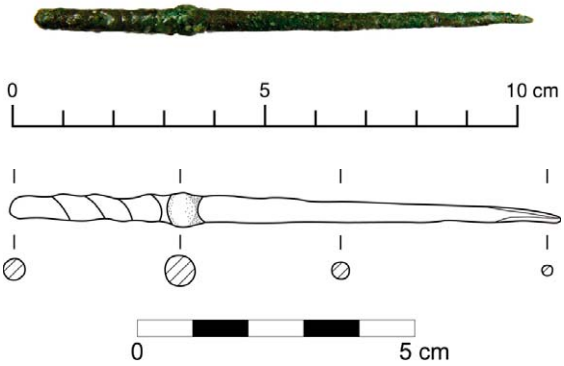


Fig. 8 Toggle pin S1862, drawing (photo: R. Rábeková, drawing M. Odler/Ľ. Hudáková)

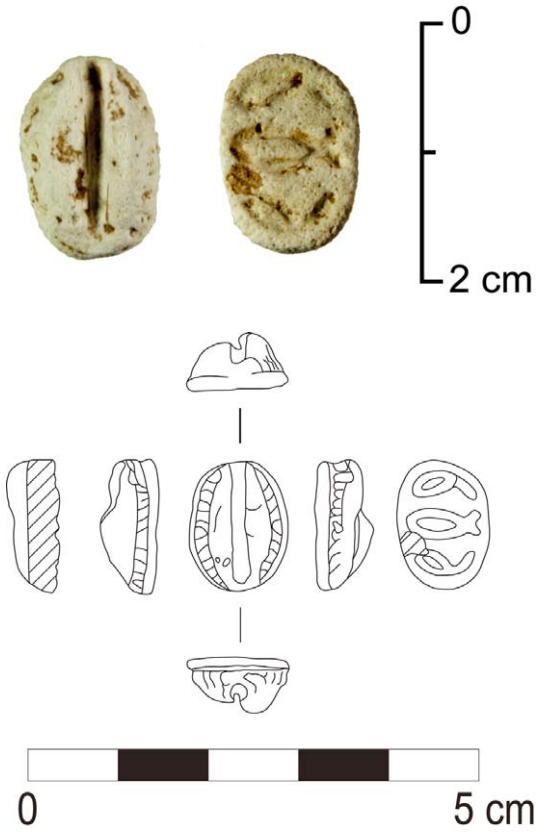


Fig. 9 Kauroid S1853 (photo R. Rábeková, drawing L. Kováčik/V. Dubcová)

A kauroid S1853 (Fig. 9) was found in layer (1411). Its decoration consists of one *sa* and two *anra* signs oriented along the longer axis of the kauroid. It belongs to group 3A3 – Design class III – Egyptian signs and symbols.[12] Similar finds[13] do not assist in narrowing down the kauroid's date and only roughly support the dating of layer (1411) to the SIP.

### 1.1.3. Relationship between the SIP burials and the settlement structures

Although the excavation in 2012 demonstrated that burials [922] (in square Y115X115) and [929] (Y100X100) are younger than several walls constructed of yellowish mud bricks, further research has indicated that the situation is more complex.

1. There seem to be at least three groups of burials in this part of the cemetery:

a) Tombs with standard mud brick vaults: [810] dated to the late 15th Dynasty,[14] [920] dated to very late 13th through early 15th Dynasty,[15] [929] dated to the very beginning of the 15th Dynasty;[16] robbed or reused, some skeletons in disarray, diverse orientation;

b) Tombs with mud brick screening walls: [922] dated generally to the 15th Dynasty,[17] [942] without datable finds; skeletons against southern side of grave pit, contracted, oriented east-west;

c) Pit graves without mud brick structures (1428), (1431) both without datable finds; skeletons supine, oriented east-west;

[12] Tufnell 1984, Vol. II, Pl. VIIIb, 1404; Petrie 1934, Pl. V, no. 128.

[13] Thomas 1981, Vol. I, 80, Vol. II, Pl. 36, no. 677.

[14] Rzepka *et al*. 2014, 96f.

[15] Rzepka *et al*. 2014, 96.

[16] Rzepka *et al*. 2014, 95.

[17] Rzepka *et al*. 2014, 94.

2. The a) group alone indicates that the cemetery was used for a considerably long time. At the present state of knowledge it is impossible to determine whether the emergence of groups b) and c) was due to chronological or social factors.

3. The settlement is generally dated to mid to late 15th Dynasty,[18] although some pottery might come from earlier occupational phases.[19] Thus, there seems to be a discrepancy in the stratigraphy, especially between tomb [929] and walls [924] and [930] in square Y100-Y110. According to the stratigraphic sequence visible in sections, the tomb was cut into a layer covering both [924] and [930]. This discrepancy can be explained in one of three ways:

– Pottery made in Tell el-Retaba has some local specifics and differs from material in Tell el-Dabᶜa and Tell el-Maskhuta;
– A later robbers' pit could have been mistaken for a grave pit due to constrained excavation space;
– The pottery used for grave gifts was older and out of fashion.

Further excavation in squares Y100X105, Y105X105 and Y105X100 might shed more light not only on stratigraphic relations between tombs and structures, but also on the development phases of the SIP architecture.

## 1.2. 18th Dynasty [phase F]

### 1.2.1. Settlement

### Area 7

*VD, JH*

Works in Area 7 (see Fig. 2) continued underneath and around structures which had been partly unearthed in square Y95X120 already in 2012, including [911] – "black house" 3. In addition, other early New Kingdom structures were also discovered in square Y115X110. It seems that the 18th Dynasty settlement in Area 7, partly documented in 2011 and in 2012,[20] had at least three phases discernible in the preserved archaeological record and partly also in the recovered pottery.[21]

#### 1.2.1.1. "Black house" 3 and its surroundings

(Squares Y100X120, Y95X120, Y100X115, Y95X115)

The stratigraphic situation in the south-western part of "black house" 3 was further clarified by excavating an inner room of the building (room 2). A complete early New Kingdom ceramic bowl was found in this part of "black house" 3 (Fig. 10). Work consisted in the removal of remains of layer (948), which constituted the lower part of the destruction level of the house and contained a large quantity of mud bricks. A kind of flint tool S1799 (whetstone?) and a scarab (S1798) were found in this layer.

The scarab S1798 (Fig. 11) is made of Egyptian faience (frit) and bears a hieroglyphic inscription Nb-nfr-Ḥrw.j/*Neb-nefer-Hory*. It belongs to the design class 3A4 - "*Horus hawk with nṯr and other signs*",[22] which occurs commonly in the so-called Palestinian series and is probably of Canaanite origin. Scarabs representing such a design seem to appear in Egypt/Eastern Delta no earlier than in the late Second Intermediate Period.[23] Names with the component Nb-nfr started to appear in the New Kingdom.[24] This element is attested in finds from Gurob,[25] Tell el-Maskhuta, Aniba, Mirgissa,


Fig. 10 18th Dynasty bowl (photo R. Rábeková)

[18] Rzepka *et al*. 2014, 97f.

[19] Rzepka *et al*. 2014, 98, note 153.

[20] This is also consistent with the situation revealed in 2011 in the so-called "Naville trench", where a second phase was also visible in the structure and stratigraphy of two silos and ovens in an industrial area connected with "black house" 1 [643, 632]; see Dubcová in: Rzepka *et al*. 2014, 56–64.

[21] I.e. Hatshepsut – Thutmosis III; Thutmosis III – Amenhotep II; Amenhotep II – Tuthmosis IV. See Wodzińska in: Rzepka *et al*. 2013, 275–282. This chronological division is only preliminary and needs to be proved in the next seasons.

[22] Tufnell 1984, Vol. II, Pl. IX, 3A4; amended by Ben Tor 2007, 17, 76f, 126f.

[23] Ben-Tor 2007, 127.

[24] Ranke 1935, 185–18.

[25] Thomas 1981, Vol. I, 78, Vol. II, Pl. 33, no. 642.


Fig. 11 Scarab S1798 (photo R. Rábeková, drawing L. Kováčik/Ľ. Hudáková)

Debeira, Dakka, and various Palestinian sites.[26] The possibility that inscriptions of this kind represent meaningful phrases has been suggested by Quirke.[27]

The main occupation horizon of "black house" 3 was recognized underneath layer (948), with a floor made predominantly of clay, on which there were some mud bricks and abundant pottery. This layer yielded a piece of pumice (S1822),[28] grinder (S1854) and bronze/copper fragment (S1829). Pottery was also plentiful in another, sandier layer (1408) covering the whole room. The older structures of "black house" 3 [911] with their associated layers (948) and (1408) and some domestic-industrial installations[29] found in square Y100X115 and partly Y95X115 date from the time of Hatshepsut/Thutmosis III.

In square Y100X115 a curved, ½-brick-thick wall consisting of two to three courses of mud bricks [1343] encircled an area with a large fireplace (1349/1360). The wall was connected with a smaller (probably sinusoidal) wall [1371] (see Figs. 2 and 7). Most of the layers associated with these structures were composed of sand, gravel and ash, with only some recognizable floor remains along the walls. These layers were probably related to external structures attributable to a domestic-industrial area.

Further investigation is needed in order to date structures found underneath the layers filling the 18th Dynasty enclosure. The features in question are remains of a wall (?) (1445), an associated floor (1420/1435), and circular pits (perhaps post holes? (1453–5)). Tumbles of yellow (1421) and black bricks (1433) were also observed there.

Among distinctive finds from this area were flint tools (S1740, S1756), metal objects – a bronze/copper needle, fine chisel (S1805)[30] and a bronze/copper rivet/check rowel (S1765). A concentration of seeds in sand-and-ash layer (1370) was identified as remains of a melon (*Cucumis melo*)[31] (Fig. 12). Such seeds remain popular titbits even nowadays.

Find S1765 (Fig. 13) is a bronze or copper rod[32] measuring 0.6 cm in diameter and 5.42 cm in length. In the middle of the rod there is a disc measuring 1.9 cm in diameter. Both ends of the rod feature widened knobs. Such rivets, usually found

Fig. 12 Melon seeds found in 18th Dynasty layers (photo R. Rábeková)

[26] Ben Tor 2007, Pl. 33, 52.

[27] Quirke 2004, 174–175.

[28] The pumice has been found in a lower part of the layer; its provenience has not been determined yet.

[29] It has not been ascertained whether the "black house" 3 and the domestic-industrial installations were interrelated.

[30] An artefact with a similar morphology, designated as a "point", was published from Tell el-Dabʿa (Philip 2006, 127, Fig. 58.3).

[31] Nicholson and Shaw 2000, 634f.

[32] Identification of the metal cannot be achieved without analysis.

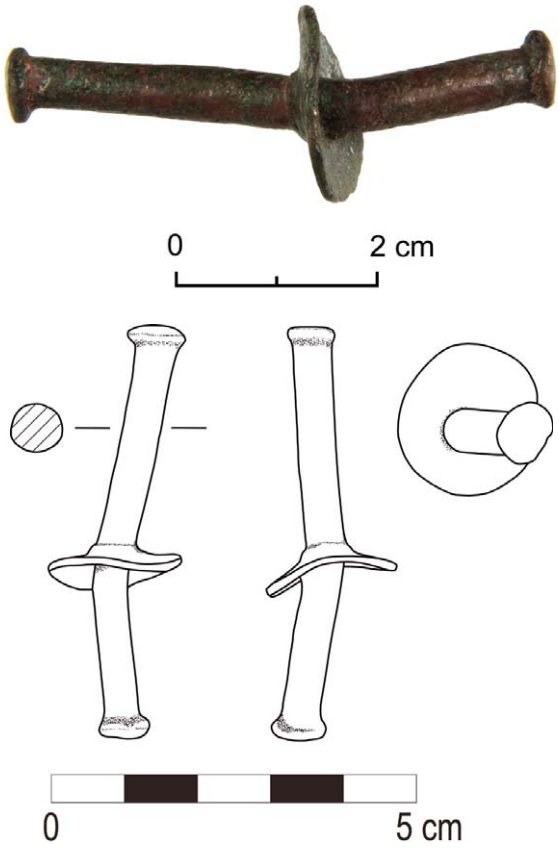


Fig. 13 Rivet or check rowel (?) S1765 (photo R. Rábeková, drawing L. Kováčik/V. Dubcová)

with two discs (two-headed rivets), seem to have been parts of wooden containers. They occur mostly on 18th Dynasty sites, for instance at Fadrus[33], Buhen[34] and Aniba.[35] In Tell el-Retaba, the rivet's stratigraphic position in (1345), a substantial ashy layer associated with the underlying fireplace (1349/1360), might be due to the contamination of the deposit with materials from overlying layers[36].

According to a different opinion, the metal object may be interpreted as a part of a bronze or copper check rowel.[37] The check rowels found in the tomb of Tutankhamun had wooden rods ca 65 cm long, with a central, copper-spiked disc[38]. The off-sets on both ends of the stick and the disc in the middle might indicate that S1765 was attached to wooden rods. However, the usage of check rowels seems to have been limited to the late 18th to 20th Dynasties so far.[39]

### 1.2.1.2. Square Y115X110

Within the 18th Dynasty remains, two phases could be distinguished. Preserved from the later phase are the remains of walls [1328] and [1354] consisting of only one layer of bricks each. Wall [1328] is probably the foundation of a broader mud brick wall that was built in a narrow foundation trench visible in the modern cut <1326>. Numerous potsherds were scattered – probably intentionally – on the surface of the sandy filling of this narrow and shallow trench. The wall [1354] is only ½ brick thick. It could have been a part of some kind of screen wall or fence dividing various compounds or areas of a housing unit. It is not possible to infer the nature of these structures any further, as too little of them is preserved to allow more precise interpretation. However, it is noteworthy that these walls have the same orientation as the so-called "black house" 3 (see above).

These structures are clearly separated from another 18th Dynasty settlement layer by a sandy deposit (896/1350). This stratigraphic unit seems to consist of wind-blown sand containing only a few isolated potsherds and unworked shells. The earlier phase of the 18th Dynasty settlement is represented only by ashy layer (897/1353) containing potsherds and bone fragments and by deposit (1357). Unit (897/1353) seems to be an occupational layer, but there are no associated architectural structures. Grinders (S1860 and 1785) found in (1357) suggest domestic-industrial usage as well.

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33 New Kingdom Pharaonic sites, Säve-Söderbergh and Troy 1991, Pl. 30, no. 9–12: finds from Fadrus are dated to phase Ia (Early 18th Dynasty, Pre-Hatshepsut) to Iic (Amenhotep II–Tuthmosis IV). See chronology in Säve-Söderbergh and Troy 1991, 51.

34 Randall-Maciver and Wooley 1911, p. 164.

35 Steindorff 1937, Taf. 64: 14, 15.

36 Although the layer is clearly connected with an 18th Dynasty fireplace, it also contained some TIP and LP potsherds, which might, however, also be the result of accidental contamination by workmen during transportation of the excavated material.

37 Crouwel 2013, 74, Fig. 2.

38 Reeves 2006, 146; http://www.griffith.ox.ac.uk/gri/tut-scans/TAA_i_3_8_13.jpg.

39 Littauer and Crouwel 1985, 73.

The later phase of occupation includes several layers (1332, 1337, 1352), mud brick wall [1346] and remains of two fireplaces (1348), all of which lay clearly above older structures and were separated from them by thin sand- and gravel-rich layers.

A rim fragment of coarse ware crucible (S1828)[40] was found with two corroded copper prills attached. The size of the fragment does not permit to reconstruct the whole object. It was found in a stratigraphic unit (1415) from the reign of Thutmosis III. A set of crucibles discovered in Tell el-Dabᶜa was dated to the 13th dynasty[41]. The crucible fragment constitutes the first direct evidence of metallurgical activity at Tell el-Retaba in the New Kingdom. Small fragments of copper alloy objects ("prills"), a frequent find at Tell el-Retaba (the last season brought to light 10 fragments of "prills" and/or scrap metal), can also be explained by the presence of a metallurgical workshop, engaged in the processing of copper[42] ore and possibly also recycling of scrap metal, somewhere on the site.

**Conclusion**: The mud brick walls of "black house" 3 were preserved to a max. height of ca. 20–30 cm (2–3 courses) and another 20 cm of deposits separated them from the gravel-rich layer in which the two simple Hyksos graves (see above) were discovered. The structures of "black house" 3 were built on even older 18th Dynasty layers (1338, 1363), which covered remains dated to the SIP.

One of the principal tasks of the season was to verify the stratigraphic and chronological relationship between the Hyksos settlement and the occupational level dated to the early 18th Dynasty. The early 18th Dynasty settlement overlies the Hyksos one and consists of several walls and deposits, which are probably also attributable to different phases. The transition between the Hyksos layers and the early 18th Dynasty layers appears to have been relatively smooth. There are certainly no massive destruction episodes separating the 18th Dynasty material from the earlier Hyksos settlement in Area 7.

### 1.2.2. Settlement

### Area 4

*MO, VD, JH*

The team continued research on the cross-section of the oldest fortification wall documented on the site thus far (Petrie's "Wall 1") in squares Y95X180 and Y100X180 (Fig. 14). Some 18th Dynasty materials were spread out and mixed with later structures investigated in the lowermost levels of the section through "Wall 1".[43]

Mud brick structure [1331], represented by two courses of yellowish mud bricks[44] running east-west, was found underneath the lower course of the inner extension of "Wall 1".[45] It was truncated by a Ramesside child burial, (1333) (see below). Material from this context included *inter alia* pottery datable to the reign of Hatshepsut/Thutmosis III, flint blades, and copper alloy kohl-stick (S1771), and might rather indicate that these strata were 18th Dynasty layers disturbed in the Ramesside period.

The S1771 kohl-stick or fine chisel[46] (Fig. 15) may be dated to the New Kingdom.[47] One end of the object is flattened and the other one rounded, while the section of the rod is circular (4 – 3.3 mm). The artefact is most similar in morphology to kohl-sticks with one end flattened; another find of this type from Tell el-Retaba was similar in shape.[48]

A layer rich in charcoal (1365) was found under burial (1333), in all probability datable to the era of Thutmosis III/Amenhotep II. Another child burial (1372) rather seems to have been a part of the Ramesside cemetery[49] than a solitary burial dated to the 18th Dynasty. Observed below burial (1372) was a tumble of small black mud bricks datable to the reigns of Hatshepsut/Thutmosis III; it may indicate the presence of another "black house" (No. 4). A black ashy layer (1406), also datable to the reigns of Hatshepsut/Thutmosis III, is separated (1361) from underlying layers. The lowermost identified layer of yellow sand (1426) has yet to be excavated.

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40 33.7 × 29 mm, thickness 13.6 mm, weight 11.7 g.

41 Philip 2006, 199–204.

42 Ogden in: Nicholson and Shaw 2000, 149–161.

43 Rzepka *et al*. 2011, 143–146, Figs. 19–20.

44 L. ca. 84–90 cm, W. 31 cm.

45 Drawing of the section: Rzepka *et al*. 2011, Figs. 19–20.

46 L. 109.5 mm, W. 3.1 g.

47 Similar examples: Petrie 1927, Pl. XXIII, nos. 18–20, 41–42, 30; Vandier d'Abbadie 1972, 159–160, nos. 714A–H.

48 Dubcova in: Rzepka *et al*. 2014, 61, Fig. 41.

49 Górka and Rzepka 2011.

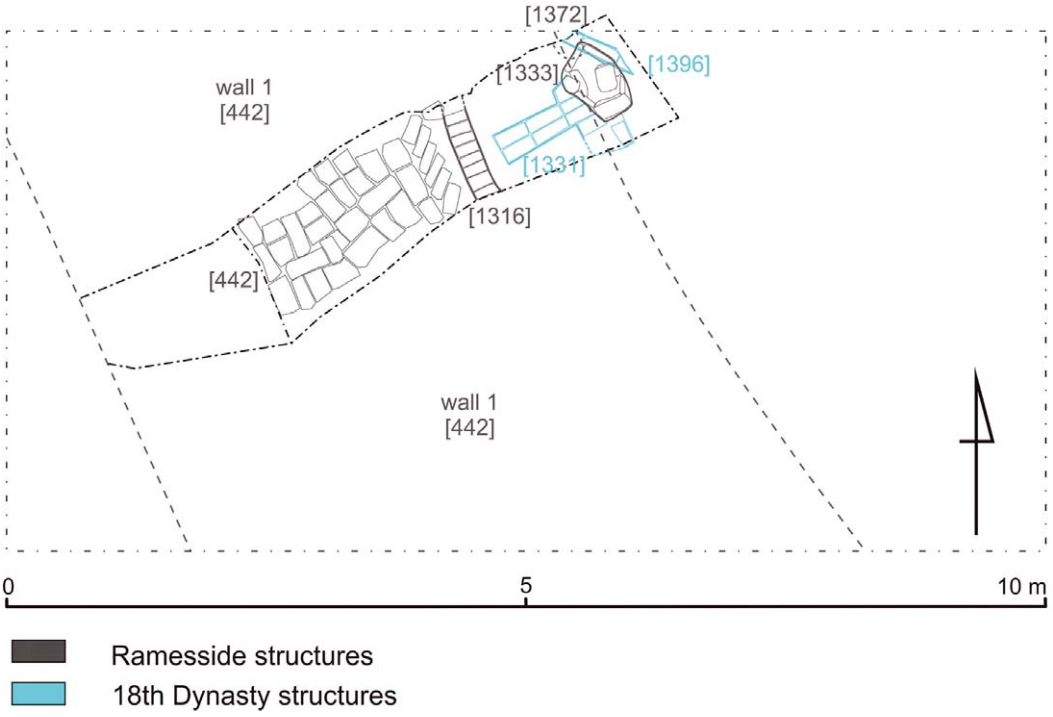


Fig. 14 Area 4 – plan (drawing E. Stopková/L. Hulková)

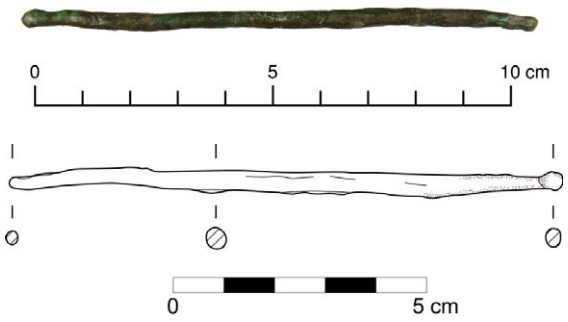


Fig. 15 Kohl-stick or fine chisel S1771 (photo R. Rábeková, drawing M. Odler/Ľ. Hudáková)

Among small finds from the area were: several simple, flat, circular, pierced faience and ostrich eggshell beads (S1833, 1834, 1835, 1836),[50] a remarkable number of flint tools - scraper S1817,[51] borers or arrowheads S1820 from (1396) and S1837 from (1406), fishhook S1842 from (1406), and sickle blade S1846 also from (1406).[52] All these finds document diverse and intensive domestic and hunting activities. Fragmentary artefact S1805 from an early New Kingdom context (reigns of Hatshepsut and Thutmosis III) might also be a fine chisel.[53] Its section is square on one end (3.5 × 3 mm) and circular on the other.

**Discussion**: Structure [1331] and the underlying layers might be related to settlement structures of the 18th Dynasty found in the "Naville trench".[54] However, due to the small dimensions of the test pit it was impossible to identify these relations more clearly in 2014.

Several layers (1365, 1396, 1406 and 1426) and part of the nearly black mud brick destruction layer – (1361) – were securely dated to the 18th Dynasty. These layers are altogether about one metre thick. There seems to be a difference between 18th Dynasty layers identifiable above and below mud brick destruction layer (1361), which contained pottery from the reign of Thutmosis III/

[50] For similar objects from the Semna fort see Raisner1960, vol. I, Fig. I, nos d–f, i.

[51] Tillmann 2007, 210, Taf. 18.

[52] Development of the type: Tillmann 2007, 129–132; New Kingdom typology: Tillmann 2007, 70–73.

[53] L. 78.4 mm, W. 4 g.

[54] Dubcova in: Rzepka *et al*. 2014.

Amenhotep II. The layers below it are probably earlier, from the period of Hatshepsut and Thutmosis III. This stratigraphic sequence could also be partially observed in Area 7.

### 1.3. 19TH DYNASTY (PHASES E4–E1)

In Area 9, a fragment of the inner structure of the 19th Dynasty fortress was revealed. So far very little is known about the spatial organization within the earliest fortifications (Petrie's "Wall 1"). In 2010, fragments of barracks/workshops were uncovered in the western part of Area 9. Similar buildings were also found in Area 3, in the N-W part of the fortress.[55] In 2014, 19th Dynasty levels were reached in the eastern part of Area 9 revealing several phases of occupation. The uncovered area included courtyards with round silos surrounded by curved enclosure walls. In a later phase the area was used as a children's cemetery, as well as a dump.

In Area 4, two infant burials belonging to an early phase of the 19th Dynasty were discovered. They belonged to the infant cemetery discovered already in 2009.

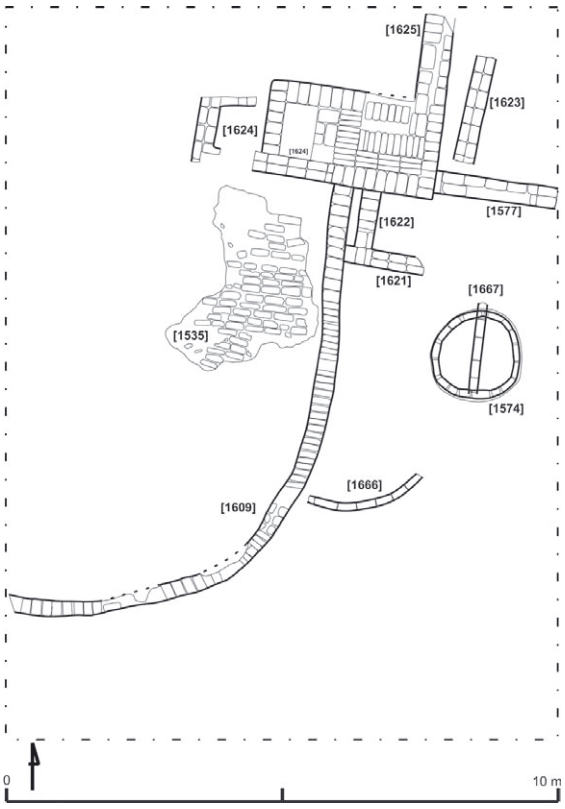


Fig. 16 Area 9 – plan of structures belonging to the 19th Dynasty fortress, phase E4 (drawing Ł. Jarmużek)

#### 1.3.1. Fortress (Area 9, phase E4)

*ŁJ, SRz*

Structures belonging to phase E4 were only partially excavated. Numerous walls were roughly cleared in order to allow basic documentation (Figs. 16–18). All structures will be explored next season. The present state of research allows us to assume that the excavated structures probably belonged to a building and courtyard delimited by a curving wall. Walls [1624] and [1625] probably constituted the south-eastern corner of a building, as they form a right angle. Both walls were about 3.3 m long, wall [1624] was 0.39 m thick, while wall [1625] was 0.53 m thick. In the space between the walls (probably the interior of the building) several small walls and probably a mud brick floor were found.

Next to the southern face of wall [1624] there was a longer wall [1609], which probably delimited the courtyard connected with the building. It ran southward for about 7 m, then turned to the west and continued for about 5 m. The thickness of the wall varied from 0.32 to 0.37 m. The area to the west of the wall was probably the said courtyard. Its surface, at the present state of works, is estimated at about 41 $m^2$.[56] The area of the building and the courtyard was covered with mud brick debris (1536) originating from the destruction of features. Inside the courtyard a fallen fragment of a wall [1535] was found. The location and types of bricks indicate that the fallen wall was originally a part of wall [1624]. Thus wall [1624] was originally at least 3.7 m high.

On the eastern side of wall [1609] fragments of several walls were found: [1577], [1621], [1622], [1623], [1666] and [1667]. It is not yet possible to identify the kind of structures to which these walls belonged. The area between the walls was covered with thick layers of ashes, (1652) and (1586), which contained abundant pottery and animal bones. It

[55] Cf. RZEPKA *et al*. 2011, 145–152.

[56] Similar rounded walls delimiting courtyards can be found on other sites, see BORCHARDT and RICKE 1980, plan 6, 21, 29, 103.

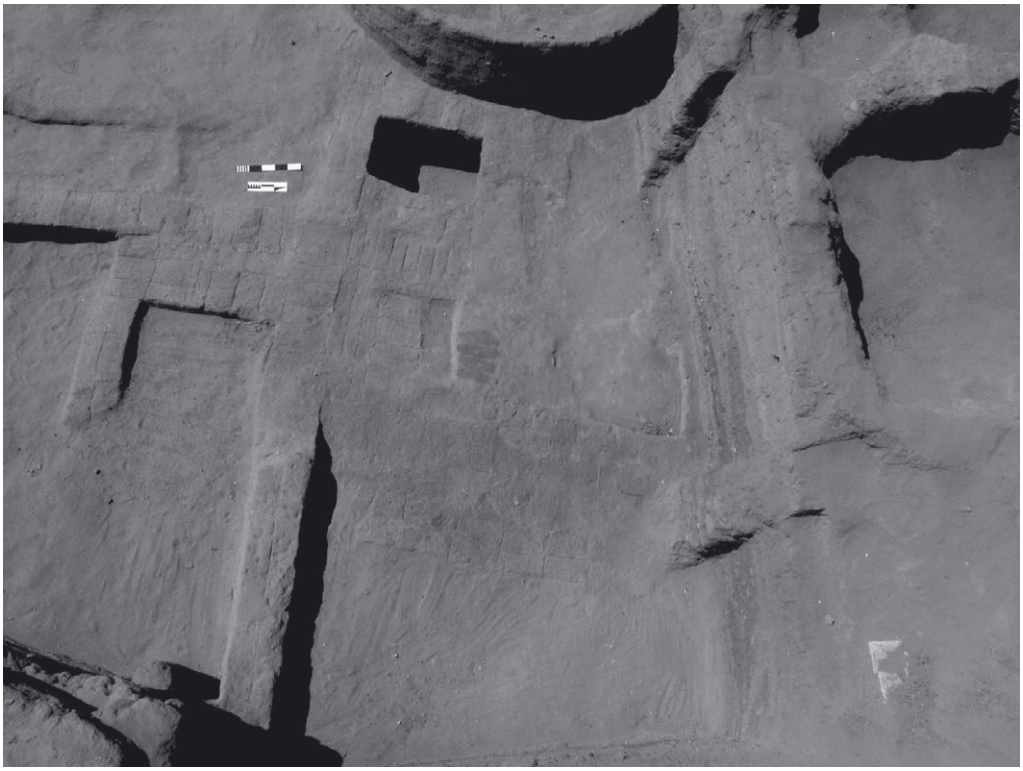

Fig. 17 Area 9 – structures belonging to the 19th Dynasty fortress, phase E4 (photo S. Rzepka)

Fig. 18 Area 9 – structures belonging to the 19th Dynasty fortress, phase E4 (photo S. Rzepka)

seems that the area outside the courtyard served as a dump. After some time a small silo [1574] was built in this area. Its walls had a very irregular bonding pattern and their thickness varied from 0.11 to 0.15 m. The diameter of the silo was about 1.34 m.

Deposits belonging to this phase were quite rich in various types of small finds. One of the most interesting and unique finds was a small Mycenaean terracotta figurine (S1967; Fig. 19) found in stratigraphic unit (1536). It was made from a yellow fabric with some reddish-brown painted decoration. It shows a female figure: a pair of breasts is distinctly modelled on its chest. Although quite damaged, there is no doubt that the figurine belongs to the "the psi-type", [57] i.e. shows a woman with raised arms. As far as it is known to the author, it is the very first example of a Mycenaean figurine discovered in Egypt.[58] Such figurines are of course well known from the Greek mainland and the islands,[59] but they also occur outside this region, in Asia Minor, Syro-Palestine, as well as in the central Mediterranean (Italy, Sicily, Sardinia).[60] Contacts between Egypt and the Mycenaean world are well attested by Mycenaean pottery in Egypt, e. g. in Amarna, Gurob, Deir el-Medina and Qantir,[61] and several fragments of such pottery have also been found in Tell el-Retaba in 2014.[62] Such pottery came to Egypt as a result of exchange[63] and its presence does not mean that Mycenaeans lived in Egypt. The figurines, however, are not obvious trade goods, so the discovery of this object raises the question of a possible presence of representatives of the Mycenaean culture in Tell el-Retaba. For example, in Ugarit (Ras Shamra) in Syria a number of Mycenaean terracotta figurines have been found and they are regarded as significant evidence of Mycenaean population living there.[64] Tell el-Retaba and Ugarit are not comparable in this respect: on the latter site there are many figurines, and they occur in similar contexts as in Greece (i.e. in tombs and in sacred spaces), while in Tell el-Retaba it is just one object found in a dump. Nonetheless, this object constitutes yet another clue suggesting that some Mycenaeans may have lived in Egypt, perhaps as mercenaries fighting in the Egyptian army.[65]


Fig. 19 Mycenaean figurine S1967
(photo S. Rzepka, drawing B. Adamski)

[57] For the typology of such figurines see: French 1971, p. 128 ff., pl. 19 a, b. Due to the state of preservation of the Tell el-Retaba figurine it is not possible to determine whether it belongs to the regular "psi type" or to the "high waisted psi type".

[58] Pilali-Papasteriou 1998, 49–50.

[59] A recent summary on typology, development and meaning of such figurines can be fund in: Tzonou Herbst 2010.

[60] Pilali-Papasteriou 1998.

[61] A list of ca. 20 sites in Egypt (plus several more in Nubia), from which Aegean pottery is known can be found in: Hankey 1993, 113–114. The list is surely incomplete; e. g. Tell el-Retaba should be added to it.

[62] See below, chapter 2 by A. Wodzińska.

[63] Kelder 2010; Hankey 1993, 109–113.

[64] Pilali-Papasteriou 1998, 51–52.

[65] This theory is based mostly on two discoveries: a papyrus from Amarna showing Mycenaean warriors fighting beside Egyptians (Kelder 2010, 126–127; Schofield and Parkinson 1994) and a fragment of boar tusk helmet found in Qantir (Pusch 1985, 254)

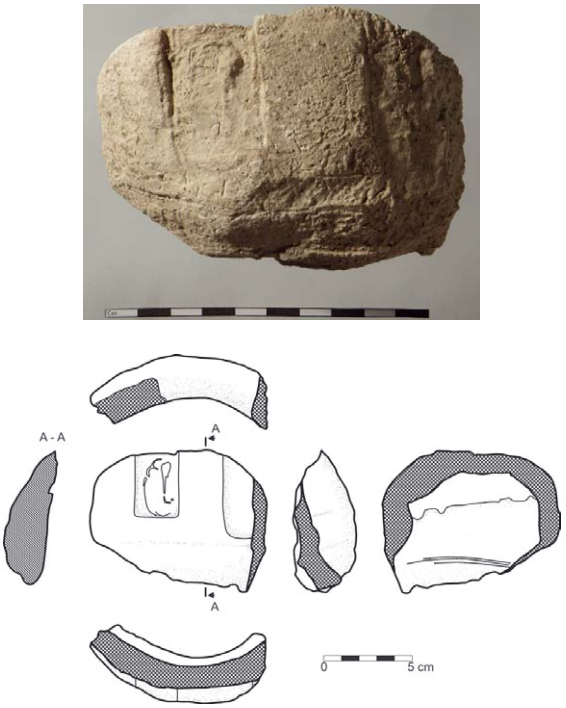


Fig. 20 Jar sealing S1971
(photo S. Rzepka, drawing B. Adamski)

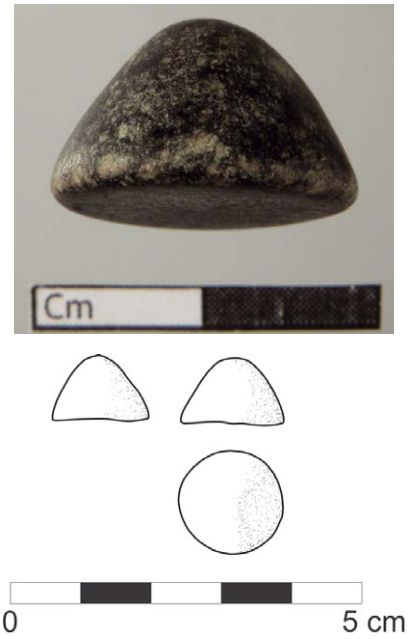


Fig. 21 Game stone S1966
(photo S. Rzepka, drawing B. Adamski)

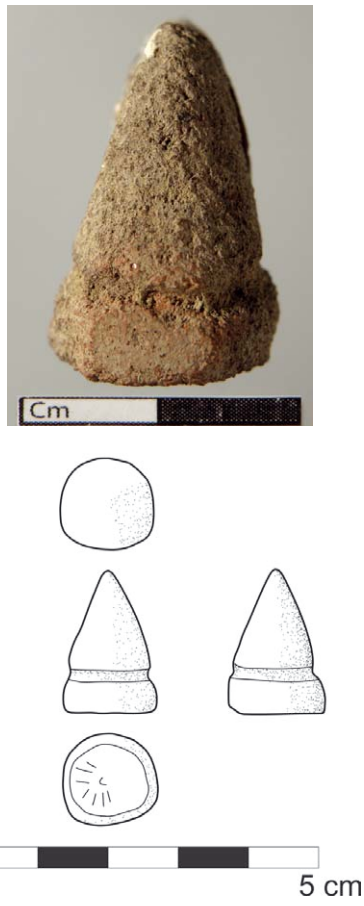


Fig. 22 Game piece S1978
(photo S. Rzepka, drawing B. Adamski)

The same archaeological context (mud brick debris (1536)) yielded a fragment of a stamped jar sealing (S1971, Fig. 20). It was made of white gypsum, which was rarely used for such purposes (usually jar sealings were made of mud).[66] The object was stamped with a rectangular seal. Unfortunately only the lower part of the impression is preserved and even in this part the inscription is not clear enough to be read. This find is clear proof that state provisions were delivered to the fortress – this was to be expected but remained archaeologically unattested to date. Unfortunately, as the stamp is illegible, it is impossible to identify the product carried in the sealed container: it may have been wine, oil, honey or still something else. The unusual material for the sealing (gypsum instead of mud) cannot help to resolve this problem – there is no indication that it was somehow limited to a specific type of supplies.

Other small finds from this rich deposit (1536) included a game stone (or a small weight?) made of basalt (S1966, Fig. 21) and another game piece made of terracotta (S1978; Fig. 22). Worth mentioning is also a partly-preserved penannular ear-

[66] Cf. Bavay 2015; Lecuyot 1997.

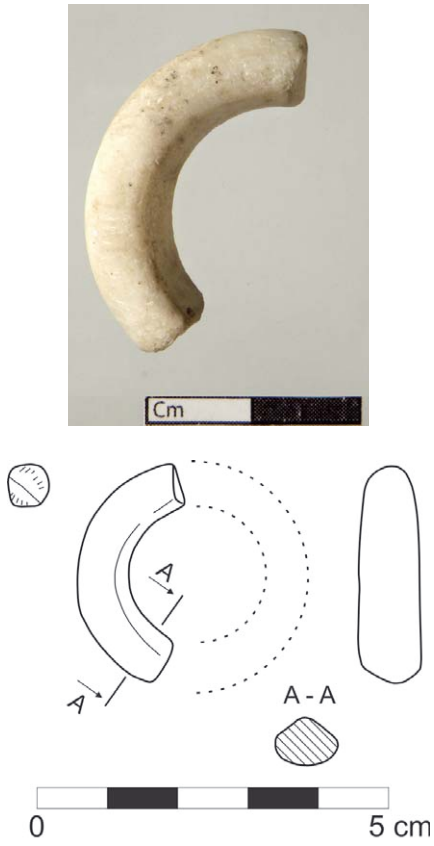


Fig. 23 Penannular earring S1995
(photo S. Rzepka, drawing B. Adamski)

ring (S1995, Fig. 23) made of calcite,[67] found in the fill of the silo [1574].

### 1.3.2. Children's cemetery (Area 4, phase E4)

*MO*

Excavations in this part of the fortress provided further evidence for the existence of a children's cemetery dated to the early 19th Dynasty.

A complex stratigraphic situation was revealed; mud brick structure [1316] probably represented the lowermost courses of bricks of the inner extension of "Wall 1". Underneath was wall [1331] (cf. Fig. 14, Fig. 24) surrounded by a later clay layer, (1318). Pottery should probably be assigned to disturbed layers of the 18th Dynasty. Wall [1331] was cut on its eastern side by a burial pit faced with mud bricks – tomb [1333]; it had a rectangular outline on the southern side and an oval one on the northern side (83 × 50 cm).

Fig. 24 Area 4 – wall [1316] (belonging to 19th Dynasty "Wall 1"?) and wall [1331] underneath (photo M. Odler)

#### 1.3.2.1. Child's burial [1333]

Inside the irregularly shaped pit of **burial [1333]** was a Ramesside amphora surrounded by several mud bricks of various dimensions: 32 × 9 cm (3 bricks), 28 × 8–9 cm (2 bricks), 25 × 18 × 8 cm (1 brick) (Fig. 25). The deposit between the bricks and the amphora contained pottery of Thutmosis III (which again might reflect disturbances of earlier layers) and animal bones. A kind of white crust covered the amphora. The bottom of the burial pit was reached not far below the amphora.

A **skeleton (1341)** of a *circumnatale* child rested on the right side with contracted legs.[68] The base of the amphora was broken off and the opening was then covered by a large sherd from the wall of another vessel (Fig. 26). The rim of the amphora was broken off as well.

Burial [1333] was earlier than the overlying "Burial 2" explored in the season of 2009.[69] It confirmed the presence of a children's cemetery dated to the beginning of the 19th Dynasty and used prior to the expansion which occurred in the second phase of "Wall 1".

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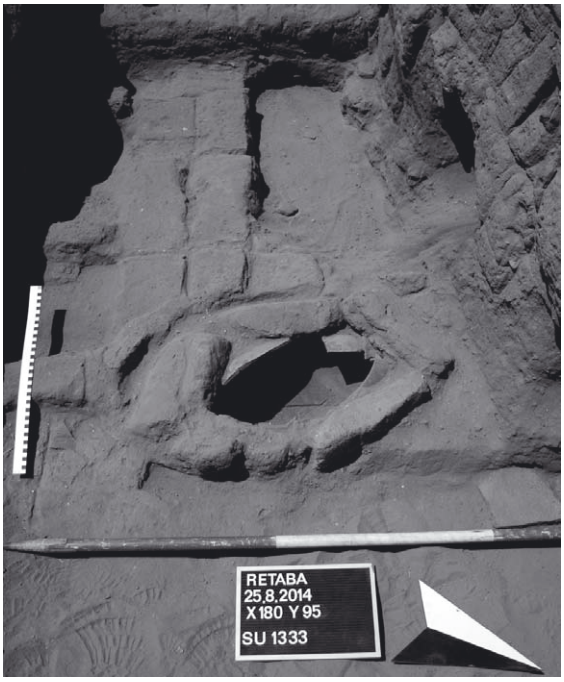
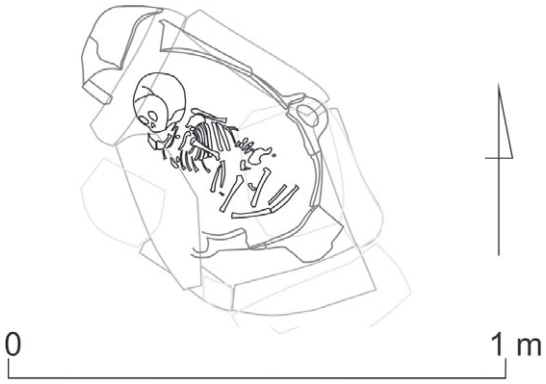
[67] Very similar (in shape, size and material) earrings are in the Brooklyn Museum, acc. no 37.1454E, 37.1455E (cf. http://www.brooklynmuseum.org/opencollection/objects/4152/Penannular_Earring; http://www.brooklynmuseum.org/opencollection/objects/4153/Penannular_Earring). Another parallel can be found in: Engelbach and Petrie 1915, pl. XVI.7.

[68] Cf. below, chapter 3 by A. Šefčáková.

[69] Rzepka *et al*. 2011, 155f., Figs. 19–20; Górka and Rzepka 2011, 95–96, Figs. 6–7.




Figs. 25, 26 Area 4 – child burial [1333]
(photo M. Odler, drawing E. Stopková/L. Hulková)

### 1.3.2.2. Child burial (1372)

It is probable that child burial (1372)[70] also belonged to the mentioned Ramesside cemetery.[71] Judging from the position of the bones, the *infans I* skeleton might have been laid supine in extended position with the head to the north. Bones were deposited on a brown layer and wrapped in a white material (Fig. 27) – possibly a reed mat, covering the body or placed underneath it.[72] No pottery was associated with the burial.

Fig. 27 Area 4 – child burial (1372) (photo M. Odler)

### 1.3.3. Fortress (Area 9, phase E3)

*ŁJ, SRz*

The southern fragment of wall [1609], which delimited the courtyard in phase E4 (see above), was still standing during phase E3. The area of the courtyard may have been enlarged by adding a new wall, [1261] (Figs. 28, 29). At the present state of works the total area of the new courtyard can be estimated as at least 84 m$^2$. Wall [1261] is slightly curved and runs towards the east. After adding this wall the whole enclosure of the courtyard resembled a sinusoidal wall. Wall [1261] was about 0.4 m thick: it was preserved to a height of 0.35 m and was unearthed over a stretch of approximately 4.8 m. The bonding pattern was very regular: it consisted of alternating layers of headers and stretchers. Most of the bricks were typical brown mud bricks, but some were black or green. The most common size of bricks was 38 × 17–19 × 9 cm, but the dimensions of many bricks were different. Irregular-sized bricks were probably necessary to build the slightly curved wall.

[70] The dimensions of the documented layer were: L. 18 cm, W. 18 cm, depth 3–4 cm.

[71] There was a group of 6 burials documented in 2009, see Górka and Rzepka 2011. Besides the burials in amphorae, dated into the reign of Ramesses II, there were also remains of skeletons without containers (e. g. Burial 3).

[72] For Ramesside examples: Cotelle-Michel 2004, 13; Thomas 1981, 20; Raven *et al*. 1997, 76, Nr. 96/1 and 96/3; Naville 1894, 11f; El-Sawy 1979, 9; Bakr 1992, 104.

Inside the courtyard only one structure has been found. It was a round silo [1256] preserved to a height of 0.8 m, with an internal diameter of about 2.7 m and walls about 0.2 m thick. The silo was built in a very regular fashion. Each course of bricks was laid in headers and the size of the bricks was also very consistently 20 × 37 × 10 cm.

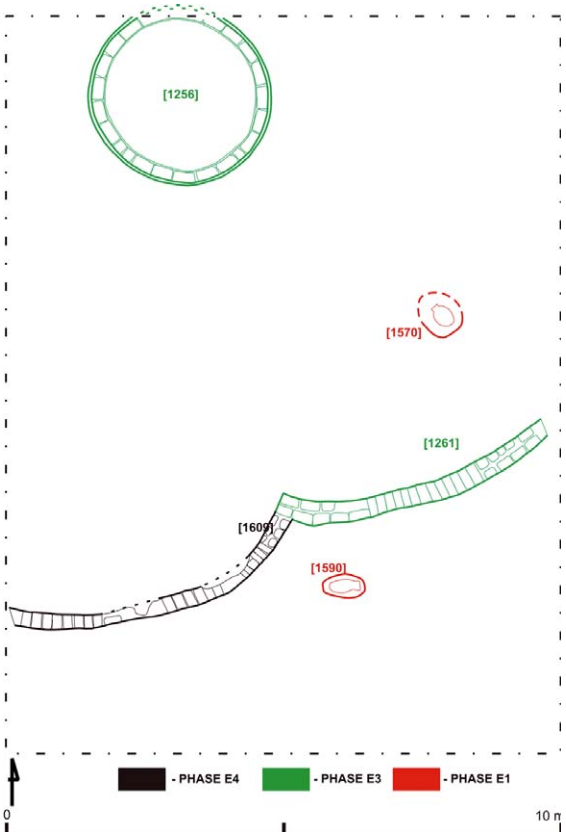



Fig. 28 Area 9 – plan of structures belonging to the 19th Dynasty fortress, phases E3 and E1 (drawing Ł. Jarmużek)

Fig. 29 Area 9 – structures belonging to the 19th Dynasty fortress, phase E3 (photo S. Rzepka)

The inner and outer surfaces of the wall were covered by mud plaster. The outer plaster was about 5 cm thick, the inner one about 2–3 cm thick.

### 1.3.4. Cemetery and dump (Area 9, phase E1)

In phase E1 the excavated area served as an infant cemetery. So far two burials have been found (for their location cf. Fig. 28). Traces of other burials were noticed in the western part of the trench. Both unearthed burials were of children buried in jars.

Burial (1568) was found in square Y215X110. The burial pit was rounded in shape and its diameter was about 0.7 m. It was at least 0.25 m deep. Inside the pit there was a jar lying on its side, the mouth pointing to the northwest (Fig. 30). Inside the jar a skeleton of a child was found. The skeleton was placed on the left side, with the head towards the northwest and the face turned towards the northeast. The skull was broken into several pieces. The legs were pulled up to the chest. No object was found inside the jar or the burial pit.

The second grave (1590) was found in square Y215X105, about 4.4 m to the southwest of the first burial. The burial pit was ovoid in shape, 0.76 m long, 0.43 m wide and at least 0.3 m deep (Fig. 31). The jar inside the pit was lying on its side, its mouth to the east. The mouth was sealed with a mud stopper. The skeleton of a child found inside

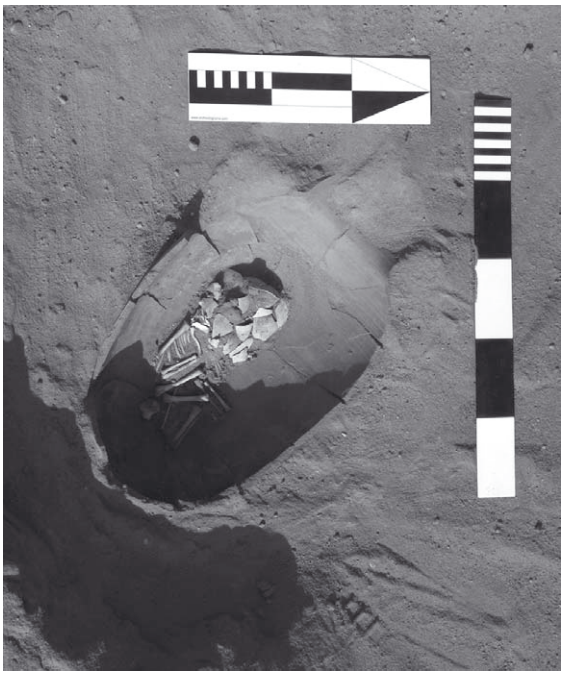


Fig. 30 Area 9 – child burial (1568) (photo S. Rzepka)

Figs. 31, 32 Area 9 – child burial (1590) (photo S. Rzepka)


Fig. 33 Lump of mud S1998 from burial (1590) (photo S. Rzepka)

the jar was lying on the right side with the head to the east and the face turned to the south. The skull was broken into several pieces. The legs of the child were pulled up to the chest (Fig. 32). There was no burial equipment inside the amphora, but in the fill of the pit (1591) an enigmatic object was found. It was an ovoid lump of mud (S1998, Fig. 33) placed just beside the bottom of the amphora – evidently intentionally deposited there during the burial process. After cutting, the lump turned out to be hollow. The empty space inside was roughly rectangular. Apparently originally there was some kind of object inside, an object wrapped in a layer of mud. This object disappeared completely – it must have been made of organic material, which decayed completely leaving no recognizable traces. The above-described object is so far the only one of its kind among the finds recovered by the Polish-Slovak mission,[73] but it may be a trace of a more widespread burial custom. During excavations by an Egyptian mission carried out in 1990 in the southern part of the site a number of Ramesside infant burials in amphorae were discovered. The only finds mentioned by the director of this mission, Magdy Saad Salip,[74] were "balls of mud" – there is no information on whether these "balls" were solid or hollow inside.

After (or also during?) the usage of the area as an infant cemetery, the place served as a dump. The entire southern part of the trench was covered with a thick layer (1259) of ashes mixed with sand. The thickness of the layer varied from 0.2 to 0.5 m. Large amounts of pottery sherds, animal bones and shells were found in this deposit. Small

[73] Górka and Rzepka 2011.

[74] An unpublished excavation report in the archive of the Supreme Council of Antiquities.

finds were also relatively numerous: among the 21 recovered objects were fragments of querns (S1670, S1934), a stone vessel (S1666), a faience vessel (S1676), flint tools (S1662, S1664, S1669, S1935, S1930), a grinder (S1663), faience rings (S1665, S1667, S1928), faience plaques (S1673, S1668), beads (S1674, S1675, S1908, S1929), a weight (S1678), and a scraper (S1689).

### 1.3.5. Fragment of a Ramesside stela

*JH*

Important finds of the season included an out-of-context fragment of a stela (S1851). It was found on the side of the asphalt road crossing the site, among modern rubbish. Its decoration preserved a portion of the sun crown with a ureus as worn by the god Re-Harakhty, his name in hieroglyphs, and a part of a Ramesside cartouche (Fig. 34); the signs *wsr, stp* and *n* are partially preserved. Due to the state of preservation it is not possible to conclude whether the pharaoh previously depicted on the stela was standing or kneeling in front of the standing or sitting Re-Harakhty. The fragment will be discussed in detail in a separate contribution.

Fig. 34 Fragment of Ramesside stela S1851
(photo R. Rábeková, drawing L. Kováčik/V. Dubcová)

## 1.4. 20TH DYNASTY

### 1.4.1. The beginnings of the fortress of Ramesses III (Area 9, phase D4)

*ŁJ, SRz*

At the beginning of phase D4 the southern part of the excavated area was covered by a 0.2 m thick sand layer (1250), devoid of any kind of objects. After some time it was covered by gravel layer (1248), which was about 0.3 m thick (Fig. 35). Unlike layer (1250) this deposit contained a substantial amount of animal bones, some pottery and three objects: two grinders (S1656, S1657) and fragment of a faience ring (S1655).

Directly on gravel layer (1248) a kind of mud brick structure [1247] was built. Its original shape is impossible to determine due to its poor state of preservation. It was almost completely destroyed by later structures. Structure [1247] was a straight wall, about 0.15 m thick and at least 1.9 m long. Only one layer of bricks is preserved. On the eastern side of the wall was ash layer (1170), a fairly loose deposit about 0.2 m thick, containing small amounts of animal bones and pottery sherds. On the western side of the wall lay compacted layer (1249). It contained some ashes, animal bones and pottery sherds. Next to the northern end of the wall a fireplace or relic of an oven was found. It was in an oval pit 1.05 m long, 0.8 wide and about 0.2 m deep. The fill of the pit (1216), comprised two layers. The lower one consisted of black charcoal and the upper one of white ashes. It is more probable that (1216) constitutes the remains of an oven rather than a fireplace. Usually pits for fireplaces are not as deep. What is more important, thin wall [1247] built along the cut is a common feature of ovens discovered in Tell el-Retaba (see below).[75] After some time the fireplace/oven fell out of use and was covered by walking level (1212), a very compact layer about 20 cm thick, consisting of silt mixed with ashes. It contained a small amount of pottery sherds and animal bones.

[75] Cf. Rzepka *et al*. 2014, 67–69.

Fig. 35 Area 9 – layer of sand and gravel separating 19th Dynasty remains (below) from 20th Dynasty and later deposits (above) (photo S. Rzepka)

**Discussion**

Sand layer (1250) may suggest that the excavated area was abandoned for some time at the end of the 19th Dynasty and/or the beginning of the 20th dynasty. The layer did not contain any objects and was probably brought in by the wind. Afterwards, the area was covered by gravel layer (1248), which seems to be a levelling layer brought by builders of new fortifications. No stratigraphic relationship has clearly confirmed this, but it seems that these activities (i.e. levelling of the terrain) should be linked with the construction of Petrie's "Wall 2" – a massive (ca. 9 m thick) defence wall, which can be securely dated to the times of Ramesses III thanks to a foundation deposit discovered by Petrie.[76]

### 1.4.2. Fortress of Ramesses III (Area 9, phase D3)

*ŁJ, SRz*

Fragments of the large building no. [834/838] have been excavated since 2011.[77] It is a long structure extending E-W, parallel to the massive defence wall [983] (Petrie's "Wall 3"). So far neither western nor eastern limits of it could be identified. Two of the aims of the 2014 excavations in Area 9 were to determine the extent of building [834/838] to the east and to verify some hypotheses concerning this structure's shape and function.

#### 1.4.2.1. Defence wall [983] (Petrie's "Wall 3")

Two fragments of "Wall 3" uncovered in the eastern part of Area 9 were very poorly preserved (Fig. 36). Both belonged to the lowest part of the foundations. The eastern fragment, about 2.2 m long, consisted of only one course of bricks located very close to the northern face of the wall. The western fragment, approximately 3.2 m long, consisted of three courses of bricks, which formed the northern face of the wall. The bricks measured 40–43 × 18–20 × 13–14 cm.

The very poor state of preservation of remains excavated in 2014 probably results from activities of the Egyptian archaeological missions, which

[76] Petrie and Duncan 1906, pl. XXXIV.

[77] Rzepka *et al*. 2014, 75–88.

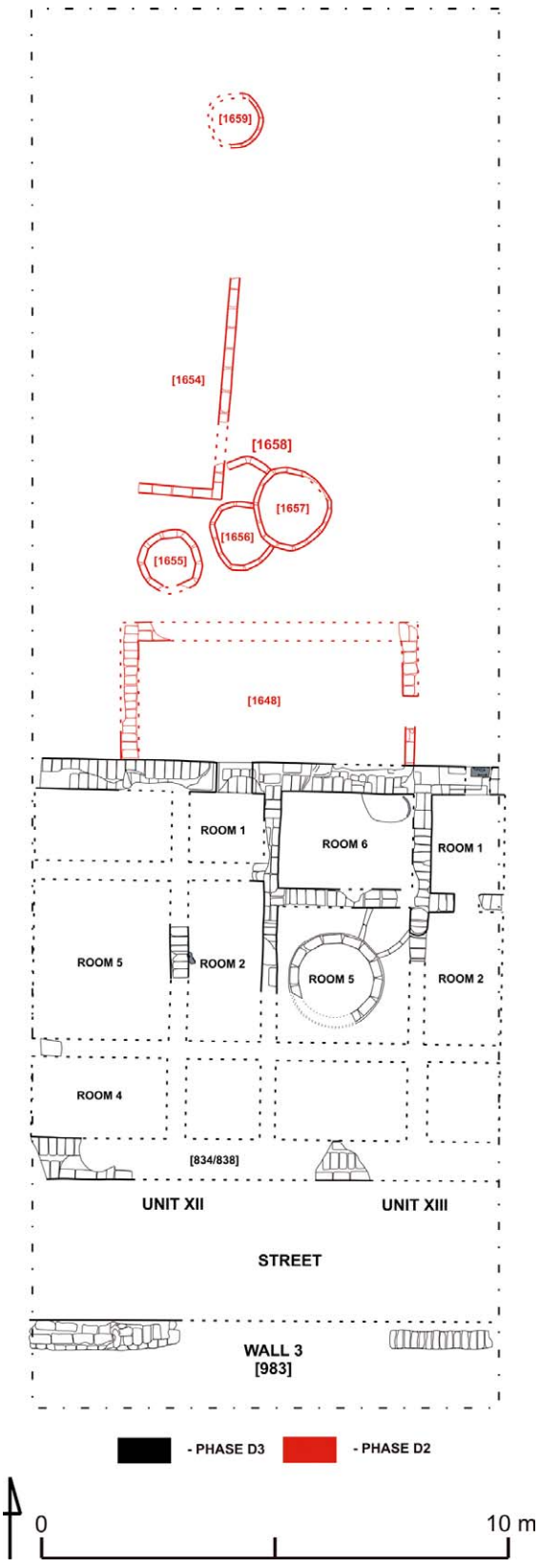



Fig. 36 Area 9 – plan of structures belonging to the 20th Dynasty fortress, phases D3 and D2, excavated in 2014 (drawing Ł. Jarmużek)

carried out some works in the southern part of the site in the 1990s. It seems that at that time most of "Wall 3" was removed in order to clear "Wall 2", which runs parallel to "Wall 3" and was originally partly covered by it.

The northern face of "Wall 3" discovered in the eastern part of Area 9 is not exactly aligned with the northern face of "Wall 3" in the western part of Area 9. The former is located some 50 cm to the north of the latter (Fig. 37). It must be remembered, however, that the fragments excavated in 2014 belong to the foundations only, as no above-ground parts of the wall are preserved. It seems possible that the foundations were not exactly straight – the brickwork may have just filled the foundation trench. A regular, straight face of the wall was built only above the ground. Anyway, the plan drawn by Petrie[78] (who excavated the top of "Wall 3" when it was in much better condition), shows no recesses or buttresses on the inner face of the wall. However, the poor state of preservation of "Wall 3" in the eastern part does not allow for any final conclusions.

### 1.4.2.2. Street along "Wall 3"

The area between the northern face of "Wall 3" and building [834/838] was probably a street (cf. Figs. 36, 37). However, in the eastern part of Area 9 the present surface of the *tell* is preserved at a lower level than in the western part of the area (where the existence of such a street is certain), so the walking level of this street is not preserved.

### 1.4.2.2. Building [834/838]

The fragment of building [834/838] unearthed in 2014 resembles the part of the same structure brought to light in 2011 and 2012 (Fig. 38, cf. also Figs. 36, 37). The newly uncovered fragment is 8.8 m wide. Its outer walls are 67 cm (northern) and 89 cm (southern) thick. The bonding pattern is very regular, consisting of a series of alternating courses of headers and stretchers. The inner walls of the building are thinner (37–39 cm) and their bonding patterns are irregular. The mud bricks measure 38 × 19 × 12 cm.

All architectural features of the recently excavated part of the building are very similar to ones in the part of the building excavated in previous seasons. However, the new part allows for more advanced reconstruction of the whole building.

[78] Petrie and Duncan 1906, pl. XXXV.


Fig. 37 Area 9 – plan of structures belonging to the 20th Dynasty fortress, phases D3 and D2, excavated in 2011–2014 (drawing Ł. Jarmużek)

Fig. 38 Area 9 – structures belonging to the 20th Dynasty fortress, excavated in 2014 (photo S. Rzepka)

The total length of the building was at least 67.8 m. It contained at least 13 uniform units, each comprising six rooms: three narrow ones and three larger ones.

Unit XII was very poorly preserved. Most of it was destroyed by cuts and structures dating from the Third Intermediate Period. In the case of rooms XII.3 and XII.6, there were no traces of walls or floors. The main entrance to the unit, placed in the northern wall of room XII.1, was approximately 76 cm wide (it was blocked with bricks in the later phase, cf. below). Floor (1242) of room XII.1 was preserved only in the north-eastern corner. It contained some ashes and object (S1640), probably a game piece or weight. The floor was covered with a layer of debris (1241) containing some fragments of clay, which may have originated from a dressing of the ceiling or from a bin that may have been part of the room's furnishings. In the case of room XII.2, only a small fragment of the western wall and the northern part of the floor are preserved. Floor layer (1224) contained some ashes, a small amount of pottery and a grinder (S1630). Next to the fragment of the western wall of the room a stone door pivot was found *in situ*. Scratches on the pivot (left by the door) show that the doorway was located just to the north of the pivot stone. The end of use of the room is marked by layer of debris (1209), which covered the floor. Room XII. 4 was almost totally destroyed; only a small fragment of the northern wall and a small patch of floor (1244) were preserved. The floor contained some ashes, a small amount of pottery and a spindle whorl (S1644) (Fig. 39). Room XII.5 was slightly better preserved. The entrance to this room was placed on its eastern side (cf. above). The partly-preserved floor (1226) contained an abundance of ashes, some pottery sherds and animal bones. In the middle of the floor there was a shallow, roughly circular depression filled with ashes, probably a fireplace. No traces of mud brick structures were preserved inside the room.

Unit XIII was generally better preserved than unit XII. However, two rooms, XIII.3 and XIII.4, were completely destroyed by later structures. The unit has not been completely excavated, as its eastern wall was outside the excavation trench. The main entrance to the unit was placed in the northern wall of room XIII.1. The width of the entrance cannot be determined because of the poor state of preservation of the wall in this area. The only trace of the doorway is a limestone threshold block (39 cm wide) built into the wall. Remains of a round hieroglyphic sign (solar disc?) (Fig. 40) executed in very deep sunk relief show that the threshold was a reused decorated block probably originating from one of the ruined buildings of the 19th Dynasty fortress dismantled at the beginning of the 20th Dynasty.

The floor of room XIII.1 was fairly well preserved. It contained some ashes, pottery sherds, and a large number of fish bones. Three objects were found in this unit: bronze chisel (S1587) (Fig. 41), bone spatula (S1619), and stone vessel fragment (S1620). Although the walls of room

Fig. 40 Threshold made of a reused decorated limestone block (photo S. Rzepka)

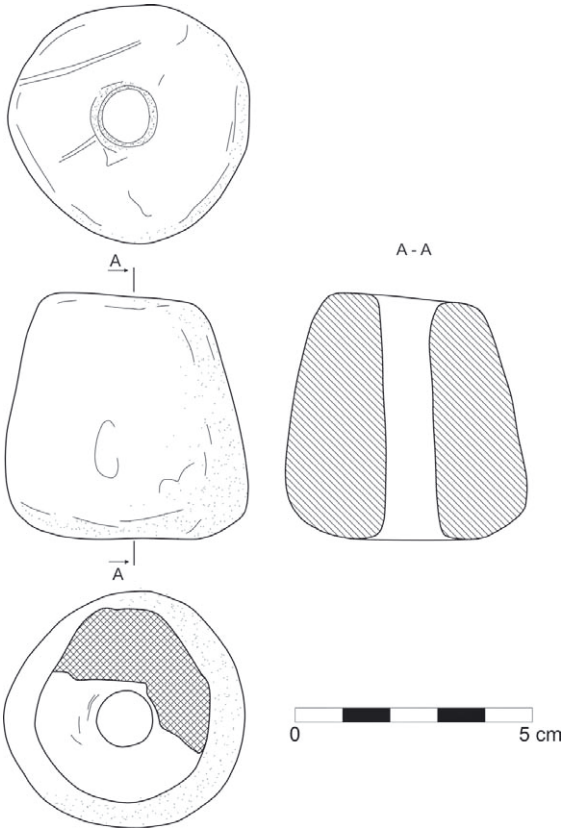



Fig. 39 Spindle whorl S1644 (photo S. Rzepka, drawing B. Adamski)


Fig. 41 Bronze chisel S1587 (photo S. Rzepka, drawing B. Adamski)

XIII.1 were very poorly preserved (only one layer of bricks), it was possible to find traces of two doorways leading to other rooms. The first doorway was probably placed in the middle of the western wall of the room. In the middle part of the wall the brickwork pattern changes from stretchers to headers, indicating the presence of a doorway with a mud brick threshold.[79] The second doorway was probably placed in the southern wall of the room. It had no threshold and was probably 52 cm wide. Room XIII.2 was very poorly preserved. Only a small fragment of floor (1243) was found in the north-western corner of the room. There was also a partially-preserved doorway with a mud brick threshold (covered by the floor) in the

[79] The same occurred in unit V. There was a mud brick threshold in the doorway between rooms VI.1 and VI.6. After some time the threshold was covered with a floor, see Rzepka *et al*. 2014, p. 79–80.

Fig. 42 Area 9 – rooms XIII.5 and XIII.6 in building [834/838] (photo S. Rzepka)

western wall. The doorway, which led to room XIII.5, was at least 55 cm wide. Room XIII.5, which served as a storeroom, featured a round silo [1235] with an internal diameter of 1.58 m and walls about 22 cm in thickness (Fig. 42). The silo, preserved to a height of 16 cm, was built in a very regular manner and its outer face was covered with white plaster about 2–3 cm thick. The structure was filled by mud brick debris (1234), in which two objects were found: grinder (S1639) and quern (S1638). In the north-eastern corner of the room was bin [1237] created by building two thin walls that closed off the space between the silo and the north-eastern corner of the room. The walls of the bin were made of mud bricks laid on edges. At the bottom of the bin a thin layer of ashes (1239) was found beneath a layer of debris (1236). Both structures, the silo and the bin, were built directly on the ground. After some time, layers of floors (1238 and 1211) accumulated around both structures, although the space between the structures and walls of the room was limited. The first floor (1238) contained some ashes, pottery sherds, animal bones, and two objects: scraper (S1660) and stone vessel fragment (S1641). The second floor (1211) was fairly similar. Besides ashes and animal bones, it contained a stone vessel fragment (S1661). All structures and floors were covered by debris layer (1197), which consisted of sand and fragments of bricks. Only one object was found inside this layer – a pottery disc made from a reused potsherd (S1622). The doorway to room XIII.6 was placed in the eastern wall of room XIII.1 (cf. above). Floor (1172) inside the room was white and consisted of some kind of organic material. The same material and the same kind of layers were found in stables discovered in Tell el-Retaba in season 2010[80] and interpreted as remains of animal dung. In addition, the floor layer contained some animal bones, potsherds and a relatively large number of objects: five querns (S1586 (Fig. 43), S1603, S1614, S1616, S1618), four grinders (S1604, S1615, S1617, S1650), one large limestone mortar (S1600) and one net weight (S1608, Fig. 44). In the south-western part of the floor there was a fireplace in the form of a shallow, round depression filled with black ashes (1206). In the north-eastern corner of the room there was a

[80] Rzepka *et al*. 2011; Jarmużek 2013.

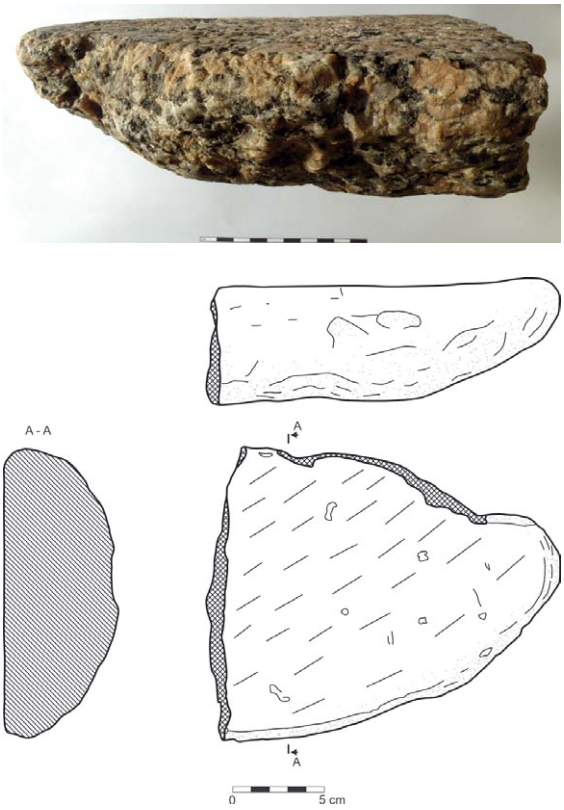



Fig. 43 Quern S1586 (photo S. Rzepka, drawing B. Adamski)

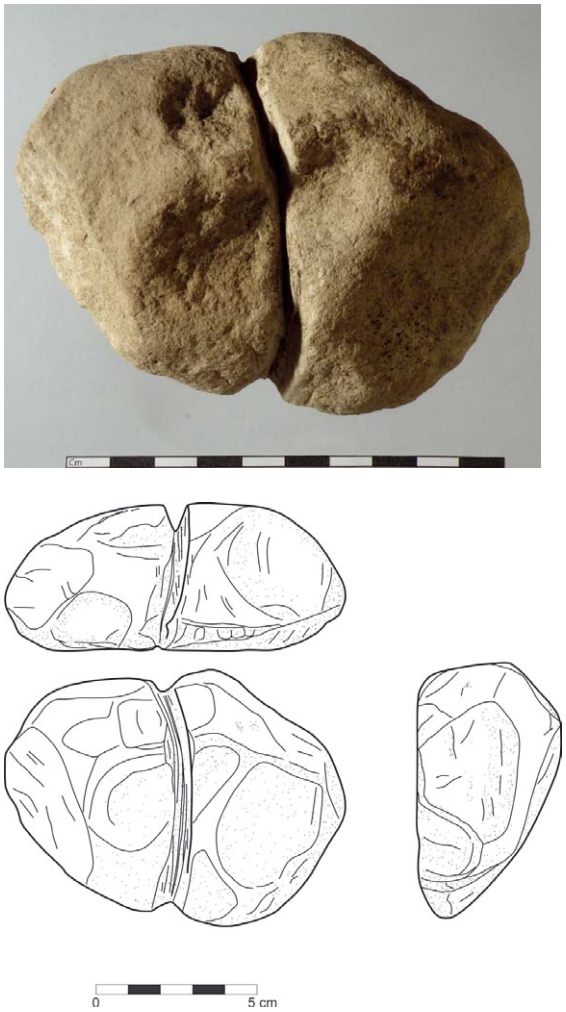



Fig. 44 Net weight S1608
(photo S. Rzepka, drawing B. Adamski)

kind of bin [1181]. The bin was of oval shape, measuring about 100 × 58 cm. The lower part of the bin was cut in the ground to a depth of about 20 cm. The upper part was built up with ceramic walls about 3 cm thick, preserved only on the eastern side (cf. Fig. 42). The bin was filled with a black, clayish layer (1180) containing some organic remains. After some time the floor and all the structures were covered by debris layer (1169), which yielded two grinders (S1585, S1601).

## Discussion

The discovery of a new part of building [834/838] permits re-examination of some previous theories about this structure.[81] First of all, the new part of the building confirms that the whole structure was a very regularly planned building containing a series of uniform flats (cf. Fig. 37). The building's domestic character is once more confirmed by the repertoire of small finds (querns, grinders, mortars, etc.) and small installations (bins, silos) found inside the two new units. There was not a single example of military equipment. It seems that the theory about the similarity between units in building [834/838] and houses of type 1c in Amarna can be rejected.[82] As stated in the previous report, there is one significant difference between the two structures. Room 5 in unit VII, which should be the main hall of the house, served as a magazine. The same situation occurred in room 5 of unit XIII. Most of the room's surface was occupied by a silo and a bin. Thus, it seems that in the case of building [834/838] rooms assigned number 5 in most of the units served as storerooms. Of course

[81] Rzepka *et al*. 2014, 88.

[82] Rzepka *et al*. 2015, 88; Tietze 1985, 60–66; Tietze 2012, 66, Fig. 9.3.

this does not mean that units in building [834/838] could not have been used as living quarters, as it was the case in the so-called Clerks' Houses and dwellings in the Workmen's Village in Amarna.[83] Other good parallels to building [834/838] can be found in Middle Kingdom fortresses like Shalfak, Uronarti and Semna.[84] There were also long buildings interpreted as barracks, which comprised a series of smaller units placed along the walls of fortresses. A single unit consisted of three rooms. The surface of such units varied from 32 to 44 square meters. The main entrance to the unit led into an anteroom, which probably served as a place for food preparation, dining and storage. From the anteroom two doorways opened on two long and narrow rooms, which are identified as soldiers' dormitories. It is clear that the general layout of such a single unit is different than the layout of units in building [834/838], but there are also some similarities. Both types of living quarters are similar in size, well-organized and placed along the fortress walls. At the present state of work it is difficult to determine whether building [834/838] served as barracks for soldiers or as living quarters for civilians. The presence of a strong defence wall ("Wall 3") would suggest that the building was part of the military complex, but the repertoire of small finds, the furnishings (silos, bins) and the absence of weapons offer no support for this theory at the moment.

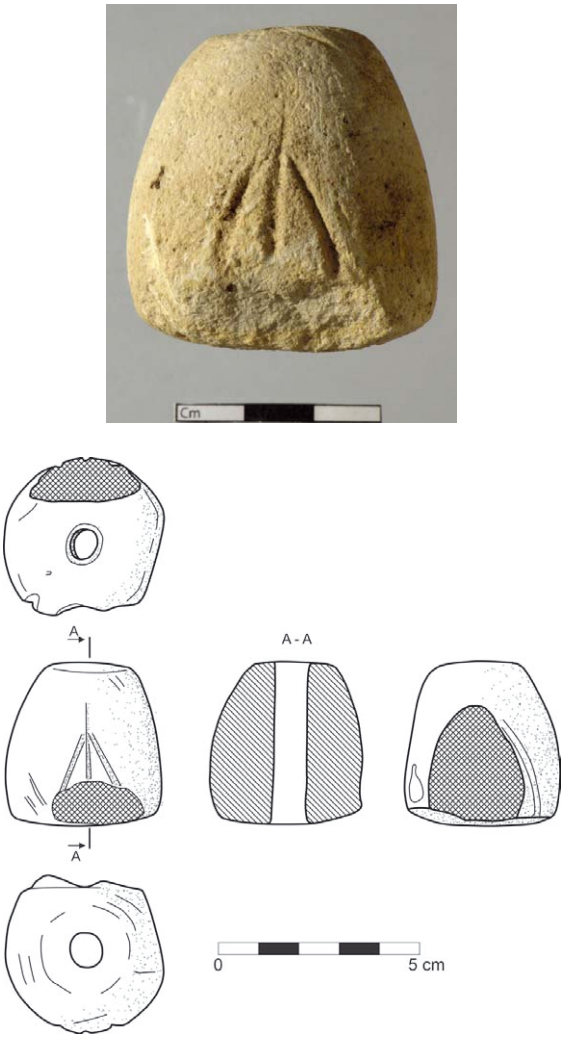



Fig. 45 Spindle whorl S1584
(photo S. Rzepka, drawing B. Adamski)

### 1.4.3. Fortress of Ramesses III (Area 9, phase D2)

*ŁJ, SRz*

#### 1.4.3.1. Building [834/838]

In the next occupational phase, some significant changes in the spatial arrangement took place in building [834/838]. The same process was also observed in the western part of the building exposed in seasons 2011 and 2012.[85] In the western part, some rooms and units were merged by removing some walls or making new doorways. Although the eastern part of the building is in a relatively poorer state of preservation, traces of similar changes were noticed.

The main entrance to unit XII was blocked (cf. above). This fact means that the unit must have been merged with unit XI or XIII by opening a new doorway. The other possibility is a new doorway in the southern wall of the building. Unfortunately, the building is heavily damaged, so one cannot exclude either possibility. Another change took place in room XII.2 and XII.5. A wall dividing these rooms was removed. It was covered by floor (1200), which extends from the western end of room XII.5 to the eastern wall of room XII.2. The floor was white and contained some kind of organic material. It was similar to layers interpreted as animal dung, found in stables and some other structures in Tell el Retaba (cf. above). The layer also contained some animal bones and pottery

[83] Pendlebury 1951, 122–130, pl. XX; Peet and Woolley 1923, pl. XVI.

[84] Vogel 2010, 421–422; Dunham 1967, 6, 10, 118, map III and X; Dunham and Janssen 1960, 13–15, map VIII.

[85] Rzepka *et al*. 2014, 82–84.

sherds. Other remains of the second phase of use of the building [834/838] were found in room XII.4. It was the fragmentarily-preserved floor (1240). It contained some animal bones, pottery sherds, one grinder (S1642) and one flint tool (S1643). In other rooms of unit XII no remains from this phase were preserved.

In unit XIII, remains from the second phase of use were found in three rooms. In room XIII.1 only a small fragment of floor (1183) was preserved in the eastern part. It was destroyed by modern cuts and covered by a layer of debris (1182). The floor of room XIII.6 (1166) was relatively well preserved. It contained ashes, charcoal, animal bones, large limestone mortar fragment (S1582), quern (S1583), small bead (S1599) and spindle whorl (S1584; Fig. 45). When the room went out of use the area was covered by debris (1163). Besides sand and fragments of bricks, the debris layer contained two querns (S1574, S1575) and one grinder (S1576). Rooms XIII.2 and XIII.5 were probably merged. Floor (1184) covered the surface of both rooms and the remains of the wall that had originally separated them. The layer contained some pottery sherds, fragments of shells and two pottery discs (S1609, S1612).

### 1.4.3.2. The area to the north of building [834/838]

The area to the north of building [834/838] has yet to be excavated completely – it will be explored in upcoming seasons. Thus, all presented data should be treated as preliminary. It seems that just outside the northern wall of building [834/838] several minor structures have been built (cf. Fig. 36). Building [1648] abutted the northern wall of building [834/838]. It was about 6.4 m long and 3.1 m wide, and its walls were 37 cm thick. The 70 cm wide entrance to the building was placed in its eastern wall. The area inside the building was heavily damaged by modern cuts, mainly in the eastern part. Floor (1651), preserved only in the western part of the building, contained some ashes, animal bones, pottery sherds and one quern (S2080). In the north-western corner of the room, remains of a round fireplace (1653) were found. The whole area was covered with layers of debris (1641, 1642), which contained fairly numerous pottery sherds and several objects: two stone vessels (S2074, S2075), spindle whorl (S2078), scraper (S2068), grinder (S2079) and faience vessel (S2076).

Fig. 46 Area 9 – silos north of building [834/838] (photo S. Rzepka)

Just to the north of building [1648] several silos were found (Fig. 46). The structures have not been completely excavated, but they seem to be preserved to a height of only one or two bricks. The internal diameter of silo [1655] was about 1.03 m and its walls were 13 cm thick. Silo [1657] was built to the north-east of silo [1655]. Its diameter was approximately 1.44 m and its walls were about 11 cm thick. On the western side of the silos was a kind of mud brick bin. The bin had curved walls and measured 1.46 × 1 m. Its walls were 9 cm thick and they abutted the wall of silo [1657]. Just to the north-west of the cluster of silos was the rectangular building [1654], which was at least 4.8 m long and 1.8 m wide. Between the eastern wall of building [1654] and silo [1657] there was a small curved wall which probably served as a reinforcement for the walls of the silo. The last silo [1659] was found in the northern part of the trench, about 2.7 m from the walls of the building [1654]. The western part of the silo [1659] was completely destroyed. The original diameter of the silo was about 1.02 m and the thickness of its walls was 8 cm.

All the structures uncovered to the north of building [834/838] are relatively small, thin-walled and irregularly arranged, which clearly contrasts with both the size and the regular plan of building [834/838]. The large number of silos and bins shows that this area was used by the dwellers of [834/838] for food storage and processing. A similar arrangement was observed in the western part of building [834/838] (cf. Fig. 37): some poorly built annexes (i.a. silos) were added to the main building in the second phase of its use.[86]

### 1.4.4. Fortress of Ramesses III: relationship between "Wall 2" and "Wall 3" (Area 9, phases D4-D3)

*JH*

The cleaning of the section through Petrie's "Wall 2" and "Wall 3" on the eastern side of the corridor cut for the new road contributed to the clarification of construction details and chronology of both walls (Fig. 47). "Wall 2" was built into a mound of fine yellow sand. The mound (not a dune!) was heaped up on top of an artificially levelled cultural deposit; the mound ran from west to east. The hard surface of the level below the mound was similar to the unit below "Wall 2" in square Y115X115. The southern side of the sandy heap was raked out and adjusted for laying bricks. The thickness of the sand layer below the bricks was ca 30 cm (i.e. 1 *djeser*?)[87]; the layer of sand abruptly terminated not far from the southern face of "Wall 2". The basal layer of mud bricks, laid on side and protruded by ca 4 cm (2 *djeba*) from the northern face of "Wall 2". A layer of fine yellow sand concealed the northern face of "Wall 2" to a height of about 1.7 m and ended about 4.5 m north of "Wall 2". The "triangle" of fine yellow sand was covered by a layer of grey coarse-grained sand about 80–90 cm thick. This layer extended almost to the ruins of the 19th Dynasty "Wall 1".

"Wall 3" was constructed on the grey sand and on several thinner layers, which filled the space between the ruins of "Wall 1" and continued underneath the foundations of "Wall 3". It might indicate a time gap between the construction of


Fig. 47 Area 9 – "Wall 2" and "Wall 3" cut by a trench along the modern road (photo J. Hudec)

[86] Rzepka *et al*. 2014, 84–85.

[87] Hirsch 2013, 40.

"Wall 3" and "Wall 2". The foundations of "Wall 2", which in this part measured almost 6 m in thickness, slightly rise towards the south (to resist external attacks from that direction?); the yellow and grey sand layer probably served (1) to counter the pressure of masonry on the northern face of the wall; (2) to permit the approach to "Wall 2" at a height of at least 3.5 m.

### 1.4.5. Fortress of Ramesses III: migdol (Area 4, phase D)

*JH*

This season, cleaning was conducted in tower-like structures of the migdol-type entrance to the fortress from the time of the pharaoh Ramesses III, including extensive areas of the northern tower and northern platform of Petrie's "Wall 2" (squares Y70-90X185, parts of Y65-90X190, Y65-85X195, parts of Y65-70X200 and Y90X200), the gateway and the southern tower (squares Y70-80X180, Y75-95X170-175 and Y75-85X165).

The cleaning, carried out for photogrammetric purposes, showed that a considerable part of the north-western corner of the southern migdol tower and the southern part of the entrance between the gateway and the threshold (Y75X175 and Y75X170) had been removed during the previous Egyptian excavations around the year 2000 (according to information obtained from local workers).

## 1.5. The Third Intermediate Period

In Area 9, another fragment of the multi-phased Third Intermediate Period settlement was revealed. Besides remains of several houses with rectangular rooms (similar to those found in 2012 in the western part of Area 9),[88] excavations brought to light more peculiar, relatively large round structures probably used as storage facilities.

### 1.5.1. Settlement (Area 9, phase C4)

*ŁJ*

Building [1646] is very poorly preserved; only two of its walls have been found (Fig. 48). The north-south oriented wall [1646] measures 3.7 m in length and 40 cm in thickness. Only one course of bricks is preserved. Wall [1665], which is perpen-

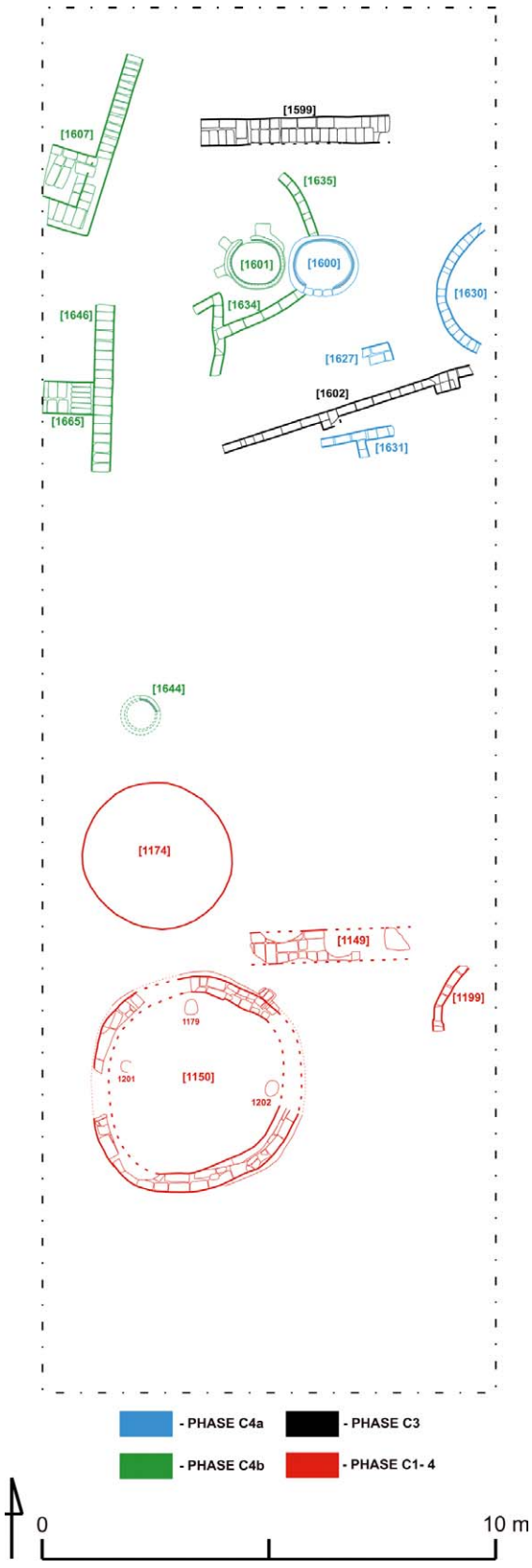



Fig. 48 Area 9 – plan of structures belonging to the Third Intermediate Period settlement, phases C4 and C3, excavated in 2014 (drawing Ł. Jarmużek)

[88] Rzepka *et al*. 2014, 86–93.

dicular to wall [1646], is 70 cm wide and at least 1.1 m long. The western part of the wall is outside the excavated area. In the corner formed by the two walls, to the south of wall [1665], a round cut was found. It was filled with black ashes, which contained some animal bones. The original layout and function of building [1646] remain obscure. It was probably no longer in existence when building [1607] was constructed just to the north.

Building [1607] was found in the north-western corner of the excavation trench. Only its south-eastern part has been unearthed, while the western part is outside the explored area. The eastern wall of the building was at least 4.2 m long and 36 cm thick. The southern part of the wall was connected with structure [1647], measuring at least 1 × 1.5 m and more than 0.68 m in height. It is too high to be a mastaba and it therefore seems more probable that it was a staircase. Inside the building a thin floor [1640] was found. It contained some pottery sherds, an abundance of shells and bronze needle (S2043). The floor was covered with a thick layer of debris (1606). The area to the south and to the east of building [1607] was probably an open courtyard. Here another bronze needle was found (S2040; Fig. 49).

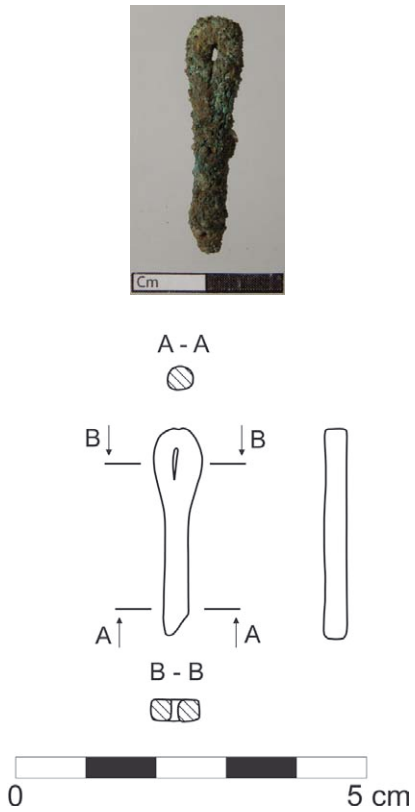



Fig. 49 Needle S2040 (photo S. Rzepka, drawing B. Adamski)

The vast walking level (1626) found on the south-east of building [1607] covered an area of roughly 5.5 × 3 m and was partially destroyed by numerous later cuts. The layer contained some ashes, pottery sherds, animal bones, and three objects: pounder (S2053), scraper (S2071) and pottery disc (S2072). About 3 m to the east of building [1607] oven [1601] was found (Fig. 50). The round oven with a diameter of approximately 1.1 m was preserved to the height of 55 cm. Its upper part was destroyed, but the lower part was found to be in relatively good condition. Oven [1601] had ceramic walls about 2 cm thick. The upper parts of the walls curved toward the centre of the structure. The walls were also covered with a layer of mud about 6–8 cm thick. The whole structure was reinforced by short mud brick walls. Two of them were added to the western side of the oven, one to its northern side. The oven's stokehole was about 20 cm wide and was placed in the northern wall. A rounded cut about 20 cm deep was made in the ground inside the oven to allow for accumulation of a larger deposit of ashes. Ashes (1615) found inside the oven were white at the bottom and black in the upper part. Besides ashes, the layer consisted of some charcoal, animal bones and contained several objects: two querns (S2061, S2061), reel (S2062) and pottery scraper (S2069). The oven went out of use after some time, as indicated by a fragment of an earthenware wall and a pottery vessel found in the upper part of the layer of ashes (1615). The area around the oven was probably partially enclosed by walls [1634] and [1635], both of which measured only 20 cm in thickness. Originally both walls probably belonged to the same

Fig. 50 Area 9 – ovens [1601] and [1600] (photo S. Rzepka)

structure, which was later destroyed by another oven (cf. below). Wall [1635] was preserved over a stretch of 1.5 m. It was located about 60 cm to the east of the oven. The stretch of wall [1634] measured 2.2 m in length and was found about 30 cm to the south of the oven. The western part of wall [1634] was connected with another N-S oriented wall. Space between the oven and the walls was filled with ashes. One layer of grey ashes (1617) filled a shallow depression just to the north of the stokehole. It contained some pottery sherds and pottery disc (S2073). The second layer of grey ashes (1616) filled the area between southern wall [1634] and the oven. The layer contained some animal bones, glass vessel fragment (S2057), faience vessel fragment (S2054), and quern fragment (S2056). Also found in this deposit was a unique pottery vessel in the shape of a pomegranate (see the "Pottery report" below, Figs. 75–77). Just to the east and south of walls [1634] and [1635] was a vast layer of black ashes (1632). It contained numerous pottery sherds, animal bones and shells.

When oven [1601] fell out of use, another oven [1600] has been built just to the east of the previous one (cf. Figs. 48, 50). The new oven was placed on a layer of bricks. Its internal diameter was about 1.24 m and its ceramic walls were 2.5–3 cm thick. They were also covered with a layer of mud about 10–13 cm thick. The stokehole of the oven was placed in its southern wall. It was much wider (60 cm) than in the case of the previously described oven. The fill consisted of layers of black and white ashes (1614). There were also some animal bones, pottery sherds, one pottery scraper (S 2070), limestone chips and slag with trace amounts of bronze. The area around the oven was covered with a thick layer of black ashes (1566). As in the case of the previous oven, the layer was very vast, covering the whole northeastern part of the trench. It contained a large number of animal bones, pottery sherds and shells. There were also twelve small objects: three querns (S1996, S2036, S2037), two pottery discs (S2033, S2047), two figurines (S2034, S2035), scraper (S2048), bead (S2064), flint tool (S2032), stone object of unclear function (S2049) and reel (S2026; Fig. 51) made of a reused base of a pottery vessel. The function of such "reels", of which several have been found in Tell el-Retaba, is obscure.

Remains of three other structures were found nearby. Structure [1630] was located approximately 1.6 m to the east of the oven. It was a rounded

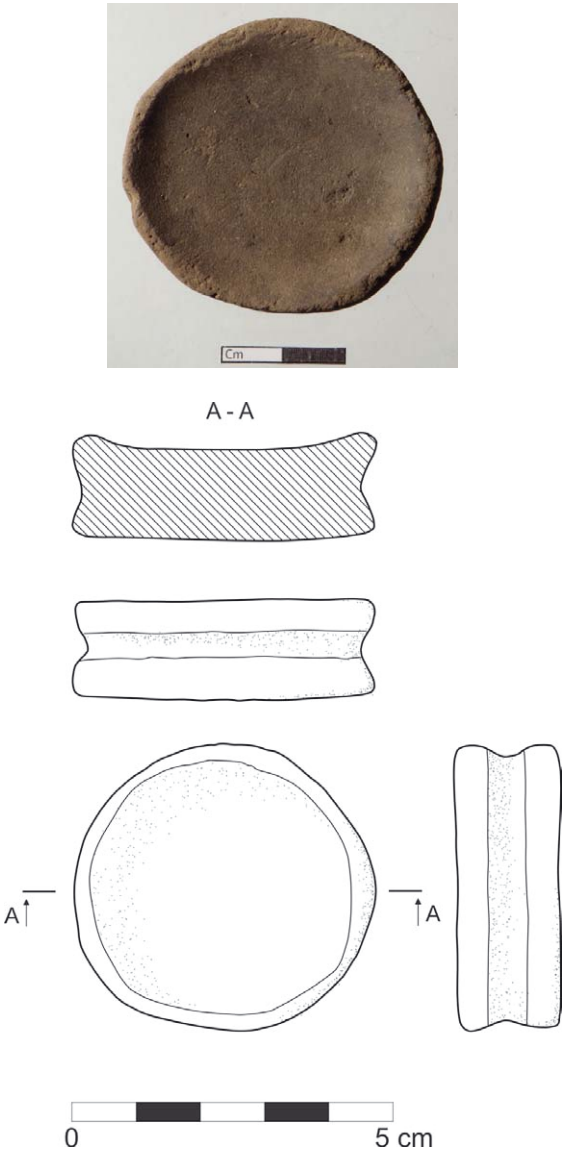



Fig. 51 Reel S2026 (photo S. Rzepka, drawing B. Adamski)

wall about 24 cm thick. As only the western part of the structure has been unearthed (its eastern part remains outside the excavated area), its original shape is difficult to determine. Structure [1630] may have been a large, round silo (2.66 m in diameter). However, as the deposits inside consisted of black ashes similar to those found around oven [1600], it is probable that we are dealing here with a kind of a curved enclosure wall, which surrounded another oven (as walls [1634+1635] encircled oven [1601]).

Two other structures were found approximately 1.5 m south of oven [1600]. The very poorly preserved wall [1627] was at least 60 cm long and

40 cm thick. Wall [1631], in turn, ran roughly parallel to wall [1627], about 1.3 m to the south of it; it was preserved over a stretch of 1.7 m and measured only 18 cm in thickness. Both structures were covered with debris layer (1620), which consisted of sand and fragments of bricks and contained some animal bones, pottery sherds, three querns (S2041, S2042, S2051) and bead (S2052).

Another oven [1644] was found about 10 m to the south of building [1607]. It is uncertain whether it was contemporary to oven [1601] or to oven [1600] due to the lack of direct stratigraphic relationships between these features. The area around oven [1644] was heavily damaged by later cuts. The oven itself was also very poorly preserved. Its 3 cm thick ceramic walls were covered with a layer of mud (8 cm thick). The oven's original diameter was about 80 cm. Ashes (1643) inside the oven did not contain any objects. Two walking levels were found in close proximity to the oven. Both layers (1613, 1637) were relatively thin and contained some ashes, a small amount of animal bones, and pottery sherds.

**Discussion**

Remains from the phase C4 suggest that the area was occupied by a house and a large open courtyard located to the east of it. Two ovens, large amounts of ashes, small finds connected with food processing, and several small, thin-walled structures prove that this part of the courtyard served for bread-baking. Similar installations have been found in the western part of Area 9, but those are dated to the late 19th dynasty.[89] Apparently the bread-making technology did not change between the 19th Dynasty and the Third Intermediate Period.

### 1.5.2. Settlement (Area 9, phase C3)

*ŁJ*

Wall [1599] was built directly above the thick layer of ashes originating from the ovens (see above, cf. Fig. 48). It was probably a part of a building heavily damaged by later cuts. Part of the structure may still exist outside the northern edge of the excavation trench. The E-W oriented wall preserved to a height of 30 cm was at least 4.2 m long and 0.6 m thick. It seems that the area to the north of the wall was part of a room located inside the building, while the area to the south was a courtyard. Layer (1594), which abutted the wall on its northern face, was probably a floor of the room. It contained some ashes, charcoals, abundant pottery sherds, fish bones and ostrich egg shells. There was also one pottery disc (S2023). On the southern side of the wall there was a walking level (1595), which probably constituted the surface of a courtyard. The unit contained few pottery sherds. On the southern edge of the layer there was a cut, in which pottery vessel (1596) was found *in situ*. Another fragment of walking level (1598) belonging to the courtyard was found about 1.5 m to the west. Its surface was flat and compacted. The unit contained only some animal bones and pottery sherds. The relatively large extent of both walking levels suggests that the area they were in was an open space. The last piece of evidence is a fragment of wall [1602], which is preserved over a stretch of 5.5 m to the south of the building [1599]. Walls [1602] and [1599] were built directly on the layer of ashes. Wall [1602] was, however, oriented differently than wall [1599]: it ran approximately from the northeast to the southwest. The wall, preserved over a stretch of 5.7 m and about 20 cm thick, was reinforced with pillars, of which two were preserved. The pillars protruded about 20 cm from the southern face of the wall and measured about 40–50 cm in width. The distance between the two preserved pillars was 2.2 m. The area to the south of wall [1602] (which was apparently was an enclosure wall) seems to have been an open space; it was covered by layer (1603), an extensive deposit encompassing almost the entire surface of the excavation trench. The layer was disturbed by numerous cuts. It contained some ashes, animal bones, pottery sherds, and several objects: pottery disc (S2024), figurine (S2038), door socket (S2025), and scraper (S2050).

### 1.5.3. Settlement (Area 9, phase C2)

*ŁJ, SRz*

The relatively well-preserved building [1528] was found in the north-eastern corner of the excavation trench (Figs. 52, 53). The building consisted of only one room (although it cannot be excluded that there was another room further to the east, outside the excavation trench). The building, roughly rectangular in plan and oriented N-S, measured 5 ×

[89] Rzepka *et al*. 2014, 67–69.

5.9 m. Its walls were relatively thick (70–80 cm) and preserved to a maximum height of 80 cm. The entrance to the building was placed in its south-eastern corner and was unusually wide (1.55 m). Floor (1563) inside room 1 was well preserved. It was a thick layer containing some ashes, animal bones, pottery sherds, as well as sickle blade (S1969) and loom weight (S1972). The floor was covered by a thick layer of sand and brick fragments (1529), which yielded some pottery sherds, animal bones and one grinder (S1960).

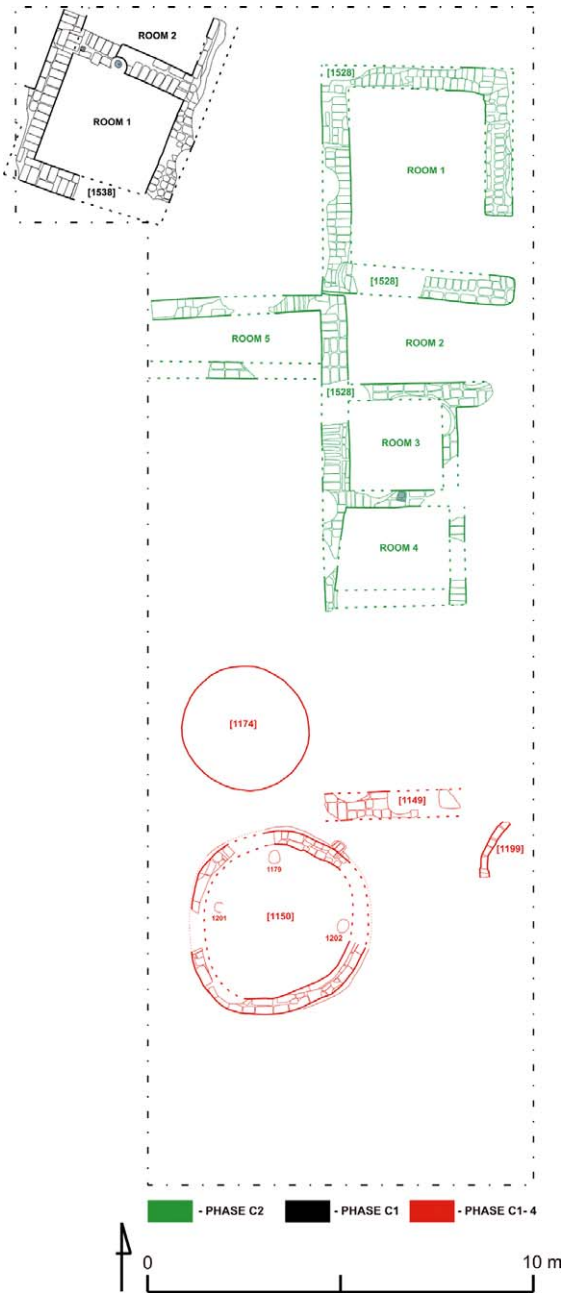



Fig. 52 Area 9 – plan of structures belonging to the Third Intermediate Period settlement, phases C2 and C1, excavated in 2014 (drawing Ł. Jarmużek)

At some point, building [1528] was significantly expanded. At least three more rooms were added on its southern side. It seems that the construction started with the addition of a massive wall [1539], about 8.2 m long and 70 cm thick. Subsequently, thinner walls (40–44 cm) were built to create new rooms. In one of the new walls (wall [1540] between rooms 2 and 3) a small bronze arrowhead was found (S1941, Fig. 54). It seems to have found its place into the middle of the wall not as a result of military activity (an attack against the dwellers of house [1528]), but rather because it had been mixed in with the clayey material used by the builders as mortar. Anyway, it is one of very few examples of weapons found so far in Tell el-Retaba.

One of the new rooms added to building [1528], room 2, was 2.3 m wide and at least 4.8 m long. Its eastern end is outside the excavated area. Floor (1557) inside the room was relatively well preserved. It contained some ashes, pottery sherds, game stone/weight (S1964) and bead (S1963). It was covered by debris layer (1544). Room 3 was almost square and measured 2.3 × 2.4 m. Two layers of floors found in this room were separated by debris layer (1558) and partly destroyed by later cuts. The first floor (1559) contained some ashes, animal bones and pottery sherds. Originally the entrance to the room was placed in the southern wall, as indicated by a pivot stone found in that area. After some time the entrance was blocked with mud bricks. However, the existence of the second floor (1545) proves that the room was still used. The entrance was probably located in one of the other walls, which were heavily damaged and therefore preserved no traces of a doorway. The second floor (1545) contained a small amount of pottery and one quern (S1940). Room 4 was very poorly preserved as a result of destruction by modern cuts. The room measured about 2.10 × 2.65 m. Only a small part of its floor (1560) was preserved, mostly along the western wall and in the north-eastern corner of the room. The floor contained a large amount of ashes. To the east of rooms 3 and 4 there were probably other rooms, which have since been completely destroyed. The area to the west of wall [1539] was also very poorly preserved. Fragments of two walls, [1579] and [1611], suggest the presence of yet another room in that area (although it is uncertain whether it still belonged to building [1528]). Room 5 was 1.38 m

Fig. 53 Area 9 – room 1 in building [1528] (photo S. Rzepka)

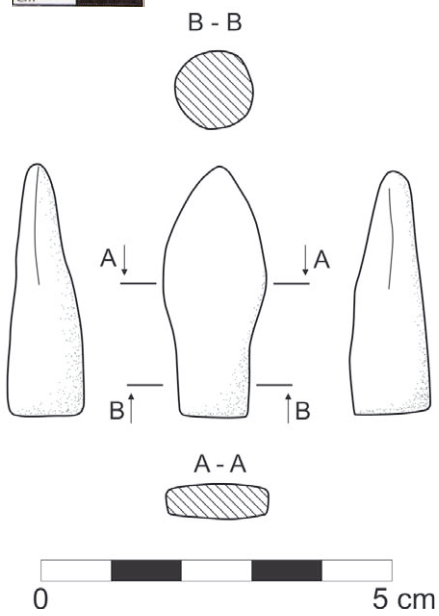




Fig. 54 Arrowhead S1941 (photo S. Rzepka, drawing B. Adamski)

wide and at least 4.4 m long. The western end of the room is outside the excavation trench. No floor was found inside the room. In the area to the south, however, fragments of two floors (1562, 1610) were found. Due to the fragmentary nature of the evidence it is difficult to determine whether the area was an open or a closed space. In contrast, the area to the north of room 5 yielded enough data to establish that it was unroofed. The area measured at least 4.4 × 7 m and featured a number of different layers. The oldest one was walking level (1584), which was preserved in the eastern part of the area, along the western wall of building [1528]. The surface of the layer sloped steeply toward the west. It contained some ashes, charcoals and fish bones. The western part of the area was covered with a deposit of black ashes and debris (1578). The next walking level (1572) probably covered the entire area; it yielded only pottery sherds. Fireplace (1571) was found in its north-western part.

### 1.5.4. Settlement (Area 9, phase C1)

*ŁJ*

Building [1538] was found in the north-western corner of the excavation trench, just below the present surface of the tell (Fig. 55, cf. Fig. 52). In

Fig. 55 Building [1538] (photo S. Rzepka)

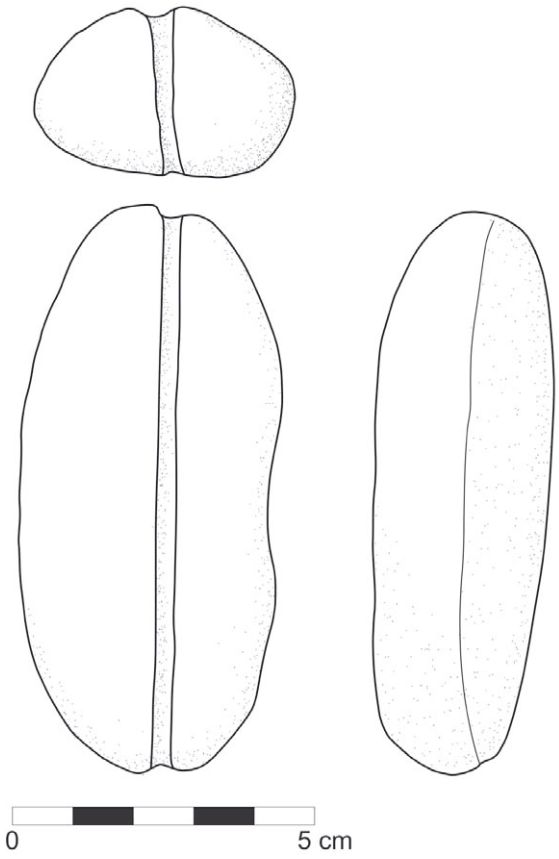




Fig. 56 Loom weight S1944
(photo S. Rzepka, drawing B. Adamski)

order to examine a larger part of the building the excavation trench was slightly expanded at this level. The unearthed fragment of the building (4.3 × 5.6 m) was probably its south-eastern corner. Walls of building [1538] were about 65–70 cm thick, their maximum preserved height being 20 cm (two layers of bricks). Room 1 was relatively well preserved, with only its south-eastern corner destroyed by a modern cut. The room was almost square and measured 2.9 × 3.1 m. Floor (1549) in room 1 contained a small amount of ashes, animal bones and pottery sherds. The number of small finds in this floor layer was relatively high, with five loom weights (S1944 [Fig. 56], S1945, S1946, S1952, S1953), two beads (S1958, S1062), needle (S1955), pendant (S1957) and fragment of a stone vessel (S1954). In the middle of the room two circular cuts were found. They measured about 20 cm in diameter and were both relatively shallow. They may have served as pot stands. The entrance to the room was located in its north-western corner. It was about 85 cm wide and had a threshold built of mud bricks. Unexpectedly, the entrance had two door pivot stones placed on opposite sides. It seems unlikely that there was a double door in such a relatively narrow entrance. Closer examination of the stones allows for a different explanation. It seems that the two stones were not used at the same time. Probably the western stone was placed in the original doorway. However, after some time the socket that held the wooden pivot became enlarged by wear and some parts of the stone broke off. Then the inhabitants made another door pivot stone and placed it on the other side of the doorway. In order to fit it into place they removed a fragment of the wall, which is now visible as a round cut around the stone. Room 2 was only partially explored, as its northern part lay outside the excavated area. It was 3.10 wide and at least 1.6 m long. Floor (1556) of the room contained a small amount of ashes, pottery sherds and one faience ring (S1959). A fragment of a wall

connected with the western wall of room 1 indicates that the building had more rooms.

### 1.5.5. Settlement (Area 9, phases C1-C4)

*SRz, ŁJ*

Three structures dated to the Third Intermediate Period were found in the southern part of the trench (cf. Figs. 48, 52). Due to the lack of direct stratigraphic relationships it is impossible to assign them to a specific phase.

Structure [1149] was a fragment of a wall badly destroyed by later cuts. Its preserved fragment was 3.5 m long and 70 cm wide. The wall was built on walking level (1153/1157), also destroyed by numerous cuts. It contained ashes, charcoal, fish bones, some pottery sherds and one grinder (S1573). The level was covered with debris (1155, 1156) probably generated by the collapse of wall [1149].

The other two structures were built in an unusual manner. They were erected in a large cut, at least 50 cm deep, made during the Third Intermediate Period. For unknown reasons a large amount of soil in the south part of the excavation trench was removed. At the bottom of the cut at least two structures were built. Building [1150] was round in plan (Fig. 57). Its internal diameter was 3.85 m and its walls, about 40 cm thick, were built in a very irregular fashion. It is difficult to determine the location of the entrance to the building because of the poor state of preservation of the walls. In some places it was possible to identify the fill (1228) of the foundation trench, which consisted of sand and fragments of bricks. The first floor (1208) of the room contained abundant ashes, some animal bones and pottery sherds. After some time it was covered by a thin layer of clay, (1203). Along the wall of the building there were three round cuts, which served as stands for large storage vessels (1997, 1201, 1202). The floors and vessels were covered with a thick layer of debris, (1192). Besides numerous broken bricks, the deposit contained animal bones, shells, a large number of pottery sherds, and several objects: scraper (S1631), grinder (S1598), disc (S1621), and spindle whorl (S1611).

Fig. 57 Area 9 – building [1150] (photo S. Rzepka)

About 3 m to the north-east of building [1150] another building, [1199], was found. It was only partially excavated, as most of it lay outside the excavated area. The structure seems to have been similar to building [1150].

The area between the two buildings consisted of several layers likely associated with these structures. The lower one was silt-rich layer (1198), which contained some animal bones, shells, pottery sherds, and three pottery discs (S1633, S1635, S1636). Above it was a layer of clay (1194), which yielded a large number of pottery sherds, some animal bones, and shells. On top of the layer of clay was a thin walking level (1196) with some ashes.

Another interesting structure probably connected with buildings [1150] and [1199] was a circular cut <1174> found about one meter to the north of building [1150]. The cut was made exactly inside silo [1256] built during the 19$^{th}$ Dynasty (phase E3, see above). Apparently the inhabitants of the Third Intermediate Period settlement dug a pit in the ground (maybe to prepare a place for a structure of the same type as [1150], which had a floor sunk deep into the walking level), stumbled upon the walls of an old but very well built silo and decided to adapt it to their own purposes. They must have discovered the silo by chance, as surely no walls of this structure were visible on the surface at that time – they had been leveled at the beginning of the 20$^{th}$ Dynasty and then covered by building [834/838]. The silo was emptied of debris and all the original deposits in order to obtain a structure similar to [1150]: a round building sunk deep into the ground. This effect was achieved without building new walls. After some time the cut filled with several layers. The lower layer (1257/1581) contained a large amount of ashes, pottery sherds, several completely preserved pottery vessels (mostly typical Third Intermediate Period bowls, Fig. 58), and one grinder (S1677). This deposit was covered by layer (1177), which consisted mainly of sand. The last layer (1173)

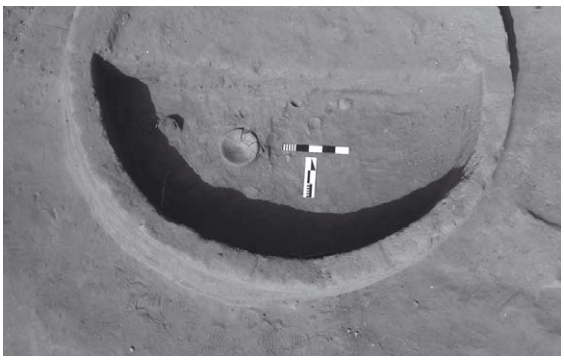


Fig. 58 Area 9 – Third Intermediate Period deposits inside reused 19th Dynasty silo [1256] (photo S. Rzepka)

contained some ashes, animal bones and pottery sherds.

**Discussion**

The above-described structures are unusual compared to other Third Intermediate Period architectural remains from Tell el-Retaba. In previous seasons, settlement remains were found in Areas 2, 3, 5, 6 and 9: remnants of houses consisting of rectangular rooms, as well as a stable, also rectangular in plan. Structures [1150], [1199] and <1174> are different in two respects: they are circular in plan and they are sunk deep into the surrounding occupational level (their floors were at least 0.5 m below the walking levels outside). The circular shape could suggest that the structures were grain silos,[90] but the finds inside [1150] and <1174> clearly testify against such an interpretation. In [1150] there were 3 large storage vessels dug into the floor and in <1174> large amounts of pottery vessels. A storage function still seems to be the most probable – these structures were probably not grain silos, but cellars for the storage of products requiring cool conditions. The structures are fairly spacious, so presumably they belonged to a large house or houses, but because above-ground TIP remains are almost completely obliterated in this area, this must remain a speculation.

### 1.5.6. Settlement (Area 4, phases C, B)

*JH, MO, VD*

Traces of intensive Third Intermediate Period occupation, already documented in 2009–2011,[91] were found in Area 4 by the northern tower of the migdol. During surface clearance just east of this tower, a recent pit cutting through the ancient occupational layers was detected. This irregular pit, dug out most probably during the Egyptian excavations conducted on the site in 1980s, was filled with wind-blown sand containing some pottery and objects, including fragments of stone vessel (S1702), faience bead (S1705), and fish bones.

The section of the pit revealed a sequence of alternating layers - clay floors (altogether 7 layers) separated by sand deposits (altogether 10 layers).[92] Almost all of these stratigraphic units can be dated to Third Intermediate Period-Late Period[93]. Their character and position might suggest some relation to the road (at least 5 meters wide) discovered in 2009. The road ran east-west, from the migdol to the so-called 'temple' excavated by Petrie[94].

### 1.5.7. Settlement (Area 7, phases C, B)

Several occupational layers and some fragmentary remains of mud brick structures dated probably to Third Intermediate and Late Period were spread throughout the excavated part of Area 7 to the west of "Wall 2". These layers were partly mixed with or laid directly over 18th Dynasty remains. With the exception of the fortification "Wall 2", no other preserved remains of the 19th–20th Dynasty have been found in the area so far. They could have been removed already in ancient times during the construction of the fortification wall, or may have disappeared more recently due to the erosion of the tell.

The excavated layers yielded several bronze and faience fragments, flint tools, grinders, shells and one fragment of a calcite ointment cup S1731 (Fig. 59).[95] Remarkable is the large number of flint

[90] Cf. Arnold 1997, 135–136. According to Arnold, round grain silos had floors slightly sunk below the ground level. In none of the silos excavated in Tell el-Retaba so far was such a feature observed.

[91] Rzepka *et al*. 2011, 135–138; Hudec in: Rzepka *et al*. 2014, 69–70.

[92] Due to the destruction of the eastern portion of this stratigraphy, it cannot be determined if these floors and sand layers were situated in an open or closed space. Pottery obtained by excavation of these layers may provide a finer chronological division of the Third Intermediate Period settlement.

[93] With the exception of some pottery from the reign of Ramesses II in layer [1300] most probably constituting a secondary deposit in this location.

[94] Rzepka *et al*. 2011, 136–137, Fig. 9.

[95] Vandier d'Abbadie 1972, 114–115, no. 468, dated to the Late Period.


Fig. 59 Fragment of calcite ointment cup S1731 (photo R. Rábeková)

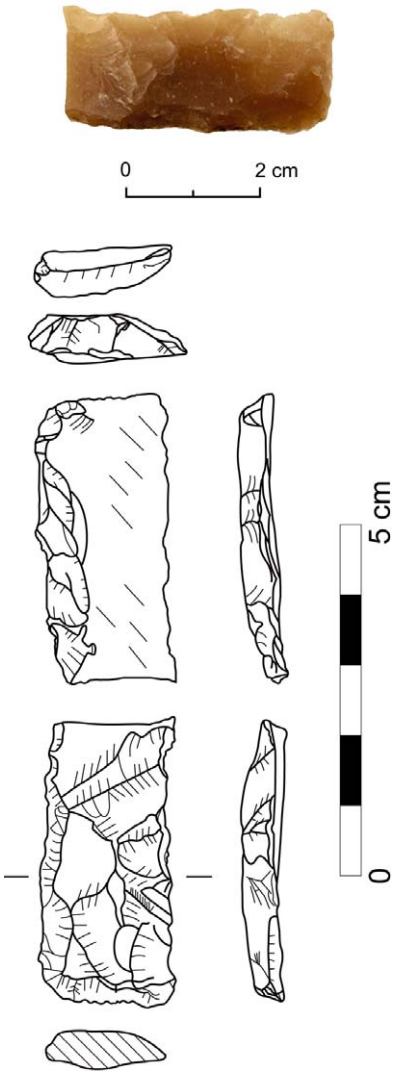



Fig. 60 Flint tool S1707 (photo R. Rábeková, drawing L. Kováčik/Ľ. Hudáková)

tools representing various types, including borer (S1720),[96] flint core (S1722) and blade adjustment (S1730).[97] Documented already in previous seasons, albeit mostly in older layers,[98] they testify to the frequent occurrence and long-lived usage of flint tools (probably very often a secondary one) in this region as late as in the Third Intermediate and Late Period (Fig. 60).

The tang end of a chisel (S1769)[99] was found in (1345) datable to the Third Intermediate Period. An artefact with a similar morphology, referred to as a "point", was published from Tell el-Dabᶜa.[100]

### 1.6. Ottoman Period (Area 9, phase A)

*PS*

The surface of the site was heavily damaged by a large number of cuts (Fig. 61). Most of them are round or ovoid in shape, some are irregular. Almost all of the cuts were filled with yellow aeolian sand, but some of them have traces of human and animal activity. Two of the cuts contained ovens.

Oven [1219] was found inside cut <1126> in square Y215X110. The cut was filled by two layers. The upper one, (1125), consisted of fine aeolian sand in which some traces of animal dung and fragments of pottery were found. The lower layer (1218) consisted of loose, greyish brown ash mixed with fine sand and mud brick debris. Inside, some relatively recent organic material was found. The layer was probably associated with oven [1219], most of which was inserted in the ground, cutting through archaeological layers. A part of the cut was closed off with a fragmentarily-preserved wall from the northern side. Currently the wall's thickness is approximately 0.16 m or less and its height does not exceed 0.21 m. Originally the front of the structure was closed with a semi-circular mud brick wall, and a thick layer of baked clay formed a dome furnished with an inlet hole over the oven. The upper part of the structure was completely destroyed. The oven measured about 0.42 m in diameter and was preserved to a height of about 0.58 m.

The second oven [1221] was found inside cut <1142> in square Y210X105 (Fig. 62). The cut was

[96] Tillmann 2007, 214, Taf. 22, no. 2.

[97] Tillmann 2007, 225, Taf. 33, no. 1.

[98] Hudec in: Rzepka *et al*. 2014, 53–54, Fig. 25; Dubcová in: Rzepka *et al*. 2014, 60–61, Figs. 35–37.

[99] L. 25.4 mm, W. 1.3 g.

[100] Philip 2006, 127, Fig. 58.3.


Fig. 61 Area 9 – modern cuts; marked Ottoman ovens [1219] and [1221] (photo S. Rzepka)

filled by two layers. The upper one, (1141), consisted of loose, fine sand with some traces of animal dung and fragments of pottery. The lower layer (1222) consisted of compact brown mud brick debris, which probably accumulated after the oven [1221] ceased to be used. Within were several fragments of the dome from the oven's superstructure, as well as a pipe (S1607+1627, Fig. 63). This pipe, together with several similar objects found in the vicinity, permits us to date both ovens to the Ottoman Period. The oven [1221] was built in the same way as oven [1219]. Its back side seems to have been cut into a layer of mud brick debris as if to form a niche. The maximum preserved height of

Fig. 62 Area 9 – Ottoman oven [1621] (photo S. Rzepka)

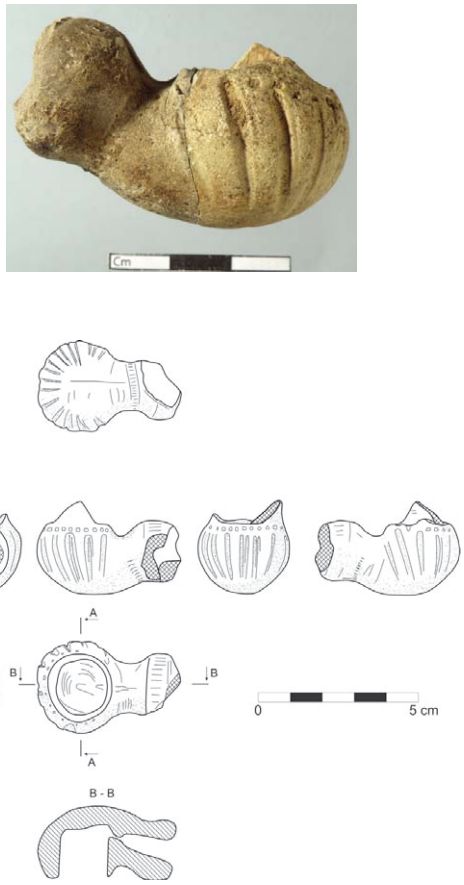



Fig. 63 Pipe S1607+1627
(photo S. Rzepka, drawing B. Adamski)

the oven is about 0.54 m. The front was closed with a semi-circular wall that seems to have consisted of one course of mud bricks or of a thick layer of clay. Its maximum preserved thickness is about 0.21 m and its maximum preserved height is about 0.26 m. Probably the oven originally had a dome with an inlet hole, as did [1219]; their fragments were found next to the wall in (1222). The inner surfaces of the oven walls were burnt. They were orange in colour probably because of the combustion process. The inlet of the oven was directed toward the west and measured about 0.2 m in width. The oven diameter was about 0.48 m. The upper part of the structure was almost completely destroyed. The deposit inside the oven consisted of ashes mixed with fine sand (1220).

Beside these two structures, excavations in this area yielded eight tobacco pipes from the Ottoman Period. Pipes S1530, S1542, S1549, S1590, and S1602 (Fig. 64) were found in subsurface layer (1). Pipes S1905 (Fig. 65) and S1911 (Fig. 66) were found in two cuts <1499> and <1497> located in close proximity to one another.

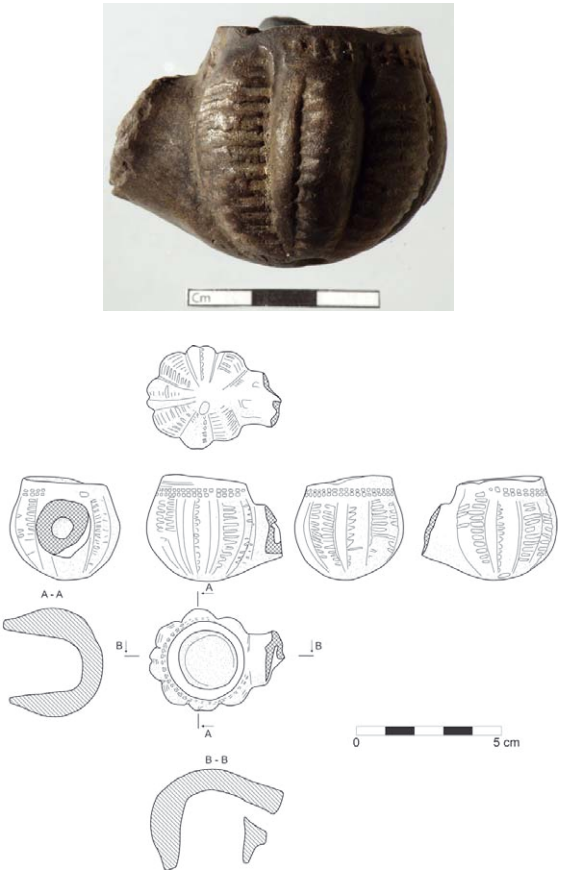



Fig. 64 Pipe S1602 (photo S. Rzepka, drawing B. Adamski)

## Discussion

Archaeological material suggests that the numerous cuts in this area should be dated to modern times. Some of them may have been made by *sebbakhin*. Remains of ovens and tobacco pipes allow the dating of some of them to the Late Ottoman Period.

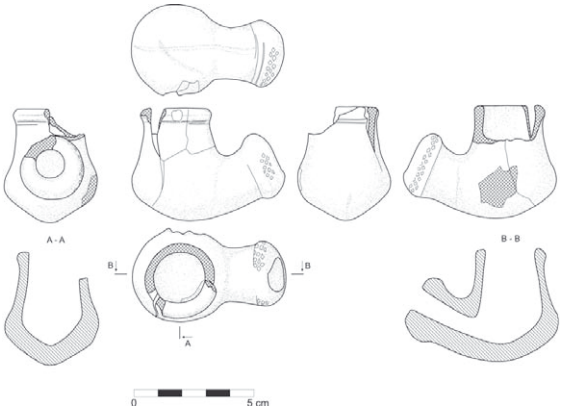



Fig. 65 Pipe S1905 (photo S. Rzepka, drawing B. Adamski)


Fig. 66 Pipe S1911 (photo S. Rzepka, drawing B. Adamski)

All pipes belong to the rounded bowl type.[101] Their outer surfaces are decorated with geometric motifs (simple or crossing lines, zigzag lines, lattices or triangles), which were incised, impressed or moulded. They were probably manufactured in Egypt, but a more specific place of origin is unknown.

Almost all of pipes were made of fine Nile clay with very fine and occasionally organic inclusions, fired to shades of brown and grey. Only one, S1607+S1627, was made of fine marl clay with occasional small white and micaceous inclusions[102] fired to beige. All of them have surfaces slightly polished by use.

The oldest pipe S1607+1627 is dated to the end of the XVII$^{th}$ century or the beginning of the XVIII$^{th}$ century.[103] Pipe S1530 is too damaged to determine its date, but it seems to come from the XVIII$^{th}$ century or later. Five pipes S1542,[104] S1549,[105] S1590,[106] S1602,[107] and S1911[108] are dated to the XVIII$^{th}$ century or the beginning of the XIX$^{th}$ century. The last one, S1905, is dated to the middle of the XVIII$^{th}$ century.[109]

Seven of the pipes lack manufacturer's marks. In one case (S1911) a stamp impression inside the bowl (on the bottom, where the tobacco was placed) shows a rosette. However, the function of this mark is not entirely clear and it might also be a part of the decoration. Typically, craftsmen's signs were placed on the shank/neck of the pipe. Presumably the reason for this is that both the shank end and the surface of the bowl were decorated, while the neck was left unmarked. Any smooth and undecorated surface was suitable for a craftsman's mark. A lack of craftsmen's marks on Tell el-Retaba pipes suggests an early date for these finds because at the end of the XVIII$^{th}$ century almost all known pipes were marked.[110]

The absence of remains of domestic architecture suggests that the area was abandoned in the Ottoman times. Ovens and archaeological material may suggest that *sebbakhin* pits functioned as temporary shelters for people reclaiming mud bricks from ancient structures, pasturing animals or just moving between villages. Nomadic Bedouin may have also used such temporary shelters.[111] The discovery of a large number of pipes in a relatively small area suggests that more of them may be discovered in the future in other parts of the site.

## 2. Tell el-Retaba 2014, pottery material overview

*AW*

During two seasons of work at Tell el-Retaba, 5403 diagnostic pottery fragments were recorded, 485 from areas 4 and 7, and 4918 from area 9.

### Areas 4 and 7

Areas 4 and 7 located in the western part of the site contained the earliest occupational layers dated to the Hyksos period. Remains of a Hyksos settle-

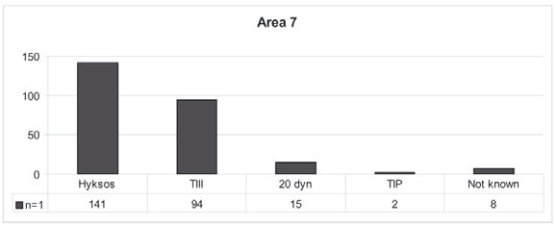



Fig. 67 Area 7 – number of diagnostic fragments divided by period (processing A. Wodzińska)

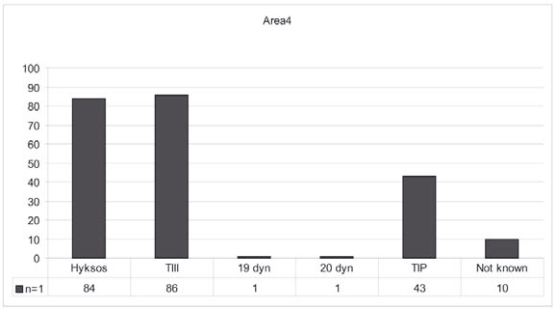



Fig. 68 Area 4 – number of diagnostic fragments divided by period (processing A. Wodzińska)

[101] Saidel 2008, 60; Robinson 1985, 153.

[102] According to Anna Wodzińska.

[103] Vincenz 2011, 45, fig. 1 - similar to B3018.

[104] French 2011, 224, Add. 75 - similar to no. 2.3.

[105] French 2011, 227, Abb. 78 - similar to no.12.6 and 228, Abb. 79. similar to no. 12.9.

[106] No parallels to this pipe were found, but it seems to be similar to others in fabric, workmanship, shape, size, and the angle between the bowl and the shank.

[107] Vincenz 2009, 134, fig. 8.6: 36 - similar to no.36 Type J-18J-B.

[108] French 2011, 224, Add. 75 - similar to no. 4.1, and 230, Abb. 81 - similar to no. 12.22.

[109] Pradines 2004, 290, fig. 9 - similar to Barq-509–43; Ward and Baram 2006, 147, fig. 4 - similar to S1.

[110] Robinson 1983, 268.

[111] The presence of Arab nomads has been observed during Napoleon's expedition to Palestine in 1799 (cf. Saidel 2008, 65).

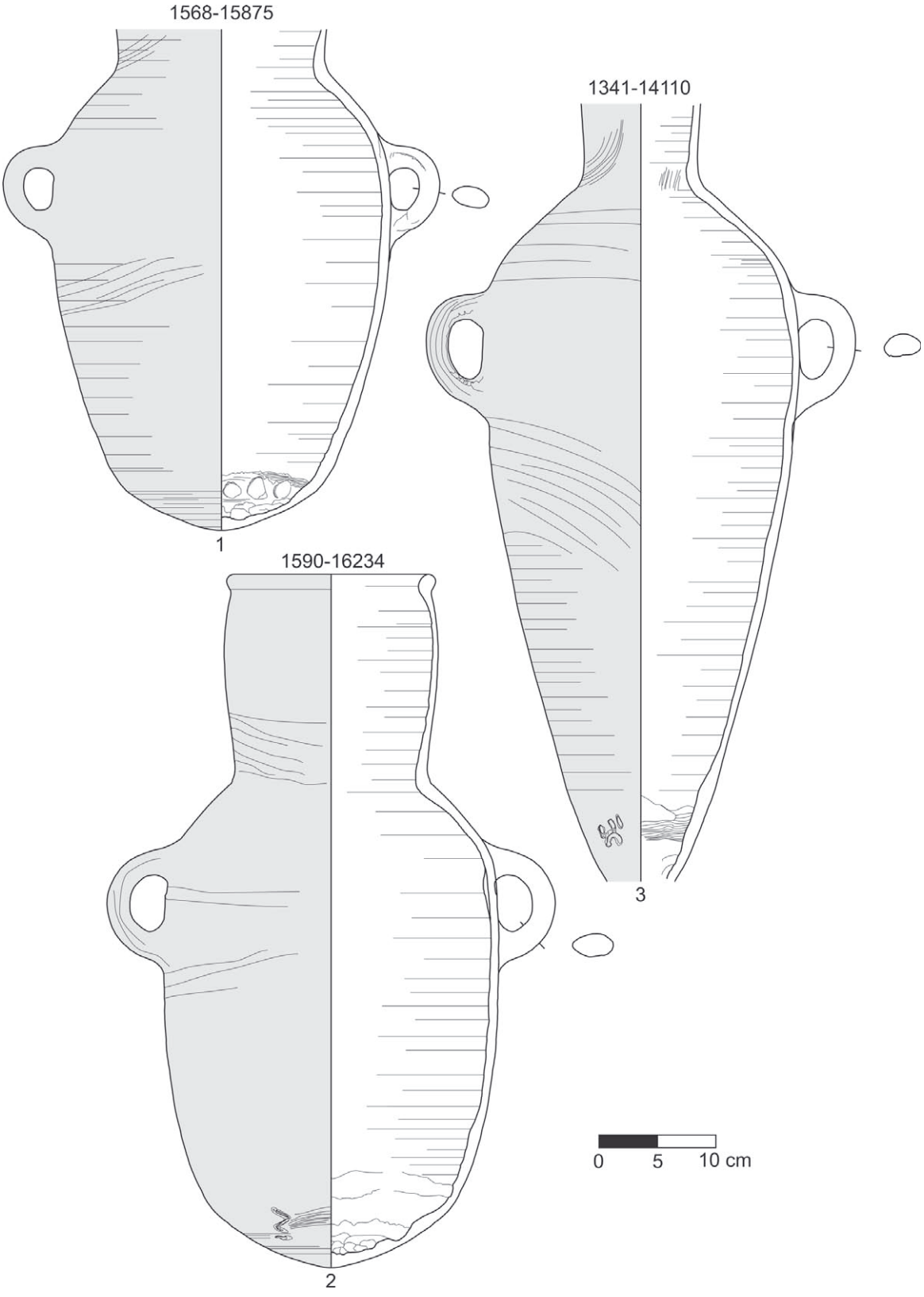



Fig. 69. Amphorae used as coffins, 19th Dynasty.
All pottery drawings by B. Jakubowska, A. Poniewierska, A. Ryś, K. Trzcińska, and A. Wodzińska; digitized drawings and photos by A. Wodzińska. Vessel numbers are composed of two elements: the first represents the stratigraphic unit, the second the pot number.

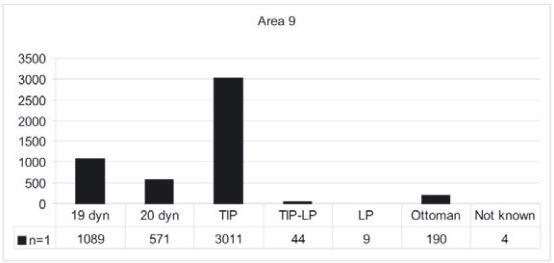



Fig. 70 Area 9 – number of diagnostic fragments divided by period.

ment, already discovered in 2012,[112] were cleared further, bringing 225 diagnostic pottery fragments in total (Figs. 67 and 68). Just above the Hyksos contexts, structures dated to the early 18th Dynasty were excavated uncovering more material (180 diagnostic fragments) already known from previous seasons.[113] The top layers of areas 4 and 7 also included pottery from the 19th (1 fragment) and 20th (21 pieces) Dynasties, as well as the Third Intermediate Period (45 fragments) (Figs. 67 and 68).

### Areas 9 and 4 – infant cemetery

Pottery of the 19th Dynasty in areas 9 and 4 was associated with two contexts, funerary and domestic. The funerary assemblage is closely connected with the infant cemetery already discovered during previous seasons.[114]

During the 2014 season, three large amphorae made of marl D fabric and covered with a burnished creamy slip (Fig. 69) were found. The amphorae were used as coffins for children (see above). The vessels represent two different forms: barrel shaped vessels with round bases made on a mold (Fig. 69.1–2, from area 9), and ovoid jars (Fig. 69.3, from area 4). Both of them can be securely placed among early Ramesside pottery. Analogies have been found in Qantir.[115] Two jars

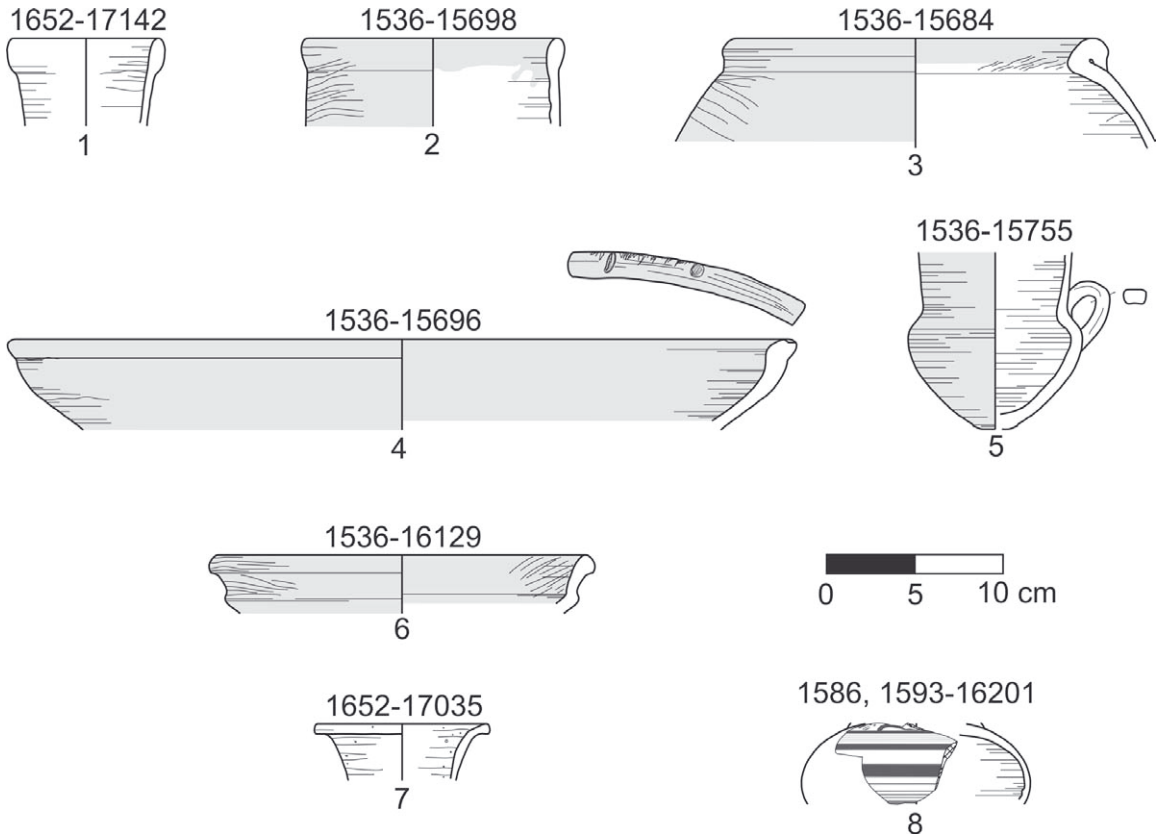



Fig. 71 Selection of pottery from the reign of Ramesses II, nos. 1–6 made of marl fabric, no. 7 – rim of Cypriot base ring, and no. 8 – fragment of Mycenaean stirrup jar.

[112] Rzepka *et al.* 2014, 52–56 and 97–98.
[113] Rzepka *et al.* 2014, 56–64, 98–101.
[114] Górka and Rzepka 2011.
[115] See Aston 1998, 474 for amphorae with round bases, and 497 for ovoid.

carry potmarks placed at the base before firing (Fig. 69. 2–3). This practice is also very well known from Qantir.[116]

**Area 9**

Pottery found in area 9 came from five general periods including the 19th and early 20th Dynasties, as well as the Third Intermediate Period, Late Period and probably Ottoman period (Fig. 70).

The 19th Dynasty assemblage seems to be especially interesting. Apart from the infant cemetery, it can also be clearly associated with the building activity of Ramesses II. Contexts dated to that period yielded very rich ceramic material, which

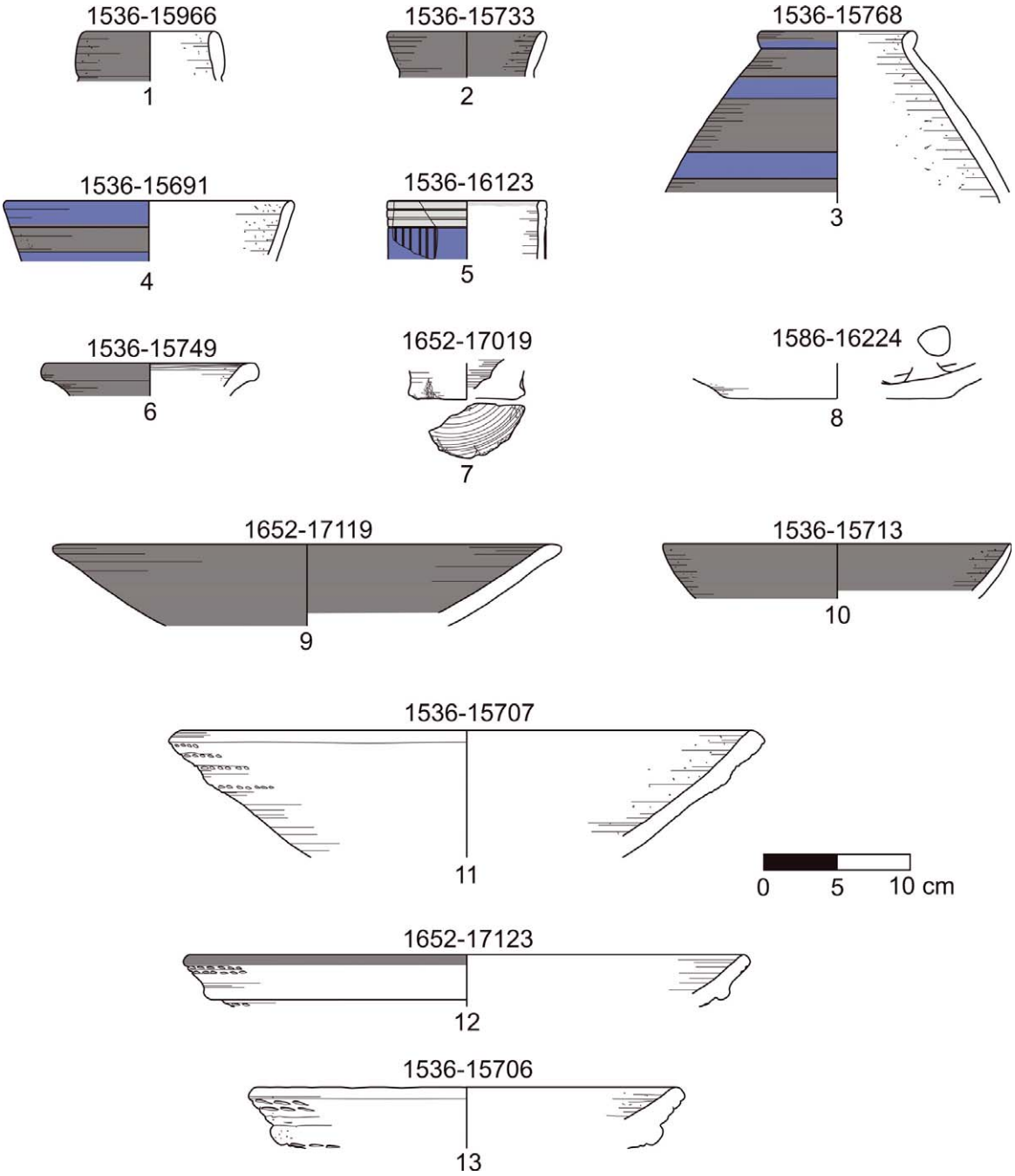



Fig. 72 Selection of pottery from the reign of Ramesses II, vessels made of Nile fabrics.

[116] Aston 1989, 474, nos. 1789, 1791 for round bases; and 477, nos. 1793, 1794 for bases of ovoid amphorae.

comprises both Egyptian forms (Figs. 71.1–6 and 72) and imports – Cypriot (Figs. 71.7 and 73) and Mycenaean (Figs. 71.8 and 74).

The Egyptian forms represent very diverse forms of marl vessels (Fig. 71. 1–6) including amphora rims (Fig. 71.1 made of marl fabric F,[117] and Fig. 71.2 made of marl D[118]) and pots made of marl D with creamy slip; storage vessels – so-called meat jars[119] (Fig. 71. 3), bowls with thickened rims[120] (Fig. 71.4), carinated bowls[121] (Fig. 71.6), and goblets with one handle[122] (Fig. 71.5). All of them are well-known early Ramesside vessels. The best parallels come from Qantir.[123]

Fig. 73 Fragments of Cypriot vessels found in 19th Dynasty layers.

There is also a very large group of vessels made of Nile fabrics (Fig. 72), especially of a very sandy variant of Nile B2 fabric. The group includes red-slipped jars with thickened (Fig. 72.1) and simple flaring (Fig. 72.2) rims. The jars made of Nile fabrics often have blue, black and red painted decoration (Fig. 72. 3–5). One of these jars with a simple rim and cylindrical neck was creamy slipped and bore three incised horizontal lines below the rim, as well as many vertical lines on the neck (Fig. 72.5). Structures built during the reign of Ramesses II, excavated during the 2014 season contained notably more blue painted ves-

Fig. 74 Fragments of Mycenaean vessels found in 19th Dynasty layers.

117 See Aston 1998, 506–507.
118 Aston 1998, 472–473.
119 Aston 1998, 478–487.
120 Aston 1998, 466–467.
121 Aston 1998, 468–469, nos. 1720–1723.
122 Aston 1998, 488–489, nos. 1917–1918.
123 Aston 1998.

sels than contexts excavated in previous seasons: 39 fragments [SU 1259, 1260, 1265, 1536, 1549, 1576, 1586, 1652] were found during the 2014 season and only one in 2012.

Among the Nile fabric pots it was possible to identify some pot stands with red slipped external surfaces[124] (Fig. 72.6), beer jar sherds (here a base in Fig. 72.7[125]), and a base fragment of a weaving bowl[126] (Fig. 72.8). The material also comprises many red slipped bowls made of Nile B2 fabric including specimens with flaring rims[127] (Fig. 72.9), hemispherical bowls[128] (Fig. 72.10), and deep basins with ledge and horizontal lines of string impressions on external surfaces[129] (Fig. 72.11–13). One of them has a red painted rim (Fig. 72.12).

The Ramesses II pottery group also contained two fragments of Cypriot Base Ring imports (Figs. 71.7 and 73). One of them is a fragment of a bull's head (Fig. 73) with an applied eye and at least four white painted horizontal lines (stratigraphic unit (1593)). A very similar fragment was found in Tell Burna.[130]

A number of Mycenaean vessels, probably stirrup jars (Figs. 71.8 and 74), were represented by three fragments of handles, two knobs and three body sherds [SU 1586, 1593, and 1652]. The fragment depicted in Fig. 71.8. can be compared to forms dated to LH IIIB[131] or LH IIIC[132] periods. It is a body sherd with traces of one handle. The creamy surface of the pot is painted with brown horizontal lines. The top of the sherd bears traces of a floral pattern (see the largest sherd in Fig. 74).

## TIP

The largest pottery group is the assemblage from the Third Intermediate Period. The material comprises pottery types already known from previous seasons except one very particular vessel. It is an almost complete jar in the shape of a pomegranate made of Nile B1 fabric with a red slipped bur-

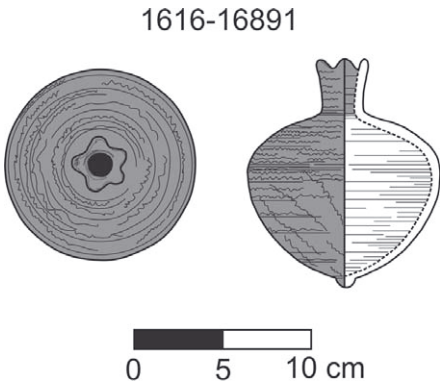
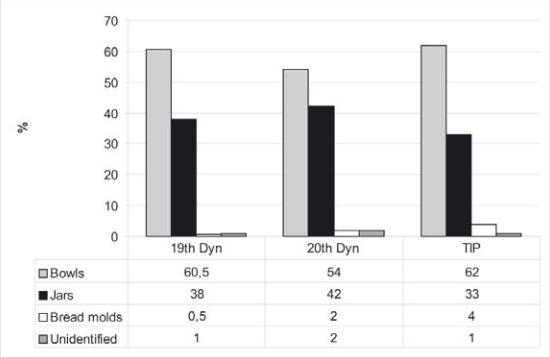



Fig. 75 Vessel in the shape of a pomegranate, Third Intermediate Period.

Fig. 76 Vessel in the shape of a pomegranate, Third Intermediate Period.

Fig. 77 Vessel in the shape of a pomegranate, Third Intermediate Period.

[124] For comparison see for instance Rose 2007, 186, type SA 1.3.
[125] Aston 1998, 184–185.
[126] Rose 2007, 203, types SD 6.2 and 6.3.
[127] Aston 1998, 220–230.
[128] Aston 1998, 232–237.
[129] Aston 1998, 164–165.
[130] See https://telburna.files.wordpress.com/2013/12/20131218_102939.jpg
[131] Mountjoy 1993, 85, Fig. 197.
[132] Mountjoy 1993, 94, Fig. 241.




| | 19th Dyn | 20th Dyn | TIP |
|---|---|---|---|
| Bowls | 60,5 | 54 | 62 |
| Jars | 38 | 42 | 33 |
| Bread molds | 0,5 | 2 | 4 |
| Unidentified | 1 | 2 | 1 |

Fig. 78 Relative occurrence of general groups of pottery from area 9, divided by period (processing A. Wodzińska).

nished external surface (Figs. 75–77). Its size corresponds well to that of a real fruit (see Fig. 76). Its internal surface was partly covered with a white substance of unknown origin. This is a very exceptional vessel. Its shape was very common during the New Kingdom, when jars shaped like pomegranates were made of glass and faience.[133] A silver pomegranate jar was found in the tomb of Tutankhamun.[134] Commonly the vessels were associated with fruitfulness and fertility.[135]

The overall pattern of relative occurrence of general ceramic groups within three main occupation phases in area 9 (Fig. 78) is very similar to the one traced in previous seasons. It has been

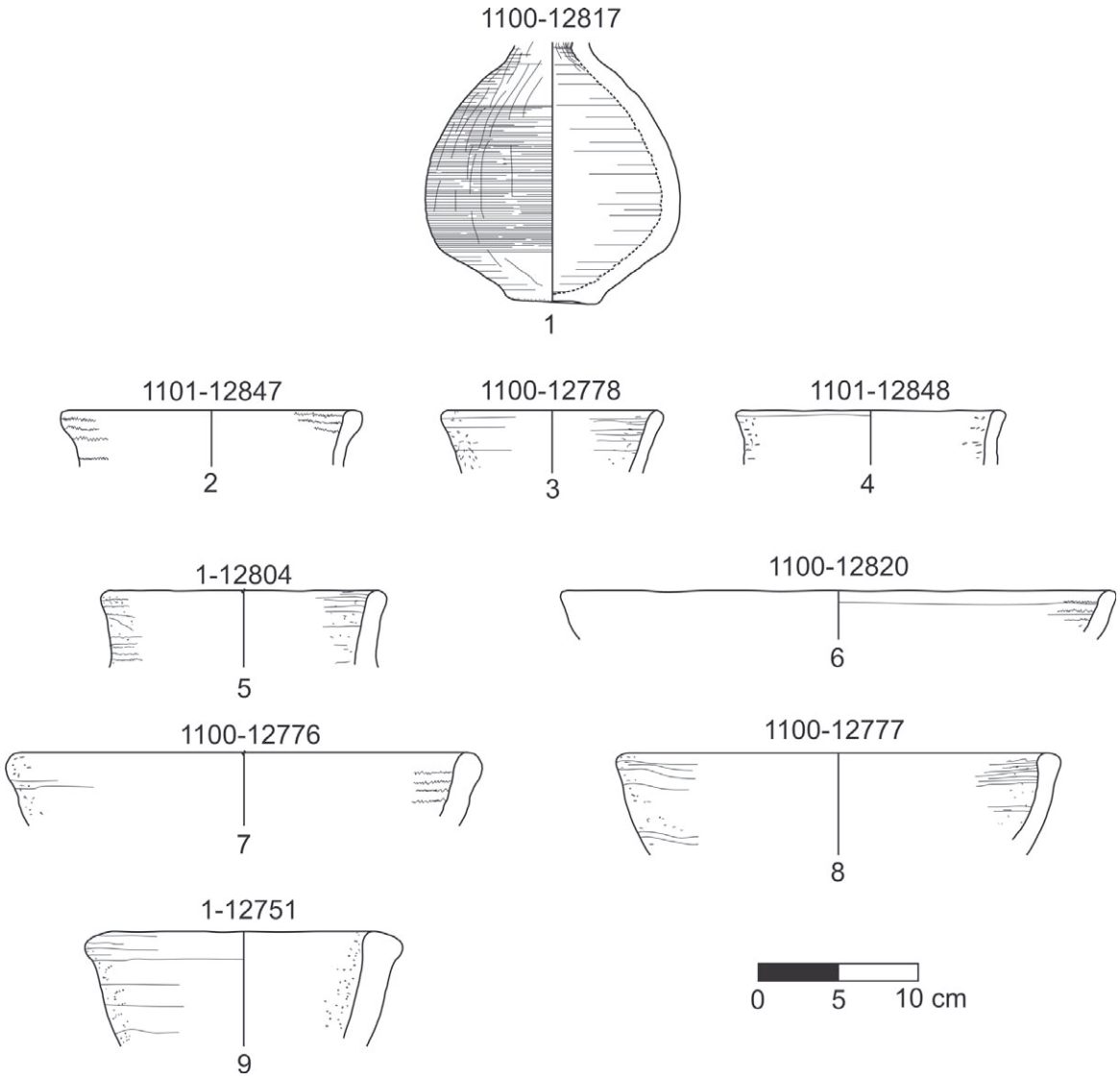



Fig. 79 Pottery probably associated with the Ottoman period.

[133] Caubet 2008, 425.
[134] Reeves 2006, 197.
[135] Caubet 2008, 425.

observed that for the 19th and 20th Dynasties slightly more closed forms (including storage and transport jars) are recorded than for the Third Intermediate Period. Another difference is visible in the relative appearance of bread moulds, which rarely occur in all periods but are the least frequent in New Kingdom layers, especially those dated to the 19th Dynasty. The pattern probably reflects regular domestic activities such as preparation of food and some bread baking, although probably bread was rarely baked in moulds. As it was already stated before,[136] very little cooking activity has been observed in the New Kingdom structures.

**Area 9, material associated with Ottoman ovens**

A very interesting group of pots came from the latest occupational phase of the site, probably dated to the late Ottoman period. The dating of the material is based on the analysis of ceramic pipes found in the same context.[137]

One vessel is a wheel made jar of fine Nile fabric with a well-smoothed surface (Fig. 79.1). The pot was found filled with organic material, which turned out to be tobacco seeds.[138]

The rest of the group consists of hand-made fragments of jars and basins with burnished dark red and brown surfaces (Fig. 79.2–9). All of them were made of a Nile fabric with numerous small particles of grog. The vessels clearly form a very homogenous assemblage, which appears to have come from the same workshop. Some of them bear traces of burning, so perhaps they were used as cooking pots.

## 3. Anthropological analysis

*AŠ*

### 3.1. Skeletons from the Second Intermediate Period graves

#### 3.1.1. Skeleton (1425) (tomb [942])

3.1.1.1. Preservation: Almost complete, slightly damaged skeleton of a young individual.
3.1.1.2. Morphological characteristics: Damaged to fragmentary, medium robust *cranium*, with mild to moderate muscular relief (MR). Skull indicates *arcus superciliares* in *norma frontalis*, a transient *margo supraorbitalis,* obliterated *sutura metopica*, shallow *fossae caninae*. The glabella of the skull is moderately marked in *norma lateralis*, the *os zygomaticum* is moderately high, with an irregular surface; the *processus zygomaticus* is higher and stronger; the *processus retromarginalis* is large. *Processi mastoidei* in *norma occipitalis* are medium. The seams are mostly open. The *synchondrosis sphenooccipitalis* is closed. The fragmentary mandible of median fabric and median MR has a prominent chin side. Simple *foramen mentale* is identifiable on right side below P1 - P2; the *spina mentalis* is pin-shaped, the rather everted mandibular angles have slight ridges. The *margo inferior* below M2 and the *processus articularis mandibulae* are median. The *trigonum mentale* is formed by a mild bilateral protuberance. The completely preserved teeth are only slightly worn, tooth abrasion ranges mainly from 0 (of incisors) to the 2nd degree (of molars).

Small to medium-sized vertebrae are damaged, gracile to medium robust (7 cervical, 12 thoracic, 5 lumbar). There are Schmorl's nodes on cranial and caudal surfaces of the bodies of thoracic and lumbar vertebrae – i.e. traces of premature degenerative vertebral column injury (Fig. 80). Present are fragments of the *os sacrum* with a medium-sized and loose *os coccygis.* The injured *os sternum* has a small, narrow and loose *manubrium* and a long, narrow corpus, which consists of two parts. The *processus ensiformis* is loose. Damaged and fragmented ribs are gracile to moderately

Fig. 80 Skeleton (1425), man, adultus I. (20 – 25 years), Schmorl's nodes on lumbal vertebrae bodies – i.e. traces of premature degenerative vertebral column defect. (Photo A. Šefčáková)

[136] Wodzińska in Rzepka *et al*. 2014, 116.
[137] See P. Sójka above.
[138] Claire Malleson, personal communication.

Fig. 81 Skeleton (1425), man, adultus I. (20 – 25 years), expressive *impresio ligamenti costoclavicularis* on medial extremities (*extremitas sternalis*) of both clavicles – the effect of heavy physical work. (Photo F. Engel)

robust. Collarbones are well preserved, almost intact, gracile to moderately robust with medium MR and small curvature. The left clavicle is longer, both clavicles have a significant *impresio ligamenti costoclavicularis* (Fig. 81). Observation of fragments of scapulae revealed an adherent *acromion* (accrete at the age of about 16 to 22 years) on the right scapula and a non-adherent *acromion* on the left one. Damaged, moderately robust arm bones have medium MR, proximal adherent-in-progress epiphysis, distal adherent epiphysis, and perimeters of boneheads measuring 137 mm (R) and 133 mm (L). Spindle bones are damaged and fragmentary, gracile to moderately robust, with median MR; their distal epiphyses are partly fused. Damaged *ulnae* are gracile to moderately robust with median MR; the proximal epiphyses are synostosed, and the distal ones are partly fused. The brachial index value (Tab. 1, R1 : H2) is in the category of *mesoceric* (the forearm is of medium length) and falls within the range characteristic for negroids[139]. The majority of small *carpalia*, all medium-sized *metacarpalia* and almost all *phalanges* are preserved.

Pelvic bones are damaged and fragmented with a weak to moderate MR, the edge of the *os ilium* is not fully adherent, *tuber ischiadicum dx.(*?) is almost completely adherent. The *fossa iliaca* is higher and narrower, the *sulcus praeauricularis* is narrow and shallow (a part is damaged), the *arc composé* has a smoothly continuous curvature, the *facies auricularis* has a rather acute angle without reduction. The *incisura ischiadica major* is narrower on the right and wider (?) on the left (bilat-

[139] Aiello 1981, 420–422.

Tab. 1 Postcranial characteristics of young man skeleton (1425) (according to Bräuer 1988; in mm; R - right, L - left)

| **Sex** | **Man** | |
|---|---|---|
| **Age** | **A1 (20 - 25)** | |
| Humerus | R | L |
| 1. | 324 | 328 |
| 2. | 320 | 318 |
| 5. | 21 | 18 |
| 6. | 17 | 15 |
| 7. | 58 | 52 |
| 8. | 136 | 133 |
| 9. | 41 | 41 |
| 10. | 44 | 43 |
| 6. : 5. | 81.0 | 83.3 |
| 7. : 1. | 17.9 | 15.9 |
| Radius | R | L |
| 1. | 251 | |
| 1b. | 249 | |
| 2. | 238 | |
| 3. | 39 | 37 |
| 4. | 14 | 14 |
| 5. | 11 | 11 |
| 3. : 2. | 16.4 | |
| 5. : 4. | 78.6 | 78.6 |
| Ulna | R | L |
| 1. | 269 | 259 |
| 2. | 241 | 232 |
| 3. | 34 | |
| 11. | 12 | 12 |
| 12. | 15 | 15 |
| 3. : 2. | 14.1 | |
| 11. :12. | 80.0 | 80.0 |
| R1. : H2 | 78.44 | |
| Femur | R | L |
| 1. | 441 | |
| 2. | 438 | |
| 6. | 22 | 23 |
| 7. | 26 | 27 |
| 8. | 81 | |
| 9. | 34 | 34 |
| 10. | 24 | |
| 18. | 43 | 44 |
| 19. | 44 | 44 |
| 8. : 2. | 18.5 | |
| 6. : 7. | 84.6 | 85.2 |
| 10. : 9. | 70.6 | |
| 19. :18. | 102.3 | 100.0 |
| Tibia | R | L |
| 1a. | 388 | |
| 8. | 29 | |
| 8a. | 32 | |
| 9. | 21 | |
| 9a. | 21 | |
| 10b. | 73 | |
| 9. : 8. | 72.4 | |
| 9a. : 8a. | 65.6 | |
| H1 : F1 | 73.47 | |


Fig. 82 Skeleton (1425), man, adultus I. (20 – 25 years), *patellae* with the notch *incisura vastus lateralis* located on the exterior edge. (Photo F. Engel)

eral differences!). The relief represents *symphysis ossis pubis* I.

Femurs are damaged, moderately robust, with median muscle relief without pilaster; the right femur is hyperplatymeric, with traces of proximal epiphysis accretion. Such traces are missing on the left femur. The *linea aspera* is weak. The vertical diameter of the right *caput femoris* is 43 mm and of the left 44 mm. A facet (small pad) is visible on the right front of the *collum femoris*. The well-preserved *patellae* are rather small, each with an *incisura vastus lateralis* located on the exterior edge (Fig. 82). Long bones of the right foreleg are damaged, the *tibia* is medium robust, the *fibula* is gracile and both show median MR. The *tibia* has adherent epiphyses, small retroversion, a distal knuckle facet and a median cross section of the V-type. Medium-sized *tarsalia*, long *metatarsalia* and some *phalanges* are preserved.

3.1.1.3. Metric characteristics: see Table 1

3.1.1.4. Variations and pathological changes: Schmorl's nodes occur on the cranial and caudal surfaces of the bodies of thoracic and lumbar vertebrae. A notch, *incisura vastus lateralis*, is found on the edge of each *patella*.

3.1.1.5. Conclusion: The morphology of the bones and the adhesion/fusing of the epiphysis on long bones seem to indicate a young man, approximately 168 cm tall (above median height), in the adultus I age group (20–25 years) at the time of death. Traces of degeneration are visible on the vertebral column. This fact, together with very pronounced *impressio ligamenti costoclavicularis* on the clavicles, may have been caused by heavy physical work. The notches on *patellae* might be consequences of excessive crouching (?).

### 3.1.2. Skeleton (1432) (burial [1431])

3.1.2.1. Preservation: Damaged, very gracile skeleton of a child with weak muscle relief (MR); parts of the axial skeleton are missing.

3.1.2.2. Morphological characteristics: The mandible is missing from the fragmented skull. The *ale majores* and *corpus sphenoidalis* identified but not conjoined; the front petal and the *sutura frontalis* are open. Remains of deciduous teeth: the maxillary *dens incisivus* 61 developed a complete crown, the first right molar (54) has an incomplete crown.

3.1.2.3. Metric characteristics: Diaphysis lengths of long bones: *humerus sin.* 77 mm; *radius dx.* 57 mm, *radius sin.* 62 mm, *femur sin.* 92 mm, *tibia dx.* 77 mm, *sin.* 78 mm.

3.1.2.4. Conclusion: Child, age 0–3 months (circumnatale).

### 3.1.3. Skeleton (1446) (burial [1428])

3.1.3.1. Preservation: A distal portion of the lower extremities of an adult: two parts of the *tibia sin.*, distal epiphysis of *fibula sin.*, *phalanx I. sin.*, diaphysis of *tibia dx.*, distal part of the fibular epiphysis, damaged tarsal bones, two fragments of a distal part of femoral epiphysis *dx.*(?).

3.1.3.2. Morphological characteristics: The distal parts of the lower extremities exhibit gracile to medium robustness; relief muscle insertions undetectable. Adherent distal epiphysis of *tibia sin.* and epiphysis of *phalanx I. sin.*; the diaphysis of *tibia dx.* is noticeably laterally flattened (transversal diameter in middle 15 mm, sagittal diameter in middle 29 mm, index of cross-section in middle of diaphysis is 51.7).

3.1.3.3. Conclusion: An adult female?

## 3.2. Skeletons from 19th Dynasty burials

### 3.2.1. Skeleton (1372) (burial [1372])

3.2.1.1. Preservation: A distal part of the lower limbs of a child.

3.2.1.2. Morphological characteristics: Gracile distal parts of lower extremities with weak muscular relief: both sides – *calcaneus, talus, os cuboideum, os cuneiformes lat., os cuneiformes intermed.* Four metatarsals without proximal epiphyses, distal tibia epiphysis *sin.*, distal phalanges, medium phalanx of a first toe.

3.2.1.3. Metric characteristics: Length of *calcaneus dx.* 35 mm, *calcaneus sin.* 34 mm.

3.2.1.4. Conclusion: 3- to 4-year-old child (*infans* I).

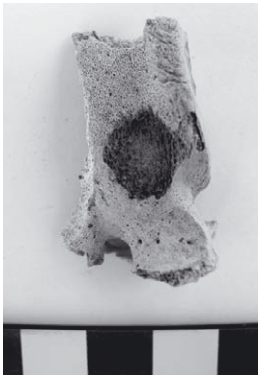


Fig. 83 Skeleton (1341), child, circumnatale (0 – 3 months), cranium, *os sphenoidale dx*. regular and circular damage (10 × 10 mm), a pathological lesion? (Photo A. Šefčáková)

### 3.2.2. Skeleton (1341) (burial [1333])

3.2.2.1. Preservation: Almost completely preserved skeleton of a very gracile child with weak muscular relief (MR); the surfaces of the bones are eroded.
3.2.2.2. Morphological characteristics: The back *fontanella* on the fragmentary skull is open. The two halves of the mandible are unfused. Approximately in the central part of the *os sphenoidale dx*. there is a regular circular aperture (10 × 10 mm, a pathological lesion?) (Fig. 83). A partially eroded *lamina externa* (anaemia?) is visible on the flat part of the bone.

Unerupted primary dentition. Maxillary incisives 51, 52, 61 and first molars (54, 64) developed complete crowns; incisives 52 and 61 also have parts of the necks. Incomplete crowns are developed in the right-side canine (53) and second molar (55?) of the *maxilla*. Arcs of well-preserved vertebrae are not conjoined. The bones of extremities are also present.
3.2.2.3. Metric characteristics: Diaphysis lengths of long bones: *humerus dx.* 75 mm, *sin.* 74 mm; *radius dx.* and *sin.* 61? mm, *tibia dx.* 76 mm, *sin.* 74? mm, *femur dx.* 89 mm, *sin.* 88 mm. Dimensions of *os ilium* c) *dx*. 39 mm, *sin.* 40 mm; d) *dx.* 32? mm, *sin.* 34 mm.
3.2.2.4. Conclusion: Child, age 0–3 months (*circumnatale*).
3.2.2.5. Animal bones: Two fragments of a dog (?) *mandible dx*., weathered and partially burned.

### 3.3. Anthropological analysis of the findings from season 2011

### 3.3.1. Skeleton (609) (burial [609[, early 20th Dynasty[140]

3.3.1.1. Preservation: Heavily damaged, fragmentary, very gracile skeleton of a child with weak muscle relief (MR).
3.3.1.2. Morphological characteristics: The maxillary *incisivus* 61 developed a complete crown.
3.3.1.3. Metric characteristics: Diaphysis lengths of long bones: *humerus sin.* 67 mm; *tibia dx.* and *sin.* 67 mm.
3.3.1.4. Conclusion: Child, age 0 ± 2 months (*circumnatale*).

## 4. Geology of the Tell el-Retaba site – a preliminary report

*JTrz*

### Introduction

The Tell el-Retaba archaeological site is situated in a long, natural depression, extending as an elongated, E–W-oriented structure between Cairo on the River Nile and Ismaïlia on Lake Timsah.[141] This natural depression is a wadi, a flat and wide ephemeral river valley in a desert area. The Tell el-Retaba site is located in Wadi Tumilat, which has a total length of about 52 km and a width between 2 and 9 km; in the easternmost tip of the western area it is known as Ras el-Wadi.[142] This is a natural tributary extending to the east from one of the main ancient branches of the Nile known as the Pelusiac Branch.[143] In the past, Wadi Tumilat was not only one of the waterways for floodwater of the Nile Delta but also a bridge between the ancient centre of Egypt situated right adjacent to the Nile in the southern part of the Delta and the Sinai Peninsula, the north-eastern part of the Delta and the Levant area.[144] So far, detailed geological research was not conducted in Wadi Tumilat and in the Tell el-Retaba site, and the geological data on the youngest Holocene of the area are rather scanty.[145] In turn, archaeological investigations have been carried out here in the last few years, recently by the Polish-Slovak archaeological mission.[146]

[140] See Rzepka *et al*. 2014, 67–68.
[141] Moshier and Hoffmeier 2015, 101–108.
[142] Redmount 1989, 1–38.
[143] Bietak 1975, 88–90; Redmount 1995, 127–135.
[144] Butzer 1976, 22–38.
[145] Said 1993, 69–78; Butzer 1959, 46–67.
[146] Rzepka *et al*. 2008; 2009; 2011; 2014.

## Locality of the investigations

In 2014, during a season of the Polish-Slovak mission, geological investigations were carried out twice in the Tell el-Retaba site: in April and in September. At first, the investigations were focused in the west area of the site, separated by a modern asphalt road from the east site. In September the investigations generally concentrated in the east area and its margins.

The west area constitutes only a small part of the site; it is triangular in shape with the longer side along the modern road to the east. This road crosses the entire site, dividing it into the west and east areas. Along the south-western boundary occurs an old asphalt road which surrounded the site prior to the construction of the modern road. This road reaches to the buildings located in the north-westernmost part of the west area, and in the south-easternmost part connects with the modern road.

The topography of the site is variable. To the north and north-east occurs the highest ground forming a distinct hillock, and the surface of the area gently dips to the south-west. Beyond the old road, the surface is flat and intended for farm-

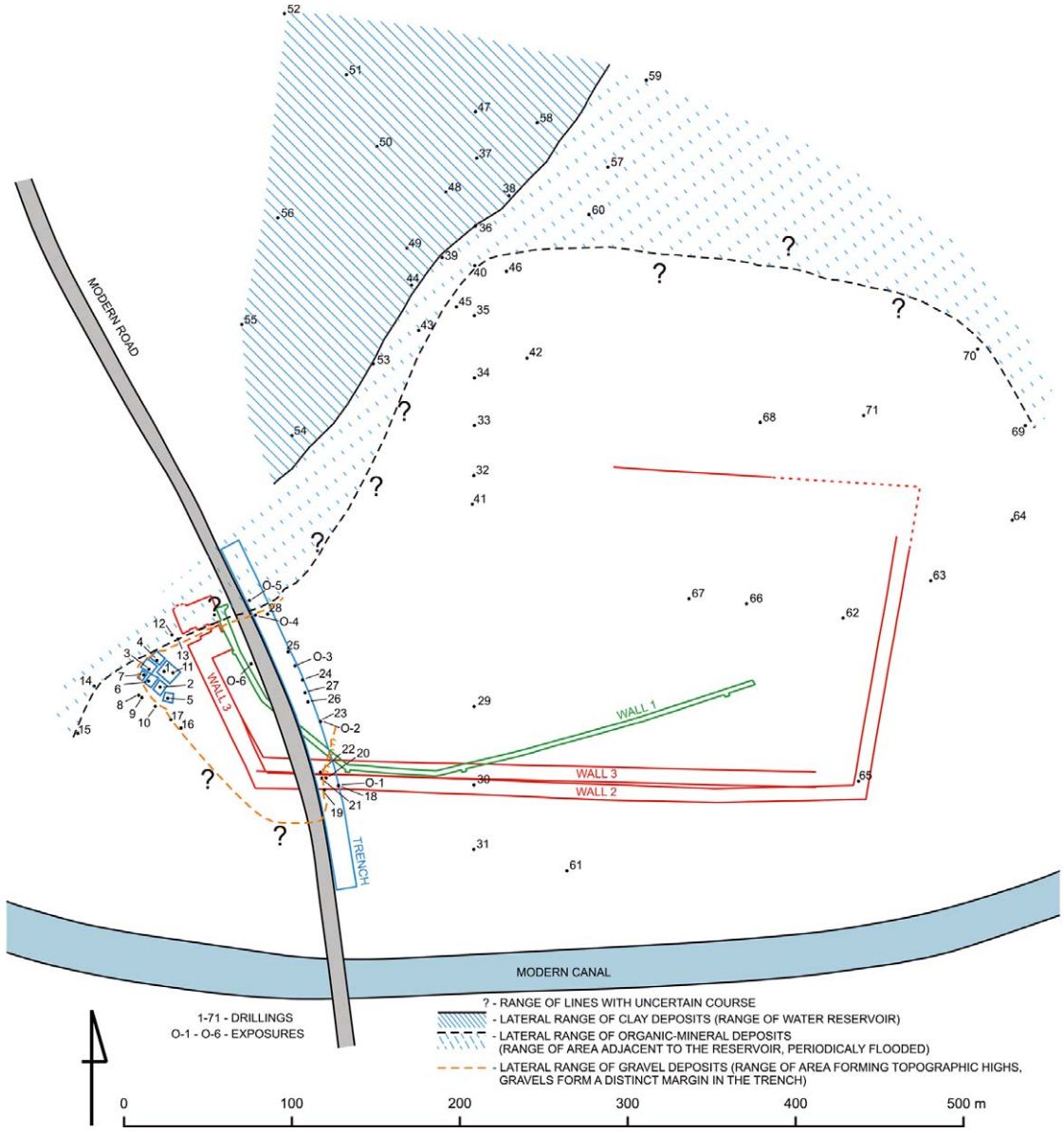



Fig. 84 Location map of the Tell el-Retaba archaeological site – geological drillings made during the 2014 season (1÷71 drillings, O-1÷O-6 – exposures) (drawing Ł. Jarmużek)

lands. In the western part of this area trenches were dug for a sacral object. The walls of these excavations were used as sections to describe the exposed beds. Additionally, drillings were made in the floor of each excavation to deepen the succession. A total of seven excavations has been made in the area, four to the south-west, two to the north-west, and the largest between the NW and SW trenches. A total of 17 drillings were made in the west area, 8 in the excavations, two above the excavations to the north-east, five along a dirt road and two beyond the buildings in the north-eastern part of the area with farmlands (Fig. 84).

In the spring season, preliminary investigations were also commenced in the east area. At the boundary with the modern road, this area is cut by a several metre deep trench extending along the road. The eastern and western walls of the trench are continuous sections, which cut the entire east area of the site (Fig. 85). The trench is approximately N–S-oriented and in the north terminates with an arc bent to the north-west. Five sections have been located in the trench (exposures O-1 to O-5); their walls were cleaned and the sections were deepened by an excavation and/or drilling. High lithological variability was noted within the trench. In the southern part of the trench, sand beds are generally exposed in the eastern wall and gravel beds generally in the western wall. Additionally, several drillings were made along the trench to determine the lateral range of sands and gravels. Eleven drillings were made in the trench and in the first season a total of 28 drillings was made. The location of exposures and drillings in the east area of the site is shown on the map (Fig. 84).

In September, geological investigations were conducted mainly in the east area and in directly adjacent areas. The east area is restricted from the west by the modern road, from the north it borders with a bazaar and a dirt road to the village, from the east with village premises and from the south with a modern channel. The highest elevation occurs in the central part of the area, from where the surface dips to the north, east and south. To the west it is flat ground extending to the trench along the modern road, from where it dips to the west area of the site. To the north the area gently dips to the lowest area covered with dense vegetation, and then slightly elevates and becomes flat (Fig. 86). To the east the surface dips less gently and becomes flat. From the north-east the area of the


Fig. 85 Trench along the modern asphalt road located on the western margin of the east area (photo J. Trzciński)

site continues into a large field of sand dunes forming a distinct transverse dune (Fig. 87). Aeolian deposits partly cover the gently dipping northern slope of the site and the surface in its central part, and continue to the west in the west area of the site. Geological investigations in the second season concentrated on drillings to map the east area. A N–S-oriented line was delineated across the site, along which the drillings were made. In the flat area to the north, the drillings covered the entire area surrounding the site, lying to the west and east from the N–S line. Similar surface map-

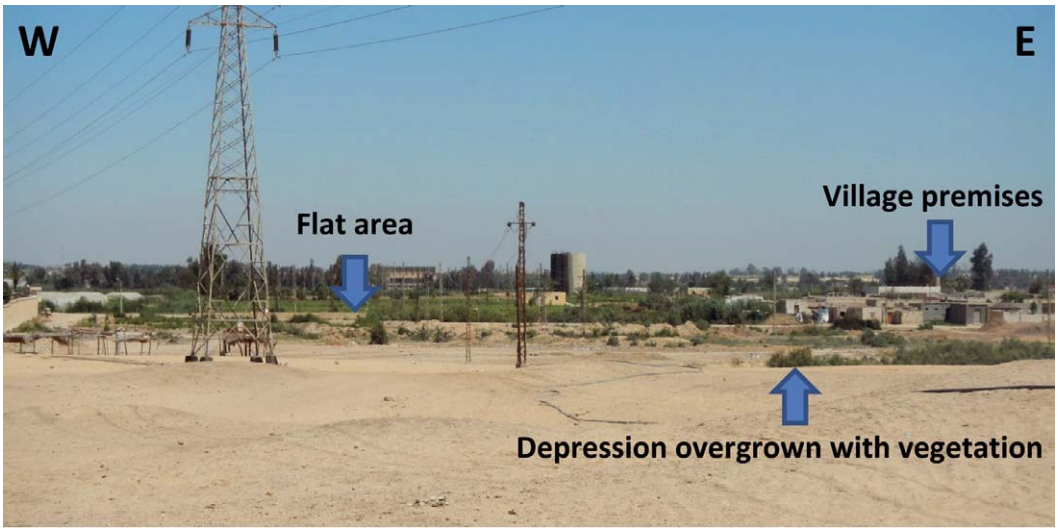



Fig. 86 East area of the site – view from central point towards the north (photo J. Trzciński)

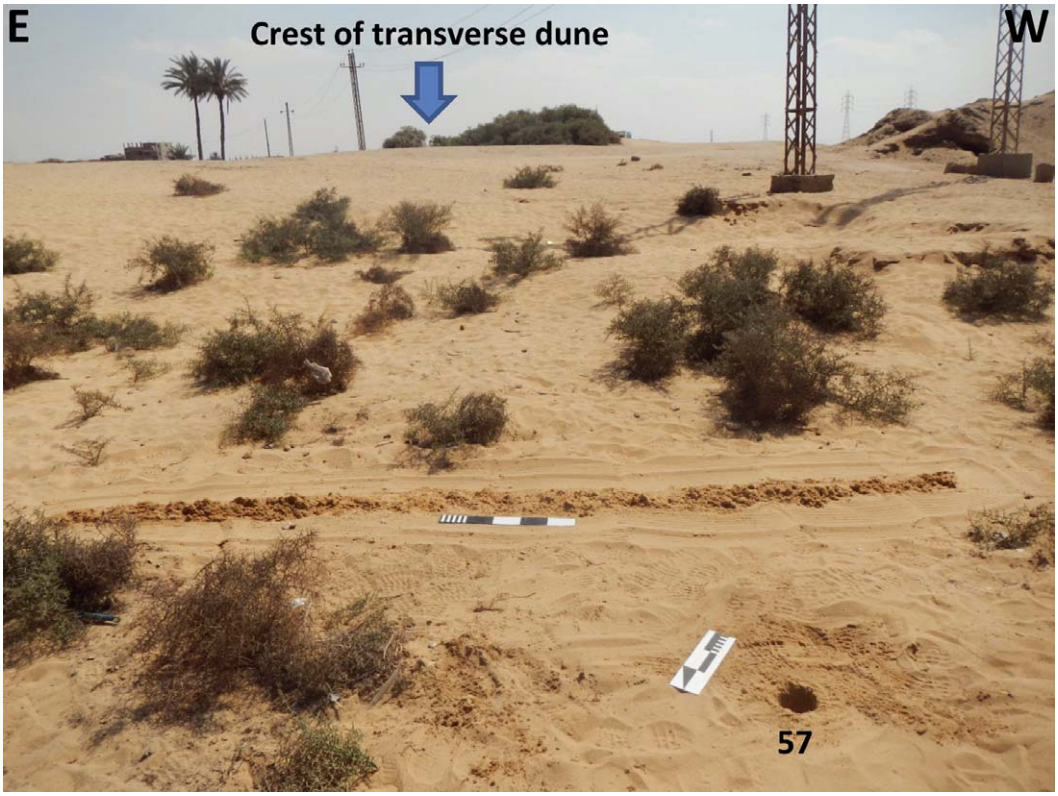



Fig. 87 North-eastern margin of the site. View towards the south on a NE-SW-oriented elongated dune field with a transverse dune overgrown with palm trees. Drilling no. 57 (see Fig. 84) visible in the lower part of the photograph (photo J. Trzciński)

ping was conducted in the flat area to the east, between the dune field, the village premises and the local channel. A total of 43 drillings was made in September; additionally one exposure was described (exposure O-6), located to the east of the west area near the modern road. The location of all drillings and exposures is presented on a map (cf. Fig. 84).

**Deposits occurring in the site and in the adjacent area**

*Sand facies*

The sand facies are exposed in the eastern part of the trench in the east area of the site and are particularly visible in exposure O-1 (cf. Fig. 84). The sand beds can be sub-divided into units differing in lithology and origin (Figs. 88, 89). The sands contain abundant, unevenly distributed pebbles. The pebbles are well-rounded to subangular, rarely angular. The 5–10 cm thick gravel interbeds are often visible. The sands are poorly laminated with the exception of the uppermost beds.

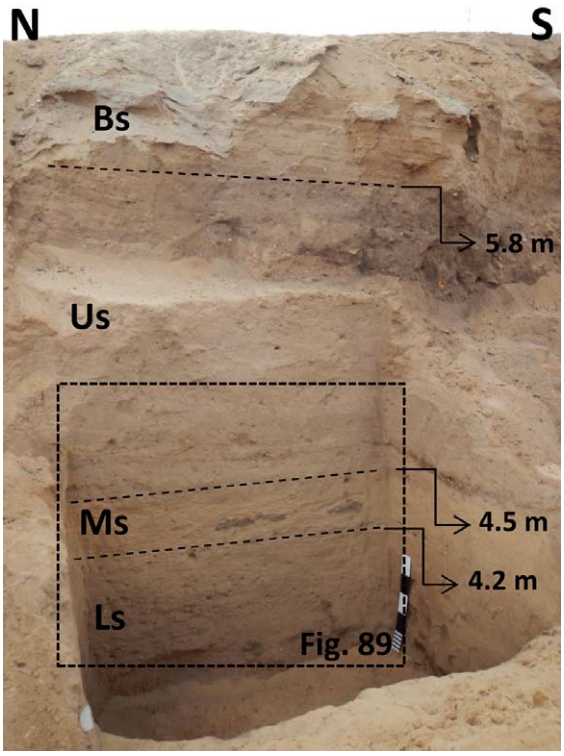



Fig. 88 Exposure O-1 – general view with sub-division into units: Ls – lower unit, Ms – middle unit, Us – upper unit, Bs – bedded unit. Relative position of unit bases and tops is shown on the right side of the photograph (approximate value above sea level). Detailed description in text (photo J. Trzciński)

Lower unit

The unit is 70 cm thick (cf. Figs. 88, 89). The sands are grey-yellow in colour and have indistinct bedding. In the lower part occur numerous gravels; they are randomly distributed or form oblique, S-dipping beds. The gravel beds contain randomly distributed, ash-coloured clay intraclasts (Fig. 89). The upper part of the unit contains 5 cm of distinctly laminated sands, emphasized by gravel. The deposits do not contain calcium carbonate (do not react with HCl).

Middle unit

The unit is 30 cm thick (cf. Figs. 88, 89). The sands are light-yellow in colour, have a nodular structure, and their tops and bases are indistinct. The beds dip to the south-west. The sands contain elongated, horizontally lying brick fragments. The brick fragments have strongly eroded top surfaces. Grain surfaces are frosted. The deposits do not contain calcium carbonate (do not react with HCl).

Upper unit

The unit is 130 cm thick (cf. Figs. 88, 89). The sands are grey in colour, passing upwards into light-grey and grey-black, and are composed of beds differing in grain size and uneven boundaries, dipping to the south at about 5°. The beds are emphasized by thin silt horizons. The uppermost beds are grey-black, massive or with poorly visible lamination, and comprise fine gravels, and fragments of pottery and bones. The deposits do not contain calcium carbonate (do not react with HCl).

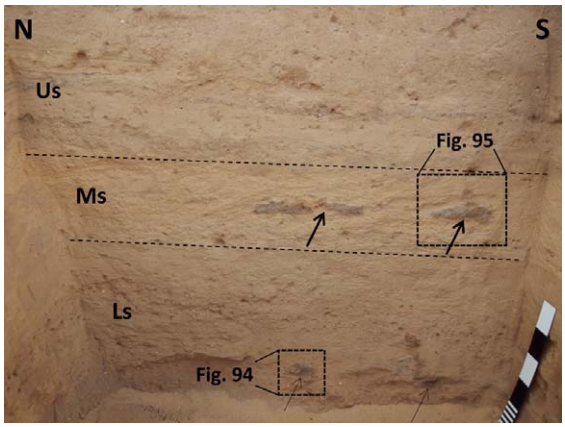



Fig. 89 Fragment of exposure O-1 marked in Fig. 88. Lower unit shows fragment of ash-coloured clay (marked with thin arrows) and middle unit shows fragments of mud bricks (marked with bold arrows) (photo J. Trzciński)

Bedded unit

This is the uppermost unit, attaining 60 cm and with distinct lamination emphasized by alternating light-grey to dark-grey horizons (cf. Fig. 88). The lighter layers are sandy and reach 2–5 cm in thickness, and the dark layers are clayey and are 0.5–2 cm thick. Occasionally gravel beds also occur. Pebbles are evenly distributed in the entire unit. The beds dip to the south. In horizontal cross-section the clay beds are strongly fractured (Fig. 90); exposure of their tops shows fractures on the surface in horizontal cross-section (Fig. 91). The fractures are rather unclear due to the crumpled top surface. The contribution of clay beds decreases towards the top, where they are replaced by sand beds with a small admixture of pebbles and pottery fragments. The unit does not contain calcium carbonate (does not react with HCl).


Fig. 90 Transversely fractured clay beds (arrowed) in the trench located to the south of exposure O-1. Dashed line marks the exposure of the horizontal surface in Fig. 91 (photo J. Trzciński)


Fig. 91 Exposed horizontal surface of the clay bed with desiccation cracks (photo J. Trzciński)

Synclinal structure

On the opposite side of exposure O-1, a synclinal structure is visible in the western wall of the trench (Fig. 92). The syncline limbs are gently bent upwards at their ends, and the syncline axis is W–E-oriented with a gentle western dip. In the thickest part, the syncline is 60 cm thick and extends on a distance of about 4 m. In the lower part of the structure occur sands with gravel and numerous pottery fragments. Towards the top the syncline is filled with interbeds of clay and sand. The clay beds are thicker, 2–3 cm, and the sand beds reach a thickness of 0.5 cm. The clay beds contain vertical cracks with the upper tips slightly curled towards the top (Fig. 93). The structures are similar to those observed in the opposite side of the trench in the strongly laminated unit (description above). Close to the axial part of the syncline occurs a small dome-shaped structure, composed of sands with pottery fragments (cf. Fig. 92).

Drilling no. 18

The drilling was made in the floor of exposure O-1 (cf. Fig. 84), additionally deepened due to the pres-

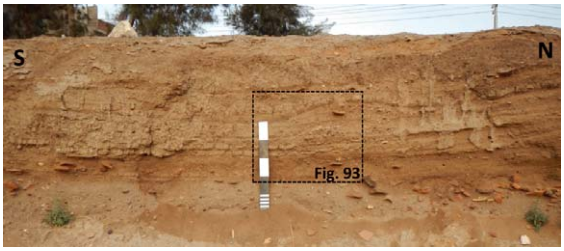



Fig. 92 A larger part of the synclinal form in the western wall of the trench (photo J. Trzciński)

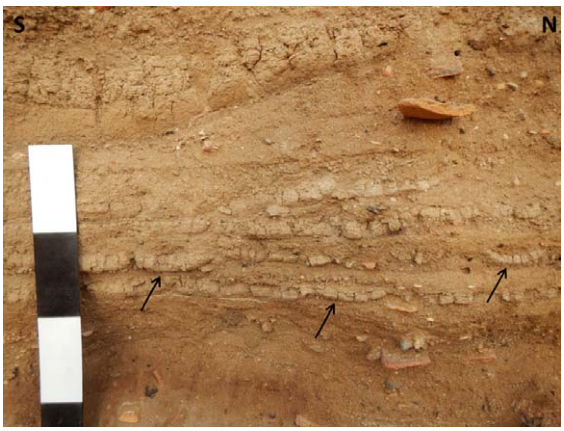



Fig. 93 Fragment of the synclinal form marked in Fig. 92. Clay beds with transverse fractures (desiccation cracks) with upturned edges (arrowed) (photo J. Trzciński)

ence of the groundwater table. The log is dominated by poorly sorted, light-coloured sands with grains 0.1–1 mm in size. Interbeds of gravel with 5 mm pebbles and grey-brown sand occasionally occur. The sand grains are polished. At the depth of 1 m occurs an interbed of fine, light-grey sand, with grain size of 0.1–0.5 mm, and rare pebbles with grain size of 5–10 mm. Below occur coarse-grained sands with grain size of 0.5–2 mm and with 3–4 mm pebbles. The grains are polished and the sands do not contain calcium carbonate (do not react with HCl).

Interpretation

The clay fragments observed in the lower unit represent mud balls, very common in this part of the succession; additionally pebbles occur frequently (Fig. 94). These features point to high-energy transport of the material on a short distance, and the nearby presence of clay sediments that were subject to erosion by flowing water and then washed out. This evidences that the deposits were formed due to redeposition of the gezira sands in a relatively more humid and probably cooler climate. Water reservoirs filled with clay sediments must have occurred close to the fortress. These sediments were exposed after water level fall and later washed out with high energy. At that time, water level highs must have occurred; they resulted from more intense supply from the branch of the Nile. This could have been caused by a local increase of rainfall in the Wadi Tumilat area, resulting in a local and short-term cooling, or regional increased rainfall in the Nile River basin, resulting in elevated water levels in the river and its branches.

The characteristic nodular structure occurring in the middle sand unit points to its aeolian origin, and the strongly eroded surface composed of fragments of mud bricks must have been subject to corrosive wind action, which additionally reinforces such interpretation (Fig. 95). The brick fragments are most probably derived from the oldest settlement stage in the site, the Hyksos Period; a cemetery from this period was discovered to the north and north-west of exposure O-1. The frosted surface of quartz grains indicates the aeolian origin of this bed. This means that the sedimentary conditions could periodically become drier, and a slight warming could also have taken place.

The upper unit represent deposits of short-distance surface flows in a clear NE to SW direction. Pottery fragments and bones found in these deposits are related to the functioning of the fortress during the 19th dynasty (Petrie's "Wall 1"). Exposure O-1 was at that time located beyond the fortress walls, and was the site in which all kinds of waste were disposed of. Silt horizons and grey-black deposits of this unit (cf. Fig. 88) probably derive from the erosion and washing out of mud bricks building the defence walls of the fortress. This part of the deposit indicates that again the sedimentary conditions must have changed into more humid with frequent rainfall.

The dismembered clay horizons occurring in the bedded unit represent typical desiccation cracks (mud cracks). They formed after deposition of sand, whose gently S-dipping surface was later covered by clay. The sands were deposited during

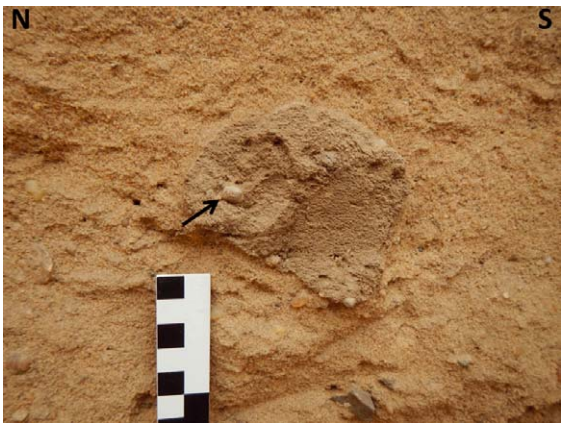



Fig. 94 Fragment of lower unit of exposure O-1. Ash-coloured mud ball with admixed pebbles (arrowed) – close-up from Fig. 89 (photo J. Trzciński)


Fig. 95 Fragment of middle unit of exposure O-1. Visible fragment of mud brick with eroded surface (arrowed) – close-up from Fig. 89 (phto J. Trzciński)

a short-term, rapid event in a water reservoir. Next, finer fractions were deposited and clay beds were formed. After such a cycle, a break in sediment supply took place, after which water partly evaporated from the water reservoir and partly infiltrated in the sediment. As a result, the clay bed dried up and cracked due to clay contraction. The destroyed surface of the dried beds points to the erosive activity of water flowing down the slope and carrying sand and clay. This part of the deposits represents diverse sedimentary conditions with short humid periods interchanging with short dry periods. Rhythmic slope sediments described in the eastern wall of the excavation near exposure O-1 probably represent a margin of a depression, which on the opposite wall of the excavation is up to 5 m wide and N–S-oriented. It was a small, shallow reservoir, in which rhythmic sand and clay deposits were accumulated. Each time after filling with water suspension and deposition of the material on the bottom, the reservoir dried up. Such cycles were repeated several (up to 10) times until the reservoir became completely filled with sediments. Its size and infilling with rhythmic sediments indicate a longer humid period with torrential rains interrupted by dry periods. The domination of polished grain surfaces in the entire succession points to the aqueous origin of the sands, whereas grains with frosted surfaces, of aeolian origin, occur sporadically. This unit may be related with the functioning of the fortress from the 20th dynasty (Petrie's "Walls 2 and 3") and the presence of a later settlement from the Third Intermediate Period.

Similar desiccation structures as those described from the upper unit occur also in the synclinal structure on the opposite side of the excavation. Here the clay beds are much thicker, which indicates a more central part of the water reservoir, and their tops are not as destroyed as in those located on the reservoir slopes and observed in the opposite wall of the excavation. The structure was probably formed along "Wall 2", in the southern part of the defence wall of the 20th dynasty fortress. The bed with abundant pottery fragments seems to represent a waste dump from the times of this fortress (Figs. 92, 93). The clay layers within the rhythmic deposits may derive from the destruction of mud bricks washed out by rain, of which the defence wall was constructed.

A drilling made in the floor of the excavation near exposure O-1 showed the presence of typical gezira sands, which originated during the activity of the easternmost branch of the Nile Delta.[147]

*Gravel facies*

Gravel beds are visible in the western wall of the trench along the modern road near its southernmost tip (Figs. 96, 97), and on the opposite side of the trench, in the eastern wall, near exposure O-2 (cf. Fig. 84) and its close vicinity (Figs. 98, 99). Gravel beds were noted also in drilling logs along the trench, from W 19/14 to W 28/14, and in excavations made in the west area (cf. Figs. 84, 100). The maximal thickness of the entire succession of gravel beds reached about 1 m.

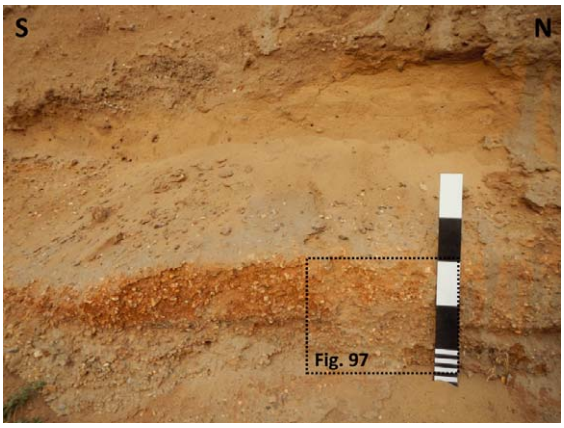



Fig. 96 Gravels exposed in the western wall of the trench on its southernmost end (photo J. Trzciński)


Fig. 97 Gravels – upper, rusty-coloured part. Enlarged fragment of Fig. 96 (photo J. Trzciński)

[147] Bietak 1975, 88–90; Redmount 1989, 20.

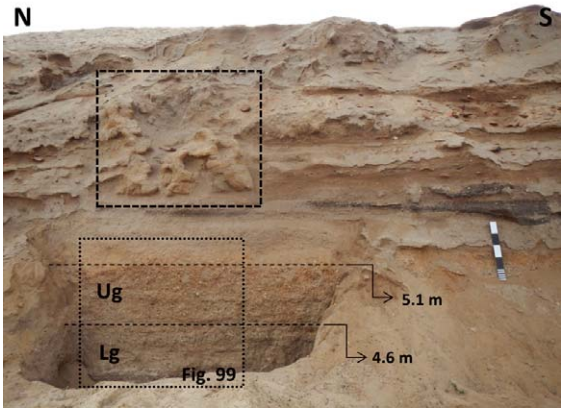



Fig. 98 Exposure O-2 showing gravels in the eastern part of the trench in the east area: Wg-upper bed, Lg-lower bed. Dashed rectangle marks remains of walls of workshops of the 19th Dynasty fortress. Relative position of bed bases and tops is shown on the right side of the photograph (approximate value above sea level) (photo J. Trzciński)


Fig. 99 Close-up of exposure shown in Fig. 98. Note oval structures (two left short arrows) and vertical structure (right long arrow). Detailed description in text (photo J. Trzciński)


Fig. 100 Salvage excavations in west area with gravel bed exposed. Drilling no. 1 located in the floor of the excavation (photo J. Trzciński)

Western wall of the trench

In the upper part of the succession (Figss 96, 97) the gravels are rusty in colour, and have a variable thickness, maximally reaching 50 cm. The pebbles are usually sub-rounded, but well-rounded and subangular grains, with diverse sizes from 0.5 to 3 cm, have also been encountered; the latter grains are usually bladed. Well-rounded pebbles comprise light-coloured quartz, sub-rounded grains represent light-coloured, dark-coloured and multi-coloured quartz, and sub-angular grains are usually white limestones. Single angular pebbles have also been noted. Limestone pebbles occur abundantly in the upper, rusty coloured part of the gravels. They are concentrations of calcium carbonate and their structure is nodular and friable – the grains fall apart at hand touch. The gravel deposits contain calcium carbonate (they react with HCl).

Upper gravel bed

In exposure O 2/14 the gravels are rusty-coloured and massive in the opposite side of the trench, in the eastern wall (Figs. 98, 99). However, they reveal oval structures close to their top (Fig. 100), infilled with the overlying light-grey sand with gravel. Directly above the rusty gravel bed occurs a lighter rusty coloured bed with a maximal thickness of 50 cm, averagely 10–15 cm, with significantly lower contribution in pebbles and without calcium carbonate (no reaction with HCl). This bed is extremely hard. The light and dark rusty coloured beds are cut by vertical structures (Fig. 100), 5 to 10 cm wide, filled with light-grey sand with gravel. The infilling shows indistinct bedding. The deposits contain calcium carbonate (react with HCl).

Lower gravel bed

The bed occurs below the upper bed, is light to dark grey in colour and shows distinct horizontal bedding (Figs. 98, 99). The transportation directions of the material cannot be determined. Gravel beds are often separated by beds of coarse sands, up to 10 cm thick. Graded bedding has been noted in the gravels and sands. Between the pebbles occur poorly sorted sand grains with sizes within 0.1–2 mm. Quartz grains have polished surfaces in the lower part of the bed and frosted surfaces in the upper part of the bed. The deposits do not contain calcium carbonate (do not react with HCl).

Drilling no. 23

A drilling was made in the floor of exposure O-2 (Fig. 84); the succession was deepened by 2 m and the groundwater table was reached. Till the depth of 0.8 m the log resembles the grey-coloured, lower gravel bed with interbeds of light grey sands. Below, to the depth of 1.1 m occur well sorted, light grey sands, with grain sizes of 0.3–0.6 mm, and with single pebbles 3–5 mm in size. Below, to the depth of 1.5 m the sands are composed of finer grains, they become grey-brown, and comprise silt and brown-coloured clay nodules. Beneath, to the depth of 1.9 m, occur grey silts with few clay particles. The base of this bed is much harder than the overlying deposits. The lowest 10 cm is represented by a soft sediment, saturated with water, represented by yellow-grey, coarse-grained sand with grain size at 0.2–2 mm, mixed with fine sand with grains below 0.1 mm, silt and clay. Mica flakes are common. Quartz grains have polished surfaces in the entire log and the deposit does not contain HCl (no reaction with HCl).

Interpretation

The strong cementation of the gravels lying directly on the rusty gravels in exposure O 2/14 and their lighter colour may indicate long utilization of this bed as the surface of the ground. A similar interpretation can be drawn for the oval and vertical structures infilled with material from the overlying bed. These are traces of utilization which after becoming abandoned were filled with overlying material. The bedding visible in the horizontal structure (Fig. 99) indicates an aqueous infilling. This fact points to a relatively humid period with rainfall. Polished quartz grains in the rusty gravels also indicate the aqueous origin of the sediments, whereas the overlying beds contain grains with frosted surfaces, evidencing aeolian and/or weathering origin. This is additional proof of long utilization of this part of the deposit, which could be subject to local blowing out prior to the period of human activity in the area, that is before the arrival of the Hyksos, who dug their tombs in this deposit. Limestone pebbles, which are concentrates of calcium carbonate, must have originated due to long-term weathering of the gravels in desert conditions, in the period directly preceding the beginning of settlement in the area. The gravels represent the oldest deposits in the Wadi Tumilat area, occurring directly on the gezira sands. The wadi as an erosional depression within the Nile Delta was one of its branches, in which water periodically flew between the Nile and the sea.[148]

Graded bedding in the gravels and sands indicates their fluvial origin and points to an environment with high-energy flow that periodically decreased the transportation energy. The rusty colour and obliteration of primary bedding in the upper part suggest long-term, intense weathering in a dry and hot climate. This part of the succession contains fractured quartz grains, grains with a siliceous coating, and flints with ring structures (alternating substitution of fine-grained silica by coarse-grained, porous silica). These features point to intense surface weathering with large differences between daytime and night-time temperature.

The log of drilling no. 23 suggests that the gravel beds represent the topmost part of the gezira sands. During the development of the ancient Nile Delta, they constituted the final infilling of the area with deposits, which took place at the end of the Neogene. In a subsequent stage, weathering of the surface took place in dry climate and at high temperatures, alternating with humid periods. Next, the surface of gravels and gezira sands was eroded by the overflowing waters of the Nile, which periodically also entered the Wadi Tumilat.

*Drilling logs*

A significant supplementation to the data on the palaeotopography and palaeogeography of the study area are drillings made in areas directly adjacent to the site. The drilling made in the west area and in the trench across the east area near its western margin have allowed to determine the range and position of the top surface of gravels directly overlying the gezira sands; the range of gravels in the south-western part of the site was described above. Subsequent drillings made in the southern part of the trench, between drillings no. 22 and no. 19 (Fig. 84) have not evidenced the presence of gravels, which are replaced by grey-coloured, poorly sorted sands. Successive drillings made in the trench towards the north (from no. 23 to no. 28) have again pierced through gravels, the thickness of which systematically decreased in this direction. The presumed range of the gravels in the study area is shown in Fig. 84.

[148] Said 1993, 71–73.

Clays were drilled in the northern, lowermost part of the site (Fig. 86). The southernmost occurrence of these deposits is drilling W 36/14 (Fig. 84). A succession of ash-coloured sands with interbeds of clay and plant remains was drilled here. Similar deposits occur in drillings W 38/14 and W 39/14. To the north, the contribution and thickness of clays increases, particularly to the west from the N–S line (Fig. 84). To the east of this line, clay deposits occur in drillings to the north, whereas to the south their contribution is smaller. In the north-eastern part of the site occurs a large transverse dune, extending from the east to the west (Fig. 87). Additionally, the west area also contains thin clay beds; they were encountered in drillings located to the west (nos. 3, 4, 7, 14 and 15) (Fig. 84).

Three drillings nos. 30, 31 and 61 were made in the area located to the south of the site (Fig. 84); they showed the presence of alternating, light- to dark-grey sands, silts and gravels.

Interpretation

In the west area of the site occur discontinuous gravel covers, which form local, small, 1 m high elevations. In the trench, the gravel cover terminates to the south, forming a steep, S-dipping slope. The slope has a NE–SW orientation (Fig. 84). Moreover, diluvia occur at the slope foot; they are slope deposits that originated during gravitational slide of sands and gravel along the slope and their mixing at the slope foot. To the north of the trench, the gravels disappear on a small distance, to reappear again further. In the northernmost part of the trench, gravel beds lying on the gezira sands have a gentle dip. Analysis of gravels from the entire site shows that the deposits formed low, flat elevations with a depression between them. The depressions were periodically flooded with water which left clay sediments. Diluvia formed on the steeper slopes. Most probably, the defence walls of the 19th dynasty fortress were located near the margins of the gravel cover, which may explain the irregular plan of this fortress that probably matched the topography of the area at that time.

Deposits noted in drilling no. 36 point to the presence of a margin of a larger water reservoir (Fig. 84). The ash colour of the sands, a thin clay bed and plant remains found in the sediment point to shallow water overgrown by nearshore water vegetation. Similar deposits were noted in drilling no. 38 located to the east, and drilling no. 39 located to the west of no. 36, which indicates that the reservoir margin extended at the same height more or less perpendicularly to the N–S line. Drilling no. 45 evidenced the same sediments as drilling no. 36, suggesting that to the west the reservoir was deeper southwards. Subsequent drillings to the west of drilling no. 54 indicate that the reservoir extended to this locality and probably beyond the modern road. Such a course of the shoreline is suggested by deposits noted in the west area in drillings no. 14 and no. 15, in which thin clay beds occurred. This was the shallow reservoir margin that surrounded the fortress from the west. It can be assumed the reservoir represent the "ponds of Atum" mentioned in Papyrus Anastasi VI, which were visited by the Bedouins from the Sinai to water their herds.[149] Periodically the reservoir widened or contracted, which is evidenced by the log of drilling no. 40 with alternating clay and sand beds.

The northernmost drillings along the N–S line (no. 47 and no. 48) have the most complete succession of clay deposits, including black, strongly compacted clays. Similar grey-black clays were noted to the east of the N–S line (Fig. 84); they probably occur further to the north from the site, whereas to the east is present a wide, flat area, periodically flooded to the south. The transverse dune occurring in this area confirms an earlier suggestion of a flat ground, which must have been a wetland and was periodically flooded; this is evidenced by thin interbeds of clays noted in the easternmost drillings. Such a wetland was an area, in which aeolian sands were captured and accumulated in form of a dune.

Drillings made to the south of the site indicate only the presence of the gezira sands (nos. 30, 31 and 61). Drilling no. 65 (Fig. 84) made near the corner of the fortress wall from the 20th dynasty (Petrie's Wall 2) in the south-eastern edge of the site has evidenced that in this locality the wall was built directly on the gezira sands. The 20th dynasty fortress has a distinctly different outline than the 19th dynasty fortress. It is much larger and follows the shape of a rather regular rectangle. It seems that the 20th dynasty constructors – in contrast

[149] Goedicke 1987.

with those from the 19th dynasty – did not build the defence walls on the margins of the gravel covers.

## Summary

Geological investigations conducted in the Tell el-Retaba site allow to draw the following preliminary conclusions:

1. The area of the site was shaped by the accumulation of the river – a branch of the Nile with an easternmost connection with the sea,
2. Wadi Tumilat is a depression formed in course of erosional-denudation river activity; remnant erosional outliers (gravel deposits) cover the Wadi area,
3. The site was an erosional outlier – an island – whose surface dipped steeply to the south and gently to the north,
4. In Hyksos times, the ground was utilized for the first settlement,
5. The natural topography was used to construct the first fortress during the 19th dynasty,
6. Low ground occurred to the north of the site; it was utilized by a large water reservoir which surrounded the area with the fortress,
7. To the west and partly to the east, the land surrounding the fortress was also flooded with water.

## 5. Pedological survey

*EF*

Data on soil conditions are particularly useful for reconstructing the paleo-environment of the site and its surroundings and for the investigation of the embedding of foundations of ancient architecture, their statics and durability. The pedological survey conducted this season enriched the archaeological interpretation of the studied area by contributing significantly to the knowledge of the natural environment in which ancient Egyptians made their livelihood, as well as of their economic base and technological development. The processing of the data obtained from the chemical and physical analyses of samples currently deposited in Egypt will be crucial for the final evaluation of the survey results.

Taking into account the needs of archaeological research, it is possible to draw specific conclusions concerning the paleo-environmental conditions in the studied settlement area. Tell el-Retaba was located on the bank of a Nile branch. Before the settlement was established, the land was formed by accumulation of sandy alluvial sediments covered by aeolian sands on the surface. Typical carbonated fluvial soils developed on the sandy sediments of this alluvial plain, where the water table was close to the surface. The environment was not swampy (although ground water level was relatively high), possibly due to the sandy texture and good infiltration capacity of the soil. It was possible to use the land for grazing. However, due to the high permeability of the soil, its rapid drying and poor capillary rise, agriculture required irrigation. The fertility of the area was also limited by the fact that the rich suspended sediments of river silt or loam that fertilized the soil in the central parts of the Nile Delta did not reach this area (as indicated by an investigation of selected soil profiles – Fig. 101).

The settlement was founded on an elevated, drier gravel bench free of ground water influence. The gravel soil was significantly drier than the surrounding area, as evidenced by the strongly developed rusty weathering soil horizon (cambic Bw horizon). The soils of this area developed during a significant arid period in the Holocene. However, humidity increased later on, perhaps even prior to the establishment of the settlement, but also during its lifetime. This is evidenced by secondary calcification of weathered and rusted B-horizon and by formation of carbonate and manganese nodules and coatings. The prolonged soil humidity during the settlement period is also evidenced by manganese coatings on stones and skeletons in the Hyksos graves. However, this was not a water-logging in the true sense of the word. The tombs, which had a lower density of soil material infilling than their surroundings, were also more likely to collect humidity from the surrounding deposits by lateral flow.

A water-logged depression has been identified beyond the walls of the north-west edge of the site. Humolit soil formed in the depression during the settlement's existence. It probably emerged as a result of local conditions, which reflected a change in climate and in the flow regime. However, it might have also come into being as a result of anthropogenic action affecting the run-off regime (e.g. the use of irrigation). The location of the water-logged site behind the Tell el-Retaba hill opposite to Nile arm shows that the water-logged site and clayey sediments could have formed because when flooding occurred; the floodwaters flowing round the hill on two sides converged behind it, losing their speed and transporting capacity at the meeting point.

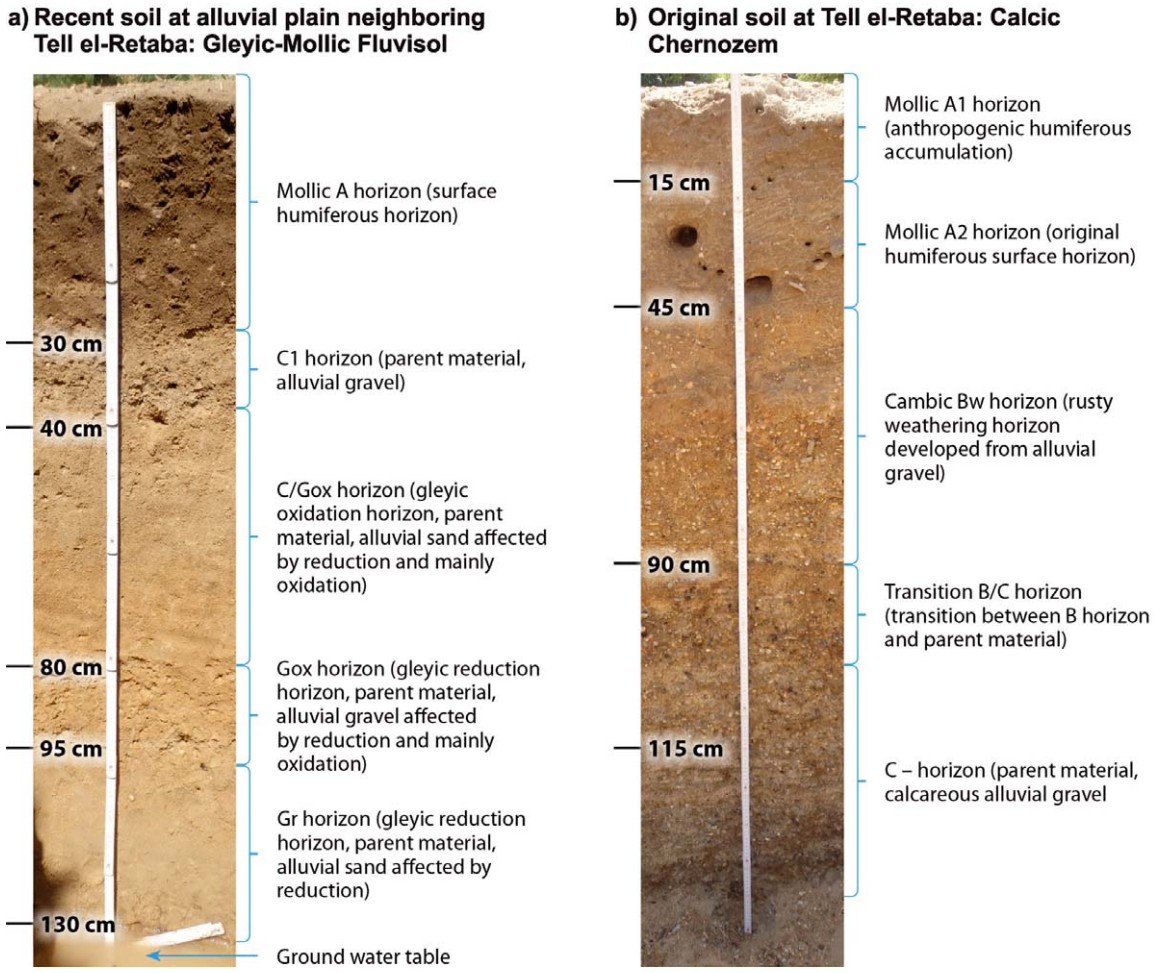



Fig. 101. Comparison of soil profiles of a) recent soil on alluvial plain neighboring Tell el-Retaba and b) original soil at Tell el-Retaba (photo E. Fulajtar)

## 6. Geophysical survey

*JT*

In 2014 the survey reviewed an area in the western part of the fortress using the magnetic method. The method had already proven the most effective in mapping mud brick architecture. The underlying layers consist of sand and gravel; the same material is the main constituent of those layers filling and covering mud brick structures with considerable magnetic susceptibility circa $2\times10^{-3}$ SI.[150] The magnetic survey system MAGNETO® DLM 1-channel was used for the detection of ferromagnetic objects and structures. The data logger DLM98 was used for data logging and digitization. The data were processed and interpreted by the SENSYS MAGNETO® software. Magnetic measurements were obstructed by the presence of iron garbage and by previous excavations, which lowered the clarity of the magnetic images. On the resulting magnetic map the anomalies caused by recent iron objects have been removed. Only the magnetic anomalies reaching values of –20 to 20 nT were kept, as they likely indicate archaeological structures. For the result see the map (Fig. 102).

[150] Rzepka *et al*. 2009.

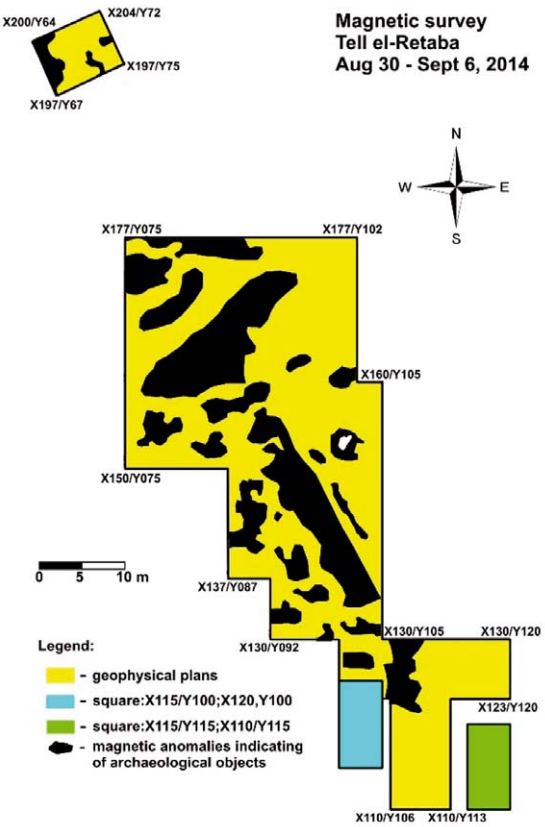



Fig. 102. Results of magnetic survey between areas 4 and 7 (processing J. Tirpak)

## 7. Engineering survey

*MČ*

Several structures (fortress walls, houses, outbuildings, etc.) with foundations and wall fragments in varying states of preservation were uncovered on the site. All of them were made of mud bricks, although in some cases the building material was probably reused (e. g. "recycling" of 18th Dynasty mud bricks from "black houses" on top of the core of "Wall 1"?). Observations in the section through "Wall 1" might indicate the use of distinctive greenish mud bricks in the lower part of its outer extension and also on top of the wall's core. The mud bricks were probably applied due to the ruined state of the core prior to building the wall's extensions – thus, the core of the wall was partially destroyed and had to be reconstructed, as well as raised.

The recorded foundations of mud brick walls on the site are relatively shallow, given the modern knowledge of foundation design and examination of stresses, as well as strains in subsoil in relation to the foundation load. From the point of view of stress analysis, any retrospective examination of foundations requires verification of individual limit states:

– Ultimate Limit State (bearing capacity of the subsoil);
– Limit State of Serviceability (subsoil settlement)
– Foundation material failure, eventually overload of building material strength (e. g. mud bricks, mortar, etc.)

In accordance with the bearing capacity check, preliminary stress analysis calculations allowed to estimate the maximum dimensions of the migdol towers and defence "Wall 2". With the given dimensions of the tower's ground plan at 14.0 × 22.5 m, the tower could have been built up to a maximum height of around 15.0 m. Based on the width of the foundations of "Wall 2" estimated at about 9.0 m, the maximum height of the wall could have been about 12.0 m and the width at the top could have reached ca. 6.5 m.

The calculation of the bearing capacity of the subsoil was performed on the basis of observations made at the site using currently valid Eurocodes in order to also take into account the ancient structure's safety factor. Although the constructions were not analysed with such precision in ancient times, their extreme longevity justifies the correctness of including a safety margin, especially since the subject of the investigation was a military installation with higher stability requirements.

Paradoxically, also destructive agents (construction activity, sabbakhin, etc.) provided opportunities to observe the stratigraphy and study the soil conditions. Naville's trench through the northern migdol tower permitted to reconstruct its building process, observe its foundation parameters and determine its relationship to "Wall 1".

Several mud bricks and subsurface sand samples were analysed on the site to check and verify some of the boundary conditions. They were tested and analysed using the resources available in the field, mainly to obtain basic information on mud brick composition, density, dimensions, walling technique, etc., to indirectly determine the approximate strength of the mud bricks.

The analysed bricks contained some additional ingredients like pebbles and pottery shards, but no straw or animal hair. This observation is in agreement with evidence for the practice of using

stronger bricks in foundations and lower parts and lighter bricks more often in upper parts of walls.

More detailed research on the bricks can be conducted in a laboratory where standard granulometric analyses are performed, with densimetric tests allowing to draw grading size curves for fractions 0.001 – 0.125 mm, as well as screening tests with a set of standard sieves for fractions 0.125; 0.25; 0.5; 1.0; 2; 4; 8; 16 and 32 mm.[151]

The acquired data, in addition to verifying the estimated dimensions of the structures, would suggest correlations and elucidate procedures for building-up and usage of materials in specific parts of buildings. It would also reveal technological details through analyses of geo-engineering conditions, the state of the structure in antiquity and the properties of the individual types of mud bricks (e. g. black, greenish, sandy-yellowish, stony, etc.), for instance their dimensions, density, grain and additives.

Another helpful method would be to test the bricks' compressive strength. Field tests of soil to specify the shear strength and deformation modulus of subsurface soils could also prove useful. The abovementioned analyses are planned for next season**.**

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# RAMESSIDE AND THIRD INTERMEDIATE PERIOD BONE REMAINS FROM TELL EL-RETABA[1]

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The subject of this paper is the osteological material consisting of 9202 animal remains recovered during the excavations in 2011, 2012 and spring 2014 in area 9 in Tell el-Retaba (see fig. 1 in Malleson in this volume)[2]. The stratigraphic layers and artefacts which were associated with animal bones come from several chronological phases during which the site was occupied, dated to the beginning of the Hyksos period until the Late Period (table 1). The present report concerns only the material from area 9, where Ramesside and Third Intermediate Period remains are abundant, while Hyksos remains have been so far uncovered in a single, small trench only, and the Late Period remains are almost completely gone due to the denudation of the site. Excavations in areas 4 and 7, in the western part of the site, have delivered rich materials from the Hyksos Period and the 1st half of the 18th Dynasty – these materials will be a subject of a separate study.

The archaeozoological examination was performed according to standard rules and procedures. The bird and mammal remains were identified zoologically to the lowest possible taxonomic level (species, genus or order). In the case of examination of bones and teeth of sheep and goat, identification guidelines provided by zoologists and archaeozoologists were used[3]. Equids were identified according to the diagnostic features described in Baxter's work[4]. Bird bones were identified zoologically and anatomically by Professor Teresa Tomek (Institute of Systematics and Evolution of Animals of the Polish Academy of Science in Cracow) on the basis of comparative collection and references[5]. Mollusc shells and fish bones were separated from the material and counted, and in the future they will be the subject of another study. The age of domestic mammals was estimated on the basis of the stage of development of the bones, as well as the stage of development and wear of the teeth[6]. The sex was estimated on the basis of sexual dimorphism features visible on bones and teeth such as the shape of canines and canine dental alveoli for pigs and the presence of canines for equids. Bones were measured according to the unified method[7]. Kiesewalter and Koudelka coefficients[8] were used to calculate wither heights of horse and dog. In addition to that, anthropogenic and post–depositional marks on the bones were analyzed[9]. The state of preservation of faunal remains was rather bad. Some bones showed marks of gnawing by carnivores, most likely dogs, and weathering marks formed when the remains were exposed on the surface of soil or after they were placed in the deposit. For this reason, a significant part of the material (21.61 %) was not identified zoologically, nevertheless, it seems that a large number of small unidentified fragments came from the skeletal elements described in detail.

Generally, the analyzed osteological material consisted mainly of mammal remains, which accounted for 64.00 % of the assemblage. Another relatively large group included skeletal elements of fish (32.49 %). There were much fewer fragments of birds and shells of mussels and snails (table 1).

The bone material was divided according to chronological phases and archaeological context (tables 1–4).

1. Hyksos Period
2. 19th Dynasty (phase E2)
3. 20th Dynasty (phases D1-D3)
4. Third Intermediate Period (phases C1-C4)
5. Late Period

The chronological phases were represented by a varied number of remains. Assemblages dated to

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[2] For the excavation reports see: Rzepka *et al*. 2014, esp. 64–93 and Rzepka *et al*. in the present volume.

[3] Schramm 1967, Zeder and Lapham 2010.

[4] Baxter 1998.

[5] Woelfle 1967 and Gruber 1990.

[6] Silver 1970.

[7] Von Den Driesch 1976.

[8] Von Den Driesch and Boessneck 1974.

[9] Lyman 1994.

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Table 1 Bone remains (number of identified specimens) from Tell el Retaba, area 9, excavations in 2011, 2012 and Spring 2014

| Taxa | Hyksos Period | 19th Dynasty | 19-20th Dynasty | 20th Dynasty | TIP | Late Period | Total |
|---|---|---|---|---|---|---|---|
| Cattle | | 22 | 22 | 190 | 347 | | 581 |
| Pig | | | 49 | 19 | 464 | | 532 |
| Sheep | | 2 | 9 | 20 | 68 | 3 | 102 |
| Goat | | 1 | 5 | 33 | 70 | 1 | 110 |
| Sheep/goat | 2 | 15 | 59 | 126 | 359 | | 561 |
| Horse | | | | | 357 | 1 | 358 |
| Donkey | | | 17 | 28 | 377 | | 422 |
| Mule | | | | 7 | 68 | | 75 |
| Eguids | | 7 | | 12 | 272 | | 291 |
| Dog | | | | | 632 | | 632 |
| Cat | | | | 13 | | | 13 |
| Carnivores | | | 3 | 1 | 9 | | 13 |
| Red fox | | 2 | | | | | 2 |
| Gazelle | | | 3 | 22 | 34 | | 59 |
| Medium size ruminant | | | 2 | 65 | 21 | | 88 |
| Hare | | | | | 2 | | 2 |
| Hedgehog | | | | 3 | 2 | | 5 |
| Rodent | 1 | | | | | | 1 |
| Mammals | 3 | 49 | 169 | 539 | 3082 | 5 | 3847 |
| Birds | 3 | 3 | | 25 | 30 | | 61 |
| Fish | 8 | | | 82 | 2900 | | 2990 |
| Bivalve | 3 | | 40 | 100 | 118 | | 261 |
| Snails | | | 1 | 7 | | | 8 |
| Unidentified | 1 | 110 | 49 | 207 | 1657 | | 2024 |
| Homo | | | 1 | | 10 | | 11 |
| Total | 18 | 162 | 260 | 960 | 7797 | 5 | 9202 |

the Hyksos Period and the Late Period were excluded from further analysis due to very limited sample sizes as they include 18 and 5 fragments respectively (table 1).

## Ramesside Period

The assemblage dated to the 19th Dynasty consisted of 162 remains, 52 of which were identified (tables 1–2). Most of them belonged to domestic mammals (cattle, sheep, goat and equid). In addition to that, two fox bones were found; on the basis of the measurements they could be attributed to Red fox (*Vulpes vulpes*). Three bones came from birds: Eurasian coot (*Fulica atra*) and the Anatidae (table 4).

The assemblage from layers dated to the 20th Dynasty (phases D1–D3) consisted of 960 faunal remains (tables 1–2). Mammal bones dominated among the identified elements. Sheep and goat remains had the biggest share of domestic animal bones (39.87%), followed by cattle, then bones and teeth of equids (including donkey), pigs and cat. 87 fragments probably belonged to gazelle and represented two species which differed in size – Dorcas gazelle and another, bigger species. There were 25 bird bones (table 4): common ostrich, great black cormorant (*Phalacrocorax carbo*), European shag (*Phalacrocorax aristotelis*), ducks (garganey and mallard), Eurasian coot (*Fulica atra*) and snakebird *(Anhinga anhinga*). Apart from that, there were fish bones (82 fragments), mussel shells (100 fragments) and snail shells (7 fragments).

Another assemblage contained bones dated to the 19th – 20th Dynasties. This one also consisted mainly of domestic mammal bones with the largest share being sheep and goat, followed by pig (tables 1–2).

Table 2 Animal bone remains in the archaeological context from the Ramesside Period

| Taxa | 19th Dynasty, phase E2 | 19th-20th Dynasty, phase E1, building [815/825],[10] room 3 | 19th-20th Dynasty, phase E1, dumping place | 20th Dynasty | 20th Dynasty, phase D4, building [1247][11], floor | 20th Dynasty, phase D4, building [1247], filling | 20th Dynasty, phase D4 | 20th Dynasty, phase D3, street along "Wall 3"[12] | 20th Dynasty, phase D3, building [834/838], room XIII.5, floor | 20th Dynasty, phase D3, building [834/838, room XIII.5, filling | 20th Dynasty, phase D3, building [834/838], room XIII.6 | 20th Dynasty, phase D3, building [834/838], rooms IV.5 and IV.6, floors | 20th Dynasty, phase D3, building [834/838], rooms V.1 and V.6 | 20th Dynasty, phase D3, building [834/838], unit VII, floors and fillings | 20th Dynasty, phase D2, deposits related to the annex of the building [834/838] ([793], [797], [798])[13] | 20th Dynasty, phase D2, building [843/838],[14] unit VI+VII+VIII, floors and filllings | 20th Dynasty, phase D2, building [843/838], room V.1+6, floor | 20th Dynasty, phase D2, building [843/838], room XII.2, filling | 20th Dynasty, phase D2, building [834/838], room XII.4 | 20th Dynasty, phase D2, building [834/838], room XIII.2, floor | 20th Dynasty, phase D2, building [834/838], room XIII.6 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cattle | 22 | 2 | 20 | 9 | | 3 | 121 | | 2 | 36 | | 1 | | 3 | 13 | 2 | | | | | | | 234 |
| Pig | | 1 | 48 | 5 | | | | | 3 | 1 | 1 | | | | 4 | | | | | | 4 | 1 | 68 |
| Sheep | 2 | | 9 | | | 2 | 10 | | | | | 2 | | | 5 | 1 | | | | | | | 31 |
| Goat | 1 | | 5 | 1 | | | 8 | | | | 18 | | 1 | | 1 | 4 | | | | | | | 39 |
| Sheep/goat | 15 | 4 | 55 | 12 | 3 | 20 | 19 | 6 | | 3 | | 4 | 1 | | 20 | 33 | | 4 | | 1 | | | 200 |
| Donkey | | 4 | 13 | | | 15 | | | | 3 | | 10 | | | | | | | | | | | 45 |
| Mule | | | | 7 | | | | | | | | | | | | | | | | | | | 7 |
| Eguids | 7 | | | | | | | | | | | | 1 | | | | | | | | | | 19 |
| Cat | | | | | | | | | | | | | | | | | | | | 13 | | | 13 |
| Carnivores | | 1 | 2 | | | | | | | | | 1 | | | | | | | | | | | 4 |
| Red fox | 2 | | | | | | | | | | | | | | | | | | | | | | 2 |
| Gazelle | | | 3 | | | | | | | | | | | | 12 | | | | 10 | | | | 25 |
| Medium size ruminant | | | 2 | 33 | | | 31 | | | 1 | | | | | | | | | | | | | 67 |
| Hedgehog | | | | | | | | | | | | | 3 | | | | | | | | | | 3 |
| Mammals | 49 | 12 | 157 | 78 | 3 | 40 | 189 | 6 | 5 | 44 | 19 | 18 | 6 | 3 | 55 | 40 | | 4 | 10 | 18 | 1 | | 757 |
| Birds | 3 | | | | | | | | 2 | | 3 | | 3 | | | 8 | 9 | | | | | | 28 |
| Fish | | | | 22 | | | | | | | | | 17 | | 40 | | | 3 | | | | | 82 |
| Bivalve | | 1 | 39 | 12 | | | | | | | | 2 | 3 | | 32 | 31 | 10 | 3 | | 7 | | | 140 |
| Snails | | 1 | | | | | | | | | | | 1 | | 1 | | 5 | | | | | | 8 |
| Unidentified | 110 | 2 | 47 | 35 | | | | 10 | | | 1 | | 2 | | 140 | 15 | | 4 | | | | | 366 |
| Homo | | | 1 | | | | | | | | | | | | | | | | | | | | 1 |
| Total | 162 | 16 | 244 | 147 | 3 | 40 | 189 | 16 | 7 | 44 | 23 | 20 | 32 | 3 | 268 | 94 | 24 | 14 | 10 | 25 | 1 | | 1382 |

[10] Cf. Rzepka *et al*. 2014, 65–67, fig. 48,

[11] Cf. Rzepka *et al*. in this volume.

[12] Cf. Rzepka *et al*. 2014, 75–76.

[13] Cf. Rzepka *et al*. 2014, 79, fig. 73 ; 82–83.

[14] Cf. Rzepka *et al*. 2014, 75–82; also: Rzepka *et al*. in this volume.

Table 3 Animal bone remains in the archaeological context from the Third Intermediate Period

| Taxa | TIP, phase C4, building [771][15] | TIP, phase C1-C4, structure. [1149][16] | TIP, phase C4, building [1082][17], room 1, floor and filling | TIP, phase C4 | TIP, phase C3, building [991], room 2 | TIP, phase C2, building [765][18] | TIP, phase C2, building [991], room 2 | TIP, phase C1, deposits connected with structures [999] and [1002][19] | TIP, phase C1, building [991][20], room 1 | TIP, phase C1, building [991], room 3 | TIP, phase C1, building [991], room 4 | TIP, phase C1, building [991], room 2 | TIP, phase C1-C4, building [1150][21], floor | TIP, phase C1-C4, building [1150], filing | TIP, phase C1-C4 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cattle | 8 | | 54 | 63 | 6 | 4 | 100 | 4 | 69 | 22 | 1 | 16 | | | | 347 |
| Pig | 78 | | 39 | 96 | | 39 | 131 | 1 | 56 | 5 | | 1 | 8 | 7 | 3 | 464 |
| Sheep | 9 | | 4 | 5 | 2 | 5 | 38 | 1 | 2 | 1 | | | | | 1 | 68 |
| Goat | 3 | | 3 | | | | 27 | | 34 | 1 | | | 1 | 1 | | 70 |
| Sheep/goat | 36 | | 23 | 48 | 3 | 27 | 97 | 8 | 59 | 32 | | 4 | 12 | 9 | 1 | 359 |
| Horse | | | 1 | 32 | 4 | | 282 | | 19 | | 8 | | 8 | 3 | | 357 |
| Donkey | 10 | | 14 | 24 | | | 278 | 13 | 11 | 1 | | 8 | 1 | 17 | | 377 |
| Mule | | | | | | | 63 | 5 | | | | | | | | 68 |
| Eguids | 3 | | | 3 | | | 188 | 5 | 42 | | | 2 | | 29 | | 272 |
| Dog | 12 | | 6 | 7 | 7 | 1 | 570 | | | | | 30 | | | | 632 |
| Carnivores | | | | | | 3 | | | 3 | 3 | | | | | | 9 |
| Gazelle | | | 7 | 3 | | | 23 | | | 1 | | | | | | 34 |
| Medium size ruminant | | | 2 | 1 | | | 15 | 1 | 2 | | | | | | | 21 |
| Hare | | | 1 | | | | 1 | | | | | | | | | 2 |
| Hedgehog | | | | 1 | 1 | | | | | | | | | | | 2 |
| Mammals | 159 | | 153 | 283 | 23 | 79 | 1813 | 38 | 297 | 66 | 9 | 61 | 30 | 66 | 5 | 3082 |
| Birds | | | | 3 | 17 | | 1 | | 7 | | | | | 2 | | 30 |
| Fish | 38 | | 172 | 88 | 65 | 163 | 366 | 480 | 1068 | 415 | | 45 | | | | 2900 |
| Bivalve | 2 | 3 | 16 | 4 | | 6 | 20 | 55 | 12 | | | | | | | 118 |
| Unidentified | 9 | | 87 | 147 | | 46 | 704 | 3 | 530 | 93 | 20 | 13 | | | 5 | 1657 |
| Homo | | | | | | | 7 | | | | | | | | 2 | 10 |
| Total | 208 | 3 | 428 | 526 | 105 | 294 | 2911 | 576 | 1914 | 574 | 29 | 119 | 30 | 68 | 12 | 7797 |

[15] Cf. Rzepka *et al*. 2014, 86–87, fig. 87; described there as belonging to "Phase 6".

[16] For plan and description of this structure cf. Rzepka *et al*. in this volume.

[17] Cf. Rzepka *et al*. 2014, 86–87, fig. 87; described there as belonging to "Phase 6".

[18] Cf. Rzepka *et al*. 2014, 87, fig. 87; 90; described there as belonging to "Phase 4".

[19] Cf. Rzepka *et al*. 2014, 87, fig. 87; 90–91; described there as belonging to "Phase 3".

[20] Cf. Rzepka *et al*. 014, 87–91.

[21] For plan and description of this structure cf. Rzepka *et al*. in this volume.

Table 4 Bird bones in archaeological context

| Taxa | 19th Dynasty, phase E2 | 20th Dynasty, phase D3, building [834/838], room XIII.5, floor 834, room.XII.5 floor | 20th Dynasty, phase D3, building [834/838], room XIII.6 | 20 dynasty phase D3, building [834/838], room s V.1 and V.6 | 20th Dynasty, phase D2, building [834/838], unit VI+VII+VIII | 20th Dynasty, phase D2, building [834/838], room V.1+6, | TIP, phase C4 | TIP, phase C3, building [991], room 2 | TIP, phase C2, building [991], room 2 | TIP, phase C1, building [991], room. 1 | TIP, phase C1-C4, building [1150] | Late Period | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Struthio camelus* | | | 3 | | | | | 2 | 1 | 1 | | | 7 |
| *Pelecanus onocrotalus* | | | | | | | 1 | | | | | | 1 |
| *Phalacrocorax carbo* | | | | | | 2 | 1 | 3 | | 3 | | | 9 |
| *Anhinga melanogaster* | | | | | | 4 | | | | | | | 4 |
| *Ciconia ciconia* | | | | | | | | 1 | | | 1 | | 2 |
| *Egretta alba* | | | | | | | | | | 1 | | | 1 |
| *Ardea cinerea* | | | | | | | | | | 1 | | | 1 |
| *C.ciconia/E.alba/A.cinerea* | | | | | | | | | | 1 | | | 1 |
| cf. *Anas querquedula* | | | | 1 | 1 | | | | | | | | 2 |
| *Anas platyrhynchos* | | | | | | | | 1 | | | | | 1 |
| cf. *Anas platyrhynchos* | | | | 1 | 1 | | | 1 | | | | | 3 |
| cf. *Anas penelope* | | | | | 1 | | | | | | | | 1 |
| *Aythya* sp. | 1 | | | | | | | | | | | | 1 |
| Anatidae middle size | 1 | | | | 4 | | | 3 | | | | | 9 |
| *Aquila rapax/heliaca* | | | | | | 1 | | | | | | | 1 |
| *Falco* cf. *tinnunculus* | | | | | | | 1 | | | | | | 1 |
| *Fulica atra* | 1 | | | | | | | 4 | | | | | 6 |
| *Gallinula chloropus* | | | | 1 | | | | | | | | | 1 |
| cf. *Crex cred* | | | | | | | | | | | | 3 | 3 |
| Charadriiformes cf. *Tringa* sp. | | | | | | | | 1 | | | | | 1 |
| *Columba* sp. (cf. *livia*) | | | | | | | | 1 | | | | | 1 |
| Aves indet. | | 2 | | | 1 | 2 | | | | | 1 | | 6 |
| Total | 3 | 2 | 3 | 3 | 8 | 9 | 3 | 17 | 1 | 7 | 2 | 3 | 61 |

## Third Intermediate Period

The osteological material from the Third Intermediate Period consisted of 7797 animal remains and 7 human bones (tables 1, 3). The assemblage is dominated by mammal remains, with the majority of skeletal elements belonging to staple livestock species i.e. cattle, sheep, goat, pig and equids (table 1). Remains of equids were the most numerous, approximately 75 % of which were found in one deposit formed in phase C2 in room 2 of building [991][10] (table 3). They included bones of at least four

[10] Description and plan of the building can be found in: Rzepka *et al*. 2014, 87–91.

individuals and represented different parts of the skeleton, with a high number of cranium and mandible fragments. According to identification criteria for equids,[11] based on tooth enamel pattern the remains belonged to the head of a horse, two mules and a donkey. The horse was a 13-year-old male and one of the mules was a male aged 7 to 8 years. The size of certain elements (e. g. phalanges) also implies that the animals found in the assemblage were of different body sizes. Very few complete bones or their measurable parts were preserved, therefore, a significant part of the assemblage cannot be reliably identified to the level of species and were classified as belonging to the Equidae family. One metacarpal (GLl 229.1 mm.) was used to calculate the withers height of the horse, which reached 142 cm. The state of preservation of the bones, their high level of fragmentation probably resulted from the unfavourable conditions they were exposed to after being deposited. There were no remains which bore anthropogenic marks.

The assemblage from room 2 in building [991][12] also included a high number (570 fragments) of dog bones, which belonged to at least three individuals of different ages. One was very young, below 5–6 months old, another was below 3 years old as indicated by unfused humerus, and the third one was a mature adult, approximately 56 cm tall. This deposit is exceptional as in most other assemblages of that period there were mainly remains of animals raised for consumption.

Sheep and goat remains were the third most frequent among the domestic mammal bones (16.50 %) in the whole material, followed by pig (15.39 %) and cattle (11.51 %).The remains of wild species accounted for approximately 2 % of mammal fragments and represented mainly gazelles. Measurements of a gazelle tibia preserved complete fall within the range relevant for dorcas gazelles. Apart from remains of animals of similar sizes, 21 bone fragments were identified as belonging to a "medium-sized ruminant", which could also represent gazelles. In addition to that, two bones of hare and hedgehog were identified. 9 fragments which came from animals of the order carnivora possibly belonged to wild species.

Anatomical distribution of cattle, sheep/goat and pig shows that all parts of skeleton were represented, including phalanges, which means that the animals were slaughtered at the site, or whole carcasses of slaughtered animals were delivered there. In many cases, fills found in different rooms contained skeletons of single animals. A significant number of bones came from morphologically immature individuals. Cattle were slaughtered at a relatively young age (5–6 months, 15–18 months and around 2.5–3 years old). Few bones implied breeding longer than until the individuals were 3.5–4 years old. Sheep and goats were also killed mainly before they reached the age of 2 years. Analysis based on the tooth eruption and wear indicated high frequency of killing of the animals aged 4–6 months and 8–12 months. Apart from that, more than 10 metapodia of the two species belonging to individuals aged about 2 years were found, and approximately 20 fragments of humeri, radii, femurs and tibias belonging to animals older than 3–3.5 years. Pig remains also represented young and very young individuals (aged 4–6 months, 8–12 months and 12–16 months). Very few pigs had fully formed M3 teeth, which appear between 17 and 22 months of age. One long bone belonged to a morphologically mature animal (aged more than 3.5 years).

Fish bone remains were the second most frequent (2900 elements), following mammal bones. There were also some fragments of Bivalvia shells (118 pieces) and bird bones (30 fragments) representing 11 taxa: great black cormorant (*Phalacroporax carbo*), common ostrich (*Struthio camelus*), great white pelican (*Pelecanus onocrotalus*), white stork (*Cicionia cicionia*), great egret (*Egretta alba*), grey heron (*Ardea cinerea*), mallard (*Anas platyrhynchos*), an individual from falcon family, possibly common kestrel (*Falco* cf. *tinnuncelus*), Eurasian coot (*Fulica atra*), an individual from Charadriiformes order, possibly Tringa genus and a bird of Columba genus, possibly rock dove (*Columba* cf. *livia*).

The osteological material bore different categories of marks. Most of them were butchery marks related to division of carcass and preparation of meat for consumption, and came from different stages of the processes. There were traces of skinning, division of carcass, i.e. separating parts of joints and cutting bones in different places and dif-

[11] Baxter 1998.

[12] A general photo of this assemblage can be found in: Rzepka *et al*. 2014, 90, fig. 94.

[13] For plan and description see: Rzepka *et al*. 2014, 86–87, fig. 87.

ferent directions – longitudinally, transversely, or diagonally. The marks were found on cattle, sheep and goat, pig and gazelle bones. They were noticed on different skeletal elements – vertebrae, mainly the atlas, long bones of limbs, scapulas and pelvises – however, on fairly low number of remains (below 10%). A dog humerus discovered inside building [771][13] in C4 phase layers is an exception: it shows cutting marks below the proximal epiphysis and above the distal epiphysis.

The analyzed assemblage included some simple bone tools, some of them damaged. Most tools were "spatulae"[14] probably fashioned from longitudinally-cut ribs.

Two donkey mandibles which belonged to a single individual showed pathological changes resulting from inflammation of the area of the temporomandibular joint.

## Summary

Remains found in area 9 can be divided into two groups. One consisted of material left after meat consumption, which was analyzed in order to reconstruct the meat diet of the people who lived at Retaba. The other includes remains of animals raised for secondary products, mainly for transportation. Bones of synanthropic species (rodents) or species living in the vicinity, whose remains could have been deposited without human actions (some birds), formed a minor addition to those groups.

Distributions of species in assemblages of different chronologies suggest the major role of mammals as providers of protein and fat, as well as the importance of fish and molluscs in the diet. Most mammal bones belong to domestic species, which indicates husbandry as the main source of meat. The statistics of the bones of the four livestock species (sheep, goat, cattle, pig) show certain variety in food preferences that the people living in Tell el-Retaba had in different periods. The two largest bone assemblages, from the times of the 20th Dynasty and the Third Intermediate Period, provide the most reliable material for analysis. In the times of the Ramessides (20th Dynasty), mutton, goat meat and beef were ranked fairly equally, with a lower share of pork. In the Third Intermediate Period, mutton and goat meat constituted the basis of the meat diet, however, pork gained similar importance, as it was eaten in bigger amounts than beef. That indicates an increase in pig raising over time. Pigs, which are omnivorous, do not require grazing land; they can be fed with kitchen waste. Moreover, breeding of pigs is typical of meat production due to the high fertility and fast weight gain of these animals. For these reasons, pigs can be exploited for feeding a large number of people with a relatively low input of human effort. The species also proves exceptionally good when consumption needs are high and the possibility of animal raising limited. Pigs were maintained in ancient Egypt as a protein back up by rural and urban populations.[15]

The significance of hunting was much lower, or even negligible. Gazelles were most frequently hunted, hares much less often. Perhaps one fox was also killed by hunters, two bones of this species were found in area 9. Nevertheless, fox, as well as bird remains, bore no marks left by human activity, which poses doubt if the bones came from hunted animals or were deposited there accidentally.

It is possible that some of the birds were bred. This hypothesis is most likely in the case of ostrich. The range of its habitat does not include the Nile delta now; therefore it could be concluded that either its range comprised this territory in the period under discussion or that it was imported for breeding. It must be observed that apart from the 7 ostrich bones found in several rooms in buildings [834/838][16] and [991] in the layers dated to phase D3 of the 20th Dynasty and to phases C1, C2 and C3 of the Third Intermediate Period, shells of at least 10 ostrich eggs were discovered in the material dated to phase D2 of the 20th Dynasty (building [793])[17] and to phases C2, C4 and C1 – C4 of the Third Intermediate Period in deposit [767], building [1150][18], and also in the layers from the Late Period. Breeding species were possibly represented by geese and ducks: mallard *(Anas platyrhynchos*) and Eurasian wigeon (*Anas penelope*) probably domesticated in the Old Kingdom, or pigeon.

Fishing and collecting molluscs played a much more significant role than hunting, which resulted from the location of the site near a water reservoir.

[14] A short summary of a discussion on possible functions of such „spatulae" see: Rzepka *et al*. 2009, 264–265.

[15] Redding 1991.

[16] For the plan, description and interpretation of this building see: Rzepka *et al*. 2014, 75–86.

[17] See: Rzepka *et al*. 2014, 79, fig. 73; 82–83.

[18] Rzepka *et al*., in the present volume.

The range of wild species found in the osteological material provides valuable information which can be used to reconstruct the environmental conditions of the area. In major part, there were birds living in water habitat (open waters, rivers) or wetland (marshes, floodlands, swamps drier grassy areas bordering marshes and rivers). Some of them are sedentary species (pelicans, cormorants, grey heron, common kestrel); others are migratory birds which stay in Egypt for wintering or migrate over the area after the breeding season (great egret, goose, ducks, corn crake). Other habitats were represented by synanthropic birds – pigeon, which can live in the wild in open areas, or perhaps breeding species – ostrich, which prefers open short-grass plains and semi desert, as well as birds of prey, which can occupy a variety of habitats. All species except for two (ostrich *Struthio camelus* and snakebird *Anhinga melanogaster*) live in the area of the Nile delta at present.

To sum up, the diet of the residents whose garbage was found in the area 9 of the site was composed mainly of meat from breeding mammals and fishes. Under the 20th Dynasty, meat of three species of ruminants (sheep, goat and cattle) was of major importance, and in the Third Intermediate Period the role of mutton and goat meat was still the most significant one. However, pork was eaten more frequently than beef. The diet was supplemented with meat of wild game, molluscs and birds. Apart from the four livestock species mentioned above, equids (horses, donkeys and mules), useful for transportation, were also an important group in the animal husbandry activities undertaken either by the residents of the fortress, or by the people who provided supplies for them.

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# ARCHAEOBOTANICAL INVESTIGATIONS AT TELL EL-RETABA

Ramesside Fortresses and 3rd Intermediate Period Town (Area 9)
Polish-Slovak (PCMA) Mission Seasons 2010–14[1]

*Claire Malleson*

## Introduction

Tell el-Retaba is a major multi-period site located in the middle of the Wadi Tumilat, Egypt, c. 35 km west of Ismailiya. The site was first investigated by Naville in 1885, by Petrie in 1905 then by various other foreign and Egyptian missions throughout the 20th century[2]. It has been under investigation by a Polish-Slovak Mission (Polish Centre of Mediterranean Archaeology of the University of Warsaw) directed by Slawomir Rzepka and Jozef Hudec since 2007[3]. Excavations began in 2008, and were initially focussed on rescue work along the line of the modern road which cuts through the site, due to road-widening works[4]. The site dates from the Hyksos period through to the modern, consisting of Hyksos and 19th dynasty cemeteries, Hyksos and 18th dynasty settlements, 19th and 20th dynasty fortresses, and 3rd Intermediate Period – Late Period settlement remains[5].

There are not a great number of multi-period settlement sites in Egypt, and even fewer have undergone such extensive detailed excavations involving archaeobotanical research. Other sites include Qasr Ibrim[6] and Memphis (Mit Rahina)[7]. As such, this site offers a wonderful opportunity to investigate continuity and change in patterns of the use of plants within an ancient Egyptian settlement. This report will focus on the 19–20th dynasty fortresses buildings and 3rd Intermediate period settlement remains excavated within one excavation area of the site (Area 9).

## The Ramesside fortress and 3rd Intermediate Period town at Tell el-Retaba

Over 5 seasons the Polish-Slovak Mission at Tell el-Retaba have excavated a large area of settlement remains within a fortified area, to the east of the modern road which cuts through the site. To date 15 structures/ discrete areas of activity have been recorded within Area 9[8], dated to 13 discrete phases (A–E3)[9]. See fig. 1.

The site was of major strategic importance throughout its history, with the Wadi Tumilat providing one of the only two land-routes between the Delta and the Sinai. The earliest settlement remains in this excavation area date to the 19th dynasty (there are some Hyksos tombs, but no contemporary settlement detected yet in this excavation area, evidence elsewhere on the site attests Hyksos and 18th dynasty occupation). Beneath the wall 1 foundations (in Area 4), burials[10] dating to the early 19th dynasty provide a *terminus post quem*, with ceramics associated with the walls themselves providing closer dating for the major fortifications. Wall 1 enclosed an area at least 300 m east-west and probably at least 200 m north-south. The core of these walls may have been first constructed in the reign of Seti I, but were completed, and then the barracks were constructed during the reign of Rameses II[11].

The Rameses II fortress fell totally out of use, and was in ruins by the 20th dynasty, although it is apparent that there was some occupation of the

[1] The present study was carried out in the framework of a project financed by the Polish National Science Centre, grant no 2012/05/B/HS3/03748. Thanks to the Tell el-Retaba team, the Egyptian Ministry of Antiquities and all the inspectors who have been involved in this project. Thanks to Ł. Jarmużek for all the maps in the report.

[2] Rzepka *et al.* 2009:241.

[3] Rzepka *et al.* 2009; 2011; 2014.

[4] An Egyptian mission, directed by Mustafa Nour El-Din, also carried out rescue excavations in this area see: Rzepka *et al.* 2012/2013.

[5] Rzepka *et al.* 2009; 2011; 2014.

[6] For discussions relevant to this report see Clapham & Rowly-Conwy 2007; Copley *et al.* 2004.

[7] For discussions relevant to this report see murray 2009.

[8] Rzepka *et al.* 2011; 2014; report in this volume.

[9] Rzepka *et al.* report in this volume for phasing.

[10] Górka and Rzepka 2011; Rzepka *et al.* 2011: 155–156.

[11] Rzepka *et al.* 2009.

[12] Rzepka *et al.* 2014:65.

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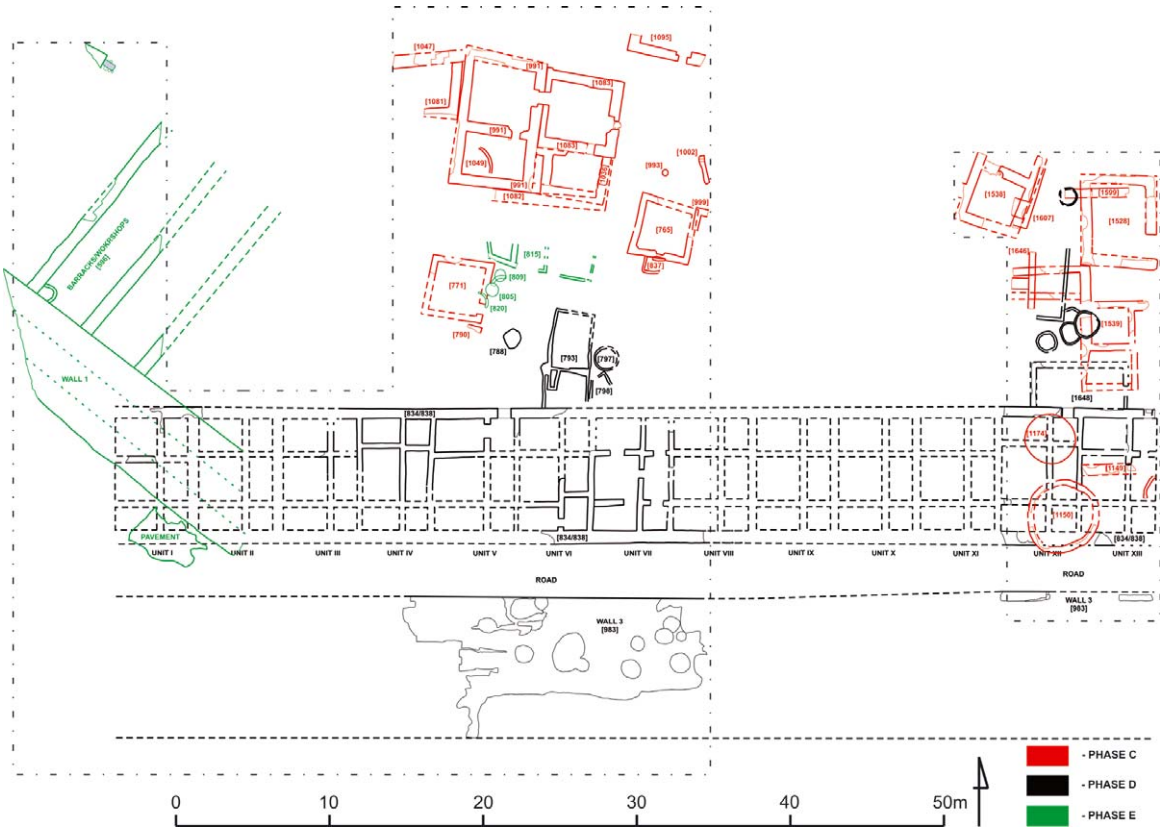


Fig.1 General plan of selected buildings in Area 9 showing the relations between them

area during a hiatus period between the two forts[12] (building [815]). Under the reign of Rameses III a new fort was built, with a large gateway[13] and massive new fortification walls being constructed (walls 2 & 3), enclosing an area of c. 350 m east-west and nearly 200 m north-south[14]. Wall 2 – which was more of a levelling revetment for wall 3 – is securely dated by foundation deposits excavated by Petrie[15]. Inside the southern side of this fort, the remains of a series of regular plan buildings were first detected in 2010[16] (building [834]). These buildings clearly have a primarily domestic function, with food preparation facilities, as well as small-scale industrial activities taking place[17], and were re-modelled during a second phase of occupation at least once. These buildings had a less formally planned annex ([793]) to the north, and associated dumps ('dumping place').

During the 3rd Intermediate period the area was re-occupied with several phases of domestic buildings. Building [991] is the most completely preserved and excavated[18], with remnants of other constructions dating to both earlier, contemporary, and later phases; buildings [1607], [1646], [1082], [1599], [1002], [1528] and [1538]. Elsewhere on the site a 3rd Intermediate period stable area has been excavated[19].

## Archaeobotany

Since 2009 the Tell el-Retaba mission have systematically collected samples for archaeobotanical analysis. To date 213 samples have been recovered for analysis from excavations in 8 areas. 19 samples have not been analysed, primarily due to time constraints; many of these 19 represent 2nd or 3rd

[13] Hudec in Rzepka *et al.* 2009.
[14] Rzepka *et al.* 2009:275–76; 2011; 2014:65.
[15] Rzepka *et al.* 2014:73.
[16] Rzepka *et al.* 2014:77.
[17] Rzepka *et al.* 2014:84.
[18] Rzepka *et al.* 2014:87.
[19] Jarmużek in Rzepka *et al.* 2011 ; Jarmużek 2013.

Table 1 Table of samples from 2009–2014

| Summary of sample information all seasons / areas | | | | | |
|---|---|---|---|---|---|
| Year | Area | Total number of samples | Total item count | Total sample volume (l) | IPL (Density of items) |
| 2009 | 1 | 1 | 137 | 5 | 27.4 |
| 2009 | 2 | 1 | 409 | 5 | 81.8 |
| 2009 | 3 | 19 | 3119 | 93 | 33.54 |
| 2009 | 4 | 6 | 7023 | 30 | 234.1 |
| 2009 | 5 | 4 | 4390 | 20 | 219.5 |
| 2010 | 3 | 12 | 3956 | 61 | 64.85 |
| 2010 | 4 | 1 | 1166 | 5 | 233.2 |
| 2010 | 6 | 15 | 8003 | 66 | 121.26 |
| 2010 | 9 | 16 | 3173 | 67 | 47.36 |
| 2011 | 3/5 | 2 | 293 | 8 | 36.62 |
| 2011 | 4 | 17 | 16866 | 64 | 263.53 |
| 2011 | 9 | 24 | 33765 | 110 | 306.95 |
| 2012 | 3 | 4 | 546 | 20 | 27.3 |
| 2012 | 7 | 4 | 2792 | 16 | 174.5 |
| 2012 | 9 | 27 | 36855 | 130 | 283.5 |
| 2014 | 4 | 14 | 16851 | 51.5 | 327.2 |
| 2014 | 9 | 24 | 20651 | 71.25 | 289.84 |
| | | Total 191 | Total 159995 | Total 822.75 | Avg. 194.46 |

samples from stratigraphic units with multiple samples, whilst several were left aside based on the low probability of them yielding meaningful results. 3 samples contained no visible identifiable charred plant remains. Therefore in total 191 samples (deriving from 172 stratigraphic units) are included in the site results[20] (see table 1). 76 of these samples were reported in *Ägypten und Levante* XXI[21]. A total of 91 samples have been recovered from Area 9, from 78 stratigraphic units (see table 2). The results are generally very good; charred remains are abundant with a site average of 194.46 plant items per litre (IPL) (see table 1) (almost double that reported in 2012)[22]. As is the case at many ancient Egyptian settlement sites[23], the plant macrofossils (cereal chaff elements, wild grasses, crop weeds, potential fodder plants and potential food plants) generally represent cereal crop processing by-products used as fuel and fodder, preserved by charring (see table 3 for summary); only minimal quantities of desiccated remains have been found, generally these can be attributed to modern contamination. The results presented here include the materials from 2010–2012 and

Table 2 Table of area 9 samples

| Area | Building | Period | Phase | Number of Units | Total item count | Volume of samples (l) | IPL |
|---|---|---|---|---|---|---|---|
| 9 | BARRACKS | 19th Dynasty | E3 | 6 | 531 | 30 | 17.7 |
| 9 | BUILDING [815] | 19th-20th Dynasty | E1 | 5 | 10138 | 23 | 440.78 |
| 9 | DUMPING PLACE | 19th-20th Dynasty | E1 | 3 | 1688 | 7 | 241.14 |
| 9 | BUILDING [834] | 20th Dynasty | D3 | 5 | 2115 | 25 | 84.6 |
| 9 | BUILDING [834] | 20th Dynasty | D2 | 11 | 14002 | 50 | 280.04 |
| 9 | BUILDING [793] | 20th Dynasty | D2 | 9 | 6235 | 38 | 164.08 |
| 9 | BUILDING [1607] | 3rd Intermediate | C4 | 4 | 4671 | 2.75 | 1698.55 |
| 9 | BUILDING [1646] | 3rd Intermediate | C4 | 1 | 3822 | 0.5 | 7644 |
| 9 | BUILDING [1082] | 3rd Intermediate | C4 | 1 | 7524 | 5 | 1504.8 |
| 9 | BUILDING [1599] | 3rd Intermediate | C3 | 2 | 710 | 7.5 | 94.67 |
| 9 | BUILDING [991] | 3rd Intermediate | C3 | 2 | 4774 | 10 | 477.4 |
| 9 | BUILDING [991] | 3rd Intermediate | C2 | 4 | 1607 | 20 | 80.35 |
| 9 | BUILDING [991] | 3rd Intermediate | C1 | 2 | 726 | 10 | 72.6 |
| 9 | BUILDING [1002] | 3rd Intermediate | C1 | 2 | 6107 | 10 | 610.7 |
| 9 | BUILDING [1528] | 3rd Intermediate | C2 | 7 | 6121 | 30 | 204.03 |
| 9 | BUILDING [1538] | 3rd Intermediate | C1 | 1 | 91 | 5 | 18.2 |
| 9 | EXTERNAL | 19th Dynasty | E2 | 7 | 7772 | 35 | 222.06 |
| 9 | EXTERNAL | 19th Dynasty | E3 | 1 | 11 | 3 | 3.67 |
| 9 | EXTERNAL | 19th-20th Dynasty | E1 | 1 | 3632 | 4 | 908 |
| 9 | EXTERNAL | 3rd Intermediate | C1-C4 | 3 | 382 | 8 | 47.75 |
| 9 | EXTERNAL | 3rd Intermediate | C4 | 1 | 2285 | 5 | 457 |
| | Totals/Average | | | 78 | 84944 | 328.75 | 258.38 |

[20] Malleson 2011; 2012; 2013; forthcoming.

[21] Malleson 2011.

[22] Malleson 2011.

[23] Fuller & Stevens 2009; Murray 2000; 2009; Van der Veen 2007.

Table 3 Summary of taxa group presence and abundance in area 9

| Density (abundance) and presence of major taxa groups in area 9 | | | | | |
|---|---|---|---|---|---|
| Group | Total Item count | Density (IPL) | % of assemblage | Number of samples with group present | % Presence (samples in assemblage) |
| Cereal Chaff | 61904 | 75.24 | 38.69 | 170 | 89 |
| Wild Grasses | 24635 | 29.94 | 15.40 | 172 | 90.1 |
| Wet-loving | 22333 | 27.14 | 13.96 | 162 | 84.8 |
| Indeterminate | 21351 | 25.95 | 13.34 | 136 | 71.2 |
| Legumes | 9508 | 11.56 | 5.94 | 160 | 83.8 |
| Dung | 8815 | 10.71 | 5.51 | 116 | 60.7 |
| Cereal Grain | 7680 | 9.33 | 4.80 | 158 | 82.7 |
| Weeds | 2843 | 3.46 | 1.78 | 115 | 60.2 |
| Fruit / Nuts | 454 | 0.55 | 0.28 | 88 | 46.1 |
| Woody items | 217 | 0.26 | 0.14 | 52 | 27.2 |
| Edible pulses | 198 | 0.24 | 0.12 | 44 | 23 |
| Oil plants | 57 | 0.07 | 0.04 | 14 | 7.3 |
| Total / Average | 159995 | 194.46 | | 191 | |

autumn 2014 season excavations in Area 9 (see table 2). Materials from other areas (3, 4, 6 & 7) are included in overall discussion. It should be noted that there were no excavations in 2013, and no samples taken during the spring 2014 season for logistical reasons.

## Methods

Excavations are conducted using single context methods. The sampling strategy replies upon judgements made by the excavation team. In general, ashy features from heating installations (fireplaces, ovens, kilns), as well as floors and general ashy-looking dump features are sampled for archaeobotanical analysis. All samples are approximately 5 litres, and are processed by the archaeobotanist using the bucket floatation method with 300µm mesh. All samples are sorted using a BMZ zoom stereo microscope at ×7–30 magnification during the season in the project workrooms in Egypt. Based on the time restrictions and the abundance of charred remains in many samples, it has been necessary to implement sub-sampling strategies in order to gain a full overview of material in all sampled stratigraphic units. All the botanical materials (flots) are dry sieved through a graduated sieve stack to ease sorting. Since 2012 all material <500µm has been sub-sampled due to the abundance of items, generally 10% of this smaller material is examined. This policy was decided upon following the 2011 season during which it was ascertained that whilst the smaller items were abundant, there was little diversity in that material. For these items the item count is multiplied e.g. 10% sorted – results multiplied by 10. In 2014 it became necessary to sub-sample the entirety of many flots due to time restrictions and abundance of remains. In instances where only a portion of the flot was examined (e.g. 20%, or 50% of the flot) the volume of the sample floated was adjusted in the database to reflect the percentage sorted. Statistics are run with Microsoft Access and Excel. The primary quantifications used here are the density of materials – items per litre (IPL), and relative abundance/presence of a species or taxa group – presented as a percentage of the overall assemblage. All counts reflect the partial and complete items total. All specimens were identified on the basis of morphology and comparison with reference illustrations (http://www.plantatlas.eu/ Digital Atlas of Economic Plants in Archaeology and the Digital Atlas of Economic Plants; Nesbitt 2006; Smith 2003) as well as the Flora of Egypt (Boulos 1999; 2000; 2002; 2005). Nomenclature of wild species follows Boulos 1999–2005.

## Species present (tables 3 & 4)

The Tell el-Retaba archaeobotanical assemblage (all excavation areas) is dominated by *Triticum turgidum* subsp. *dicoccum* (emmer wheat) chaff (average 72.58 IPL, 37.75% of the assemblage), and *Lolium* sp. grains (ryegrass / darnel (average 21.48 IPL, 11.17% of the assemblage). Clovers – Trifolieae tribe seeds (*cf. Trifolium* sp., *cf. Melilotus* sp., *cf. Medicago* sp. and *Scorpiurus muricatus*) make up 5.82% of the assemblage (11.18 IPL). Species from wetter habitats are also relatively abundant; *Eleocharis* sp. (spike rush) 5.80% of the assemblage (11.15 IPL), and *Fymbristillis bisumbellata* (annual fimbry) 5.16% of the assemblage (9.93 IPL). Overall, emmer wheat is more abundant than barley

Table 4 Species list

| Species | Common names | Taxa group |
|---|---|---|
| **Cereals** | | |
| *Hordeum vulgare* L. | Hulled barley | Cereal grain / chaff |
| *Triticum turgidum* (L.) subsp. *dicoccum* (Schrank) Thell | Emmer wheat | Cereal grain / chaff |
| *Triticum* sp. Free threshing cf. *aestivum/durum* | Bread / durum wheat | Cereal grain / chaff |
| cf. *Triticum monococcum* | Eincorn | Cereal grain |
| Cereal indeterminate | | Cereal grain / chaff |
| **Wild grasses** | | |
| *Lolium* sp. | Ryegrass / Darnel | Wild Grass |
| *Phalaris* sp. | Canary grass | Wild Grass |
| *Bromus* sp. | Brome grass | Wild Grass |
| *Poaceae* cf. *Sorghum halpense* (L.) Pers *or arundinaceum* (Desv.) Stapf | Sorghum (wild) | Wild Grass |
| Poaceae indeterminate | | Wild Grass |
| **Reeds and sedges** | | |
| *Schoeneplectus* sp. | Rush | Wet-loving |
| *Schoeneplectus* cf. *praelongatus* (Poir.) | Club rush | Wet-loving |
| *Eleocharis* sp. | Spike rush | Wet-loving |
| *Fymbristyllis bisumbellata* (Forssk) | Annual fimbry | Wet-loving |
| *Cyperus* sp. culm | Papyrus | Wet-loving |
| *Cyperus esculentus* L. – tuber | Tiger nut / Chufa | Wet-loving |
| cf. *Carex* sp. | Sedge | Wet-loving |
| Cyperaceae | Sedge family | Wet-loving |
| Indeterminate Root/Tuber | | Wet-loving |
| **Legumes** | | |
| *Astragalus* sp. | Milk vetch | Legume |
| *Vicia* cf. *faba* | Fava bean | Legume |
| *Vicia evillia* (L.) Willd | Bitter vetch | Legume |
| *Lathyrus* sp. | Vetchling | Legume |
| *Lens culinaris* Medic | Lentil | Edible pulses |
| cf. *Ononis spinosa* | Restharrow | Legume |
| cf. *Trigonella* sp. | Fenugreek | Legume |
| *Melilotus* sp. | Meliot | Legume |
| *Scorpiurus* cf. *muricatus* L. | Prickly scorpiontail | Legume |
| Mimusiodae tribe | Acacia family | Woody taxa |
| *Acacia nilotica* (L.) Delile – pod fragment | Nile Acacia | Woody taxa |
| **Fruits and oil/linen** | | |
| *Ficus carica* L. | Common fig | Fruit / Nut |
| cf. *Ficus Sycomorus* L. | Sycomore fig | Fruit / Nut |
| *Phoenix dactylifera* L. – stone | Date palm | Fruit / Nut |
| *Hyphaene thebaica* (L.) Mart – fruit fragments | Doum palm | Fruit / Nut |
| *Vitis vinifera* L. | Grapes | Fruit / Nut |
| *Ziziphus spina-christi* (L.) Desf | Christs' thorn / Nebak | Fruit / Nut |
| *Linum usitatissimum* L. | Linen / Flax | Oil |
| **Other weed species** | | |
| *Rumex* sp. | Dock / sorrel | Wet-loving |
| *Polygonum* sp. | Knotweed | Weeds |
| Polygonaceae | Knotweed family | Weeds |
| *Glinus lotoides* | Damasica | Wet-loving |
| *Portulaca oleraceae* L. | Purslane | Weeds |
| Caryophyllacae | Pink / Carnation family | Weeds |
| cf. *Silene* sp. | Campion | Weeds |
| *Stellaria* sp. | Chickweed | Weeds |
| Chenopodiaceae | Goosefoot family | Weeds |

| Fruits and oil/linen | | |
|---|---|---|
| *Beta vulgaris* L. | Beet | Weeds |
| *Chenopodium* sp. | Goosefoot | Weeds |
| cf. *Suaeda* sp. | Seablite | Weeds |
| cf. Cruciferae | Brassica family | Weeds |
| Rosacae | Rose family | Weeds |
| *Rubus* sp. | Bramble | Weeds |
| *Euphorbia* sp. | Euphorbia / crown of thorns | Weeds |
| cf. *Ruta* sp. | Rue | Weeds |
| Malvacae | Mallow | Weeds |
| *Tamarix nilotica* (Ehrenb.) – twigs | Nile tamarisk | Woody taxa |
| *Tamarix aphylla* (L.) Karst – leaves | Tamarisk | Woody taxa |
| Primulaceae | Primula family | Weeds |
| Boraginaceae | Borage family | Weeds |
| *Lithospermum (Buglossiodes)* sp. | Bugloss | Weeds |
| Lamiaceae | Mint family | Weeds |
| Solanaceae cf. *Hyosycamus niger* | Stinking nightshade | Weeds |
| Scrophulariaceae | Figwort family | Weeds |
| *Centaurea* sp. | Thistle | Weeds |
| *Crepis* sp. | Hawksbeard | Weeds |
| Compositae | Daisy family | Weeds |
| Liliaceae | Onion family | Weeds |

which was only present in very low numbers (in total just 1.27% of the assemblage, against 39.75% represented by emmer wheat). The overall ratio of Emmer to Barley is almost 24:1[24].

Area 9, 19th dynasty – 3rd Intermediate period species list to date can be found in Table 4.

As is the case with the majority of assemblages of charred plant remains[25], this assemblage comprises of the charred plant macro-fossils of cereal-processing by-products. The material therefore constitutes the in-situ and scattered remains of fuel; as opposed 'primary' deposits of stored foods. As such, the assemblage is generally homogenous with no significant patterns of differentiation between materials from different types of contexts. The assemblage reflects routine daily practise within and around the settlement. However, as there are some in-situ deposits, this report will take into consideration both the content and context of the remains in order to examine all the factors affecting the formation of the assemblage.

**Archaeobotanical Results from Area 9 excavations** (see table 2 for sample information; table 19 = http://epub.oeaw.ac.at/orea/Retaba2015_BotanyReport_Table19 for full raw data).

**Barracks/workshops building**
(table 5, fig. 2, fig. 3)

The earliest settlement activity (uncovered to date) in Area 9 is the 19th dynasty Rameses II Barracks area (phase E3), the results from which were published previously[26] but are covered in more detail here. Two long narrow barrack / workshop buildings abutting the north face of the Ramesses II fortress enclosure wall ('Wall 1') were partially excavated in 2010[27]. See fig. 3 for plan.

Several dumping layers within the rooms (601), (602), (603), and 2 oven / kiln fills (597) (2 samples), (598) were sampled (see table 5, fig. 2). Oven / kiln (598) showed some differences to the other samples ( a much higher proportion of wild grasses), which were all essentially similar; a mix of cereal crop processing by-products made up of a mix of cereal chaff (emmer wheat), wild grasses (predominantly ryegrass / darnel), legumes and other weeds items. This oven / kiln did contain a higher proportion of charred dung, suggesting that this fuel type had been selected for that installation – at least for the final firing. None of these samples were rich in charred remains with between 8–34 IPL – well below the site average.

[24] Calculation: Emmer spikelet forks = 2 grains, Emmer glume bases = 1 grain. Barley rachis nodes = 3 grains.

[25] Fuller & Stevens 2009; Murray 2009:256; Van der Veen 2007.

[26] Malleson 2011:175–176.

[27] Rzepka *et al.* 2011:148–151.

Table 5 Table of barracks / workshops area results

| Barracks. (Phase E3, 19th dynasty) Density (IPL) of major taxa groups. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Room | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| 1 | Oven / Kiln | (597) | 4 | 0.7 | 2 | 1.2 | 0.1 | 0.3 | | | 20.8 |
| 1 | Oven / Kiln | (598) | 11.2 | 0.8 | 17.2 | 0.6 | | 2.2 | | 1.4 | 19.2 |
| 2 | Dump | (601) | 8.2 | 1.2 | 2.8 | 1.6 | 0.4 | 1.4 | 0.2 | | 16 |
| 1 | Dump | (602) | 12.8 | 1.6 | 4.2 | 1 | 0.2 | 0.8 | | | 8.4 |
| 1 | Dump | (603) | 15 | 1.4 | 1.4 | 1 | | 0.4 | | | 33.4 |

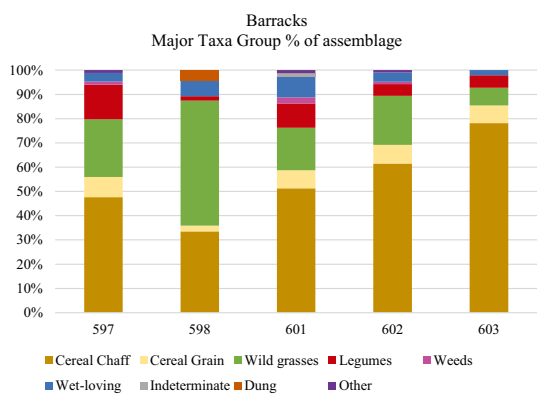


Figure 2 Histogram of barracks/workshops area results

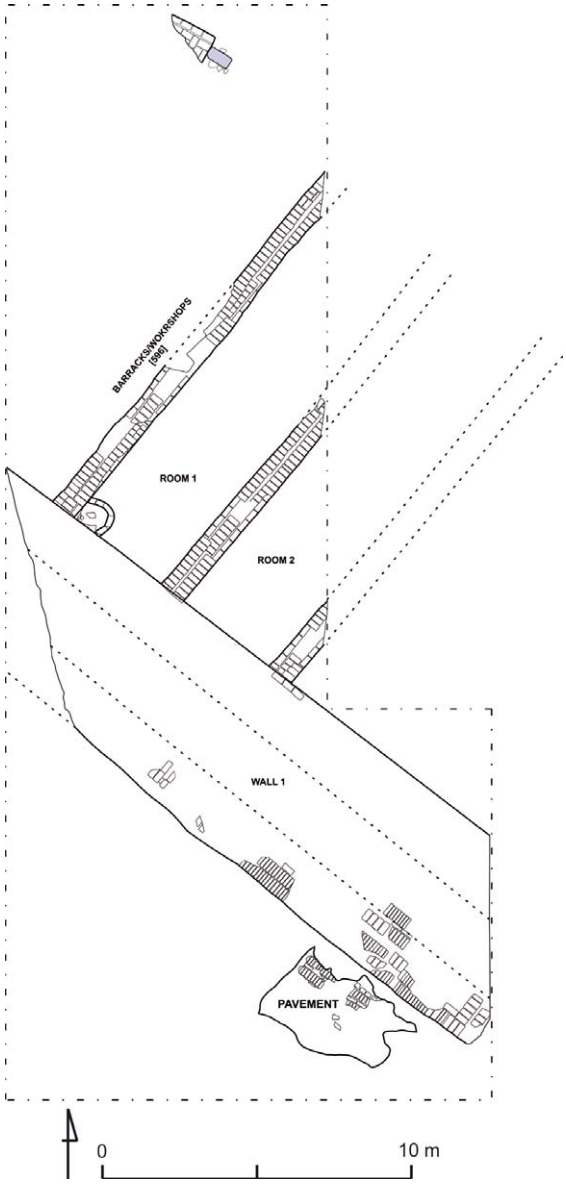


Figure 3 Plan showing barracks/workshops and wall 1

**Building [815]** (table 6, fig. 4, fig. 5)

Building [815] belongs to phase E1 (19–20th dynasty), comprising of a small domestic area contemporary with a cemetery and dump to the south, built upon the ruins of the Rameses II fortress during a 'hiatus' period prior to the fortress of Rameses III being constructed, excavated in 2011[28]. Very little of this building was preserved, but flotation samples were taken from a 'double' oven / kiln (units (805) & (809)) surrounded by an ashy fill (806) on a low mudbrick platform within a courtyard, and a fireplace within room 3 (824), as well as general dumping into the room post-occupation (827) (see fig. 5 for plan of building [815]).

There is a notable difference between the plant (fuel) assemblages in the courtyard oven / kiln units and the fireplace / general room dump. The 3 courtyard oven / kiln units were far richer in charred plant remains (451–777 IPL) and all con-

[28] Rzepka *et al.* 2014:65–69.

Table 6 Table of building [815] results

| Building [815]. Phase E1, 19–20th dynasty. Density (IPL) of major taxa groups. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Room | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| Court yard | Oven / Kiln | (805) | 432.6 | 29.8 | 135.2 | 32.6 | 3 | 16.2 | 91.4 | 35.6 | 777 |
| Court yard | Oven / Kiln | (806) | 162 | 11.4 | 52 | 36.8 | 69.2 | 170.8 | 46.8 | 92.4 | 645.8 |
| Court yard | Oven / Kiln | (809) | 98.4 | 6.6 | 15 | 67.8 | 14 | 92.4 | 91 | 64.2 | 451.2 |
| 3 | Fire place | (824) | 116.33 | 1.67 | 14.67 | 7 | 2 | 7.33 | 16.67 | 1 | 53.4 |
| 3 | Dump | (827) | 31.2 | 0.8 | 6.8 | 3.2 | | 2.2 | 8.2 | 0.6 | 167 |

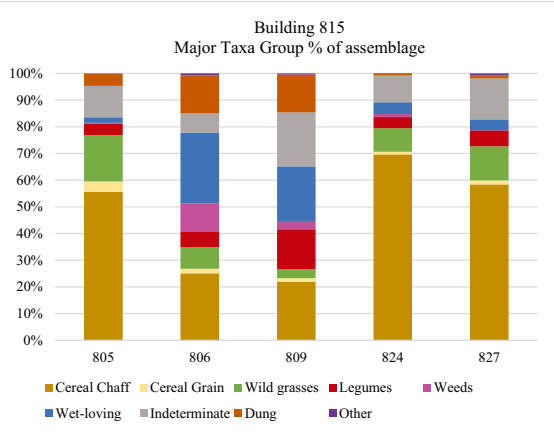


Fig. 4 Histogram of building [815] results

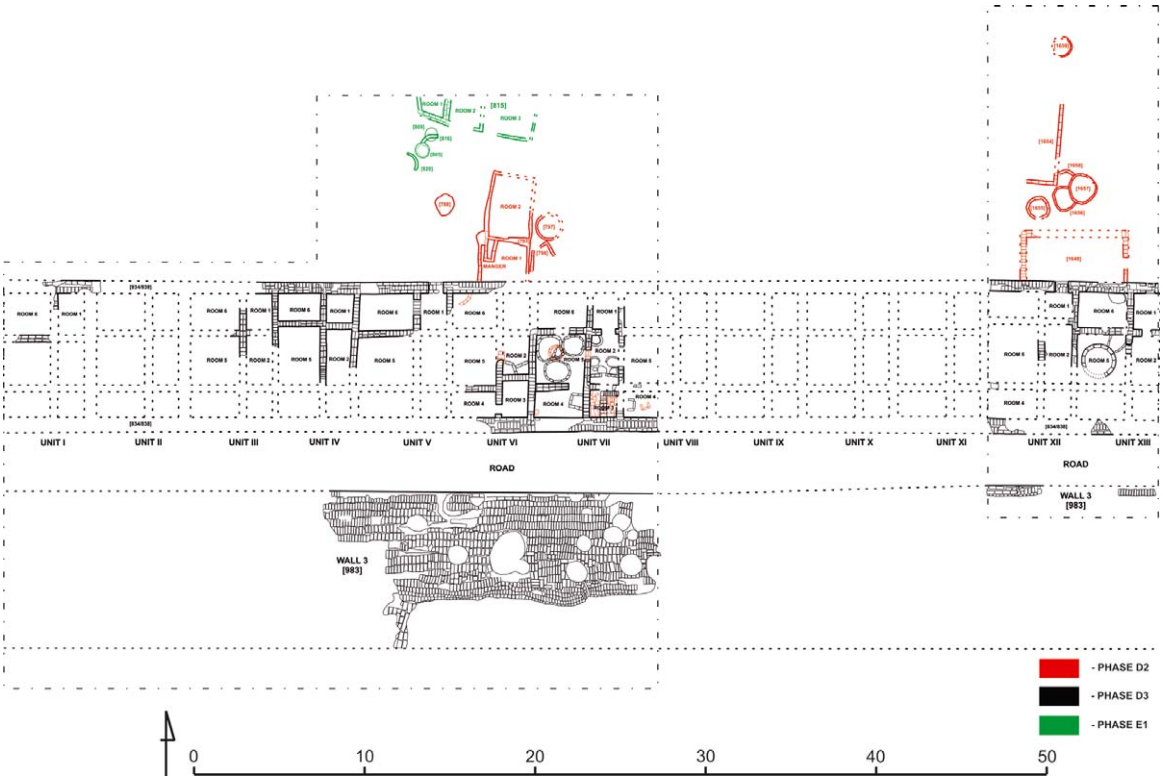


Fig. 5 Plan showing building [815], building [834] and annexe [793]

Table 7 Table of dumping area results

| Dumping Area. Phase E1, 19-20th dynasty. Density (IPL) of major taxa groups. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Phase | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| E1 | Dump | (1259) | 71.11 | 6.89 | 20.89 | 0.89 | 0.44 | 4.67 | 12.89 | 11.11 | 129.56 |
| E1 | Dump | (1265) | 174.4 | 22.4 | 106 | 10 | 1.6 | 39.6 | 49.6 | 34 | 442 |

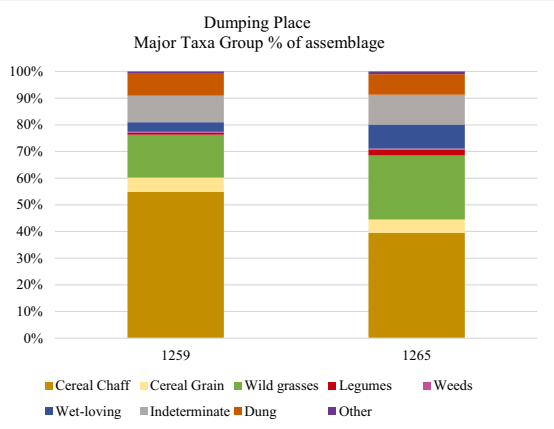


Fig. 6 Histogram of dumping area results

tained a mix of cereal chaff (emmer wheat), grasses, legumes, wet-loving species, weeds and dung (see fig. 4). Unit (806) also contained a significant number of *Beta vulgaris* (beet) nutlets. Beet is found in other similar assemblage from the New Kingdom, and is considered to be a weed of cultivation rather than a cultivated edible vegetable, although it also occurs as a wild-food[29]. The fuel used in these oven / kilns may either have been pure dung fuel, or a mix of dung and cereal-processing by-products used directly as fuel (either of which can contain a mix of cereal chaff, wild grasses, legumes and other wild species). Unit (805) differed from the other 2 oven/ kilns in that it contained a very higher density / proportion of cereal chaff, indication a lack of consistency in fuel choices and / or animal foddering patterns. The fireplace and later room dump-fill both contained a far lower density of remains (167–53 IPL) (see table 6) primarily emmer wheat chaff, with just low quantities of other materials (see fig. 4) and very little dung. This difference may represent a different choices of fuel for different installations; fireplace v. oven / kilns (see discussion section of this report).

**Dumping Area** (table 7, fig. 6)

To the south (east) of building [815], this area represents a general dump above a cemetery from phase E1 (transition between 19-20th dynasties), excavated in autumn 2014[30]. Two layers of mixed materials rich in ash (1259) (2 samples) and (1265) were sampled (see table 7). As with the dump feature in building [815] ((827)) these deposits were dominated by charred emmer wheat chaff and wild grasses (primarily ryegrass / darnel) (see fig. 6). Unit (1265) was considerably richer in plant remains (see table 7), but was a much smaller unit; possibly a more discrete dump of ash as opposed to the large mixed waste of unit (1259).

**Building [834]** (table 8 & 9, fig. 4, fig. 7, fig. 8)

This building forms part of the inner structure of the 20th dynasty (Rameses III) fort. Inside wall 3, to the north of a wide road area is a series of uniform units (13 detected thus far), each comprising 6 rooms with a clearly domestic purpose, excavated in 2011–14[31]. See fig. 4 for plan of building [834]. Samples were taken from building units IV, V, VI, VII and VIII, from both the earlier phase (D3) (see table 8) and the later re-modelled phase (D2) (see table 9) all excavated in 2012.

5 stratigraphic units from phase D3 (the initial use of the buildings) were sampled; floors (995), (1058), (1018), one floor consisting of midden-like laminations of waste (982), and one 'fireplace' (1056) (see fig. 7). Each of these deposits contained a mix of cereal chaff (predominantly emmer wheat) with indeterminate items (predominantly two as-yet unidentified seeds, both <0.5 mm), but not much grass. The fireplace (1056) contained the highest density of items (159 IPL), whilst all other features show signs of more degradation of plant remains indicative of tertiary dumping, IPL 107 – 41; (see table 8). Unit (982) (midden-like floor laminations) contained an unu-

[29] De Vartavan 2010:55; Boulos 1999:94.

[30] Rzepka *et al.* report in this volume.

[31] Rzepka *et al.* 2014:75–86.

Table 8 Table of results from building [834] phase D3

| Building [834]. Phase D3, 20th dynasty. Density (IPL) of major taxa groups. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Room | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| V.1 & V.6 | Floor – midden | (982) | 36.4 | 1.8 | 15 | 42 | 0.4 | 5.4 | 2 | 1.6 | 107.6 |
| IV.6 | Floor | (995) | 24 | 0.4 | 2.2 | 1.8 | 0.2 | 6.6 | 5.2 | 0.2 | 41 |
| VII.6 | Floor | (1018) | 13.8 | 0.4 | 3.2 | 1.2 | | 8.2 | 18.4 | | 45.2 |
| VII.4 | Fire place | (1056) | 68.4 | 6.4 | 15.6 | 8.2 | 3.6 | 31 | 21 | 4.8 | 159 |
| VII.4 | Floor | (1058) | 26.8 | 4 | 6 | 0.6 | 4.4 | 10.4 | 16.2 | 1.6 | 70.2 |

Table 9 Table of results from building [834] phase D2

| Building [834]. Phase D2, 20th dynasty. Density (IPL) of major taxa groups. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Room | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| V.1 & V.6 | Floor – midden | (974) | 17.75 | 0.5 | 2.75 | 5.75 | 0.5 | 5.75 | 8.5 | | 41.5 |
| VI.6 | Fire place | (977) | 680 | 72 | 148 | 32 | 14 | 108 | 108 | 36 | 1198 |
| VI.5 | Floor – midden | (1016) | 9 | | 2 | | | 2 | 2 | | 15 |
| VI.2 | Floor | (1017) | 16.2 | 0.6 | 2 | 2 | | 4.2 | 16 | 1.4 | 42.4 |
| VI.4 | Floor | (1030) | 11 | 1 | 2.8 | 1.4 | 0.6 | 3 | 29.4 | 0.2 | 49.4 |
| VII.4 & VII.5 | Fire place | (1031) | 22 | 1.6 | 4 | 4.2 | 0.6 | 1128 | 8 | 3 | 1171.4 |
| VII.1 & VII.2 | Floor | (1033) | 17.4 | 0.4 | 2.4 | 2.4 | 0.4 | 64.4 | 38 | 0.6 | 126 |
| VI.3 | Floor | (1034) | 6.4 | 0.6 | 1 | 0.2 | | 8 | 1.6 | | 17.8 |
| VIII.4 | Floor | (1040) | 26.8 | 2 | 7.6 | 3.4 | 0.2 | 7 | 6.6 | 0.8 | 54.6 |
| VII.4 & VII.5 | Floor | (1045) | 12 | 0.8 | 3 | 0.6 | | 2.8 | 7.6 | 0.8 | 27.6 |
| VIII.5 | Floor | (1046) | 21.6 | 8 | 4.2 | 1 | 0.4 | 9 | 31.8 | 1 | 77 |

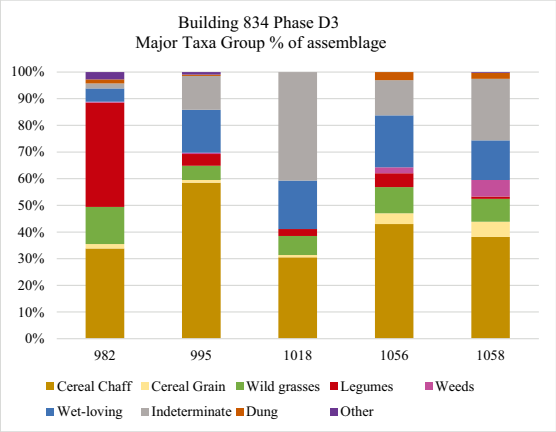


Fig. 7 Histogram of results from building [834] phase D3

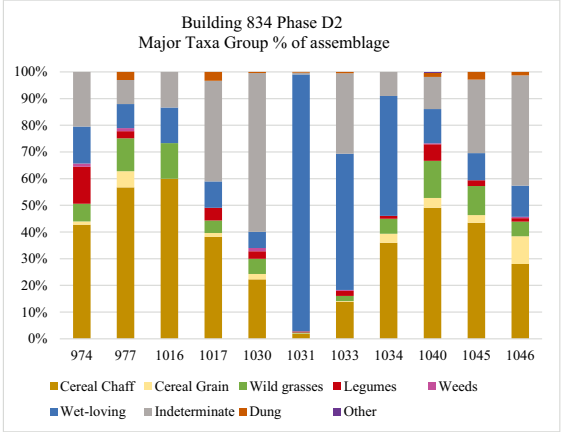


Fig. 8 Histogram of results from building [834] phase D2

sually high proportion of legumes, and a relatively low proportion of chaff.

The samples taken from phase D2 (re-modelled buildings) came from throughout the building. Seven from floors; (1017), (1030), (1033), (1034), (1040), (1045), (1046). Two from more midden-like laminated floor surfaces (974), (1016), and two fireplaces (977), (1031) (see table 9, fig. 8). The material consists primarily of emmer chaff mixed with a lot of tiny indeterminate seeds and a considerable proportion of wet-loving species seeds, but comparatively little grass, legumes and other weeds. A few notable points about these deposits are that the high percentage of indeterminate items in (1030) floor are seed type 1 (as opposed to being damaged items from crushing), the fireplace (1031) contained a massive amount of annual fimbry seeds (5220 in total), whilst floors (1033) and (1034) also contained large amounts of wet-loving species (annual fimbry, spikerush (*Eleocharis* sp.)) and some damasica (*Glinus lotoides*)). Unsurprisingly perhaps, the fireplaces (1031), (977) contained the highest densities of remains – indicative of them being more primary, less disturbed deposits (see table 9).

The most significant aspect of this material is the quantity of wet-loving species in the later phase (D2), potentially reflective of local ecological changes.

**Annexe [793]** (table 10, fig. 4, fig. 9)

To the north of building [834], during the later phase (D2) a small area of rougher buildings was constructed (excavated in 2011, see fig. 4 for plan). 2 rooms/spaces were found, with a storage pit filled with intact pots cut into a courtyard(?) area to the west[32]. The excavators identified the spaces as possible mangers due to high concentrations of dung found on the surfaces. Interestingly, unlike the 3rd Intermediate Period stable area excavated in area 6[33], this dung was not detected in the botanical samples. Samples were taken from midden-like floor surfaces in room 1 (786), (792) and room 2 (787), as well as from inside each of the pots in the pit (788) (see table 10). Of the 11 pots sampled, only 6 were analysed due to time constraints.

The contents of the pots is unquestionably *not* original contents, the assemblage was entirely typical of the site (charred emmer wheat chaff, ryegrass/darnel grains, spikerush seeds etc.), but like samples from building [834] had comparatively low quantities of wild grasses, and higher quantities of indeterminate items. Potentially due to the fact that the samples from within the pots had had some level of protection there were significant quantities of weed taxa group (see fig. 9) – primarily desiccated purslane (*Portulaca oleraceae*) seeds present. According to De Vartavan purslane has not been reported from a large number of sites in Egypt[34], but it is commonly found[35] and is generally considered to be a weed of cultivation, although the leaves are edible and it can also be used as a wild-food. The sample from floor surface (792) also contained a notably large proportion of general 'weed' group seeds – in this instance the dominance of this taxa group was due to the presence of a large quantity of beet nutlets.

Otherwise, the samples from this area represent the usual mix of cereal-processing by-products. The lack of dung present, is puzzling. Elsewhere on the site desiccated dung was observed in samples[36], whereas in this case, the dung material was not even observed in the samples prior to flo-

Table 10 Table of results from building [793]

| Annexe [793]. (Phase D2, 20th dynasty). Density (IPL) of major taxa groups. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Room | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeterminate | Dung | Avg. |
| 2 | Floor | (787) | 88.2 | 10.4 | 12.8 | 9 | 3 | 21.4 | 90 | 7.8 | 242.8 |
| 1 | Stable | (786) | 19 | 1 | 4 | 3 | | 4.8 | 4 | 0.4 | 36.2 |
| Court yard? | Pots | (788) | 69.39 | 2.87 | 14 | 10.91 | 29.83 | 43.7 | 24.96 | 2.7 | 200.04 |
| 1 | Stable | (792) | 14 | 1.2 | 6.6 | 4.2 | 10.4 | 4 | 6.8 | 0.6 | 47.8 |

[32] Rzepka *et al.* 2011.

[33] Malleson 2011:174; 2012:102.

[34] De Vartavan 1997:215.

[35] Pers. Comm. Clapham 2015.

[36] Malleson 2011:174; 2012:102.

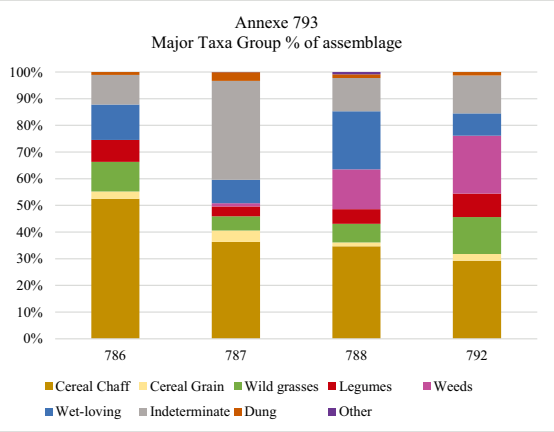


Fig. 9 Histogram of results from building [793]

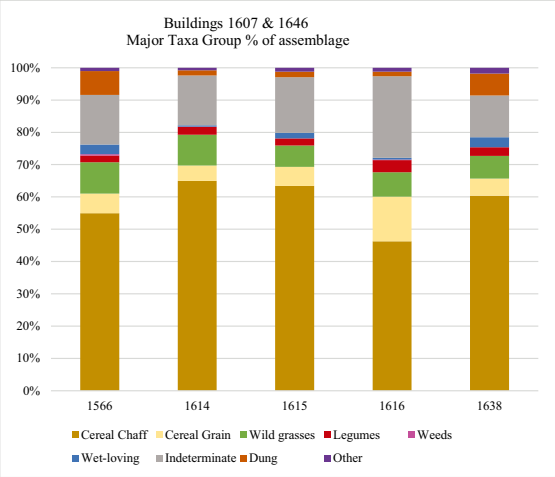


Fig. 10 Histogram of results from buildings [1607] and [1646]

tation. These dumps layers and floors are generally homogenous mixes of cereal processing by-products.

**Buildings [1607] and [1646]**
(table 11, fig. 10, fig. 11)

Buildings [1646] and [1607] were both in use during the early part of the 3rd Intermediate Period (phase C4); [1646] appears to slightly post-date [1607]. These two structures were excavated in 2014[37]. Only part of building [1607] has been exposed. Thus far a large courtyard has been excavated which contained 2 (not-contemporary) oven / kiln installations and large ashy dump layers. See fig. 11 for plan of building [1607] and [1646]. Lumps of slaggy copper residue were found inside one of these two installations[38]. Samples were taken from in and around the two oven / kilns. (1614) and (1615) from inside oven / kiln [1600], (1616) ashes from south of oven / kiln [1601], and a large ash dump later (1566) from around both oven / kilns. Building [1646] to the south was poorly preserved with only a few fragments preserved[39]. One sample was taken from a thick ashy dump layer (1638). See table 11.

These samples were generally very homogeneous, with little differentiation (see fig. 10), all contained remarkably high densities of remains (797–7644 IPL) (see table 11), overwhelmingly dominated by emmer wheat chaff. The layer from building [1646] (1638) was by far the richest (7644 items per litre). Although this sample was totally dominated by emmer wheat chaff it actually contained

Table 11 Table of results from buildings [1607] and [1646]

| Building 1607 & 1646. Phase C4, 3rd Intermediate Period. Density (IPL) of major taxa groups. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Building | Room | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeterminate | Dung | Avg. |
| [1607] | Courtyard | Oven / Kiln | (1566) | 838 | 92 | 148 | 32 | 6 | 46 | 234 | 112 | 1524 |
| [1607] | Courtyard | Oven / Kiln | (1614) | 3048 | 224 | 448 | 114 | 2 | 20 | 724 | 74 | 4692 |
| [1607] | Courtyard | Oven / Kiln | (1615) | 505.6 | 47.2 | 52.8 | 17.6 | | 13.6 | 137.6 | 13.6 | 797.6 |
| [1607] | Courtyard | Oven / Kiln | (1616) | 524 | 156 | 86 | 42 | 2 | 6 | 286 | 16 | 1132 |
| [1646] | External | Dump | (1638) | 4614 | 408 | 536 | 204 | | 236 | 988 | 520 | 7644 |

[37] Rzepka *et al.* report in this volume.
[38] Rzepka *et al.* report in this volume.
[39] Rzepka *et al.* report in this volume.

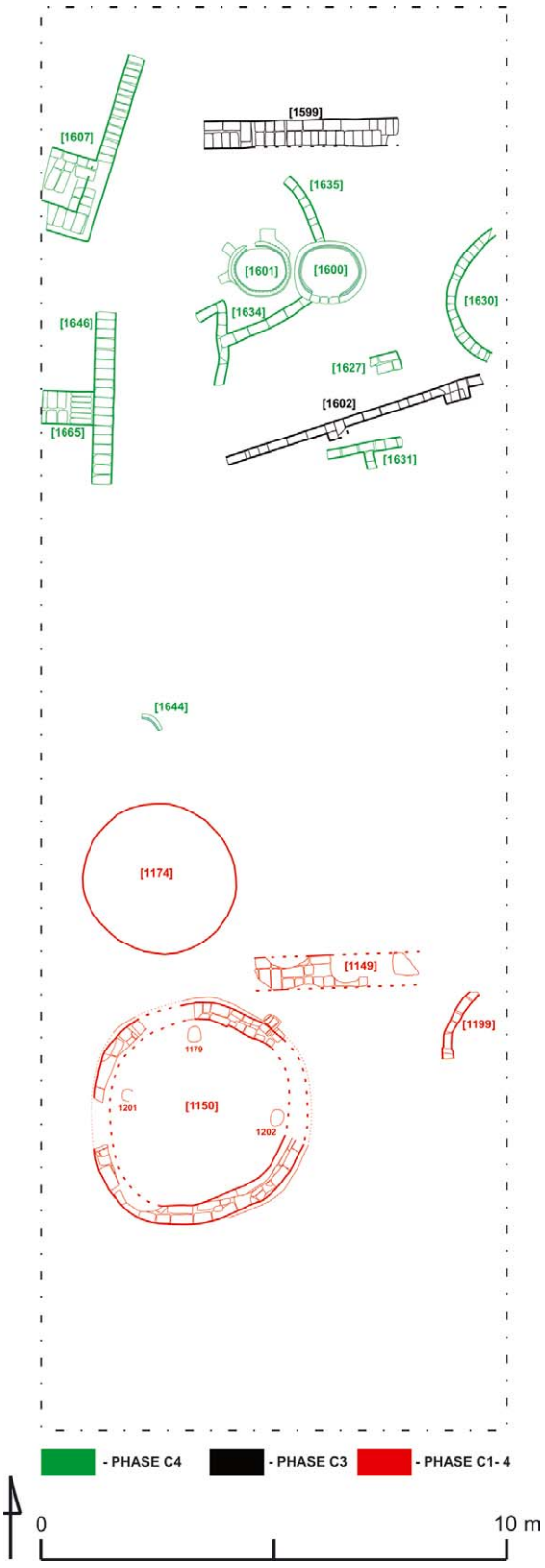


Fig. 11 Plan showing buildings from phase C4 and C3 in the eastern part of Area 9 [1607], [1646], [1599], kilns and other small walls

a remarkable number of rarer (less frequently occurring) edible/economic taxa; fig (*Ficus carica*), lentil (*Lens culinaris*), linen / flax (*Linum usitatissiumum*) seeds and capsule fragments, and date (*Phoenix dactylifera*) stones all occurred in their highest densities (IPL) in this one feature. 2 of the samples (the larger dump layers (1566) and (1638)) contained a reasonable amount of charred dung but only low amounts of wet-loving species seeds. Dump layer (1638) appears to contain far more residues of food preparation than any other unit perhaps providing a hint of activities taking place in this area. The ovens / kilns did not contain the high proportions of dung found in the earlier installations from building [815], but the high density of charred seeds is exceptional and might be an artefact of the total disintegration of the dung fragments.

**Building [1599]** (table 12, fig. 11, fig 12)

Dating to the 3rd Intermediate Period – phase C3 – this structure was excavated in 2014. Very little was preserved; essentially only one wall with related deposits north and south[40] built upon the oven / kiln ash dumps of building [1607] (see above). See fig. 11 for plan showing building [1599]. Stratigraphic unit (1595) was sampled, as was a small pit with a pot placed in it (1596). It is highly probable that these two deposits are made up of the same material. Both contained reasonably average density of IPL (see table 12), and consisted almost entirely of emmer wheat chaff (see fig. 12) – remarkably similar to the slightly earlier material below in buildings [1607] and [1646]. Given the lack of associated features relating to these deposits it is hard to put forward an interpretation. As with the other 3rd Intermediate Period deposits from buildings [1607], [1646] and [1082] the assemblage in this building was overwhelmingly dominated by emmer wheat chaff and it seem plausible to suggest that these dumps may derive from similar origins.

**Building [991]** (table 13, fig. 13, fig. 14)

This building was constructed on top of the ruins of building [1082], 3 phases of use were detected, all dating to the 3rd Intermediate Period (phases C3, C2, C1), excavated in 2012[41]. See fig. 14 for plan showing building [991].

[40] Rzepka *et al.* report in this volume.

[41] Rzepka *et al.* 2014:87–92.

Table 12 Table of results from building [1599]

| Building [1599]. Phase C3, 3rd Intermediate Period. Density (IPL) of major taxa groups. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeterminate | Dung | Avg. |
| Dump | (1595) | 97.2 | 1.2 | 6 | 1.6 | | 4.4 | 2 | 1.2 | 114.4 |
| Dump | (1596) | 57.4 | 5.6 | 5.8 | 1.8 | 0.2 | 5.2 | 0.4 | 7.2 | 84.8 |

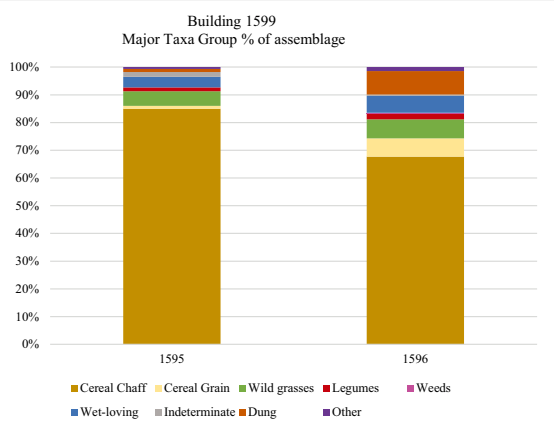


Fig. 12 Histogram of results from building [1599]

Two samples dating to phase C3 (listed as phase 5 in earlier report) were taken from a floor surface in room 2 (1023), and the fill of an oven / kiln (1064) found in the courtyard (see table 13, fig. 13). Within room 2 a great deal of evidence was found for weaving and other domestic activities such as food preparation[42]. The ashy floor surface sample from this room contained a typical domestic fuel assemblage; chaff and other general crop-processing by-products. As with the other 3rd Intermediate Period deposits, (1023) was heavily dominated by emmer wheat chaff. The sample from within the oven / kiln in the courtyard (1064) was entirely different. The sample consisted almost entirely of dung fragments, so much so that it was impossible to quantify using a count of fragments and thus table 13/ fig. 13 do not fully convey this statistic. Of the 186 ml of flot (charred remains), 180 ml consisted of charred dung fragments. It is probably safe to assume that the seeds found in this sample do all derive from the dung – and it is clear that the animals responsible for this dung had consumed annual fimbry, a type of sedge (Cyperaceae), a small seeded clover (Trifolieae tribe <1 mm) and some bugloss (*cf. Lithospermum* (*Buglossiodes*) sp.) – the seeds of which were predominately mineralised and thus may possibly be modern), but very little emmer wheat chaff or other typical crop-processing by-products.

During phase C3 room 2 fell out of use and was used as a general dump space, and a new room (3) was constructed, whilst room 1 continued to be used, clearly functioning as a kitchen area[43]. 4 samples were taken from phase C2 units (see table 13, fig. 13); a floor (1020) and dumped material filling a bin (1054), the dumping from room 2 (992), and the ash from a fireplace in room 3 (1010). Of these units, the floor sample contained the lowest density of items (just 32.4 IPL) almost certainly due to the degradation of charred remains caused by trampling. The contents of these assemblages were generally homogeneous, all containing the usual mix of cereal processing by-products, with the exception of the fireplace (1010) which contained a far higher proportion of heavily charred (vesicular) cereal grains and lentils; the assemblage was generally more diverse and probably reflects casual disposal of food waste and accidental dropping of foods into the fire during cooking.

In the final phase of use the building was enlarged and room 4 was constructed on the ruins of building [1082][44]. Room 2 continued to be used as a dumping space. Samples were taken from unit (976) – the continuation of the dumping in room 2, and unit (1037) – a floor in room 4 (see table 13, fig. 13). The floor ashes were a mix of trampled chaff and grasses, but a notably lower proportion of wet-loving species seeds than had been present in the earlier phases, whilst the dumping in room 2 did in fact contain a higher proportion of this taxa group, possibly an indication that some of this material may be a mix of older ashes cleared out of spaces during the re-modelling of the building.

42 Rzepka *et al.* 2014:87–88.

43 Rzepka *et al.* 2014:89–90.

44 Rzepka *et al.* 2014:90–91.

Table 13 table of results from building [991]

| Building [991]. Phase C3, C2, C1, 3rd Intermediate Period. Density (IPL) of major taxa groups. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Room | Phase | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Leg-umes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| 2 | C1 | Dump | (976) | 40 | 2.8 | 15.2 | 10 | 1.4 | 19.2 | 4.6 | 6.8 | 100 |
| 2 | C2 | Dump | (992) | 86.6 | 8.4 | 20.6 | 2.4 | 0.2 | 11.6 | 23.8 | 4.8 | 160.2 |
| 3 | C2 | Fire place | (1010) | 13.8 | 3.2 | 6.8 | 5 | | 4.2 | 12.8 | | 54.6 |
| 1 | C2 | Floor | (1020) | 16.8 | 1.2 | 2.6 | 1 | 0.2 | 4.8 | 5 | 0.2 | 32.4 |
| 2 | C3 | Floor – midden | (1023) | 58 | 4.2 | 10 | 7.4 | | 9 | 13.8 | 3.2 | 106.4 |
| 4 | C1 | Floor | (1037) | 26.4 | 1.6 | 10.2 | 2.2 | | 1.2 | 3.4 | | 45.2 |
| 1 | C2 | Dump | (1054) | 43.4 | 5.2 | 5.8 | 5.6 | | 9.6 | 4.4 | 0.2 | 74.2 |
| Court yard | C3 | Oven / Kiln | (1064) | 10.4 | 0.8 | 16.8 | 141.6 | 83.4 | 192.8 | 2.4 | 400 | 848.4 |

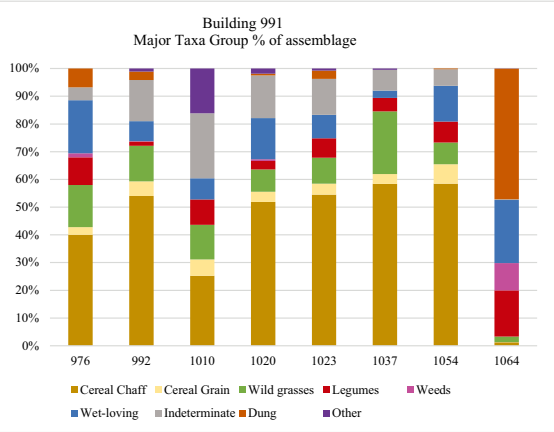


Fig. 13 histogram of results from building [991]

Generally speaking the materials from building [991] bear similarities to the much earlier remains from buildings [815] and [834] – a real mix of cereal chaff, grass, legumes, wet-loving plants and weeds – not overly dominated by 1 or 2 taxa groups like buildings [1607], [1646] and [1599].

**Building [1002] and [1082]**
(table 14, fig. 14, fig. 15)

Dating to phase C4 (early 3rd Intermediate Period), a small fragment building [1082] was uncovered in 2012[45]. See fig. 14 for plan showing building [1082]. The small part that was preserved initially comprised of two rooms, which were merged into one at some point – the centre wall was covered with a thick layer of ash (1029) (see table 14, fig. 15). This assemblage in this deposit was made up primarily of emmer wheat chaff, an indeterminate seed and a large quantity of heavily charred 'vesicular' cereal grains. It also contained a higher proportion of seeds of wet-loving species – more in keeping with the earlier late-20th dynasty pattern. Overall the remains from this group of buildings contained less diversity of the major taxa groups and was far more heavily dominated by emmer wheat chaff.

To the east of building [991], contemporary with the final phase of use (C1, late 3rd Intermediate Period), a series of very poorly preserved walls were excavated in 2012[46] with associated ashy layers. See fig. 14 for plan showing building [1002]. Samples were taken from units (989) and (993) (see table 14, fig. 15). Whilst (993) was almost twice as rich in charred plant remains, the two units contained almost identical assemblages, both heavily dominated (50%) by vesicular (heavily charred) cereal grains, with almost equal proportions of grasses and emmer chaff (all c.20% of the assemblage each).

The lack of contextual information for the samples from building [1002] and [1082] makes it difficult to interpret these remains, although this anomalous dominance of charred cereals is of interest, indicative of a different formation process. It is also worth noting that the samples here were comparatively rich in plant remains – 420–1504 IPL.

[45] Rzepka *et al.* 2014:86–87.

[46] Rzepka *et al.* 2014:90–92.


Fig. 14 Plan showing buildings from all C phases in the western part of Area 9 [1082], [991], [1002] and others

Table 14 Table of results from buildings [1002] & [1082]

| Building [1002]. Phase C1 & building [1082] Phase C4, 3rd Intermediate Period. Density (IPL) of major taxa groups. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Build-ing | Room | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Leg-umes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| [1002] | External | Dump | (989) | 80.2 | 21.2 | 73.4 | 10.2 | 1.4 | 16 | 212.4 | 1.2 | 420.2 |
| [1002] | External | Dump | (993) | 186 | 23.4 | 115 | 25.4 | 1.4 | 17.4 | 417.6 | 1.6 | 801.2 |
| [1082] | 1 | Dump | (1029) | 569.6 | 55.4 | 110 | 19.2 | 13 | 173.2 | 532 | 23.2 | 1504.8 |

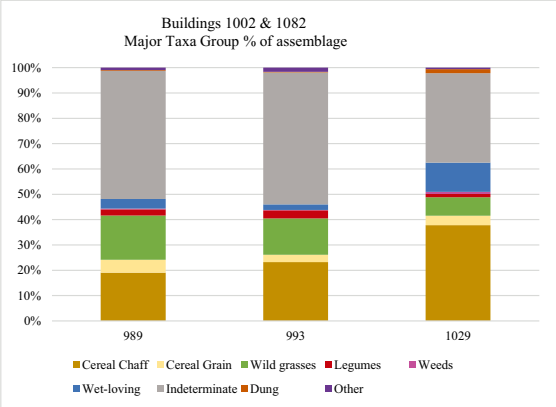


Fig. 15 Histogram of results from building [1002] &[1082]

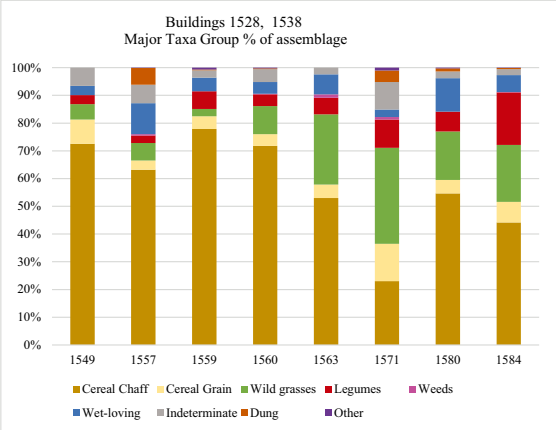


Fig. 16 Histogram of results from buildings [1528], [1538]

Table 15 Table of results from buildings [1528], [1338]

| Buildings [1528], [1538]. Density (IPL) of major taxa groups. | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Building | Room | Phase | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeterminate | Dung | Avg. |
| [1538] | 1 | C1 | Floor | (1549) | 13.2 | 1.6 | 1 | 0.6 | | 0.6 | 1.2 | | 18.2 |
| [1528] | 2 | C2 | Floor | (1557) | 80 | 4.2 | 8 | 3.4 | 0.6 | 14.2 | 8.4 | 7.6 | 126.6 |
| [1528] | 3 | C2 | Floor | (1559) | 95.2 | 5.6 | 3.2 | 7.8 | | 6 | 3.2 | 0.4 | 122.2 |
| [1528] | 4 | C2 | Floor | (1560) | 55 | 3.2 | 7.8 | 3.2 | 0.2 | 3.2 | 3.6 | 0.2 | 76.6 |
| [1528] | 1 | C2 | Floor | (1563) | 8.8 | 0.8 | 4.2 | 1 | 0.2 | 1.2 | 0.4 | | 16.6 |
| [1528] | Court yard? | C2 | Fire place | (1571) | 110 | 64.4 | 165.6 | 48.8 | 4.4 | 12.8 | 47.6 | 20 | 478.4 |
| [1528] | Court yard? | C2 | Dump | (1580) | 187 | 16.6 | 59.8 | 24.6 | | 41.2 | 8.4 | 3.6 | 342.2 |
| [1528] | Court yard? | C2 | Dump | (1584) | 265.6 | 44.8 | 123.6 | 114 | 0.8 | 36.4 | 13.2 | 2.4 | 601.6 |

**Building [1528] & [1538]** (table 15, fig. 16, fig. 17)

Building [1528] was detected during the 2014 excavations. Originally it comprised of room 1 only, with one mixed cultural material midden-like floor level preserved (1563), dating to the later 3rd Intermediate Period (phase C2). This building was then expanded, (within phase C2) and at least 3 new rooms were added to it (rooms 2–4)[47]. See fig. 17 for plan showing building [1528]. Several floors from these new rooms were sampled (1557), (1559), (1560), as well as a fireplace (1571), and two dumping layers (1580), (1584) from an open space (possible courtyard) to the north of building [1528][48] (see table 15, fig. 16). The courtyard fireplace and dump samples were considerably richer in charred plant remains than the room floor samples, as might be expected. Generally speaking all these samples did contain a higher proportion of wild grass (ryegrass / darnel (between 6–35 %)) and there was a higher proportion of legumes present, but the samples were overwhelmingly dominated by emmer wheat chaff.

Just two rooms of building [1538] were detected in 2014 (dating to phase C1), only one of which was fully explored. Each had one floor level preserved, floor (1549) consisted of ashes with bone and ceramics, with a number of objects including 5 loom weights and a needle[49]. Like other floor layers, the assemblage was dominated by cereal chaff, with a small amount of cereal grains, grasses, and other weeds

[47] Rzepka *et al.* report in this volume.

[48] Rzepka *et al.* report in this volume.

[49] Rzepka *et al.* report in this volume.

**External dumping areas** (table 16, fig. 18)

A number of dumping layers un-associated with specific buildings have been excavated from across the excavation area. These date to several different phases (see table 16, fig. 13).

The densities of remains in the dumps varied enormously from 3.67 IPL to 1139.8 IPL, pointing at a variety of origins, formation processes and taphonomic factors. The assemblages in these dumps all consist of at least 35 % cereal chaff – up to 65 % – and most contain a significant quantity of either legumes and / or wild grasses. There are no clear chronological patterns. Some of the samples appear to have strange assemblages, dominated by just 3–4 taxa groups (577), (588), (556), but each of these had extremely low densities of remains. As with other dumps across the site these assemblages attest to the process of general mixing of ashes from various sources, and as is to be expected of tertiary dump features, they contribute more to the overall picture of the major role played by cereal processing by-products as an economically important commodity[50].

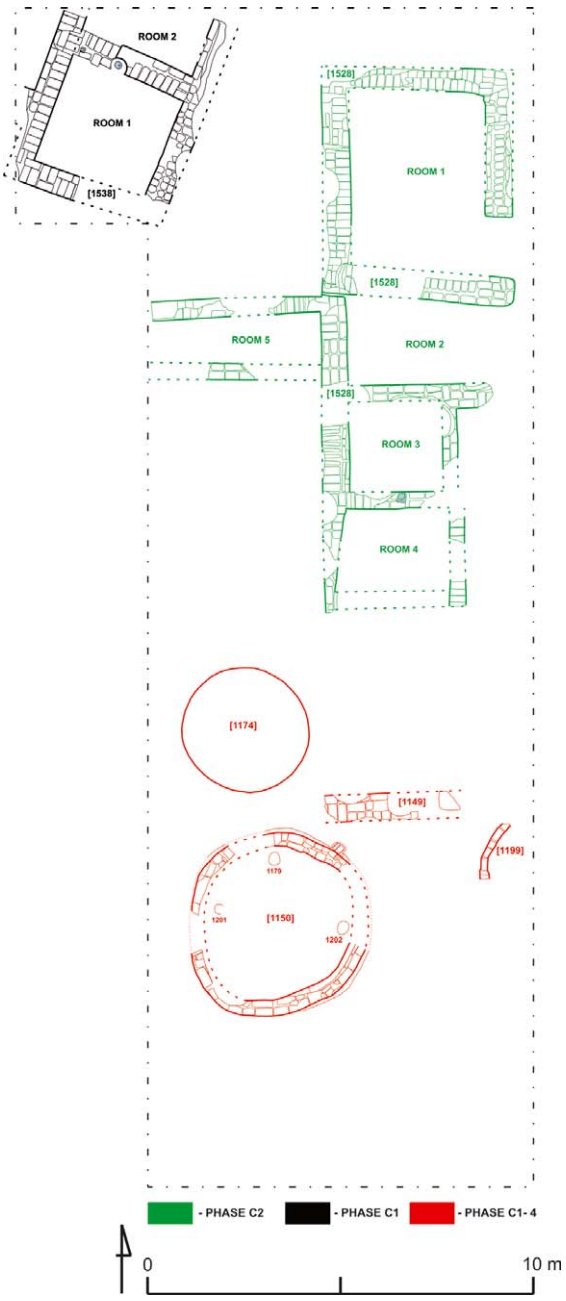


Fig. 17 Plan showing all buildings from phase C2 and C1 from the eastern part of Area 9 [1528], [1538] and others

## Discussion

*Overall observations*

Generally speaking, the Tell el-Retaba assemblage is a result of repeated dumping and mixing of ashes from many different installations; oven / kilns and fireplaces. The results show a high level of homogeneity, with remarkably little clear spatial patterning or differentiation between deposits from different feature types, other than the fact that in-situ ash samples tend to be richer in charred remains (higher IPL). This is entirely typical of archaeobotanical assemblages from settlement sites, the dumps all contain a mix of different fuels from different locations. Other than the occasional occurrence of food waste from fruits and the remains of flax processing, the assemblage consists entirely of cereal-processing by-products (chaff and 'weeds') utilised as fuel either directly, or first fed to animals with the dung then being used as fuel. As such, the results have the potential to address three main issues: changing local ecology/ environment as reflected in the presence of different crop 'weed' species, different choices of fuel types reflected in the in-situ fireplaces, ovens and kilns, and changing patterns of animal husbandry reflected in patterns of contents of dung.

*Ecology / environment*

The most striking result from the analyses of the Tell el-Retaba assemblage is the very clear pattern of an inverse correlation between the quantities of wet-loving species and wild grasses, changing over time (see fig. 19 & 20).

[50] Van der Veen 1999.

Table 16 Table of results from external dumping areas

| External spaces. All Phases, all periods. Density (IPL) of major taxa groups. | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Phase | Unit type | Unit | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| C1-C4 | Dump | (556) | 2.33 | | 1 | 1.33 | 1.33 | | | | 6 |
| C1-C4 | Dump | (559) | 9 | 0.67 | 1.67 | 3.33 | 0.67 | 1.33 | 1.33 | 0.67 | 18.67 |
| C1-C4 | Dump | (563) | 100 | 15 | 13.5 | 11 | | 10.5 | 1 | 3 | 154 |
| E3 | Dump | (577) | 2 | | 0.67 | | 0.33 | 0.33 | 0.33 | | 3.67 |
| E2 | Dump | (588) | 8.2 | 2.4 | 2 | | | 0.4 | | | 13 |
| E2 | Dump | (594) | 6.6 | 0.2 | 2 | 0.8 | 0.2 | | | | 10 |
| E2 | Floor – midden | (595) | 52.7 | 3.3 | 21.5 | 7.5 | | 2.8 | 9.7 | | 98.1 |
| C4 | Dump | (767) | 262.4 | 18.8 | 27.2 | 43.8 | 3.2 | 39.4 | 43.2 | 18.4 | 457 |
| E2 | Dump | (780) | 485 | 65 | 372.6 | 46.2 | 3.8 | 84.6 | 55.2 | 22 | 1139.8 |
| E2 | Dump | (781) | 25.2 | 2.2 | 14 | 2.2 | 1.2 | 6 | 18 | 0.6 | 69.6 |
| E1 | Dump | (807) | 468.75 | 88.5 | 114.5 | 46 | 6.5 | 59.5 | 115.25 | 3.75 | 908 |
| E2 | Dump | (836) | 72.8 | 3.8 | 17.8 | 2.6 | 0.4 | 6.8 | 19.2 | 1.6 | 125.8 |

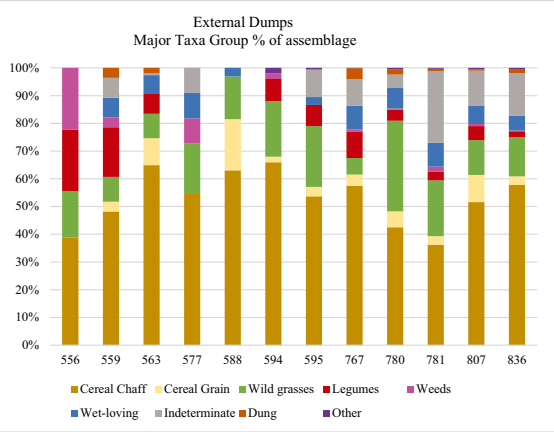


Fig. 18 Histogram of results from external dumping areas

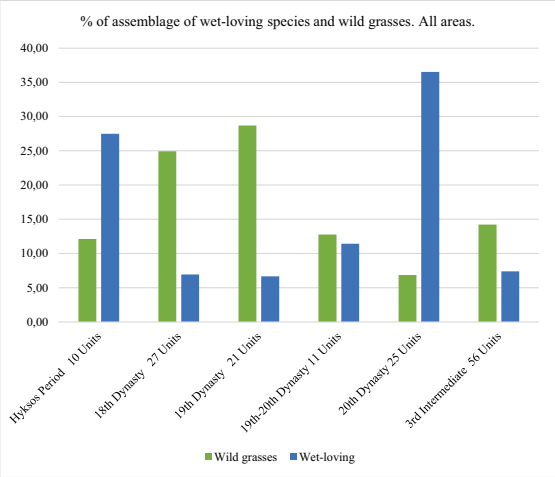


Fig. 19 Histogram of grasses and wet-loving species for all areas

Looking first generally at all dated material from the site (areas 3, 4, 5, 6, 7, 9) (see fig. 19) it is very clear that as the percentage of the assemblage represented by wet-loving species increases – the grasses decrease. During the Hyksos period there is a far greater proportion of wet-loving species than grasses present in the assemblage. During the 18th dynasty this reverses, with grasses becoming more dominant, but then the situation gradually reverts back to a wetter assemblage by the 20th dynasty before 'drying up' again during the 3rd Intermediate Period.

Looking closely at the material from phased areas within the fortified area (Areas 3, 6 & 9) (fig. 20) the situation becomes even more clear. During the Hyksos period (phase G1) wet-loving species represent just under 15% of the assemblage. That percentage drops to a low of 5% during the 18th dynasty (phase F3), then gradually increases, leaping up to nearly 39% in the later 20th dynasty (phase D2), before dropping back down to below 5% by the end of the 3rd Intermediate Period (phase C1). Conversely wild grasses (primarily *Lolium* sp.) represent just over 20% during the Hyksos period (G1), and rise to over 44% by the 18th dynasty (phase F3), before dropping down to around 6% by the end of the 20th dynasty (D2), remaining low until the latter half of the 3rd Intermediate Period (phases C2-1).

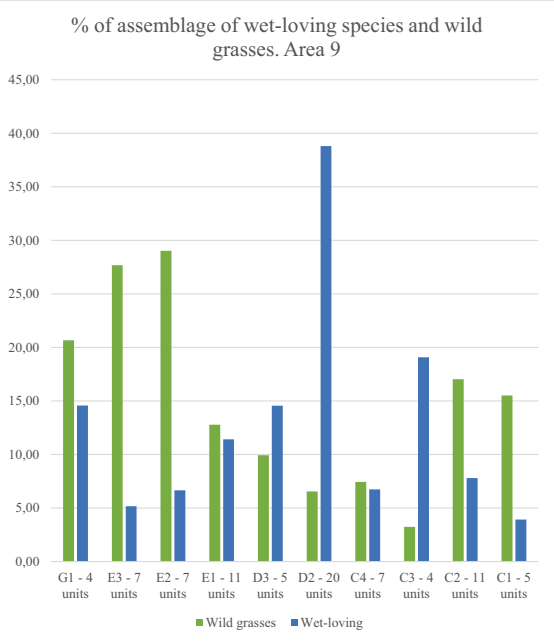


Fig. 20 Histogram of grasses and wet-loving species for Area 9

The most obvious explanation for this is a change in the local ecology – dry phases in the 18th dynasty and 3rd Intermediate Period, with wetter phases earlier during the Hyksos period and 20th dynasty. Interestingly, this 'drying-up' from the Hyksos period to the 18th dynasty is emphasised when the Hyksos period archaeobotanical remains from nearby Tell el-Maskhtua are taken into consideration[51]. At that site the assemblage consisted of 35 % wet-loving species (sedges), whilst grasses (ryegrass/darnel and canary grass (*Phalaris* sp.)) made up 15 %[52]. Compare this to Hyksos period Tell el-Retaba with 27 % wet and 12 % grasses.

Other explanations should also be investigated. If the changes in dominant taxa are representative of an ecological shift, it may well not have been wide-spread. It is possible that the change reflects a purely localised alteration in the availability of water. Marshy areas adjacent to the site may have either increased in size or dried up, either naturally or via human intervention. It is possible that during the 20th dynasty occupation of the fort there were interventions into the hydrology of the area in order to supply sufficient water to this key strategic location along the route out of Egypt to the east. If the plants derive predominantly from dung, this change may actually reflect a change in foraging or foddering strategies; perhaps during the 'wet' phases livestock was grazing, whilst in the 'dry' phases they were consuming specifically provided / selected fodder. The supply of cereal processing by-products (and other plant fuels) as a commodity to military / government establishments is attested both archaeobotanically and textually[53], so it is entirely possible that the 19–20th dynasty remains do not derive from the local area. However, this change in taxa group abundance does not appear to tie in clearly to the changing use of the site; it is not the case that during the occupation of the fort (19–20th dynasties) the assemblage is markedly different to occupation of the 3rd Intermediate Period town. Perhaps at least some of the chaff / by-products were supplied to both the town and the fort from elsewhere for use as fodder and fuel, and thus the change in taxa present may be reflective of conditions elsewhere, and might even be the result of a mixed supply of plants from a variety of different locations. The situation is clearly complex and requires more detailed investigation.

What is perhaps of more interest is the fact that this wetter phase during the later 20th dynasty detected at Tell el-Retaba is actually the exact opposite of other records. Ancient Egyptian texts and flood records indicate a rise in wheat prices probably due to a series of low floods during the later Ramesside period, followed by high floods and low land prices during the 21st dynasty[54]. This is certainly an issue needing closer investigation, but it is increasingly apparent that the region was undergoing regular ecological shifts.

### *Fuel choices*

Based on analyses of the 2011–2014 materials, in general it appears to be the case that dung was the favoured fuel at the site for larger installations, whilst for smaller more domestic heating installations cereal-processing by-products may have been used more directly alongside casual/accidental disposal of food waste. Wood is present in small quantities, generally smaller shrubby taxa – the scarcity of wood in the area is almost certainly responsible for the extensive use of cereal by-prod-

[51] Crawford 2003.

[52] Based upon data presented in Crawford 2003.

[53] Moens & Wetterstrom 1988; Murray 2009; Van der Veen 1999.

[54] Baer 1962:29; Murray 2000: 515.

Table 17 Table of taxa groups in unit types

| Unit types. Density (IPL) of major taxa groups. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Unit type | Cereal Chaff | Cereal Grain | Wild grasses | Legumes | Weeds | Wet-loving | Indeter-minate | Dung | Avg. |
| Dump | 144.45 | 16.78 | 48.75 | 14.03 | 1.5 | 23.67 | 67.4 | 7.54 | 326.69 |
| Fire place | 178.24 | 22.82 | 52.16 | 15.29 | 4.24 | 251.37 | 36 | 10.67 | 573.02 |
| Floor | 31.09 | 2.6 | 4.68 | 2.38 | 0.58 | 9.79 | 15.89 | 1.27 | 68.43 |
| Floor – midden | 43.16 | 2.6 | 14.12 | 13.8 | 0.16 | 5 | 8.48 | 0.96 | 89.28 |
| Oven / Kiln | 170.86 | 14.54 | 42.6 | 40.4 | 22.62 | 64.32 | 51.71 | 81.75 | 490.97 |
| Pots | 69.39 | 2.87 | 14 | 10.91 | 29.83 | 43.7 | 24.96 | 2.7 | 200.04 |
| Stable | 16.5 | 1.1 | 5.3 | 3.6 | 5.2 | 4.4 | 5.4 | 0.5 | 42 |

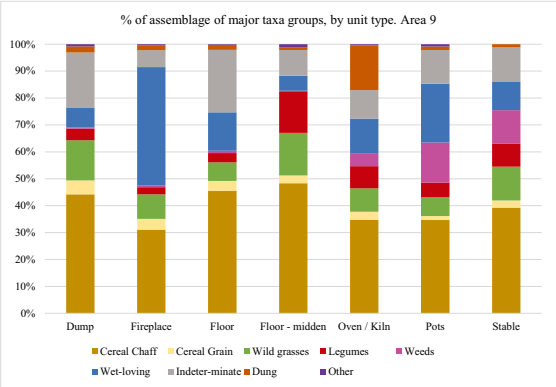


Fig. 21 Histogram of taxa groups in unit types

ucts / dung as fuel and the resulting exceptionally high densities of charred plant remains in the assemblage[55]. Dung is well-known to have been used as fuel in Ancient Egypt[56], and continues to be used today. It burns steadily and is considered a reasonably good fuel for cooking, although due to its' smokiness it is best used in outdoor spaces i.e. ovens / kilns in courtyards, and is sometimes a preferred fuel for installations such as kilns[57], although the evidence is varied – some sources pointing towards wood charcoal as the favoured industrial fuel[58]. Cereal processing by-products were also used, but these tend to flare more quickly and are less reliable for maintaining temperatures[59]. Dung fuel is inevitably favoured when wood fuel is scarce.

Looking generally at the statistics, the 'in-situ' deposits of fuel in oven / kilns in Area 9 contain significant proportions of charred dung fragments, whilst the fireplaces do not display the same pattern (see table 17, fig. 21). These statistics appear to reflect a pattern of daily household cleaning of cereals from silos, with some of the by-products being used directly in the household fireplaces – saving the dung fuel for facilities that needed a more regulated temperature.

However, looking more closely at the individual units themselves, the pattern is not so clear cut. The installations from building [1607] (3rd Intermediate Period) actually contain relatively low proportions of dung. The oven / kiln from building [991] (3rd Intermediate Period) was so densely pack with dung that it is responsible for this apparent phenomenon, the installations from building [815] (19–20th dynasties) do all contain relatively high proportions of dung. The fact that oven / kilns from all periods contain dung does suggest at least some continuity in the choice of fuel materials, unaffected by the changing nature of the settlement. The fireplaces within all the buildings appear to contain a more even distribution of the different taxa groups, but when examined in more detail they display no real patterns of the selection of specific plants. This is likely to be a result of the casual disposal of food processing remains[60], with each fireplace containing just the remains of the final fire lit in that location. This not only acts as a cautionary

[55] Van der Veen (2007:969) comments that in desiccated assemblages the IPL is high – from 200 up to 1000. This highlights how extraordinarily rich the Tell el-Retaba assemblage is.

[56] Murray 2012:257; Moens & Wetterstrom1988:167.

[57] Murray 2012:257.

[58] Crawford 2003: 115.

[59] Murray 2012:257.

[60] Van der Veen 2007:979.

note to look beyond the apparent general patterns within the assemblage, but highlights the complexities of the realities of ancient activities.

*Dung, and potential animal husbandry issues*

Due to the fact that many plant parts pass through animals undigested[61], dung can be used as a source of information on animal husbandry practises and a source of information on local ecology[62]. However, the question of whether the cereal chaff, grasses, legumes and other weeds in any assemblage *all* derive from dung or not is a complex issue[63].

The features of these remains which are considered to be of help in determining the origin of the plants is the presence or lack thereof of charred lumps of dung, and the relative quantities of fodder species and certain chaff elements[64]. Some studies have suggested that the presence of large quantities of plants recognized as fodder (legumes) – in samples also containing high densities of dung – is evidence to suggest that the majority of the seeds derive from dung, allowing for conclusions regarding animal husbandry patterns[65] although this theory is now being questioned. An additional consideration is that whilst many of the harder chaff parts and seeds of plants consumed by the animals actually pass right through the guts of the animals[66] (thus appear in the charred assemblage), seeds deriving from dung will show signs of chewing or degradation by digestive enzymes, and very few of the more delicate plant parts will survive[67].

Looking at the condition of the materials, generally speaking the remains at Tell el-Retaba are abundant but not always in perfect condition. The majority of the emmer wheat chaff is broken into individual glume bases, and is generally fairly degraded. Emmer wheat glume bases form just over 28 % of the entire site assemblage (53.99 IPL), whilst intact spikelet forms form just under 12 % of the assemblage (15.81 IPL) (see table 18).

This could of course be more to do with processing methods (pounding of emmer), or the archaeological recovery method (bucket flotation), than degradation due to animal chewing. Very few morphological characteristics are preserved on any items; as can be seen in table 2 very few specific species have been identified, generally most items are identifiable only to genus. The problem of using this method to determine if the seeds are derived from dung is that as mentioned above – the majority of the samples were from dumping contexts, meaning that much of the degradation could well be due to frequent disturbance rather than chewing by animals.

Table 18 Table showing emmer wheat chaff statistics

| Item | Item count | % of assemblage | IPL |
|---|---|---|---|
| *Triticum dicoccum* glume base | 44417 | 28.08 | 53.99 |
| *Triticum dicoccum* spikelet forks | 13011 | 11.17 | 15.81 |

The presence or absence of dung fragments is difficult to quantify. Dung fragments are present in c. 60 % of samples from the site overall (see table 3), which does point to a conclusion that it was a common fuel type at the site. The majority of the dung fragments can actually be identified as being sheep / goat pellets, but this is not the case for all samples, and indeed is not the case for the samples with the highest densities of dung present.

What does have to be born in mind is that the taphonomic effects of repeated disturbance of the ashes may well have broken down much of the dung into unrecognizable dusty material. The only way to be more certain of dung presence throughout the assemblage would be to conduct analyses for micro-remains e. g. spherulites and phytoliths[68] – which is unlikely to be possible for these samples. The relative ubiquity of dung throughout the assemblage could be taken as an indication that the majority of the charred remains may derive from dung – meaning that it is plausible to draw some conclusions regarding animal husbandry patterns.

Within the Tell el-Retaba samples (all areas / seasons), potentially cultivated fodder species (leg-

61 Anderson & Ertung-Yaras 1998; Charles 1998; Miller 1984.

62 Crawford 2003.

63 Anderson & Ertung-Yaras 1998: Charles 1998; Gardner et al 1993; Lancelotti & Madella 2012; Murray 2012; Valamoti 2013.

64 Anderson & Ertung-Yaras 1998; Charles 1998; Miller 1984.

65 Crawford 2003; Miller 1984; Moens & Wetterstrom 1988; Malleson (in preparation) questions this theory.

66 Anderson & Ertung-Yaras 1998.

67 Valamoti 2013.

68 Lancelotti & Madella 2012.

umes) are not actually especially prevalent. Whilst legumes do occur in most samples (nearly 84%), they form just under 6% of the overall assemblage (IPL 11.56) (see table 3). At other sites where legumes were thought to be cultivated fodder they form between 15–40% of the assemblage[69]. Compare this to wild grasses and wet-loving plants which occur in 90% and 84.8% of the samples at Tell el-Retaba respectively, forming nearly 30% (grasses) and over 27% (wet) of the assemblage with average densities of 15.4 IPL (grasses) and 13.96 IPL (wet-loving). The complicating factor in this discussion is the fact that if legumes are being cultivated and fed as fodder, they are in fact highly unlikely to appear in the archaeobotanical record; they are most nutritionally beneficial when fed as young plants which have not yet gone to seed. Assuming (for the sake of discussion) that the assemblage does derive mainly from dung – the animals appear to have been consuming a mixture of cereal chaff, grasses and reeds/sedges. Ryegrass / darnel (*Lolium* sp.) is recognized as having been the most prevalent cereal crop weed in ancient Egypt[70] and given the changing conditions at the site (see above) it seems probable that the wet-loving species represent cereal crop-weeds for the wetter periods. The relative lack of cereal grains in the samples is typical of this type of assemblage – the grains themselves have either been extracted for human consumption, or have been fed to animals either prior to processing, or mixed with processing by-products to enrich the fodder. In either case the grains are naturally absent from the assemblage having been digested.

One issue that must be noted, with respect to the identification of this material as being primarily dung-derived, is the abundant presence of ryegrass/darnel If these specimens are darnel (*Lolium temulentum*) as opposed to ryegrass (*Lolium perenne*), that presents a problem. Darnel can be toxic due to the presence of a fungus (ergot), but it is not known if this fungus was indeed present in ancient Egypt, and thus this may not pose a problem to the interpretation of the consumption of darnel by cattle. The degraded nature of much of the material makes it difficult to be sure of the species identification, but both *L. temulentum* and *L. perenne* have been identified in ancient Egyptian plant assemblages, however *L. temulentum* is considerably more common[71].

The prevalence of cereal chaff in the assemblage, mixed with either grasses or reeds/sedges leads to a conclusion that the animals' diet consisted either of pre-processed crops (resulting in the preservation of just the tougher chaff and weed seeds), or that they were fed just the crop-processing by-products.

The question of exactly where these crop-processing by-products came from is also a complicated issue. As discussed above, the possibility that food / fodder / fuel was supplied to the 19-20th dynasty forts and indeed the 3rd Intermediate Period town has to be considered. The homogeneity of the assemblage through time and the consistent occurrence of dung and chaff / weeds throughout the samples from all periods does however point towards a situation in which there no major changes in the subsistence strategies at the site. The only significant change is in the abundance (or lack) of wet-loving species as discussed above, and that does not appear to tie into the changing nature of the settlement. As already noted, the situation is clearly complex and deserves far more in-depth analyses.

## Summary

Whilst leading to more questions than answers, the analyses of the archaeobotanical assemblage at Tell el-Retaba do lead towards several working hypotheses. Firstly, that there were regular changes in the use / presence of species from different habitats; an abundance of reeds and sedges during the Hyksos Period and 20th dynasty, with more wild-grasses and fewer wet-loving taxa present in the 18–19th dynasties and 3rd Intermediate Period. The cause of this phenomenon needs further investigation. Secondly, that the inhabitants were utilising a mix of dung and crop by-products as fuel, and in some instances making a specific choice to use dung fuel in specific installations. Thirdly, that livestock at the site were consuming a diet of cereal-processing residues possibly mixed with local foraging.

The archaeobotanical remains from Tell el-Retaba throw up a number of interesting problems, all of which require further analyses and more in-depth research. What they do highlight is the exceptionally complex and perhaps unpredictable nature of the realities of daily life in ancient Egyptian settlements.

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[69] Moens & Wetterstrom 1998: table 1.

[70] Samuel 2000.

[71] Boulos & Fahmy 2007; Fahmy 1997.

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# THE EGYPTIAN OBJECTS FROM TELL HIZZIN IN THE BEQAʿA VALLEY (LEBANON): AN ARCHAEOLOGICAL AND HISTORICAL REASSESSMENT

*Alexander Ahrens*[1]

## I. Introduction

Among the finds from Tell Hizzin (Figs. 1–3), the fragments of two Egyptian statues stand out and have attracted scholarly attention ever since their discovery.[2] Interestingly, it was the fragment of the statue of Pharaoh Khaneferre Sobekhotep IV of the 13th Dynasty which actually brought Tell Hizzin to the attention of Maurice Chéhab.[3] A dealer in antiquities showed Chéhab the fragment which was said to come from there.[4] Archaeological excavations then undertaken at the site in 1949 and in 1950[5] soon led to the discovery of fragments of yet another Egyptian statue, which in this case named the high ranking Middle Kingdom governor of Asyut (Siut) in Middle Egypt, Djefaihapi (Djefaihapi I) of the 12th Dynasty.[6]

Not long after their discovery, the Egyptian objects from Tell Hizzin were conceived of as an important contribution to the understanding of the northern Levant's relations with the Middle Kingdom of Egypt (i.e. the 12th and 13th Dynasties), and even led some scholars to postulate an Egyptian political domination or hegemony over the Beqaʿa Valley during the Middle Bronze Age, while oth-

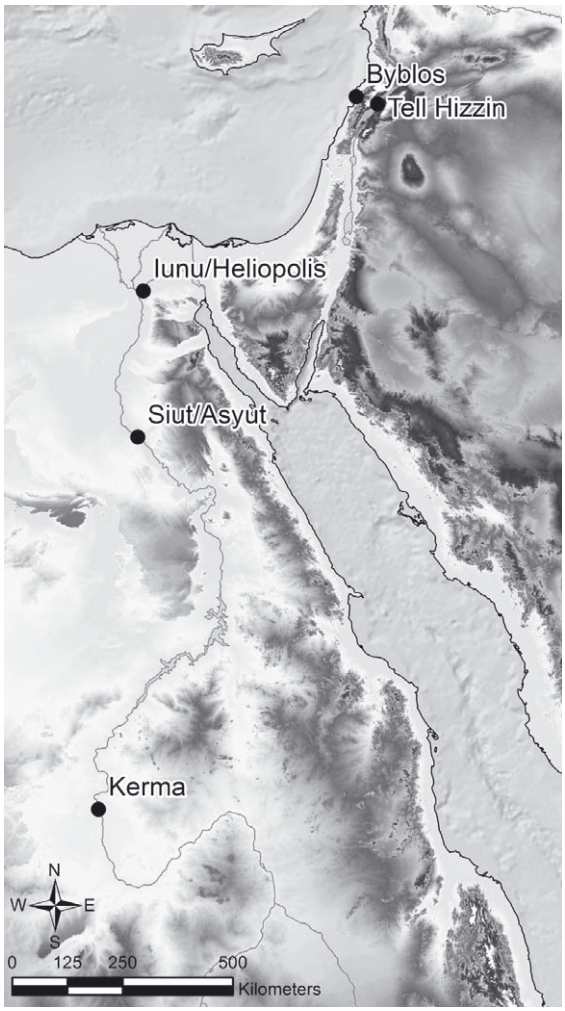


Fig. 1 Map showing sites mentioned in the text (map by A. Sollee, SRTM data courtesy of CGIAR Consortium for Spatial Information).

[1] German Archaeological Institute, Orient Department, Damascus Branch. I wish to thank Hermann Genz and Hélène Sader (American University of Beirut) for entrusting me with the reassessment and study of the Egyptian objects from Tell Hizzin as researcher at the Damascus Branch of the Orient Department of the German Archaeological Institute. I also want to thank Alexander E. Sollee, S. Borkowski and C. Steiner (University of Bern) for their help concerning the preparation of this paper. Emily Schalk (Berlin) kindly proofread the English manuscript.

[2] Regrettably, the present location of these two Egyptian statues is not known. Originally stored within the magazines of the National Museum of Antiquities Beirut, the objects now seem to have been lost in the course of the Lebanese Civil War (Genz and Sader 2008, 185–186), see also Fisk 1991.

[3] Chéhab 1968, 4–5, pl. VIa; 1969, 28, pl. IV.2.

[4] Galling 1953, 88; Chéhab 1983, 167; Genz and Sader 2008, 184; Sader 2010, 638.

[5] The excavations at Tell Hizzin were conducted from April to September 1949 and from June to December 1950 under the direction of M. Chéhab, see Sader 2010, 639–640.

[6] Chéhab 1968, 4–5, pl. IIIc; 1969, 22, pl. IV.1.

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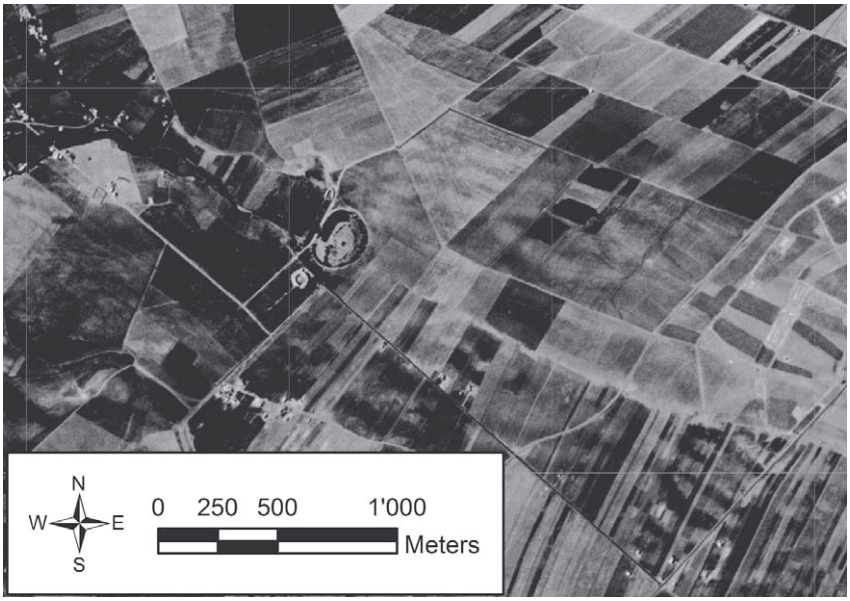


Fig. 2 Satellite image of Tell Hizzin (image taken in 1969, courtesy of the CORONA Atlas of the Middle East).

Fig. 3 The site of Tell Hizzin in the Beqaʿa Valley, from north-east towards the Lebanon Mountains (photo by author, taken in 2010).

ers regarded the objects to reflect the remains of a gift exchange that took place between the Egyptian pharaohs and the rulers of the northern Levant during the second millennium BC.[7]

However, any historical or chronological implication pertaining to the statues' presence at Tell Hizzin was – and unfortunately still is – largely hampered by the fact that a more detailed stratigraphical and contextual description of the objects' find contexts apparently was not recorded and never established. Thus, the exact nature of the context in which the statues were found remains, to a large degree, unknown.[8] Hence, definite answers as to the statues' date of dispatch or their arrival at the site of Tell Hizzin demand caution and cannot easily be given with certainty.

The available archaeological and historical evidence pertaining to the Egyptian objects from Tell Hizzin will be reviewed here once again in order to gain a thorough and clearer perspective on the statues' possible date of dispatch from Egypt and their arrival at the site.

[7] See also Chéhab 1949–50, 109; Galling 1953, 88–90; Montet 1954, 76; Kuschke 1954, 107, note 9; Kuschke 1958, 84–86, 89; Chéhab 1968, 4–5, pls. IIIc and VIa (the photograph of the statue of Djefaihapi was mistakenly published upside down here); 1969, 22, 28, pls. IV1–2; Helck 1971, 70–71; 1976; Chéhab 1975, 12–14; 1983, 167; Gubel 1985; Teissier 1990, 69; Redford 1992, 81, note 64 (mistakenly referred to as a statue of "Sobekhotep VI from Baalbek" here); Doumet-Serhal 1996, 97; Marfoe 1998, 165, note 27; Forstner-Müller et al. 2002, 162; Verbovsek 2004, 213; Sievertsen 2006, 51.

[8] Genz and Sader 2008, 184; Sader 2010, 638–639.

## II. The Statue of Sobekhotep IV

Although known to the scholarly community for a long time,[9] actual photographs of the fragment of the statue of Sobekhotep IV (ca. 1738–1731? BC)[10] were published by Maurice Chéhab for the first time in 1968 and then shortly afterwards again in 1969.[11] The hieroglyphic inscription on the base of the statue, however, was already published as a line drawing by the French Egyptologist Pierre Montet in a short note as early as 1954.[12]

Nothing is known about the actual size of the statue and the material used. Montet refers to the fragments of the statue as "d'une statue de petit format",[13] probably leading Egyptologist Anthony J. Spalinger, in his entry for "Sobekhotep IV" in the *Lexikon der Ägyptologie*, to mention "a small statue of S. IV (which) was later brought to Tell Hizzin near Baalbek".[14] The actual size of the statue would not have exceeded 30–50 cm in total (given the execution of the hieroglyphic inscription),[15] although larger and even smaller examples of this type of statue are attested in Egypt. Judging on the basis of the photographs, diorite,[16] anorthosite gneiss[17] or schist would be the material most likely used for the statue, although this is without definite proof (Figs. 4–6).

The actual fragment – the lower part of the former statue (lower legs and pedestal) – shows that it once represented the king in the customary royal striding position, his left leg put forward with his feet and legs bare. It can be surmised that the complete statue once showed the king dressed in a short kilt (the lower part of the kilt is still partly visible at the upper part of the right leg, see Fig. 5), bare chested and – most probably – wearing the *nemes* headdress.

The inscription on the base of the statue is framed by a rectangular square. It is well preserved and consists of three vertical lines (Figs. 6–8):

[1] *nṯr nfr nb tȝ.wj* (*Ḫʿ-nfr-Rʿ*)
*"The Good God, Lord of the Two Lands, Khaneferre"*

Fig. 4 Fragment of statue of Sobekhotep IV (front view, image courtesy of the DGA Liban).

Fig. 5 Fragment of statue of Sobekhotep IV (side view, image courtesy of the DGA Liban).

[9] Chéhab 1949–50; Galling 1953, 88–90; Leclant 1954, 78; 1955, 315–316.

[10] Reigns of Egyptian kings are given according to Kitchen (2000, 49).

[11] Chéhab 1968, pl. VI.a; Chéhab 1969, pl. IV.2. The photographs of figures 1, 2 and 4 of the present article have not been published before and are presented here for the first time.

[12] Montet 1954, 76. Interestingly, according to M. Chéhab (1969, 28) the French Egyptologist Jacques Vandier apparently also read and translated the inscription. Whether Vandier or Montet translated the inscription first is not known. It is interesting to note that Montet (1954, 76) does not give a transcription or translation of the inscription (although clearly referring to the inscription and discussing its content), while Chéhab (1969, 28) credits Vandier for the translation he presents.

[13] Monet 1954, 76.

[14] Spalinger 1984, 1043.

[15] Quirke 2010, 64, VI.27/7 ("Tell Hizzin, size unclear").

[16] Galling 1953, 89.

[17] Quirke 2010, 64.

[2] *s3 Rˁ mry=f (Sbk-ḥtp)*
*"Son of Ra, his Beloved, Sobekhotep"*

[3] *mry Rˁ–Ḥr-3ḫ.tj*
*"Beloved of Ra-Horakhty"*

While of scant historical value and not explicitly giving any details pertaining to the function of the statue or its place of origin, the inscription clearly points to the original emplacement of the statue at Heliopolis (Egyptian *Jwnw*; Biblical *On*) by mentioning Ra-Horakhty (literally "Re-Horus of the two horizons"), the main and most important deity of ancient Heliopolis.[18] It is highly likely that the statue of Sobekhotep IV originally derives from there[19] and probably stood in the one of the

Fig. 6 Fragment of statue of Sobekhotep IV with hieroglyphic inscription on the base (image courtesy of the DGA Liban).

Fig. 7 Cast of the hieroglyphic inscription of Sobekhotep IV (image courtesy of the DGA Liban).

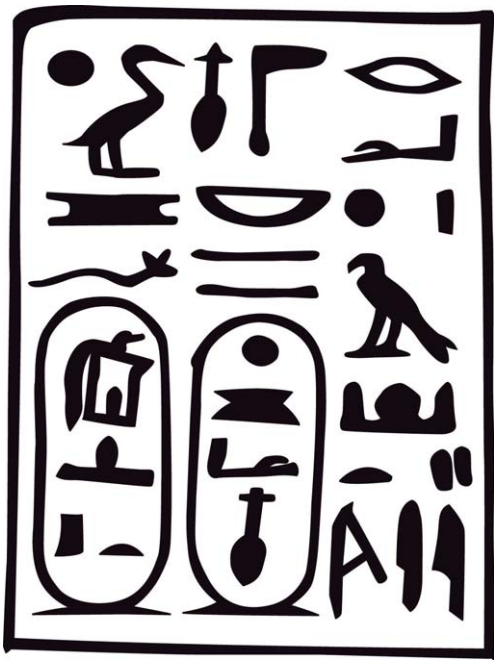

Fig. 8 Inscription of statue of Sobekhotep IV (not to scale, drawing by A. Gubisch).

[18] Montet 1954, 76.

[19] For recent archaeological work at the site and its temple precinct, also yielding monuments of the Middle Kingdom and exposing levels of the Second Intermediate Period, see Raue 2006; 2007; Abd el-Gelil et al. 2008, 4; Mahmud *et al*. 2008, 189.

city's temples or sanctuaries dedicated to the god Ra-Horakhty, before it reached Tell Hizzin only later.[20]

One of the better known and apparently more important pharaohs of the 13th Dynasty, Sobekhotep IV's reign in Egypt is – considering the general dearth of historical sources relating to the 13th Dynasty – relatively well attested.[21]

Born in Thebes in Upper Egypt, Sobekhotep IV is believed to have reigned at least ten years (although the highest regnal year is eight),[22] during which at least one military campaign in Nubia seems to have taken place.[23] Monuments carrying his name are known throughout Egypt, with building activities primarily attested at Memphis, Abydos and Karnak. Rock inscriptions bearing his name in the Wadi Hammamat and Wadi el-Huli (Eastern Desert) relate to expeditions to obtain raw materials.[24] It is still unclear whether or not his successor Sobekhotep V was a son of Sobekhotep IV.[25] Shortly after his reign – probably during the reign of Merneferre Aya (ca. 1717–1694 BC) –, the Egyptian central authority fell into disarray, with the later kings of the 13th Dynasty being only ephemeral monarchs in fragmented political units.[26]

A cartouche with the prenomen and nomen of his predecessor (and brother) Neferhotep I Khasekhemre (ca. 1749–1738 BC) is featured on the well-known relief found at Byblos, also depicting the enthroned ruler of Byblos 'Entin/Yantin (i.e. Yantin-ʿAmmu),[27] which traditionally serves as a basis for synchronisms between Egypt, the Levant and Babylonia in the first half of the 2nd millennium BC.[28] Yet, the nature and actual extent of the relations between Egypt and the northern Levant during the reign of Sobekhotep IV remain mostly unknown,[29] although the reigns of Pharaohs Neferhotep I and Sobekhotep IV are generally considered to be a period of a short-lived political stabilization during the 13th Dynasty.[30]

Trade in cedar during the reign of Sobekhotep IV, however, is actually attested in an inscription on a stela from Karnak (Cairo JE 51911, lines 10–12), which mentions two set of doors being erected in the temple of Amun,[31] indicating (direct?) ongoing commercial contacts with the ports of the Levantine littoral, primarily Byblos, before the collapse of the Middle Kingdom during the later part of the 13th Dynasty.[32] Indeed, so far the latest Egyptian import found at Byblos prior to the New Kingdom apparently seems to be a royal-

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20 Montet's idea of a possible conceptional connection between the Egyptian Heliopolis (=*Jwnw*) and the Heliopolis in the Beqaʿa Valley (=Baalbek), however, does not seem plausible. The idea expressed in the title ("D'Héliopolis d'Égypte a Héliopolis de Syrie") and in the note itself ("Il est donc permis de penser que ce n'est pas par hasard que son monument a été trouvé si près d'un site voué sans doute de toute antiquité au culte du soleil") would seem to ignore the archaeological and historical evidence of the 2nd millennium BC (Montet 1954, 76).

21 Spalinger 1984; Ryholt 1997; Quirke 2010.

22 Kitchen (2000, 49) ascribes only seven years to Sobekhotep IV.

23 Spalinger 1984, 1043; Ryholt 1997, 92; Kubisch 2008, 108–109.

24 von Beckerath 1964, 57–58, 246–250; Spalinger 1984, 1043; Ryholt 1997.

25 Ryholt 1997, file 13/31; Ryholt 1998a, 31.

26 Bourriau 2000, 185; Quirke 2004, 171; Ben-Tor 2007a, 181; see now Marée 2010, XIII–XIV. The Middle Kingdom generally believed to comprise the 12th and early 13th Dynasties until the reign of Merneferre Aya, the late 13th Dynasty thus considered a part of the Second Intermediate Period. Recent research claims that the Second Intermediate Period did not start earlier than the very end of the 13th Dynasty (Marée 2010, XIII–XIV).

27 The inscribed fragment of a stone vessel in hieroglyphic script, apparently naming the same Yantin, led Albright to believe that Yantin-ʿAmmu was the person interred in Tomb IV of the royal tombs at Byblos (Albright 1964, 38–43).

28 Dunand 1939, 197–198, pls. XXX and CCVII; Albright 1945; 1964; 1965; 1966, 29–30; Ryholt 1997, 87; contra Schneider 2006, 179–180.

29 Kubisch 2008, 104–105.

30 Altogether these two kings ruled for approximately twenty years, not taking into account the reign of the ephemeral king Sahathor, who seems to have reigned little more than a few months between Neferhotep I and Sobekhotep IV.

31 Helck 1969, 194–200; Ryholt 1997, 89; Ben-Tor 2007a, 182.

32 In this case, the relief featuring the cartouche of Neferhotep I from Byblos and the statue of Sobekhotep IV from Tell Hizzin might be seen as indirect proof of the existing Egypto-Levantine contacts, especially with Byblos, during their reigns. Thus, it would not seem too far-fetched to believe that Sobekhotep's statue from Tell Hizzin actually reached the site via Byblos. Needless to say, this cannot be proven on the basis of archaeological and historical evidence at hand, but see Durand 1999, 159. For clay sealings featuring the throne names of Sobekhotep III and Neferhotep I found in a Hyksos palace of the 15th Dynasty at Tell el-Dabʿa in the eastern Nile Delta, see Sartori 2009, 284–285.

name scarab of Ibiaw Wahibre, who followed Sobekhotep V on the throne of Egypt and was in turn succeeded by Merneferre Aya.[33]

The fragment of the statue from Tell Hizzin is hitherto the only monument found in the Levant that bears the name of Sobekhotep IV Khaneferre. Apart from this statue found in the Levant, a headless statue of Sobekhotep IV was found on the island of Argo, north of modern Dongola in Nubia.[34] Additionally, the fragmented statues of two further kings of the 13th Dynasty that name Sobekhotep I and Sobekhotep V (VI?) respectively, were found inside Tumulus X at Kerma in Upper Nubia.[35] It is highly probable that these two monuments were brought to Nubia in the Second Intermediate Period during which the Kingdom of Kush is now attested to have penetrated deep into Egyptian territory.[36] Likewise, also Egyptian temples located in the Delta and the Memphite region apparently seem to have been pillaged during the rule of the Hyksos.[37] As the temple of Ra-Horakhty at Heliopolis was most probably affected by these violations too – though this is without definite archaeological proof – it could well be that the statue of Sobekhotep IV was taken from one of the site's sanctuaries at that time, i.e. the Second Intermediate Period.[38]

Apart from the fragment of the statue of Sobekhotep IV from Tell Hizzin and the relief naming Neferhotep I from Byblos, the only other object found in the northern Levant[39] dating to the 13th Dynasty is a ceremonial mace of Pharaoh Hotepibre Harnedjheritef (ca. 1770/50 BC), which was found in the late Middle Bronze Age "Tomb of the Lord of the Goats" at Tell Mardikh/Ebla.[40]

## III. The Statue of Djefaihapi

The fragments of the second statue from Tell Hizzin, belonging to the 12th Dynasty provincial governor ("nomarch") Djefaihapi, were published along with the statue of Sobekhotep IV by M. Chéhab in 1968 and 1969.[41] While the fragments of the statue were found in the course of excavations carried out at the site, little is known about their actual archaeological context.[42] Apparently, the fragments of the statue apparently were all discovered relatively close to each other,[43] though a more detailed description of the context is not provided by Chéhab.[44]

Again, nothing is known about the size of the fragments or the material used. While M. Chéhab refers to the material simply as "pierre grise",[45] diorite, greywacke or granite would seem to be the best options for the stone utilized. The specific size of the fragments (and therefore the overall size of the statue as well) are difficult to determine on the basis of the photographs still existing today, but the statue appears not to have been taller than approximately 40–50 cm in total (again based

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33 Ryholt 1997, 89–90, n. 287.

34 von Beckerath 1964, 247, no. 6.

35 Reisner 1923a, 276–277; 1923b, 516–517, fig. 343; Bonnet 1996, 116 [no. 128]; Ryholt 1998a.

36 For the inscription of the statue of Sobekhotep V (VI) referring to "Satis, Lady of Elephantine," see Helck 1976; Ryholt 1998a, 31; von Falck 2004, 214–215; also Davies 2003a; 2003b.

37 Ryholt 1997, 139, note 500, 143–149; Verbovsek 2004, 213.

38 Ahrens 2011b; see also below. Several colossi and statues of Sobekhotep IV have also been found at Tanis in the eastern Nile Delta, see Quirke 2010, 64, VI.27.1–4. The statues found at Tanis may have been removed from the region of Tell el-Dabʿa at the end of the Ramesside Period. Originally, the statues were then probably first moved to Tell el-Dabʿa/Avaris from their original locations in Egypt during the Second Intermediate Period (15th Dynasty) and only later removed to Tanis. Some of this statuary also seems to have been dispatched to the Levant during the Second Intermediate Period, see Ahrens 2011b.

39 Not taking into account scarabs dating to the 13th Dynasty, see Ryholt 1997, 85–86. The scarabs attested in the Levant bear the names of several officials and kings; for scarabs of the 13th Dynasty in the Levant, see also Tufnell 1984, 154–159; Ben-Tor 2007b.

40 Scandone Matthiae 1979; 1997; Lilyquist 1993; Ryholt 1998b; Nigro 2002, 304, 314–316. Note, however, that Ryholt (1997, 84–85, note 245) clearly dismisses the mace as evidence for direct political contacts between Egypt and Ebla during the 13th Dynasty. Instead, Ryholt (1998b, 5) along with Lilyquist (1993, 46) believes that the mace may actually be of Levantine manufacture or the result of a secondary mounting of the hieroglyphic signs on an object of local Levantine manufacture. Nigro (2002, 304) regards the mace as of genuine Egyptian origin.

41 Chéhab 1968, pl. IIIc; 1969, pl. IV.1. The photographs of the fragments in figures 5 and 6 in the present article have not been published before and are presented here for the first time.

42 Genz and Sader 2008, 185.

43 Chéhab (1969, 22) writes, "Un sondage, fait à l'endroit présumé de la découverte, m'a permis de retrouver d'autres fragments de la même statuette."

44 Chéhab 1969, 22.

45 Chéhab 1969, 22.

upon the execution of the hieroglyphic inscription).[46]

Altogether four fragments of the statue are preserved. These form the lower part of an Egyptian private statue with a long kilt and the upper part of the legs preserved. This dress is characteristic of officials and dignitaries of the Middle Kingdom. Traces of the right arm are still visible on the left side of the statue. The upper part of the statue had apparently already been broken off in antiquity, although it is not clear whether this happened in Egypt or at a later date in the Levant or at Tell Hizzin. Other fragments that belong to the statue, however, were apparently not discovered at Tell Hizzin (Figs. 9–11).

The hieroglyphic inscription consists of a single column, engraved on the front of the kilt. Due to the fragmentary state of the statue, several parts of the inscription that lie within the fractured areas are not preserved, but they can be reconstructed with reasonable certainty.[47] Thus, the complete inscription of the statue – including the areas reconstructed – thus most probably is to be read as follows (Figs. 11–12):

[1] *ḥtp dj nsw Wsjr nb tȝ-ˁnḫ ḥsj<=f> mrj=f ḥȝ.tj-ˁḤ(ˁ)pj <-Ḏfȝ(j) nb jmȝḫ.w/mȝˁ-ḫrw>*
*"A royal offering of Osiris, Lord of the 'Land of Life,' may he (Osiris) praise (or: bless) and (may he) love him,*[48] *the Hereditary Prince, Djefai<-hapi, possessor of honor/justified>"*

The inscription states that the well-known 12th Dynasty provincial governor Djefaihapi (Djefaihapi I)[49] of the town of Asyut (Siut; 13th Upper Egyptian nome, "*Lycopolis*," Egyptian: *Sȝwty*) in Middle Egypt (dating to the reign of Sesostris I, ca.

Fig. 9 Fragment of statue of Djefaihapi (side view, courtesy of the DGA Liban).

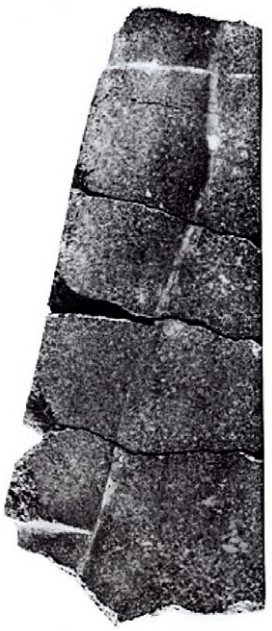

Fig. 10 Fragment of statue of Djefaihapi (side view, courtesy of the DGA Liban).

[46] A rather small size of the statue may be supported by Chéhab's (1968, 4; 1969, 22; 1983, 167) designation of the object as a "statuette" (rather than a "statue").

[47] Although M. Chéhab linked the statue to Djefaihapi as early as 1968 (Chéhab 1968, 4), a translation or transcription of the hieroglyphic inscription was never published. It appears that Chéhab planned to publish the inscription in a separate article with the French Egyptologist Georges Posener, who is also likely to have read the inscription first (Chéhab 1969, 22, "nous nous proposons, le Professeur Posener et moi, de publier les fragments de cette statuette inédite").

[48] For this specific construction and the omission of the suffix pronoun ("gespaltene Kolumne"), see also the tomb inscriptions of Djefaihapi I (Tomb I), especially Griffith 1889, pl. 4, where the same construction is used. This very distinctive feature may, thus, further link the statue to governor Djefaihapi I and his tomb at Asyut.

[49] Older readings of the name include "Hept'efa" (Griffith 1889), "Hepzefa" (Reisner 1918; 1923) and "Hapidjefai" (Chéhab 1968; 1969). For the hieroglyphic writing of the name, see Griffith 1889, pls. 4–6; Becker 2006.

1953–1908 BC) was the person for whom the statue was made.[50] Although his name is not completely preserved on the statue, it can be reconstructed with certainty. The reference relating to "Osiris,[51] the Lord of the 'Land of Life'" additionally proves that the statue must have originally been set-up at Asyut where Djefaihapi I had his tomb built (Siut Tomb I),[52] as *t3-ʿnḫ* (the 'Land of Life') is to be identified as one of the Egyptian names of the town's necropolis.[53] Later, in the 18th Dynasty, Djefaihapi I was even deified in this region.[54]

The general composition of the inscription as well as the *ḥtp-ḏj-nsw* formula (or: offering formula)[55] at the beginning also clearly show that the

Fig. 11 Fragment of statue of Djefaihapi with hieroglyphic inscription (front view, courtesy of the DGA Liban).

[50] Griffith 1889; Beinlich 1975a; Becker 2006. It is important to note here, that – apart from Djefaihapi I (Siut Tomb I, Sesostris I) – three further governors named Djefaihapi are attested at Asyut, i.e. Djefaihapi II (Tomb II at Asyut, now Tomb O13.1, dating to the reign of Amenemhet I or early in the reign of Sesostris I) and Djefaihapi III (dating to the later part of the Middle Kingdom, probably to the reign of Amenemhat II; Tomb VII at Asyut, i.e. the so-called "Salakhana-Tomb"), and Djefaihapi IV (Tomb VI, reign of Amememhat II or later); for the alleged chronology of the governors, see recently Kahl 2012, 163–188, esp. 170, fig. 5; for the tombs, see Griffith 1889, 10; Moss 1933, 33; Doxey 1998, 12; 2009; also Kahl 2007, 17, fig. 8, 85–93, 130–132; Zitman 2010, 11–44, esp. 38–43 (here even listing at least two more Djefaihapis with the same titles, i.e. Tombs VI and XVI, not taking into account a further Djefaihapi without titles). Recently, Kahl (2007, 85–93; 2012) also proposed a new chronological order of the governors called Djefaihapi and attested at Asyut, placing Djefaihapi II *before* Djefaihapi I (based on typological and chronological considerations of the tombs' layout). According to this order, governor Djefaihapi II would date before the reign of Sesostris I (probably to the reign of Amenemhat I), governor Djefaihapi I to the reign of Sesostris I, and governor Djefaihapi III to the reign of Amenemhat II or Sesostris II. Recently, Zitman (2010, 14–43) has presented another appraisal concerning the number and chronology of the nomarchs of Asyut named Djefaihapi. With regard to the origin of the statue from Tell Hizzin, Zitman (2010, 38, note 249) remarks, "The inscription visible in the publication does not exclude that the statue may have belonged to another Djefaihapi (Tombs II, VII or XVI?)."

[51] The name of the god Osiris written here with signs D 4 ("parts of the human body"), Q 1 ("Domestic and funerary furniture") and A 40 ("man and his occupation"), see Gardiner 1957, 544–546.

[52] Djefaihapi's tomb being the largest nonroyal rock-cut tomb of the entire Middle Kingdom (Siut Tomb I); for the history of research at the site, see Kahl 2007; Zitman 2010, 28–38, 45–69. Also P. Montet, the excavator of Byblos and Tanis, made several hand copies of inscriptions of some of the tombs in 1911, which were only subsequently published by him; see Montet 1930–35; Montet 1936. Only recently archaeological work at Asyut has resumed, for the results of the new archaeological work at Asyut by a joint Egyptian-German mission (since 2003), see Kahl et al. 2005; Kahl et al. 2006; Kahl et al. 2007; Kahl et al. 2008; Kahl et al. 2009; Kahl et al. 2010; Kahl et al. 2011; Kahl et al. 2014; Kahl 2007; el-Khadragy 2007; Engel and Kahl 2009; recently Kahl et al. 2012a; Kahl et al. 2012b. The renewed work at the site has also proven the existence of a temple dedicated to one of the nomarchs named Djefaihapi, since visitors' graffiti dating to the Second Intermediate Period or early New Kingdom found in one of the tombs at Asyut (Tomb N13.1) refer to such a building. The temple of Djefaihapi seems to have been located in the Nile valley and was probably connected to the tomb by a passageway (Kahl 2007, 57–58, fig. 32).

[53] Satzinger 1968, 160–161; Helck 1976, 106–107; Beinlich 1975b; Beinlich 1984, 149; Leitz 2002, 769; Kahl 2007, 110.

[54] Kahl 2012.

[55] For the offering formula, its chronology, cultic implications and divergent readings, see Smither 1939; Bennett 1941; Barta 1968; Allen 2000, 357–359 (§ 24.10); Franke 2003.

Fig. 12 Inscription of statue of Djefaihapi (not to scale, drawing by A. Gubisch).

statue was conceived to be used in a cultic context. Egyptian officials of the Middle Kingdom continued to equip their tombs and connected chapels with statues to provide a focal point for the offering cult. Additionally, south of Djefaihapi's tomb, a large wooden statue was discovered suggesting that more statues were in use inside the tomb and its vicinity.[56] It is therefore likely that Djefaihapi's statue was set-up in his tomb at Asyut or the associated court or cultic chapel connected to the tomb.[57]

When trying to define a date for the dispatch of the statue to Tell Hizzin, archaeological evidence from Upper Nubia (Sudan) may give reasonable answers. Between the years 1913–1916, the American Egyptologist George A. Reisner conducted archaeological excavations in the vast cemetery of Kerma (consisting of low circular mounds termed "tumuli"), just south of the 3rd Cataract. Some of the larger tumuli excavated by Reisner contained an abundance of various Egyptian luxury goods, including Egyptian statuary.[58] As Reisner was convinced that the people buried in these larger tumuli were Egyptians, he labelled the southern part of the cemetery the "Egyptian Cemetery." The largest of these tumuli (named K III) contained a fragmentary statue of Djefaihapi and another one of his wife, Sennuwi, amid the bodies of the hundreds of sacrificial victims. The inscription on the statue of Djefaihapi found within K III mentions "Wepwawet, Lord of Siut (=Asyut)," while the statue of his wife evocates, among other gods, "Anubis, Lord of *R3-qrr.t*, (Ra-qereret; literally meaning "the mouth, i.e. opening of the cave"),"

Ra-qereret being another name of Asyut's necropolis.[59] As Djefaihapi's tomb at Asyut was already known at this time,[60] Reisner concluded that Djefaihapi had left his tomb at Asyut unused and had moved to Kerma sometime during his lifetime.[61] Furthermore, Reisner hypothesized that upon his death at Kerma, Djefaihapi then was buried in tumulus K III.[62] Since Djefaihapi lived during the reign Sesostris I, Reisner assigned tumulus K III to the time of his reign.[63]

Not long after Reisner's discoveries, however, his interpretations were refuted by many scholars. In 1941, the Swedish Egyptologist T. Säve-Söderbergh published a seminal work on the Kerma material, showing that tumulus K III also contained several fragments of other Egyptian statues dating to the 13th Dynasty as well as scarabs and sealings dating even to the Hyksos Period. Säve-Söderbergh was thus able to convincingly demonstrate that the tombs were actually much later in date, indeed contemporary with the Second Intermediate Period in Egypt.[64]

Following Säve-Söderbergh's chronological conclusions, a subsequent study by the German Egyptologist F. Hintze in 1964 made clear that the tumuli at Kerma were to be seen as the tombs of the rulers of the independent Kingdom of Kush, already known from Egyptian sources, before the Egyptian conquest of the territory in the reign of Tuthmosis I at the beginning of the New Kingdom (i.e. the early 18th Dynasty).

Thus, the statues and other inscribed Egyptian objects found in the Kerma tombs thus must have come from elsewhere and were apparently just brought to Kerma at a later date, most probably during the Second Intermediate Period, when the Kingdom of Kush had close political relations with the Kingdom of the Hyksos in the north of Egypt.[65] Thus, an alternative view on the presence of these statues at Kerma was that looted objects from tombs in Egypt were given to the Kerma rulers as gifts by the Hyksos. In analogy to the evidence from Kerma, the German Egyptologist W. Helck suggested that Djefaihapi's statue at Tell Hizzin

56 For the statue, see Delange 1987, 76–77; Zitman 2010, 27, 38 (Louvre E 26915, without titles however).

57 el-Khadragy 2007; Kahl 2007, 10–11, pls. 6–8.

58 Reisner 1923b, 22–104.

59 Reisner 1923a, 135–139, pl. 7; 1923b, 34, nos 27 and 32, pl. 31; Helck 1976, 102; Beinlich 1984, 149; also Bonnet 1996, 114–115; Kahl 2007, 110.

60 Griffith 1889.

61 Reisner 1918.

62 Reisner 1918; 1923b, 513–516.

63 Reisner 1923a, 138, 145. Reisner 1923a (138): "this (…) leaves no doubt that K III is the tomb of Prince Hepzefa."

64 Säve-Söderbergh 1941, 103–116; Helck 1976, 103–104; Lacovara 1991, 118–120.

65 Hintze 1964; Helck 1976, 101–104; Kendall 1997, 30–31; 72–73; Bonnet and Valbelle 2010.

was most probably robbed out of his tomb at Asyut and then sent to the Levant during the Hyksos Period, as seems to be the case with most of the Middle Kingdom statuary found in the Levant.[66] Furthermore, the presence of a statue of Djefaihapi's wife Sennuwi, born of Idy-ʿaat, within tumulus K III at Kerma – found together with a statue of Djefaihapi – seems to argue additionally for a joint pillage of these two objects from Asyut (and a subsequent deposition within the tumulus at Kerma), and, therefore makes it also likely that the statue from Tell Hizzin originally belonged to Djefaihapi I.[67]

Evidence to support this view was just recently discovered in Egypt. A newly discovered inscription in the tomb of the governor Sobeknakht (17th Dynasty, existing parallel to the "Hyksos" in the north and the Kingdom of Kush in the south) at Elkab in Middle Egypt (ancient Nekheb) relates to a historic event that took place during Sobeknakht's lifetime.[68] In the inscription, it appears that the town of Nekheb was threatened by a Kushite army, which eventually entered and pillaged the town on its way north.[69] The incursions of the Kushite troops, it seems, may have reached as far north as Asyut, if not Memphis. In the inscription, Kushite troops are also referred to as "looters".[70]

Interestingly, a vessel inscribed for a "governor, Sobeknakht" was also found in the aforementioned Kerma Tumulus III, maybe linking the objects found in these tumuli with the historic events described in the inscription in the tomb of Sobeknakht.[71]

Summarizing the evidence – and given the close connections of the Kingdom of Kush with the Hyksos rulers in the north of Egypt via the "oasis road" (comprising the oases of Dakhlah, Khargah, and Bahriyah) – one may indeed speculate whether some of these "trophies" carried away from Egypt by the armies of Kush were actually sometime later given to the Hyksos, with some of these monuments then – without knowing the exact mechanisms of exchange – finally ending up in the Levant. Although no more than mere conjecture, as there is no evidence to prove this argument at the moment, this reasoning should not be discarded straight away.

## IV. A Middle Bronze Age Scarab of the "Anra Group"

Among the small finds recovered from Tell Hizzin, a scarab belonging to the so-called "anra group" could be identified (Figs. 13–14).[72] The exact findspot of the scarab is not known. However, taking into account the general distribution of scarabs at other contemporary sites,[73] it seems probable that originally it was part of a tomb assemblage. Several tombs, apparently dating to the later part of the Middle Bronze Age, as well as a necropolis at the foot of the tell also yielding Middle Bronze Age material, were discovered at the site by M. Chéhab.[74]

Since only one photograph of the scarab's base is known today, a more detailed typological analysis is not possible. As can be discerned from the photograph, the scarab is perforated lengthwise for threading. The actual dimensions of the scarab are not known, although it can be surmised that they do not exceed the general proportions of scarabs known of this type.[75] The scarab is probably made

66 Helck 1971, 70–71; 1976; see also Gill and Padgham 2005, 51–53, 57. Such a scenario may also hold true for the statue of Tuthhotep (also: Djehutihotep), the nomarch of the Hare nome in Middle Egypt under the reign of Senwosret III, which was found at Megiddo on northern Palestine (Wilson 1941, 225–230, pls. 1–2; Harif 1978, 29–30). The statue may ultimately stem from his tomb complex at el-Bersheh/Deir al-Barsha (Newberry 1895). Second Intermediate Period material is indeed present at the site of el-Bersheh; a reuse of most of the tombs during this period is also attested archaeologically (Willems et al. 2004; Bourriau et al. 2005).

67 Revez 2002.

68 Davies 2003a; 2003b; 2006, 49–50; 2010.

69 Davies 2003a, 52; 2006, 50.

70 Davies 2003a, 54; 2006, 50.

71 Davies 2003b, 6; Davies 2004. Since at least three governors of Elkab with the name of Sobeknakht are attested, it is difficult to connect this specific vessel with the governor Sobeknakht in whose tomb the historical inscription is attested; for the genealogy of Sobeknakht, see Davies 2010, 229–230.

72 The scarab is published here for the first time. The present location of the scarab is unknown.

73 See, for example, the scarabs found in the Middle Bronze Age tombs at Sidon (Loffet 2003; Doumet-Serhal 2004; Taylor 2004; Mlinar 2004a; 2004b). Additionally, Richards' site analysis (2001, 136–137) has shown that the majority of anra scarabs were actually found in tomb deposits.

74 Genz and Sader 2008, 185; Sader 2010, 641–643.

75 The general proportions and main dimensions of the scarab would approximately be 15–20 mm in length, 10–15 mm in width and 5–10 mm in height.

Fig. 13 Late Middle Bronze Age scarab of the "Anra-Group" (courtesy of the DGA Liban).

Fig. 14 Late Middle Bronze Age scarab of the "Anra-Group" (not to scale, drawing by A. Gubisch).

of steatite (most probably heated steatite, also referred to as enstatite),[76] commonly used for the manufacture of scarab seals.[77] A chronological and typological analysis of the scarab will, therefore, depend entirely upon the scarab's base design and, thus, can only be assessed in general terms.

Fortunately though, the base design of the scarab can be classified without any problem. The base design consists of several hieroglyphic signs that are surrounded by three pairs of oblong, hooked scroll borders,[78] the whole composition itself being framed by a single oval line. The vertically arranged hieroglyphic signs include (from top to bottom): *r* (Gardiner sign list D 21),[79] *ꜥnḫ* (S 34, twice), *ꜥ* (D 36), *n* (N 35) and a further *ꜥ*. The combination of the specific signs used as well as the scroll borders securely assign the scarab to the "anra group," which is generally dated to the later part of the Middle Bronze Age (MB IIB/C) in the Levant or the Second Intermediate Period/Hyksos Period (late 13th–15th Dynasties) in Egyptian terminology.[80] Commonly, the anra (*ꜥnrꜥ*) scarab is defined by a sequence of hieroglyphic signs on the base which always include the letters *ꜥ*, *n* and *r* (the so-called "anra formula", hence the name "anra scarabs"), although there are a number of intrusive and additional signs used as well.[81]

[76] The material steatite being a species of talc (soapstone), consisting of hydrated magnesium silicate; see Tufnell 1984, 42. Traces of a former glaze are not discernible on the photograph, but are likely to have existed.

[77] Keel 1995a, 153, § 406; Richards 2001, 6.

[78] Tufnell's design class 7, "Scroll borders," here specifically design class 7B3(ii)a, "Paired scrolls, top loop – three pairs, oblong, hooked" (Tufnell 1984, 129, 320–321, pl. XXXI); Richards' type D(ii), "Paired Scroll Borders" (Richard 2001, 81–85); Keel 1995, 187 (§ 508); see also Ben-Tor 2007b, 143 (§ IIIA 7b3), pl. 61, 27–32 (Ben-Tor's "Early Palestinian Series"); 172–173 (§ IVA 7b3), pl. 92, 28, 32, 33, 37, 46 (Ben-Tor's "Late Palestinian Series"). This specific base design constitutes the most common type of scroll border in Egypt during the late Middle Kingdom (13th Dynasty); see Ben-Tor 2007b, 29, pls. 17, 1–32 ("Private name scarabs"), 23, 2 ("Sobekhotep group scarabs"). The earliest example, however, is a scarab dated to the reign of Amenemhat III of the 12th Dynasty (Ben-Tor 2007b, 29). These Egyptian examples, thus, clearly indicate the Egyptian origin of this scroll border design during the Middle Kingdom.

[79] Sign references according to Gardiner 1957.

[80] Tufnell 1984, 121; Keel 1995a, 175, § 469; Richards 2001, 163; Ben-Tor 2007b, 143, 172–173; 2009, 85–87. It must be stated that scarabs with these specific features occasionally appear before and after the Second Intermediate Period (Hyksos Period) as well. However, the bulk of material from stratigraphically well-defined contexts apparently exclusively dates to this period, see Ben-Tor 2007b, 143 (§ IIIA 7b3), 172–173 (§ IVA 7b3).

[81] Tufnell 1984, 121, pl. XVI; Ben-Tor 2007b, 133–134, pls. 55–56, 165–166, pls. 82–84; 2009, 86. The many permutations of the anra sequence referred to as "formulae" by Tufnell (Tufnell 1984, 121, pl. XVI, "design class 3C").

There have been a number of different interpretations with regard to the meaning of the sequence of hieroglyphs found on anra scarabs. While some scholars have actually tried to read the different sequences attested on the scarabs and give meaning to them,[82] others have rejected this idea completely and regard the sequences of hieroglyphs as meaningless.[83]

Most probably, although without definite proof, the different permutations of the anra sequence are indeed to be seen as an emulation of Egyptian hieroglyphic writing by the local Levantine workshops adapted merely for emblematic and representational purposes.[84] Not surprisingly, apart from the hieroglyphs of the basic anra sequence, supplementary signs connected and associated with the Egyptian royal sphere are also often used on the scarabs' base design.

Of the over four hundred anra scarabs found in the entire eastern Mediterranean (spanning Syria, Lebanon, Palestine, Egypt and Nubia), eighty percent are found in the Levant alone.[85] Considering that the first appearance of this type of scarab is typologically and archaeologically connected to the region of the southern Levant, the anra scarab is clearly to be seen as a Levantine "invention".[86]

Supporting this argument are various other groups of locally manufactured Levantine scarabs, assigned to the region on the basis of style and iconography, which also seem to have existed.[87] The anra sequence is also found on cylinder seals and plaques in both Syria and Palestine, thus an additional argument for the Levantine origin of this specific type of scarab.[88]

The two ankh signs (*ꜥnḫ*) on the scarab's base are not part of the basic anra sequence, but should be seen as supplementary signs. As exemplified by the two hieroglyphic signs on the scarab from Tell Hizzin, these supplementary signs are sometimes placed within or at the end of the anra sequence.[89] Generally, the prominent ankh sign is frequently featured in the iconographic repertoire of both scarabs and Egyptianizing cylinder seals in the Levant.[90]

A Levantine manufacture may be additionally supported by one of the hieroglyphs on the scarab, as the writing of the hieroglyph for the letter *n* is found only on a relatively small number of scarabs, apparently exclusively confined to the Levant.[91] Interestingly, exact parallels for the characteristic representation of this hieroglypyh are also found on a small number of contemporary northern Levantine cylinder seals.[92] Altogether, a Levantine origin of the scarab from Tell Hizzin is therefore highly likely. Thus, while the majority of the scarabs belonging to the anra group seem rather confined to the southern Levant, the scarab from Tell Hizzin is a remarkable exception to this and adds to the small number of scarabs of this type hitherto attested in the northern Levant.[93] Concerning the date of the scarab, a manufacture during the Second Intermediate Period (late 13th Dynasty–15th Dynasty/"Hyksos" period, late Middle Bronze Age) seems most likely in view of the typological features of the base design and its motifs, although a slightly earlier date (i.e. early 13th Dynasty/late Middle Kingdom) would also seem possible and generally cannot be excluded on the basis of the

82 Richards 2001, 29–32, 150.

83 Tufnell 1984, 121; Keel 1995a, 175–176, § 470; Ben-Tor 1997, 171, 174–177; 2007, 133–134, 165–166; 2009, 85–87.

84 Ben-Tor argues that the anra sequence on Levantine scarabs partially derives from formulae attested on Egyptian scarabs of the Middle Kingdom, see Ben-Tor 1997, 171, 174–177, figs. 5–7.

85 Richards 2001, 11; Ben-Tor 2007b, 133–134, 165–166; 2009, 86.

86 Richards 2001, 6–12; Ben-Tor 1997, 171–175; 2007, 165–166.

87 Woolley 1955, pl. LXI: 20; Keel 1989; 1995a; 1995b; Richards 2001, 6–12; Ahrens 2003; Scandone Matthiae 2004; Ben-Tor 2007b.

88 Ward 1965; Amiet 1992, 186, no. 448; Collon 1986; 2001; Scandone Matthiae 1996; 2004, 197–198, fig. 3; Richards 2001, 93.

89 See the examples given by Ben-Tor 2007b, pls. 83: 33; 84: 3, 5, 7, 21, 23, 29. Also note the striking parallel from Tel Batash (Timnah) in southern Palestine, dating to the end of the Middle Bronze Age, see Brandl 2006, 217–218, fig. 22 (no. 4), pl. 20: 22.

90 Collon 1986, figs. 1–6, 11, 13, 23, 24; Teissier 1995; Eder 1995; Richards 2001, 95–98; Elsen-Novák 2002; Elsen-Novák *apud* Novák and Pfälzner 2003, 152–155, fig. 16; Ben-Tor 2007b; 2009.

91 Lalkin 2009, 455–457, no. 18; Ben-Tor 2007b, pl. 83: 22, 27, 28, 42; pl. 84: 29; 2009, fig. 12: 1, 4, 5, 6, 9; fig. 14, 1, 5, 6, 10.

92 Collon 1986, figs. 1, 2, 4; 2001; Richards 2001, 95. A notable exception being a scarab from Tell el-ʼAjjul in southern Palestine; see Petrie 1934, pls. XI: 477, XXI, 213; Keel 1997: 452–453, cat. no. 1028; Richards 2001, 275; Sparks 2007, 92, cat. no. 82.

93 In the northern Levant, the anra scarab is hitherto confined to the coastal sites of Byblos and Ras Shamra/Ugarit (comprising a meagre five specimens altogether!); see Richards 2001, 239–249.

scarab's base design alone.[94] It should also be stressed here, however, that scarabs of the anra group are occasionally found in Late Bronze Age contexts too, probably implying a long-term use or even later re-use of these small finds.[95]

## V. Contextualizing the Objects from Tell Hizzin

Unfortunately, the archaeological contexts from which the two Egyptian statues at Tell Hizzin stem are not known.[96] Therefore, a secure chronological date for the statues' dispatch from Egypt and their arrival at the site of Tell Hizzin cannot be given with certainty. Fortunately, however, historical sources and archaeological evidence in Egypt and Nubia – as presented above – rather point to a later date for their arrival in the Levant compared to their date of manufacture.

The geographical region of the Beqaʿa Valley in the 2nd millennium was, according to the historical sources, divided into several independent chiefdoms. Tell Hizzin, ancient *Hazi*,[97] probably is to be seen as the main political centre of the region commonly referred to in textual sources as Amqi/Amqu.[98] A possible, albeit highly disputed identification of the site with the toponym *hśswm*[99] mentioned in the Egyptian "Execration Texts" of the late Middle Kingdom found at Saqqara,[100] would then provide an even earlier attestation of the site.[101]

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94 The typological features (according to Tufnell 1984) consist of three pairs of oblong, hooked scroll borders (design class 7B3iia) and the anra sequence ("Formulae," design class 3C). Both features are apparently most common in the southern Levant during the 15th Dynasty or Hyksos Period, although these features are, to a lesser degree, already present in the Levant during the 13th Dynasty; see Keel 1995a, 175–176 (§ 469–470), 187 (§ 508); Ben-Tor 2007b, 143 ("Early Palestinian Series"), 172–173 ("Late Palestinian Series"). An exact date of the scarab from Tell Hizzin could only be determined through the available typological features of the side, head and back designs.

95 Pulak 1988, 28, fig. 34; Weinstein *apud* Bass et al. 1989, 17–29; Smogorzewska 2006, 76–77: fig. 7.3; Lalkin 2009, 255–257, fig. 14.5: no. 3.

96 Sader 2010, 638–639.

97 Kuschke 1958, 106; Helck 1971, 130.

98 Sader and van Ess 1998, 255. See already Dussaud 1927, 506–507.

99 Galling 1953, 90–91; Kuschke 1958, 85–86, 89; Sader 2010, 636–637.

100 Posener 1940, 96, *F 6*; Redford 1992, 87–93; Ben-Tor 2006.

101 contra Helck 1971, 61: *e*; Dussaud 1940, 178. Note that, contrary to Galling (1953, 91) and Kuschke (1958, 86), neither Posener (1940) nor Dussaud (1940) equate the toponym *hśswm* with the Late Bronze Age *Hazi* of the Amarna letters. Altogether, the interpretation of the historical and political significance of the Execration Texts has varied considerably. It must be stressed here that the toponym *hśswm* given in the Execration Texts is not determined as a city or place name, but rather seems to refer to a "region" or "district," see already Gerstenblith 1983, 18–21; Redford 1992, 87–93. The ambiguous nature of the Execration Texts from Saqqara (now in Brussels, hence the name "Brussels group") is also exemplified by the fact that in his treatment of the texts Dussaud (1940) – in contrast to the identifications given in the *editio princeps* by Posener (1940) – comes to completely different conclusions regarding the reading and the localization of some of the toponyms mentioned; on the Execration Texts in general also see Albright 1941. Furthermore, in a recent re-evaluation of the corpus, M. Weippert equates *hśswm* with the city of Haššum, probably located in northern Syria (Weippert 2010, 44–45). Additionally, at least parts of the Beqaʿa Valley may have belonged to the region or political entitiy called "Apum" during the Middle Bronze Age. The region of Apum also seems to be mentioned in the Execration Texts from Saqqara with an enigmatic double entry (i.e. "southern Apum" and "northern Apum;" Posener 1940, 81, entries E 33/E 34); also see Albright 1941. Ziegler (2007, 314–315, 3.8, see also Charpin 1998) cites an Old Babylonian cuneiform document from the Mari archives which refers to a town called "Rakhizum," located in "Apum." The town Rakhizum is most likely to be identified with the Late Bronze Age town of "Rukhizzi," known from the Amarna letters and to be located somewhere in the Beqaʿa Valley. Therefore, Kuschke's identification of the toponym "Beqaʿa (Valley)" in the Execration Texts (Kuschke 1958, 85–86, 89), i.e. Posener's "*Bkʿtm*" (E 20), merits at least some caution in this light. As the Beqaʿa Valley is known to have been fragmented into several smaller political units, such as Amki/Amka, Tachsi, Upe/Ubi (=Apum) during the Late Bronze Age, it is extremely unlikely that during the preceding Middle Bronze Age these units (or at least some) – of which "Apum" (the Late Bronze Age Upi) is now attested to have included parts of the Beqaʿa Valley – would not have been mentioned in the Egyptian Execration Texts (see also Theis 2012). In this regard it should also be mentioned that the proposed identification of the toponym *hśswm* (Posener's entry F 6) given in the Execration Texts with Tell Hizzin mainly rests on the questionable identification of Posener's toponym E 20 "Beqaʿa (Valley);" see Kuschke 1958, 85–86; Galling 1953. Since these two toponyms are not even listed together, an alleged connection is additionally weakened. The identification of Tell Hizzin with Late Bronze Age *Hazi*, however, rests upon the specific geographical references given in the topographical list of Tuthmose III's first campaign in Asia at Karnak (Galling 1953, 91; Kuschke

Still, the reconstruction of Egypto-Levantine contacts during the first half of the second millennium BC is largely hampered by the fragmentary historical and archaeological evidence available. While there is increasing new historical and archaeological evidence for maritime Egyptian relations with sites along the Levantine littoral during the Middle Bronze Age (12th and 13th Dynasties), e. g. with sites like Ullaza (Khan al-Abdé or Tell et-Taalé near Tripoli?),[102] and Byblos,[103] Sidon[104] and – farther south – Tel Ifshar,[105] there is yet little evidence, if any, to support direct Egyptian interaction with the regions located farther inland from the coast during the Middle Bronze Age.[106]

Up to now, [107] Egyptian or Egyptian-inspired objects found in the northern Levant include various finds at the major harbour cities along the coast, most prominent among them Byblos/Gubla[108] and Ras-Shamra/Ugarit.[109] Egyptian objects – apart from the statues from Tell Hizzin discussed here – were also discovered farther inland in the Beqaʿa Valley at Kāmid el-Lōz, ancient Kumidi.[110]

Other Egyptian or Egyptianizing objects from the northern Levant and inland Syria that are of interest here are the late Middle Bronze Age Egyptianizing wall paintings at Tell Sakka, 17 km south-east of Damascus,[111] the ceremonial mace of Pharaoh Hotepibre Harnedjheritef of the 13th Dynasty from the "Tomb of the Lord of the Goats" at Tell Mardikh/Ebla, also dating to the late Middle Bronze Age,[112] a small diorite sphinx of Amenemhat III (12th Dynasty, ca. 1853–1808 BC) in the Archaeological Museum of Aleppo[113] and several objects from Tell Mišrife/Qatna, including – among others – the sphinx of Ita, a princess of the late Middle Kingdom, and stone vessels inscribed with the names of Sesostris I, Amenemhat III, a further princess called Itakayet (all 12th Dynasty), and Queen Ahmes-Nefertari of the early 18th Dynasty.[114] While most of these Egyptian finds from the Royal Palace and its associated tombs (Royal Tomb and Tomb VII) at Tell Mišrife/Qatna date to the Middle Kingdom, their archaeological find-spots are exclusively confined to late Middle Bronze Age (MB IIB/C) or Late Bronze Age contexts.[115] The important trading port of Byblos seems to have always held a unique position in relation to Egypt throughout the entire 2nd millennium BC.[116] Hence, there is a good possibility that at least some, if not most, of the Egyptian objects found at other sites in the northern Levant, especially those farther inland, may actually have arrived there via Byblos.[117]

The statues of Sobekhotep IV and Djefaihapi from Tell Hizzin, thus, fit well into the overall corpus of Egyptian monuments attested in the northern Levant, which generally can be divided into private and royal statuary. Most of the Middle Kingdom Egyptian objects found in the Levant carry inscriptions, which show that they were originally used in an Egyptian context. Additionally, the majority of the objects seem to stem from funerary or cultic contexts, i.e. chapels, tombs and temples.[118] However, their date of dispatch to the Levant is hard to define with certainty. Some scholars have, therefore, rejected the idea of viewing the presence of these objects in the Levant as evidence of a mutual gift exchange or direct political relations between the Middle Kingdom Egyptian pharaohs (i.e. the 12th and 13th Dynasty) and the rulers of the eastern Mediterranean. Instead, the objects were believed to have reached the

1958, 106; Helck 1971, 130, 155) and within the corpus of the Amarna letters from *Hazi* (EA 175, 185–186) or dealing with the Beqaʿa Valley and its vicinity (Moran 1992); hence, it is generally a lot more reliable.

[102] Bartl 2002, pl. 3; Gubel 2009, 227, fig. 1.

[103] Marcus 2007; Allen 2008; 2009.

[104] Bader 2003; Forstner-Müller and Kopetzky 2006; Forstner-Müller et al. 2006; Forstner-Müller and Kopetzky 2009.

[105] Marcus et al. 2008a; 2008b.

[106] Contra Nigro 2009; Grimal 2009. An apparent distinction between the material culture of the coastal regions of the northern Levant and that of the inland regions during the Middle Bronze Age is apparently reflected in the ceramic repertoire of these regions too (Sievertsen 2006).

[107] The list given here is not exhaustive.

[108] Montet 1928; Dunand 1939; 1954.

[109] Schaeffer 1939; 1949; 1956; 1962; Ward 1979; 1994; Singer 1999.

[110] Edel 1986; Hachmann 1996; Lilyquist 1996.

[111] Taraqji 1999; Bietak 2007.

[112] Scandone Matthiae 1979; 1997; Lilyquist 1993; Ryholt 1998b; Nigro 2002, 30: note 48, 314–316.

[113] Scandone Matthiae 1989. The sphinx is kept in the Archaeological Museum of Aleppo. Although often credited as having been found at Neirab, according to Scandone Matthiae (1989, 125–126), the actual findspot of the monument seems more likely to be Aleppo.

[114] Du Mesnil du Buisson 1928, 10–12, 17, pls. XII, XIX.1; 1935; Roccati 2002; Ahrens 2006; 2010; 2011a.

[115] Ahrens 2003; 2006; 2010; 2011a; forthcoming.

[116] Klengel 1992, 41–43.

[117] Bietak 1998, 166; 2010; Durand 1999, 159.

[118] see also Gill and Padgham 2005, 53, table 1.

Levant only at a later date, most probably during the later part of the Middle Bronze Age, i.e. Second Intermediate Period or "Hyksos Period",[119] or sometimes even the Late Bronze Age.[120]

A differentiation between royal and non-royal statuary also does not seem to be helpful with regard to the function (or better: social significance and appropriation) of these monuments in the Levant, as both have been found together at many sites in the northern Levant.[121] This might also be the case with the two statues found at Tell Hizzin, which comprise one royal (Sobekhotep IV) and one private statue (Djefaihapi), although it is not clear whether the statues were actually found close to each other or not. However, even if the statues were not found together, they might still belong to or originate from one stratigraphical unit or building complex.

This is not to say that the Egyptian objects in question did not reach the northern Levant as gifts, yet it is difficult to precisely date their arrival at the sites in question. Given the functional and historical implications of the inscriptions on some of these monuments – the objects' "biographies" –, it is highly likely that they reached the Levant only sometime after their manufacture and initial use in Egypt. Given the general appropriation of all things Egyptian by the northern Levantine rulers during the 2nd millennium, it is not surprising to find Egyptian objects at important sites in the northern Levant.[122] Unfortunately, almost nothing is known about the findspot of the two statues from Tell Hizzin, although one would generally expect them to originate from an elite or palatial context.[123]

## VI. Conclusion

Summing up, a possible date for the statues' arrival in the northern Levant – in direct analogy to the evidence from Kerma in Nubia – would therefore be sometime during the Second Intermediate Period (late 13th–15th Dynasties), most probably not earlier. In this respect, it is interesting to note here once again that statues of Djefaihapi were found both at Kerma and Tell Hizzin, thus perhaps implying the same historical background for their dispatch to these two sites. The same may also hold true for the statue of Sobekhotep IV, although at Kerma only 13th Dynasty Pharaohs Sobekhotep I and V (VI) are attested inside the tumuli (among many others dating to the Middle Kingdom), though one may wonder whether the statue of Sobekhotep IV found on the island of Argos is not to be seen as also belonging to this corpus of "stolen antiquities." It could well be that the statues reached the site via Byblos, although it is impossible to state exactly when, given the scanty archaeological and historical evidence of such inter-regional "peer to peer" relations and land-based local networks.[124]

Additionally, an even later date for the dispatch of the statues would, though less likely, nevertheless also seem plausible, since it is well known that Hazi (most probably to be identified with Tell Hizzin) belonged to the Egyptian sphere of influence during the 18th Dynasty – a period during which it is also known from textual sources that many Egyptian objects were sent to various places in the Levant.[125] The seat of the Egyptian *Rabisū* at nearby Kumidi (Kāmid el-Lōz),[126] attempting to assert Egyptian control over the territory during the

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[119] Helck 1971, 68–71; 1976, 104–106; Bietak 1998; 2010; Ahrens 2011b; contra Scandone Matthiae 1984; Ward 1979.

[120] Forstner-Müller et al. 2002.

[121] Thalmann 1999, 109–113; Ahrens 2011a; forthcoming.

[122] Ahrens 2011a; forthcoming.

[123] In this respect, Chéhab's mention of a "palace-like structure" is certainly appealing. Yet, at least the statue of Djefaihapi seems to have been found in a level below this structure (Chéhab 1983, 167, "Dans des couches plus profondes, nous avons recueilli aussi des fragments d'une statuette égyptienne au nom du fameux Hapi-Djéfa, gouverneur de Nubie"). Also, as there is no absolute date of this specific structure given by Chéhab, the relation of the statues to the building and the date of their actual findspots remain equally unclear.

[124] There is, however, a passage in a Hittite cuneiform tablet from Boğazköy (KBo II 11 rev. 11–14) sent by King Hattusili II to an unknown king, which refers to exactly such a gift exchange. The passage reads: "Now, then, I have taken a rhyton of silver and a rhyton of pure gold from the gift of the king of Egypt and I have sent them to you;" see Cline 1995, 145. See now also Flammini 2010.

[125] Moran 1992, EA 175, 185 and 186; Forstner-Müller et al. 2002. Unfortunately, there is little – if any – reference made to "statues" or the like in the large corpus of the Amarna letters or in other lists dealing with objects sent to the Levant, see Forstner-Müller et al. 2002.

[126] Underneath the Late Bronze Age palace, another palace dating to the Middle Bronze Age has been excavated by a team from the University of Freiburg/Breisgau (Germany). The results and the finds associated with this building complex may shed new light on the city's function and influence in the Beqaʿa Valley during the Middle Bronze Age, see also Heinz et al. 2010, 153–180.

Amarna Period, may thus well account for the presence of the statues at Tell Hizzin too.[127] In this case, the statues – regardless of their actual age and content of their inscriptions – could also be seen as gifts given to the local rulers by the Egyptian governor.[128]

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[127] Hachmann 1982.

[128] Besides the many Egyptian imports and Egyptianizing objects found in the "Schatzhaus", the communal tomb of the local rulers of Kumidi, the fragment of an Egyptian statue dating to the Middle Kingdom (12th–13th Dynasties) was found in the eastern part of the main temple precinct; see Metzger 1993, 35: fig. 2, pl. 164.

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# A ROMAN PORTRAIT OF A YOUNG BEARDED MAN FROM MEDINET MADI

*Roberto Buongarzone*

## Finding context

In Medinet Madi, during ISSEMM 2 sand removal works in 2009,[1] the head of a bearded man was found in the so-called North Cult Place (Pls. 1, 2), a depression in the north part of the Roman Square (Pl. 11) north of the main temple (Temple A+B). It consists of a rectangular building that measures 12.30 m × 15 m, successively covered by the pavement of the square. Its main architectural feature is a small mud brick plastered chapel in its centre, possibly surrounded by a Portico.[2] We

Pl. 1 The North Cult Place in the Roman Square, Medinet Madi.

[1] In 2008 the second phase of the Italian-Egyptian cooperation program ISSEMM (Institutional Support to Supreme Council of Antiquities for Environmental Monitoring and Management) was started. The main archaeological result of the sand removal is the dromos South-North, 230 m. long, starting from the original access with the sacrifice's altar; four unique statues of lions and one of a lioness were discovered along its sides, and as well Greek dedication inscriptions dated to the year 116 B.C. The most recent phase of ISSEMM project, ISSEMM 3 (2013–2014), directed by Prof. Edda Bresciani and managed by Hisham el-Leithy and the writer, has opened the site to Visitors enhancing its facilities, as the Visitor Center. The bearded head was found in 2009, when I was field director for the Italian part of the project, and Inspector Sayed el-Shouip was the chief inspector of the site.

[2] Bresciani and Giammarusti 2012, 175–181.

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Pl. 2a+b The context of finding of the head looking north-west (a) and south (b; inspector Sayed Shouip on the left).

Pls. 3–4 Fragments of *togati* and of gypsum composition from the North Cult Place.

found there large foundations and scattered architectural elements surrounding the chapel.

The finds were numerous and important: beside the head discussed in this paper, many fragments of private statues were found together with hundreds of fragments of a great gypsum composition, with many figures of different sizes, one of them colossal, maybe a Sarapis (Pls. 3–4).[3]

The place was certainly considered of utmost importance at the beginning of the Roman Empire.

[3] Some fragments could be part of a Sarapis crown. A few fragments were gilded with gold. On the cult of Serapis in Medinet Madi, see Bresciani *et al*. 2010, 133–134, n. 148–149; 145–146, n. 155.

The Egyptian chapel at its centre, in axis with Temple A, could be older and possibly made to contain the sacred cobra, the living hypostasis of the goddess Renenutet. The large hypaethral structure was probably accessible through a staircase, now lost, on its south side, and was entirely surrounded by massive limestone walls. The gypsum fragments and the architectural remains may suggest some analogy with Alexandria and Luxor Serapea, whose peripteral structure surrounded the cell leaving an opening on the front.[4] It should be noted, however, that sculptured fragments found there can be considered out of context, as we found them in the filling sand, possibly thrown there during renovation works of the Roman period or even during previous archaeological excavation.[5] Therefore the Roman head could belong to the archaeological context of the Roman square, whose pavement covered the previous cult place.

**Features of the Medinet Madi head**

The head (Pls. 5–8) is made in fine limestone, the hair is arranged in thick curls. The right front of the head is cut to the height of the eyebrows, and on the attachment on the back of the head there are concretions that prevent the adherence of both parties. Around the contour of the eyes traces of red are visible, black on the preserved eyebrow. The whiskers are short, a short beard surrounds the cheeks, but the facial features, especially the nose, are disfigured by mutilation.

The preserved part of the head, from the neck to the top of the head, measures 29 cm. in height. The type of the head of Medinet Madi would seem at first glance to be the portrait of an emperor. Besides, inventories such as those in the temples of Oxyrhynchus and Kynopolis, at the time of Caracalla, suggest that every temple and every village in Egypt had a portrait of the emperor, of his father and his mother. Even if all imperial portraits from known context were found in sanctuaries, honorific statues in public areas are also attested, some of them placed above high columns.[6] The *ostraka* demonstrate that subscriptions for the erection of statues or busts of emperors could be made more than once in the same realm.[7] The emperor statues until the time of Caracalla were made certainly in marble or limestone, while only Egyptian style statues could be in Egyptian stone (basalt, granite or porphyry). At least in the Byzantine period it is well known the custom to notify the advent of an emperor by sending his portraits to the most important cities in the empire. From these "originals" portraits were created that ended up all over the country.[8]

After Hadrian some features are generalized throughout the empire: plastic rendering of pupils and irises, smoothing of the marble surface, use of the drill for hair and beard. In Egypt the use of the drill, however, is extremely limited, and is absent in the head of Medinet Madi. Regarding the eyes, there are some particularities. In Egypt, as in Athens and Rome, towards the end of the reign of Trajan the details of the eyes are not yet fully specified, with only the iris carved.[9] This is because the sculptor tended to delineate only the field where the painter would have defined the work. It is only when the use of paint tend to disappear that the sculptor gradually outlines the details of the eye as well. On the head of Medinet Madi the carving of the iris is clear, but at the same time there are traces of color. However, in Egypt, the use of paint lasts much longer than elsewhere, and it is thus refuted the old assertion that the use of color in the portraits ceases starting from the Antonini[10]. Still in the third century the details of the eye are not yet marked by chiseling and yet the drill is not employed to animate the colors of hair. Some heads in limestone or gypsum appear to have received a yellow artificial *patina*, intended to give the illusion of marble[11].

The statues of graeco-roman style are, as well as from the capital, from Athribis, Terenouthis, Leontopolis in the Delta, Hermopolis in Upper Egypt. But not all the portraits found in the province have been manufactured there. The Alexandrian sculptors sent off sometimes their works up

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4 Bresciani and Giammarusti 2012, 181, n. 5. According to Pensabene, the Alexandria serapeum served as a model for all successive serapea: a staircase led to a propylaeum and the building was surrounded by a porch ( Pensabene 1993, 12).

5 In his sketches Achille Vogliano, who discovered Medinet Madi temples in 1936–1939, drew a porch and a staircase at the end of the Roman square, thus possibly misinterpreting structures belonging to the Northern Cult Place. Cf. Vogliano 1936, Vogliano 1937.

6 Bailey 1990, 129–133; Borg 2012, 615.

7 Graindor 1937, 18.

8 Graindor 1937, 19.

9 Graindor 1937, 24.

10 Hekler 1912, XLII.

11 Graindor 1937, 27.

Pls. 5–8 The young bearded head of Medinet Madi

to Upper Egypt, as evidenced by a papyrus of AD 140[12].

It is also assumed that the imperial portraits were imported into Egypt, but rather it is true that the Egyptians drew on their imperial portraits, and, as we shall see, even of individuals on the basis of models sent from Rome to Alexandria. In fact, materials and style of the imperial effigies not differ from those of individuals. And therein lays the main problem of interpretation of the head of Medinet Madi. Is it really a head of an emperor or instead a head of an individual that imitates an imperial model?

**Models comparable with the head of Medinet Madi**

One of the most similar portraits is certainly the bust in marble from Tell Abu Billo, Cairo Mus. No. 44671, assigned by Graindor to Aelius Verus[13] (Pl. 9.) based on the extraordinary resemblance to the bronze bust of Aelius Verus of the British Museum[14]: the details of the curls and the eyebrows are quite similar, as the beard, which forms a thin crown on his cheeks and chin. Before his death Hadrian raised statues to him who was to succeed him throughout the empire.

Pl. 9 The "Aelius Verus" bust, CG 44671 (JE 44671), from Rupprecht Goette 1990, Taf. 60, 3.

The portraits of Marcus Aurelius, which in some way resemble the head of Medinet Madi[15], display the use of the drill; the beard is absent in the early portraits, while it is more pronounced in the mature portraits, as the mustache, and covers the cheeks as well.

The head of Septimius Severus in the Cairo Museum[16] (No. 2748) has in common with that of Medinet Madi the type of beard and the sculpture of the iris alone, but the Medinet Madi portrait could eventually have had the pupils carved and subsequently damaged; besides, the hair is shorter and just moved, the eyebrows thinner and more stylized.

More recently, the attributions of numerous portraits of emperors have been doubted by many scholars. Günter Grimm has reconsidered the "imperial" attribution of many portraits by Graindor; he argues that almost always we deal with influence of imperial portraits on those of private individuals[17]. Hans Goette, about the portrait in Cairo attributed from Graindor to Aelius Verus and other similar cases, claims that the hair, even in the absence of the starred diadem, is typically Egyptian, and adds that the type of garment and the contexts of discovery make plausible the attribution of similar portraits to a circle of people linked to the cult of Serapis in Roman times[18]. Many priests of Serapis would indeed have played civil duties within the Roman system and this would explain the use of the toga. And we cannot of course doubt that the Medinet Madi bearded man wore a toga. Kiss re-examined the issue of imperial portraits in Egypt[19]: after a period of great abundance of imperial portraits under Augustus, then a good number (3 or 4) of Vespasian, we are seeing a decline. We do not know in fact any imperial portrait in Egypt of Titus, Domi-

12 Graindor 1937, 29.

13 Graindor 1937, 52, Pl. XI. Rupprecht Goette 1990, Tafel 60, 3 L81 Kairo. For a discussion on Graindor's and other scholars' identification of "imperial" portraits, see Riggs 2015, 554 ss.

14 Beauchamp Walters 1899, 151; Delbrück 1914, pl. 24.

15 Graindor 1937, Pls. XV, XVIa, b, far less the portrait on Pl. XVII.

16 Graindor 1937, N. 19, Pl. XVIII.

17 Grimm 1975, 9, Pls. 52–54.

18 Rupprecht Goette 1990, 73–74.

19 Kiss 1984, 56–64.

Pl. 10. The "young Marcus Aurelius" bust, CG 39468 (JE 39468), from Rupprecht Goette 1990, Taf. 60, 4.

tian and Nerva, only one of Trajan. More recently, Barbara Borg has stated that, despite emperor statues were very common in Egypt at certain times, after Augustus, except for Caracalla, no further emperors can be securely identified, thus most of the previously credited imperial portraits are now considered of private individuals.[20] Finally Christina Riggs asks for a "holistic approach" to the interpretation of the Roman portraits in Egypt, using textual and archaeological evidence instead of "trying to categorize sculpture along stylistic lines". [21] Unfortunately, we don't have any textual or even archeological evidence for the Medinet Madi head. At least all scholars agree that with Hadrian things changed substantially. As it had happened with Vespasian in Alexandria, the journey of 130–131 increased the popularity of the effigies of the emperor in Egypt, dedicated to the renewal of the sensitivity of the Hellenistic period. On the contrary, Antoninus Pius did not show any particular interest in Egypt. The only portrait certainly attributable to him is CG 41650[22], while the bas-relief CG 27568 would not because of the diadem, characteristic of the priests[23]. Therefore Kiss agrees with the interpretations of Parlasca and Grimm[24], that they are private individuals of the time of Antoninus Pius, who may be dated about the year 150 AD.

The bust CG 44671 attributed to Aelius Verus would also be a private individual of 150 AD, as also Grimm states. The treatment of the eye, with an indication of the iris and pupil, remembers certainly the portrait of Medinet Madi, the pupil of which is lost, as the shaping of beard and eyebrows sculpted in short strokes. In both portraits the curls are very soft, barely carved. The straightforward and clear design is replaced here by an all plastic and pictorial approach, near what is called the Eastern Hellenistic style. The young "Marcus Aurelius" CG 39468 (Pl. 10), an attribution refused by Kiss, Adriani, Wegner, Parlasca, Bonacasa and many others[25], might have in common with the Medinet Madi portrait the treatment of curls, which display however extensive use of the drill.

## Chronological conclusions

From this review of the portraits of imperial type or imitation, it emerges that in a given period must have existed in Egypt one or more different ateliers, if not a workshop, that carved portraits or busts on the model of imperial portraits for the local people of high society. The temperament of these portraits depended on the different artists, but it remains as a common characteristic the research of the plastic, sometimes pictorial effect, rendered through a precise incision and a soft shaping. Such trends are occurring in all the art of the empire, but here they have a local character derived from the traditions of the eastern Hellenism[26]. Regarding the dates of this group of imperial style portraits, in which we can eventually include the head from Medinet Madi, the connec-

[20] Borg 2012, 615.

[21] Riggs 2015, 556.

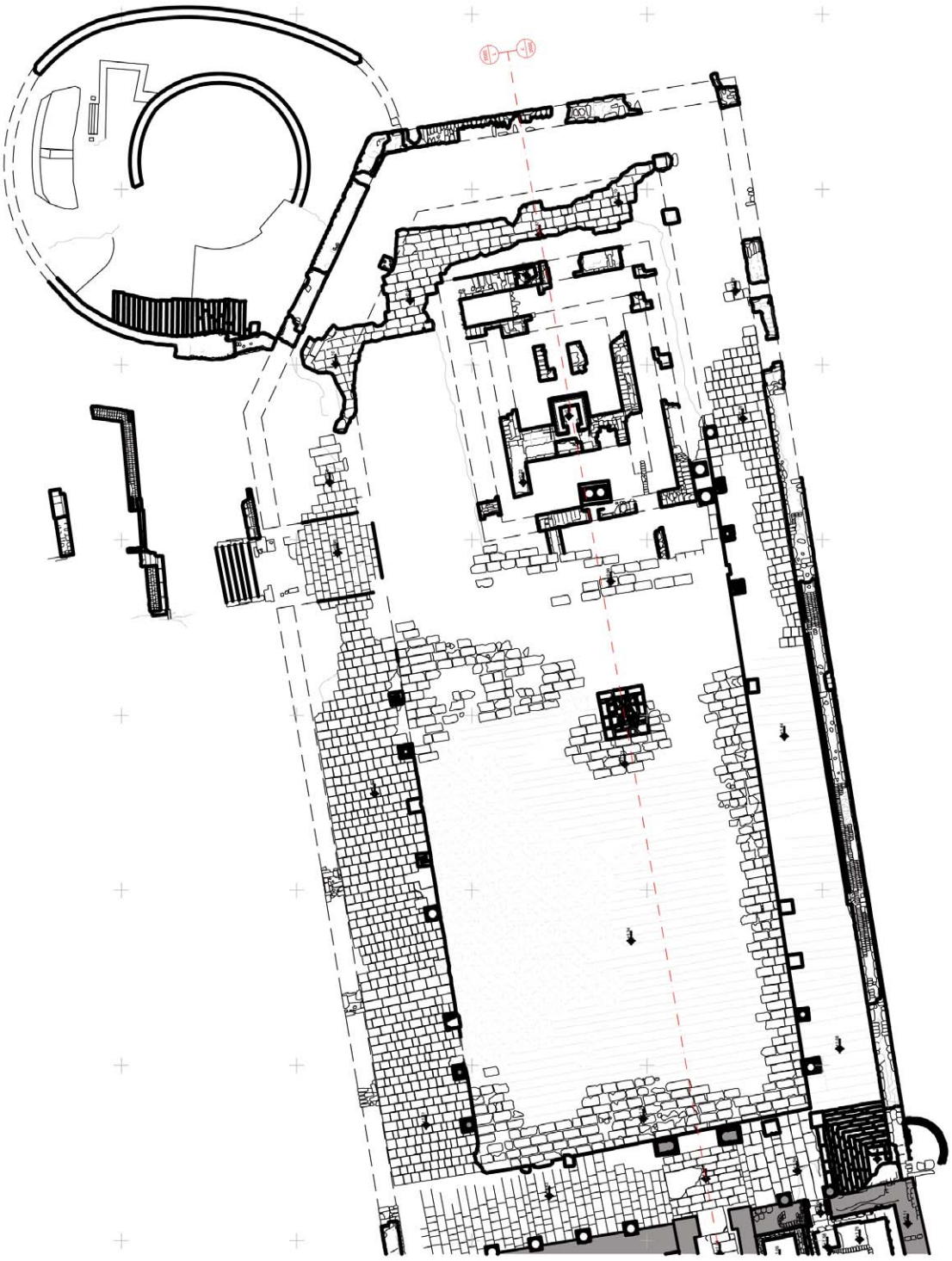
[22] Kiss 1984, 61, figs. 130–131.

[23] Kiss 1984, fig. 132. It is instead attributable to Antoninun Pius according to Graindor, Edgar, Bonacasa.

[24] Kiss 1984, 62; Parlasca 1999, 86; Grimm 1975, 21, n. 26, pls. 49, 52–53.

[25] Kiss 1984, 63, figs. 139–140.

[26] Bonacasa 1971, 14.



Pl. 11 The Roman Square in Medinet Madi: the North Cult Place in the north, the sacred shaft north-west (Survey by Dr. Emanuele Brienza).

tion with the young Marcus Aurelius and his family made most of the scholars hypothesize the dates 140–150 AD. According to Kiss, instead, there would be no reason not to date the activity of this school in the late Antonine kingdom, towards the reign of Commodus, when the style of this Egyptian school neared its trends (but not the execution) to the "Baroque" in force throughout the empire[27].

The portrait of Medinet Madi seems to date back to the Hadrian or maximum Antoninus Pius age, on the basis of its similarity with the bust CG 44671 (attributed by old scholars to Aelius Verus). It would be surely attractive to connect this sculpture with the supposed visit of Hadrian at Medinet Madi, attested by the famous Demotic ostrakon 298[28], during which Hadrian would have stayed with 5 priests of the city. The emperor arrived in Tebtynis December the 1st of 130 AD, during his return journey from Thebes to Alexandria[29]. We do not know if really Hadrian visited Medinet Madi, or whether he had received the priests of the city in Tebtynis or elsewhere in Fayum; but the very fact that the ostrakon remembers the event about 60 years later at the time of Septimius Severus, is clear indication of how much the visit of the emperor was regarded as epoch-making in the Fayum. In Tebtynis a celebration of "The Coming" (ἐπιβατήρια)[30] was celebrated, probably in memory of the visit of Hadrian. According to Sijpesteijn, Tebtynis is likely to have been only the place of entry into the Arsinoite, coming from Oxyrhynchus, and he argues that the emperor had also visited other places in the Fayum, including the Labyrinth, successively visited by his imitator Septimius Severus during his trip to Egypt.[31] In this context, it is not surprising that the majority of Roman statues in Medinet Madi may have been erected following the visit of the emperor, even after some years or decades. After all, we cannot exclude that the Medinet Madi head could be a real portrait of an Antonine emperor. Whether it depicts an emperor or a wealthy private individual, it would be possible to imagine this statue above a base or atop a celebrative column in the Roman square. As we have seen above, honorific statues in public areas could be placed above high columns.[32] Such a practice is well attested by the Roman period in Egypt, for instance at Oxyrhynchus, where a marble statue of a woman dating to the second century AD was found next to the base of its column.[33] It is thus significant that we have both a large base on the Roman square (Pl. 11), upon which could stand a (equestrian) statue, and a double column at the entrance of the North Cult Place (Pl. 1), just a few meters from the site of the discovery of the head. It can finally be reminded that the Luxor "little Serapeum" (see above), a peripteral chapel which the North Cult Chapel could resemble, was dedicated in AD 126, Hadrian's birthday, by an ex-*decurion*.[34] The suggested dating of the Medinet Madi head and of the site of its discovery could then coincide.

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[27] Kiss 1984, 64.

[28] Menchetti 2004. Cfr. Pfeiffer 2010, 158.

[29] Menchetti 2004, 29; Sijpesteijn 1969.

[30] Sijpesteijn 1969, 115; Pfeiffer 2010, 164 n. 861.

[31] Sijpesteijn 1969, 115, 111 n. 20.

[32] Bailey 1990, 129–133.

[33] Borg 2012, 615.616, fig. 37.1. Riggs 2015, 557–558.

[34] Riggs 2015, 559–560.

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# BUILDING THE HYKSOS' VASSALS: SOME THOUGHTS ON THE DEFINITION OF THE HYKSOS SUBORDINATION PRACTICES

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*"It is never a waste of time to study the history of a word"*
-Lucien Febvre

**Abstract**

In Egyptology, the subordinates of the Hyksos are commonly defined as *vassals*, often without giving a definition of the concept and as a consequence, the complexity that subordination practices might acquire is overlooked. In this paper, I present a revision of the origin and meaning of the concept of vassal, the underlying paradigms that sustain it, and discuss the scarce evidence as to reconstruct the subordination practices carried out by the Hyksos in Egypt.

**Introduction**

When describing certain societal practices of different nature referred to in texts or expressed through material culture, concepts are the tools which come to hand to give an explicit logical explanation to that otherwise unarranged information. Thus, academic considerations of the evidence lie in the use of concepts; concepts with their own history and composed of layers of meanings that have become reshaped, redefined and sometimes useless and outdated through time.[2] During most of the 20th century, scholars were concerned about the nature of concepts. They debated on their origin, changes and meanings, and raised issues that are still under discussion. However, it is not my intention to open a debate on such matters here, but to point out the relevance of concepts to describe and define evidence in accordance with the use that scholars make of them. One of the most relevant researchers devoted to the analyses of these matters, historical theorist Reinhart Koselleck, held that the 19th century marked a turning point in the notion of history because at that time *History* "achieved conceptualization as a fundamental mode of human existence"[3] becoming a collective singular in which all the past and future *histories* would have a place.[4] It was the time when the western world – and even more restrictively Europe – inaugurated a new paradigm: *Modernity* (*Neuzeit*), a paradigm that provided a new way of understanding mankind and time.

This new paradigm was rooted in the Enlightenment belief that the progressive expansion of human reason through scientific knowledge was a way of understanding mankind along with its history and controlling culture and nature.[5] It was also influenced by the new nation-states that had emerged as places where people could find a way of identification and develop a sense of belonging. *Modernity* changed religious beliefs about the future as it was now seen by a new "progress unfolded to the degree that the state and its prognostics were never able to satisfy soteriological demands which persisted within a state whose existence depended on the elimination of millenarian expectations."[6] Thus, the new paradigm emerged in Europe enabling subjects *to make* History and not only to describe it. Men were able to establish objectives without expecting the fulfilment of prophecies.

Koselleck stated that the idea of *Modernity* as something completely new was coined in a strong relationship with the previously conceived concept of *Middle Ages*.[7] The related concept of *feudalism* as a concept of universal history enhanced the previous thousand years and "coincided to a large degree with the concept of the *dark* Middle Ages."[8] But in fact, *feudalism* does not have a

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[2] On the "polysemy of concepts," cf. Motzkin 1996, 44 ff.

[3] White 2002; cf. also Koselleck 2002, 5.

[4] Koselleck 2004a, 44.

[5] White 2002, xiv.

[6] Koselleck 2004b, 17.

[7] Koselleck (2002, 162) sustained that until the 17th century the experience of the world was *static,* but the concept of *Modernity (Neuzeit)* from the 19th century onwards, revealed an *additive* experience of time.

[8] Koselleck 2002, 164. My emphasis.

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unique and clear meaning, thus it is important to be aware of what it meant for those who applied it.[9]

Unlike *feudalism*, the concept of *vassal* was not coined in modern times, but in the Middle Ages and ever since it has suffered changes. As a matter of fact, it explained socio-political subordination practices, but its meaning varied through time: from describing practices performed by people belonging to "lower social strata/serfs" during the 7th century AD to depicting those practices performed by people belonging to "high social strata/free men" during the 9th century AD. [10] At that time, practices were bounded by rituality (homage and loyalty oath) and concluded with a "gift." This last benefit became the most relevant part of the bond, entering men into vassalage just to obtain land (the *fief*).

The new paradigm of *Modernity* that settled in Europe in the 19th century made way for an increase in the number of disciplines dedicated to explaining the past of mankind. Among them was Egyptology, a discipline born in parallel with the archaeological findings of the Napoleonic campaigns in Northern Africa. By the end of the century Egyptology "possessed a firm body of grammatical works, a number of exemplary text editions, a sound technique of excavation, and vast amounts of material stored in museums" as M. Lichtheim stated long ago.[11] She also laid emphasis on the fact that specialization, as well as the ceaseless reinterpretation of the Egyptian history, had to become a rule – and a need.

Nevertheless, Egyptological studies were not an exception to the common ways of describing ancient societies from the 19th century onwards. Between 1850 and 1950 many Egyptological works were published, coming from the major centres in Egyptology located in Europe (mainly in Germany, England and France) and from those in the United States (i.e. the Oriental Institute, University of Chicago) which described the ancient Egypt as a *feudal* state. To illustrate this feature, I shall refer to the definition given by one of the most relevant French Egyptologists, Gaston Maspero, in his *Histoire ancienne des peoples de l'Orient* which was published in thirteen volumes from 1875 onwards. In explaining the role of the royal children, Maspero linked their position to the possession of land: "The most favoured of the princes married an heiress rich in *fiefs*, settled on her domain, and founded a race of *feudal lords*." [12] In the same vein, when describing the societal bonds, he stated that:

"Every Egyptian, the King excepted, was obliged, in order to get on in life, to depend on one more powerful than himself, whom he called his master. *The feudal lord was proud to recognize Pharaoh as his master, and he himself was master of the soldiers and priests in his own petty state.* From the top to the bottom of the social scale every free man acknowledged a master, who secured him justice and protection in exchange for his obedience and fealty. The moment an Egyptian tried to withdraw himself from this subjection, the peace of his life was at an end; he became a man without a master, and therefore without a recognized protector."[13]

The argument which lies behind this description is related to the fact that the Egyptian *Weltanschauung* held that the king was the owner of the land and that people received it from him. As *feudalism* was a concept of universal history, it allowed describing similar historical situations in different cultures. In Maspero's view, *feudalism* pervaded all the Egyptian society, from gods to

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[9] Kóthay (2011, 121) clearly summarized this relevant feature: "Feudalism has been defined in many different ways, in narrow and broad senses with many variants. In its perhaps most widespread narrow definition, the term 'feudal' refers to the fief and vassalage, most often implying military service, and focuses on relationships within the upper classes of medieval Western European society. In its wider uses, it describes a political organisation or the whole socio-economic structure of a society; in Marxist terms, it is perceived as a mode of production or social formation and represents a pre-capitalist stage of historical development. There also exists a comparative use of the concept of feudalism in a non-European study. In all its uses, the concept of feudalism has been the subject of much controversy, especially from the 1960s." Cf. also bibliography cited there. In this regard, it is relevant to mention the discussion on feudalism in Ancient Egypt sustained by K. Jansen-Winkeln (1999). He considered the Third Intermediate Period, and explicitly the Libyan domination as "feudal" based on the characteristics of feudalism defined by O. Hinze and C. Cahen (Jansen-Winkeln 1999, 15–20) but cf. Schneider 2010, 156.

[10] A summary on the evolution of the concept in Pécout 1997, 1570–1571.

[11] Lichtheim 1963, 31.

[12] Maspero, n.d., vol II, 43. My emphasis.

[13] Maspero, n.d., vol II, 94–95. My emphasis.

men and even "preceded the royal sovereignty on the banks of the Nile."[14] Then the "feudal lords" (nomarchs) became the *vassals* of the king, the ultimate landowner, who gave them land in exchange for goods and services.[15] The struggles, disputes and tension among nomarchs and their "master" (king) were explained as conflicts generated by the nomarchs' search for independence, which was sometimes reached. Like the French school of Egyptology, the German school considered nomes as *fiefdoms* and nomarchs as *independent lords* or *feudal princes*.[16] In this regard, Eduard Meyer's ideas were decisive to consolidate the description of Egypt as a *feudal state*, expressed in his *Geschichte des Altertums* (1884–1902). The other European schools and the American one also shared this theoretical point of view, which was still used during the first part of the 20th century.[17]

As mentioned above, Egyptology as a specialized field of research is immersed in scholarly paradigms and does not escape from the use of concepts. For some time, scholars began to think about concepts and, in consequence, efforts were devoted to exploring their application and different meanings through time.[18] With regard to "feudalism" and its related concepts, I would like to go back to a secondary topic which D. Schloen analysed in depth in his study on (Weberian) *patrimonialism* in the Ancient Near East in general and in Ugarit in particular. He recognized that *feudalism* was a theoretical frame used to explain the evidence coming from the Bronze Age Near East until the 60s,[19] while the related concept of *vassal* was used to explain the position of the political subordinates, drawing attention to the fact that Near Eastern specialists often failed to define the concepts they used, or adopted automatically certain terms to describe evidence without taking into account their different meanings. In this regard, he established a distinction between the "*economic structures* usually associated with medieval feudalism" and "the ideology of feudalism as a *political system*."[20] By distinguishing these two key features, he disclosed the different conceptions which lie behind the use of feudalism and its related concepts in Ancient Near Eastern studies. On the one hand, it was applied to describe socio-economic structures, such as the European *manorial system* of dependent agriculture where a "lord" granted land in return for goods and services from their "vassals;" on the other hand, it was employed in its legal and political dimension, where a "contract" between free men had to be established.[21] Homage and the imposition of tribute were also practices linked to *vassalage.*

With regard to Egyptology, K. Kóthay has recently described the historiographical development and variations in the use of the concept of *feudalism* in the discipline. Some strong points in her analysis encompass the recognition of the employment of analogies in Egyptological historiography, and the fact that although concepts like *capitalist* and *capitalism* are not frequently used, *feudal* periods are followed by others described through *capitalist* features.[22] As a matter of fact, the idea of progress from one stage to another is embedded in a clear analogy with the Western social "evolution" – the *Modernity* paradigm – in the Egyptological historiography of the last two centuries. In short, the European historical evolutionary models have not set analogies aside.[23]

In this paper, I would like to place special emphasis on the *natural usage* the concept of *vassal* acquired in current Egyptological approaches to define the status of the Hyksos socio-political subordinates, despite its explicit different meanings. Then, I shall discuss the evidence that can be

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14 Maspero, n.d., vol. II, 252.

15 Maspero, n.d., vol II, 56.

16 Cf. also Brugsch 1877 and Wiedemann 1884.

17 Petrie 1894–1905; Breasted 1937 [1st edition 1909]; Kees 1932; Pirenne 1938; Stock 1949; Schenkel 1964. For a summary, cf. Daneri de Rodrigo 1992. Anyway, this approach was not the only one. Other theories were applied to explain the evidence. For instance, it is worth mentioning the introduction of Marxist studies by Soviet scholars I. Diakonoff (1980, on Mesopotamian society) and O. Berlev (1971, on the Egyptian Middle Kingdom). Anyway, the impact of this theory in Egyptological approaches is relative. Other approaches like those of W. Helck (1968), B. Kemp (1972) and more recently the collection of studies edited by Moreno García (2013a) gave different explanations to the constitution of the Egyptian state and its nature.

18 I.e. on "myths," cf. Baines 1991; on "cultural appropriation," cf. Schneider 2003.

19 Schloen 2001, 187.

20 Schloen 2001, 189. My emphasis.

21 Schloen 2001, 189.

22 Kóthay 2011, 127. On the evolution of many premises originated in the 19th century, on the myth of the "eternal Egypt," and in particular on the academic approaches to the economy of ancient Egypt, cf. Moreno García 2009.

23 Daneri de Rodrigo 1992, 24.

considered to delineate the Hyksos subordination practices.

## Building the Hyksos' *vassals*

At present, many different and unresolved topics surrounding the Hyksos have captured the interest of scholars: their provenance, ethnicity, identity, religious beliefs, the extent and administration of their political entity, and the absolute and relative chronological order of the rulers.[24] At the same time, other topics lost their centrality, such as the possible connection of the Hyksos to Biblical narratives like Exodus or the origin of the Israelites.[25] As in all those topics, in the analysis of the subordination practices held by the Hyksos, many layers of interpretation converge even though during most of the 19th and 20th centuries, the subordination practices did not occupy a relevant place in the academic field. At that time, scholars were interested in other features, many of them mentioned above, such as determining the ethnic origin of the Hyksos. In fact, during World War II, many scholars were involved in hard discussions, proposing a Semitic or Hurrian origin (at that time the latter was considered to be Aryan) or a mix of them.[26] Other relevant topics were the origin and meaning of the term "Hyksos," the extent of their "empire" and the relationship with Biblical narratives.[27] In fact, the subordination practices held by the Hyksos were subsumed in the conviction of the existence of a Hyksos "empire" which encompassed the Levant and the whole of Egypt,[28] controlling also the trade with Kerma.[29] Unsurprisingly, when the need to qualify the situation arose, *feudalism* and its related concepts were the chosen theoretical tools to describe it.[30] As mentioned above, in a *feudal* organization the *vassals* were related to the *lord* through the possession of land, and the lord was rewarded in goods or services (tribute). This is a first definition of *vassal,* but as previously stated, it is not the only one.

In fact, topics and their explanations were and are closely related to the evidence. Until the finding and later publication of the texts related to the Kamose's saga,[31] description of Hyksos subordination practices was based mainly on later sources, such as the *Quarrel of Apophis and Seqenenre* (19th Dynasty) and the epitomes of Josephus, Africanus and Eusebius based on Manetho's lost *Aegyptiaca*. The impressive number of scarabs found in Egypt, Nubia and the Levant with names and titles linked to the Hyksos also contributed to the description of the subordination practices as *vassalage*. Other sources helped to reinforce the negative view on the Hyksos, like *The Speos Artemidos Inscription* of Hatshepsut (18th Dynasty) or the Turin King-List, where clear differences between the Hyksos and the Egyptian kings are registered.

The *Quarrel of Apophis and Seqenenre* (Pap. Sallier I, EA 10185) was a literary composition dated to the reign of Merenptah (19th Dynasty) which deserved multiple analyses.[32] Recent approaches focus on the impact that the "received tradition" or "collective memory" on the Hyksos and Amarna "traumas" – in Assmann's terminology – could have had on its making.[33]

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[24] There are countless approaches to these topics. I shall mention a few as a general guide: Oren 1997; Ryholt 1997; Schneider 2010, Arnold 2010; Bietak 2010a; Shirley 2013.

[25] Petrie 1906, 70.

[26] Cf. Meyer 1884, 3, I, 304; Gunn and Gardiner 1918, 37; Engberg 1939, 46–47; Alt 1954; for a summary, cf. Bernal 1991.

[27] Luckenbill 1910, 134–139; Waterman 1916, 228–229.

[28] Sayce 1903.

[29] Säve-Söderbergh 1951, 55.

[30] For instance, in describing the socio-political situation in Palestine during the early 2nd millennium BC, W.F. Albright asserted that: "It is becoming more and more evident, as a result of a comparison of the data from different sites in Palestine, that there was a great barbarian irruption from the north during the eighteenth century B.C., in the course of which many of the cities of Palestine were destroyed. This invasion must be connected with the movements which ultimately brought the Hyksos into Egypt. *The extraordinary strength of the fortifications erected by the new conquerors is to be explained by the feudal organization of the Hyksos Empire in Asia*, independently recognized by Professor Alt and the writer." Cf. Albright 1926, 10. My emphasis.

[31] The Carnarvon Tablet was found in 1908 and published by A. Gardiner (1916); the fragments of the First Stela of Kamose were found in 1932 and 1935, cf. Lacau 1939, 245–271; the Second Stela of Kamose was found in 1954 and published by L. Habachi in 1972; and finally the recently re-identified fragments of the Third Stela of Kamose originally found in 1901, were published in 2005. Cf. Gabolde 2005, Van Siclen III 2005, 2010.

[32] Among the relevant literature on this source, cf. the *editio princeps* Gardiner 1932; also Redford 1970; Goedicke 1986; Spalinger 2010.

[33] Spalinger 2010, 130–131.

In the *Quarrel*, Apophis is recognized as "king" (*nsw*) while his name is encircled in the cartouche, and Avaris is not classified with 𓈖 (N25) as in the Second Stela of Kamose (K2 onwards), but with the usual classifier for Egyptian towns 𓍿 (O49). King (*nsw*) Seqenenre is addressed as "ruler" (*heqa*) and "chief" (*wr*) of the Southern City (Thebes). Nevertheless, a strong feature in the source is the portrait of the Hyksos king as a worshipper of Seth, considered a unique god.[34] The source parallels the actions of Apophis addressed to Seth antithetically to those made by the Egyptians for Re.[35]

The *Speos Artemidos Inscription* of Hatshepsut (18th Dynasty) reinforced the negative view of the Hyksos by means of declaring that "they ruled without the Sun,"[36] with the aim of stressing the positive actions of the female king supported by the sun-god Re.

The *Turin King-List,* dated to the reign of Ramesses II (19th Dynasty), includes the Hyksos. The fragment preserves the *nomen* ("Son of Re" name) of just one foreign ruler, Khamudi. The correspondent entry following the name states: "six foreign [rulers] ruling for 108 years,"[37] the number of kings also mentioned by Manetho.[38]

The preserved information given by Manetho delineates a violent assault of the Egyptian territory from peoples of the East, "invaders of obscure race" who subdued Egypt, founded Avaris and were defeated by the Thebans.[39]

Based on these sources the conclusion that the Hyksos were the "lords" of an extended territory was reached, and the concept of *vassal* started to be of common use. J. Breasted sustained that "many of the numerous kings of this period (between the fall of the 12th Dynasty and the end of the Hyksos rule), enumerated in the Turin King-List, may have ruled in the South as *vassals* of the Hyksos, such as Sekenenre, whom the folk-tale makes the Theban *vassal* of one of the Apophises."[40] The common picture at those times was that of a suffering and weakened Egypt under the Hyksos control, as indicated in Manetho's description of the arrival of the Hyksos into Egypt.[41]

The findings made during the 20th century, mainly the Kamose's texts, support that classical view. In this regard, D. Polz sustained that two different ideological levels can be discerned about the ancient approaches to the "Hyksos problem." He made a distinction between an "Egyptian ideology" expressed by Kamose fighting a foreigner who dominated part of the country – and in this way the war against the Hyksos was understood as a "war of liberation" – and an "Egyptological ideology" where the arguments and consequent war against the Hyksos led to the establishment of the New Kingdom and was the basis of its existence.[42] With slight and subtle differences, both types of sources reinforced the negative image of the Hyksos dominating a weakened Egypt.[43]

In the same year in which the location of Avaris at Tell el-Dabᶜa was announced, a new study on the Hyksos was published by J. Van Seters, *The Hyksos. A New Investigation* (1966). In a new approach to the subject, he dedicated a complete chapter "The Nature of the Hyksos Rule" *to explain* the Hyksos subordination practices. The author connected the Hyksos political tradition with that of the Old Babylonian world, as documented in the Royal Archive of Mari, whose basic characteristics were outlined by J. Munn-Rankin in a paper published in 1956.[44] Munn-Rankin had recognized the existence of a confederation of small states in a region that included most of western Asia. These independent states were allied by parity treaties which at the same time possessed "small *vassal* kingdoms" whose leaders acknowledged the "leading king as *suzerain*." She distinguished between symmetrical and asymmetrical relationships among rulers expressed in the sources through kinship vocabulary. While symmetrical

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34 On this particular aspect, cf. Goldwasser 2006.

35 Spalinger 2010, 122–123.

36 Allen 2002, 5.

37 Ryholt 1997, 118; Málek 1982, 101.

38 Waddell 1964, 83.

39 Waddell 1964, 77–93.

40 Breasted 1937, 221. My emphasis. By the early 20th century the existence of three kings with the name Apophis was sustained.

41 Sayce 1903, 349. Sayce has also sustained that *"*Manetho tells us that the Hyksos or Shepherd kings invaded Egypt from the east, overrunning the land, burning the cities, and destroying their temples. At last one of them, named Salatis, was made king. He established his capital at Memphis, whence he governed the whole country, both Upper and Lower Egypt, exacting taxes from its inhabitants and setting up garrisons to overawe them. He also fortified the eastern frontier of his kingdom, through fear of the Assyrians who were then growing in power." (Sayce 1903, 349) in his book *The Burden of Egypt*, published in 1951, J.A. Wilson named the chapter on the Second Intermediate Period "The Great Humiliation."

42 Polz 1998, 221.

43 Cf. also Spalinger 2010.

44 Van Seters 1966, 162–163.

relationships took place among rulers of similar status who called each other "brothers", asymmetrical relationships were maintained by rulers of different status addressed as "lord" or "father" and "son." Thus, what follows here is a *political* definition of the concept of *vassal*, emphasizing the asymmetrical relationships established behind the terminology related to kinship.

Munn-Rankin followed V. Korošec's proposal on the Hittites to define the concept and supported the notion that the "vassal-suzerain" bond was sustained on *contracts;* in the case of the Hittites they took the form of treaties.[45] The same argument, used to explain the relationship between the Israelite god and men, was proposed by G. Mendenhall in the field of Biblical Studies, through the concept of *covenant*.[46]

Nevertheless, Munn-Rankin encountered several problems when applying the concept of "vassal-suzerain:" the correlation between "brotherhood" and symmetrical status and between "fatherhood" and asymmetrical bonds was not uniform.[47] There were also changes in the status of the bonds between rulers, from asymmetrical to symmetrical relationships.[48] She pointed out that in certain cases an ancient ruler wrote to a younger one as his "son" without any kind of political connotation, considering it as the addressing of an older ruler to a younger one.[49] Finally, she also explicitly admitted that no treaty texts were found in the archive dated to the 18th century BC. [50]

Probably, these "exceptions" reveal both the diversity and complexity that the subordination practices acquired in that specific socio-political scenario.

As mentioned above, Van Seters adopted the explanation and standpoint held by Munn-Rankin and applied them to the Hyksos, in view of the *continuum* of the Amorite world into Egypt under the foreign dynasty. He also considered that there were strong commercial and cultural bonds between the Levant and Egypt during the Second Intermediate Period (ca. 1800–1530),[51] and applied the concept of "vassal-suzerain" – following Munn-Rankin's definition of this kind of bond as asymmetrical – to explain the relationships among the rulers of Avaris, Thebes and Kerma. Thus, he took into account the hypothesis which referred to the existence of a treaty between the Hyksos and the Egyptians during the Second Intermediate Period.[52] He also suggested that the Hyksos controlled the south – considering Seqenenre as an Apophis' *vassal*[53] – and that there were minor *vassals* under Apophis' reign in Asia and Egypt, recognizing the existence of a Hyksos confederacy, in line with the "Amurrite politics of the Mari age."[54]

The letter sent by Apophis to the ruler of Kush, mentioned in K2, where the Hyksos ruler called the Kerman one "my son" was defined as "a letter of an older ruler to a younger one" without any kind of political bias, following the example given by Munn-Rankin with regard to the Royal Archive of Mari.[55] In fact, Van Seters considered that the Hyksos shared the same political and diplomatic structure as Munn-Rankin described for the Mari Archive: "vassal-suzerain" relationships based on treaties or covenants ("contracts") .[56] Even though the Hyksos were related to northern-Levantine traditions, the socio-historical situation reflected in the Archive of Mari could hardly be paralleled with that of Egypt during the Second Intermediate Period. Here, the collapse of the strong unified state of the Middle Kingdom left a scenario characterized by political fragmentation and cultural diversity,[57] framed by the emergence of a dynasty of foreign origin which controlled part of the

45 Korošec 1931.

46 Mendenhall 1954.

47 Munn-Rankin 1956, 79.

48 Munn-Rankin (1956, 76–77) referred to the relationship between Shamshi-Adad and the ruler of Eshnunna to illustrate this feature.

49 Munn-Rankin 1956, 81–82.

50 Munn-Rankin 1956, 89, 92. M. Liverani (2001) has also followed these descriptions in his explanation of "The Ideology of Brotherhood."

51 With regard to the chronology of the Second Intermediate Period, I follow the proposal of Ryholt (1997, 42–43) of considering its beginning at ca. 1800 BC. For the end of the period, I follow the date given by Bietak (2010a, 139), ca. 1530 BC.

52 Van Seters (1966, 167) sustained that "The nobles, in their speech to Kamose (CT 5–7), emphasize that they have the right to pasture cattle in the Delta and hold land in agricultural states. These generous rights *must have been guaranteed by treaty arrangements*." My emphasis.

53 Van Seters 1966, 167.

54 Van Seters 1966, 170.

55 Van Seters 1966, 168–169. Hieroglyphic text of K2 in Helck 1983, 91–97, no. 119; cf. also Habachi 1972.

56 I basically agree with the fact that several socio-political practices held by the Hyksos can be related to Levantine traditional practices (Flammini 2011–12).

57 Cf. Bourriau 2010.

territory, and pretended to extend its control to the rest.

A recent discussion on the Hyksos *vassals* was approached by Kim Ryholt, but his arguments were directed to dismiss the existence of Hyksos subordinates and not to discuss the concept of *vassal*.[58] He stated that the existence of three groups of *vassals* (the Semitic vassal kings ruling in the Delta, the 17th Dynasty and the Kushite ruler) was conceived due to a "reminiscence of the earlier belief that the Fifteenth Dynasty was a "*Weltreich*" while qualifying it as a "baseless assumption." [59]

As D. Schloen had distinguished in the field of Assyriology, a difference between an *economic* definition of the concept of *vassal* and a *political* one can also be detected in Egyptological studies. In the same vein, it is also worth mentioning that the first definition precedes the latter. In the former, the *vassal* was a free man linked to his "master" through a bond of fidelity, in exchange for land (the *fief,* cf. Maspero above). In the latter, the *vassal* was a lower status ruler linked to a higher status one by a treaty or covenant; thus, it was a legal bond usually signed by both parties (cf. Van Seters above).

Nowadays, although *feudalism*-related concepts have been dismissed as useful tools for describing the Hyksos rule in Egypt, the concept of *vassal* to name their political subordinates has survived, adopting a natural usage.

## Re-evaluating the Evidence: Can the Hyksos subordinates be considered (exclusively) *vassals?*

As stated above, even though the authors of the ancient narratives, both Egyptian and Classical, were far from our idea of "History," and their goals were completely different from ours, the information they provided shaped the first academic approaches to the subject. The idea that the Hyksos created an extended empire and entered Egypt through a violent invasion was strong in the Egyptological studies produced between the 19th and mid-20th centuries. Written sources helped to reinforce such view: violence, subordination attempts and religious differences were common denominators in contemporary and later narratives.

Nowadays, and compared to the situation in the early 60s, the amount of information regarding the Hyksos has increased a lot. In fact, material evidence coming from Tell el Dabᶜa/Avaris and from other sites in Egypt is being continuously incorporated into the discussion, such as the recent findings made at Edfu.[60] The information on the Hyksos is provided by longer pieces of text (narratives, royal inscriptions), short inscriptions on different formats (i.e. seals, sealings, amulets, weapons, parts of buildings), royal king-lists (The Turin King-List) and material remains. Nevertheless, not all this evidence allows us to explain their subordination practices, and none of it gives a definition or explicit explanation of those practices. It is the researcher's task to describe and give a plausible explanation by means of analysing the discourse and the findings.

As a matter of fact, contemporary sources reveal that the Hyksos effectively controlled part of Egypt. The First Stela of Kamose (K1 onwards) and the Carnarvon Tablet (CT onwards) stated that the northern frontier under Theban control was possibly located at Cusae, while K2 referred to Hermopolis as the southern limit of the territory under Hyksos control. J. Allen sustained that the area between both locations could have been a buffer zone.[61] In this regard, J. Bourriau has suggested that the Pan-Grave cemeteries located somewhere to the south, at Deir Rifeh and Mostagedda, revealed material remains that represented two groups "which formed garrisons to control passage down the Nile" during the Second Intermediate Period. Deir Rifeh, located on the west bank of the Nile, was linked to the Hyksos while Mostagedda, located on the east bank, served to the Thebans.[62] Thus, this fact is a point of departure – a premise – to propose possible explanations about the *way* those rulers attempted practices of subordination.

As mentioned above, late Egyptian and Classical sources were considered as proof of the establishment of vassalage relationships under the Hyksos rule during most part of the 20th century. Nevertheless, late Egyptian sources reveal an increasingly negative view of the Hyksos through time, focusing on their religious differences and probably exposing long-term traumas, while Clas-

58 Ryholt 1997, 323–327.

59 Ryholt 1997, 323.

60 Moeller and Marouard 2012.

61 Allen 2002, 17.

62 Bourriau 2010, 23.

sical authors received and expressed such a tradition. Even so, these sources should not be completely discarded because some information on socio-political practices can still be obtained.

On the contrary, the Egyptian contemporary evidence was biased by the situation of the moment, expressing the impact that a foreign rulership had on the traditional Egyptian worldview; and although the information it provides is scarce**,** it can give some clues on the way the subordination practices could have been carried out.

A point to be highlighted is that possibly the Hyksos rulers had built their control over the Egyptian territory – beyond the Eastern Delta – not through a military conquest over the land, but through personal relationships with the local people. These personal relationships could have also adopted different patterns depending on factors that are not possible to be reconstructed completely. It was also probable that some sort of economic taxation could have been imposed, as referred in K1 and in later narratives (i.e. *The Quarrel of Apophis and Seqenenre* and *Manetho*).

The situation of Neferusi as described in K1 (line 14) and CT (line 13) can be useful to attempt an explanation. The toponym Neferusi appears classified by ⊗ (O49), a classifier for Egyptian towns. It reveals that it was considered as part of the Egyptian territory. An Egyptian named Teti, "the son of Pepi", deserved the rage of Kamose because he turned the town into "*a nest of Asiatics*."[63] No more personal information on Teti is given by the source. Thus, Teti's attitude can be explained if he was a Hyksos' subordinate. If so, it reveals that Egyptians could have been co-opted by the Hyksos as loyal subordinates.[64] Finally, the source states that Neferusi was attacked and recovered by Kamose.

The attitude of the Hyksos Apophis preserved and described in K2 reinforces the idea of the establishment of personal relationships of subordination as a way of expanding the Hyksos sphere of influence. It also provides evidence of the socio-political changes that resulted from the disputes among the rulers of the three political entities (Apophis, Kamose and the Nubian ruler whose name is never given) by the late Second Intermediate Period, a feature also presented in K1 and CT. The stelae had been probably on display in the temple of Amun in Karnak, where they were found. In K2, the disputes among the rulers were over the possession of the title *Heqa* class.  *"ruler (of Upper Egypt"*).[65] In fact, a way of measuring the impact that the Hyksos rule had on the Egyptian tradition is through the importance that the title *heqa* received from the Second Intermediate Period onwards.[66] Although the title *heqa khasut ("ruler of the foreign lands")* had been in use since earlier times (attested from the Old Kingdom onwards, and during the Middle Kingdom to name foreign rulers mainly from Nubia and the Levant, i.e. the Execration Texts), it was only during the Second Intermediate Period that the title was adopted by a particular line of rulers to name themselves. In fact, these rulers included the title in their titulary, among other traditional Egyptian titles, as it appeared on a door-jamb of the Hyksos Seqer-Her found in Avaris.[67] At that time, the title *heqa* acquired a completely new significance when used by both the foreign independent rulers located in Avaris and the Egyptian rulers located at Thebes.

The mention of this title in the source indicates the non-existence of political and territorial unity: the three rulers are mentioned as *heqa of Avaris, heqa of Kush* and *Heqa (of Upper Egypt).*[68] These rulers did not argue about Egyptian royalty but about who was the legitimate *Heqa (of Upper Egypt)*; in other words, who was the legitimate authority in Upper Egypt.

Indeed, the texts reveal the Egyptian point of view when the advance of the feared chaos (*isfet*) effectively took place in Egypt, the land which deserved to be ruled under *maat*. They also sustain a negative view of the Hyksos ruler, describing him as someone who tried to subordinate first

[63] Smith and Smith 1976, 60; Redford 1997, 14. Text in Helck 1983, no. 119, 89.

[64] Cf. Van Seters (1966, 169) proposed that Teti probably was "the commander of a garrison near the border of Upper Egypt."

[65] For an analysis of the title *Heqa* in K2, cf. Flammini 2011–12.

[66] Harvey 2007, 347–348.

[67] Bietak 1996, 65 and pl. 52.

[68] It is relevant to mention that the word *heqa* received different classifiers in the source. When it is addressed to the rulers of Avaris and Kush it receives the "papyrus roll" Y1 classifier, probably denoting illegitimacy, while when referring to Upper Egypt receives the "King of Upper Egypt" A43 classifier. Cf. Flammini 2011–12.

and challenge later the Upper Egyptian ruler, established in Thebes, Kamose.[69] Then, the source shows Apophis' intention of making subordinates, in this case, the attempt to subordinate Kamose, considering him a lower status ruler. Naturally, Kamose rejected the proposal.[70] The entire text maintains the idea of Apophis claiming the rulership of Upper Egypt, but he is pictured as a usurper, an enemy, considered a "chief of Retjenu" (*wr n Rṯnw,* K2, line 4), a "ruler of Avaris" (*ḥqꜣ n Ḥwt-Wꜥrt,* K2, line 19) or a "chief (who) is in Avaris" (*wr m Ḥwt-Wꜥrt,* K1, line 3). It is relevant to mention that in all these examples the classifier of the locations (Retjenu and Avaris) is the one for "foreign land" (  , N25). Thus, despite the fact that Apophis *claimed* his right to rule over Upper Egypt, he was the ruler of a "foreign" land, the domain of *chaos.* The second passage refers to the relationship between Apophis and the ruler of Kush, a relationship that has received different renderings. The discussion was centred in determining whether Apophis addressed the letter to "*the son of the ruler of Kush*" or if he called the ruler of Kush "*my son.*" A closer look at the classifiers of the word "ruler" in the passage can shed light on this matter, showing a subtle difference in the meaning of the whole paragraph. Apophis' claim was directed to the *position* the ruler of Kush granted himself.[71] Following these statements, Apophis proposed a sort of alliance to the ruler of Kush to defeat Kamose and divide his territory between them, by saying

> *"I have not attacked him in the same way he has done to you; he has cut up these two lands to their affliction, my land and yours. He has destroyed them. Come northwards! Do not be afraid! (?) Behold! He is here in my hand; there will be no one who will rise up to you in this Egypt. Behold! I shall not let him go until you have arrived. Then we shall divide those towns of this Egypt and Khenet-henty-nefer (or "both our lands)"*[72] *shall be in joy."*[73]

After reproaching the attitude of the ruler of Kush, he changed his attitude trying to convince him through persuasion, asking for his help to defeat Kamose and promising to share the towns under Egyptian control after reaching that goal.

There are further indications that Apophis considered himself a ruler of superior rank who deserved to rule not only over Lower Egypt but over Upper Egypt as well. This aspect seems to be recognized by Kamose, who in line 16 of K2 states that Apophis was a "(…) *vile Asiatic, who used to say: "I am a* lord (*nb*) *without equal (...)."*[74]

Apophis' self-flattery was recognized by the Egyptian ruler.

This particular way of depicting the relationships between all the rulers involved in the actions described in K2 were conceptualized as reflecting *vassalage* bonds.

Nevertheless, the given definitions of *vassal* – the one, related to the possession of land and the other expressed through the signing of a treaty – do not seem to be supported by the information provided by the evidence. Even though in K2 Apophis called for an alliance with the ruler of Kush with the promise of dividing the towns which were under Kamose's control, there is no mention to any kind of formal procedure and at present no formal agreement of any kind has been reported to be found.

The information provided by other sources also suggests a similar situation. The administrative organization of the Hyksos seemed to be rather different from that of the Egyptians. S. Quirke and more recently J.J. Shirley reached similar conclusions with regard to this specific topic. Quirke's study on the seal-amulets from the Second Intermediate Period revealed that the only titles attested in the Hyksos administration were "overseer of what is sealed (treasurer)" and "king's son." Moreover, Quirke asked himself if "the recurrence of the title "king's son" indicates use of kinship structure to cover areas of authority, notably military control."[75] As for Shirley, despite recognizing

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[69] Another contemporary source is the inscription of Ahmose, the son of Abana, found at Elkab. Ahmose probably served under kings Ahmose I, Amenhotep I and Tuthmose I while his father served under Kamose and Ahmose's predecessor, Seqenenre. Lichtheim 1976, 12–15.

[70] When he states "*your mouth is narrowed when you make me a chief and yourself a ruler (of Upper Egypt)"* (Flammini 2011–12, 58).

[71] The text reads *"by (the hand of) the ruler of Avaris: Auserre, son of Re, Apophis, greets my son, the ruler of Kush. Why did you raise yourself as ruler [of Upper Egypt] without letting me know? Have you seen what Egypt has done against me? The Ruler [of Upper Egypt] who is there, <Kamose, the victorious> given life, is attacking me in my territory (...)"* (Flammini 2011–12, 59).

[72] Alternative translation proposed by Smith and Smith 1976, 61.

[73] My translation.

[74] My translation and emphasis, Flammini 2011–12, 74.

[75] Quirke 2007, 133.

that a comprehensive understanding of the 14th and 15th Dynasty administration (she considers both dynasties together) is not yet possible, she gives an explanation that coincides with Quirke's proposal that the two dominant areas were those related to the "treasurer" and the "king's sons."[76] She concludes that the Hyksos adopted certain aspects of the Egyptian administration which they recognized as familiar, while at the same time they set aside others. In fact, the Hyksos rulers adopted certain features of the Egyptian culture, such as the script, language, gods and titles. But they also preserved their own customs and features of Levantine origin that led them to build an identity as rulers of their own, which differed itself from the traditional Egyptian kingship.[77]

The possible existence of a circuit of gifts among the Hyksos rulers and other local chiefs can be elucidated. In this regard, the dagger (Saqqarah, Cairo JE 32735 [CG 52768]) found inside the coffin of Abed, undoubtedly a prestige good, can also be understood as a gift in exchange for certain services or loyalty.[78] Abed was not the primary owner, but a certain Nehemen, as the inscription on one of its sides reveals: "*Good god, Lord of the Two Lands, Nebkhepeshre, Son of Re, Apophis, given life*." On the other side, there is a hunting scene and another inscription which identifies the owner of the weapon as "*the follower of his lord, Nehemen*." A scribal palette given by Apophis to a man called Atju also points to the probable existence of a personal circuit of gifts which was established at that time. In her analysis of the imagery of these objects, Do. Arnold remarked that

> "judging from the deposition of Nehemen's dagger – surely a gift from the Hyksos ruler named upon it – in the coffin of another Hyksos follower, called Abed, and from the gift of a scribal palette by the same king to a man called Atju, *a picture of mutual loyalty emerges that bound members of the Hyksos ruling class together.* "[79]

Thus, the language related to kinship bonds (my "son"), to the "household" ("lord") and to "followers" in the sources, and the probable circulation of gifts reinforce the description of the possible existence of subordinates through personal bonds. The existence of an administration different from the Egyptian one, also points out to a different conception of the socio-political relationships. In this regard, not only had the letter sent by Apophis to the ruler of Kush through a messenger (K2) revealed the possible way the relationships were maintained, but also *The Quarrel between Apophis and Seqenenre* mentions the dispatch of messengers from Avaris. The recent finding of a fragmentary letter in cuneiform at Tell el Dabᶜa points to the possible existence of relationships with Mesopotamia.[80]

Thus, the evidence reveals that by the late Hyksos period (Apophis' reign) an extensive network of personal relationships bounded by messages and gifts, and expressed through kinship and "household"-related terms, can be proposed as a way of organizing the Hyksos subordination practices.[81] It seemed to be the way the Hyksos rulers found to maintain and develop their socio-political bonds in the Egyptian territory.

Even though the evidence is scarce, to make the concept *vassal* just a synonym for *socio-political subordinate* does not allow the different strategies employed by the Hyksos to expand their control over the territory to be perceived. Several practices can be enumerated: co-option of local people; imposition of some sort of taxation; establishment of hierarchies; dispatch of messengers; arrangement of allies into networks; and recognition to loyal subordinates. The contemporary written sources reveal through a defiant, admonishing or persuasive speech, the ways such a goal was attempted to be achieved.

Of course, a *vassal is a socio-political subordinate*, but it is a restricted concept that defines a particular way of establishing subordination relationships. Its natural usage shades the possibility of considering not only other coexistent practices of subordination but also the complexity that they could have acquired.[82]

In short, Egyptology was embedded in the proper paradigms and concepts of the 19th century,

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[76] Shirley 2013, 531, 546.

[77] Flammini 2013, 174.

[78] Daressy 1906, 115–120.

[79] Arnold 2010, 213. My emphasis.

[80] Bietak 2010b, pl. 14.

[81] Flammini 2011–12, 71–72.

[82] I.e. *patronage*, usually defined as a personal and dyadic (a relationship established between two individuals) bond, without pursuing the establishment of specific legal tools to bind the relationship. I have referred to these aspects in Flammini 2011–12, 74. On patronage in the ancient Near East, cf. Westbrook 2005; for an approach to patronage practices in the Egyptian society, cf. Moreno García 2013b.

when it emerged as a scientific discipline. Following the common statements of the time, ancient Egypt was defined as a feudal state and the subordinates of the Egyptian king were described as his vassals, who received land in exchange for their services. In this way, the local socio-political subordinates of the Hyksos rulers were also considered their *vassals*. By the mid-sixties of the 20th century, the definition of the vassals of the Hyksos acquired a new meaning to describe asymmetrical relationships that were determined by social status, and formally framed by a contract. Nowadays, the Hyksos subordinates are qualified as vassals without describing the content of the concept (natural usage**).** I consider that this particular application of the concept "*vassal*," downplays the possibility of considering diverse ways of exerting control.

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# DOR AND EGYPT IN THE EARLY IRON AGE: AN ARCHAEOLOGICAL PERSPECTIVE OF (PART OF) THE WENAMUN REPORT

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**Abstract**

Excavations at Tel Dor, the major Iron Age port town along Israel's Carmel coast, have yielded an outstanding number of early Iron Age Egyptian jars and amphorae, most probably shipped by sea. Currently this is the largest such assemblage ever found outside Egypt and it requires an explanation. The basic premise in this paper is that ceramics carried on board ships – whether or not they constituted the main cargoes – are an important index for assessing the intensity of maritime contacts between specific regions. Understanding these contacts entails a consideration of the other commodities which may have been exchanged through the same route(s) and the context and rationale of these exchanges. This paper therefore presents an attempt to understand the role of the Carmel region vis-à-vis Egypt and vice versa in the early Iron Age. It shows that Dor's description in the Wenamun report – as a stop-over on the way to Lebanon – reveals only one facet of the site's importance and that Dor's main role for Egypt was as a supplier of a variety of commodities.

## Introduction and Outline

In a recent paper (Waiman-Barak, Gilboa and Goren 2014), we presented the unusual assemblage of Egyptian-made containers found in Dor's early Iron Age levels. We discussed there issues of stratigraphy/chronology, quantities, typology, fabrics and *comparanda*. The current paper is offered as a sequel to that publication, attempting to understand the wider implications of these finds. After introducing shortly the site of Tel Dor and its spheres of interactions in the early Iron Age, the 'Egyptian jar phenomenon' at the site is summarized briefly. Subsequently synchronic and diachronic perspectives of the Dor assemblage are provided by comparing it to finds at other sites; through this I hope to demonstrate how exceptional it is. This leads to discussions of the merchandise that may have been packed in these jars, of other commodities that probably circulated via the same maritime route(s) and to a consideration of the special contacts between the Carmel coast and Egypt. To a large extent – to quote David Aston (Aston 1996) on a very much related subject – these are tentative footsteps in a forbidding terrain.

## The Site

Tel Dor (Arabic Kh. el-Burg; figs. 1–4) is located on a ridge of calcareous sandstone (locally termed *kurkar)* and on a sand spit east of it, on Israel's narrow Carmel coastal strip, about mid-way between Haifa and Tel Aviv. The coast is bounded on the north and east by the Carmel ridge (ca. 500 m ASL; ~200 m just east of Dor). Agricultural land in the site's immediate vicinity was scarce; until the early 20th century CE it was largely engulfed by marshes (Sivan, Eliyahu and Raban 2004). Cultivation, however, could be practised in the small Carmel intermontane valleys, especially the Maharal valley about 6 km to the northwest. The Carmel Mountains would have supplied wood and other arboreal products (for which see further in this paper). Beyond agricultural products, proteins were supplemented by the produce of the sea. Throughout Dor's existence, fish are abundantly attested (Raban-Gerstel *et al.* 2008, table 2; Sapir-Hen *et al.* 2014; Bartosiewicz, Lisk and Zohar in press), including – beyond Mediterranean species – also fish from Egypt (below).

In addition to agriculture and agriculture-related cottage industries such as fish processing (Shahack-Gross *et al.* 2005, 1428; Gilboa, Sharon and Zorn 2014, 62, fig. 16), and small-scale bronze recycling (preliminarily Gilboa and Sharon 2008, 155 and figure on p. 153), the archaeological record attests to further economic activities: a few ceramic vessels with purple stains on their inner surfaces, and cultivated *Muricidae* (murex) shells dem-

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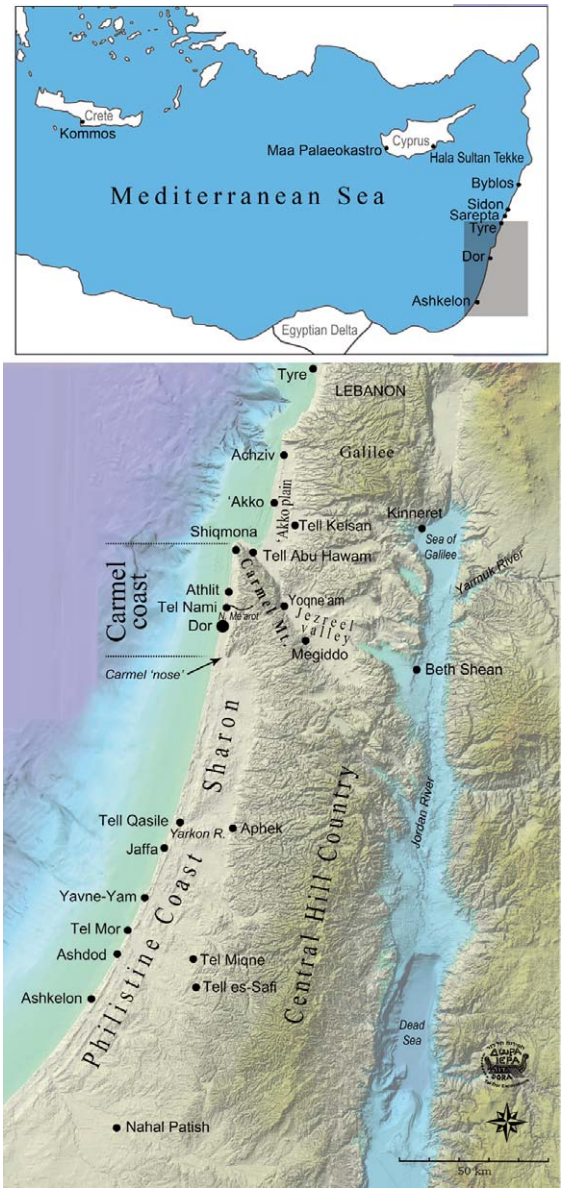


Fig. 1 Location of Dor and other main sites, regions and features mentioned in the text.

onstrate purple production at Dor at least from the early Iron Age.[1] As well, during this time span some of the site's inhabitants were engaged in another lucrative industry: small locally-produced clay flasks at Dor contained cinnamon from South Asia immersed in unidentified liquids. Such flasks (most probably also storing other flavoured substances) were distributed to various sites in the Levant, to Cyprus, and possibly to other regions as

Fig. 2 Aerial view of the Carmel coast in Dor's vicinity, looking southwest. Above the parachutist are the northern bay, the *tell* and the southern lagoon protected by islets.

well (Namdar *et al.* 2013; Gilboa and Namdar 2015). Dor's extensive maritime contacts are discussed below.

The choice for the site's location (Dor was established during Middle Bronze Age II) was dictated by the shape of the shoreline at this spot. There are two major natural anchorages here (fig. 2): a bay north of the *tell* and a large lagoon protected by small islets south of it. Such a configuration is rare along the southern Levantine coast, and was of crucial importance for maritime traffic, especially prior to the emergence of artificial harbours. Excavations by Avner Raban at the interface between the *tell* and the southern lagoon have revealed a series of quays, dated by him from the Late Bronze Age (LBA) to the early Iron Age (Raban 1995, 310–345) and Dor's anchorages, especially the southern lagoon, yielded many Bronze and Iron Age anchors and bits of cargoes, and numerous shipwrecks, but the latter currently are only of later periods (Kingsley and Raveh 1996; Wachsmann 1998, 265, 272; Kahanov 2011, 169–181).

Ancient records such as the Tale of Wenamun of the 11th or 10th centuries BCE (discussed further below) and Esarhaddon's treaty with Baʿal king of Tyre in the 7th century BCE (Parpola and Watanabe 1988), mention Dor as the single (in the former) or one of only two ports (in the latter)

[1] An actual purple-dye production installation was discovered in the site's Hellenistic level (Nitschke, Martin and Shalev 2011, 135–136).

Fig. 3 Tel Dor, looking east. On the south (right) the northern tip of the southern lagoon is visible, with quays excavated by Raban (now submerged). In the background is the Carmel ridge.

Fig. 4 South part of Tel Dor, looking southeast. On the south (right) is the southern lagoon with enclosing islets, its entrance marked by the fishing boats. In the background on the right the 'Carmel nose' is visible (9 km away).

between Egypt and Philistia in the south and Lebanon in the north (about 240 nautical miles between Egypt and Lebanon). Other than its anchorages then, Dor's 'midway' position between these regions rendered it a convenient stopover, or relatively so (see below). Sailing from Dor to the Egyptian Delta and in the opposite direction – about 150 nautical miles – would have taken optimally two to three or four days, depending on the exact route taken, wind directions and other factors such as the ship's type and quality and the proficiency of the crew (Casson 1995, 281–291; Marcus 2002, 404; 2007, 146 and see further below).

However, entering Dor's anchorages (especially the southern lagoon) when weather was not favourable was a dangerous endeavour. The lagoon is partially protected by small islets, shifting sandbars, beach-rock reefs, abrasion tables, and a south-setting current, which allow only the experienced sailor, familiar with these waters, to enter the anchorage, especially under stormy conditions (Cvikel *et al*. 2008, 201, 205). The many shipwrecks discovered particularly around the entrance to the southern lagoon serve as a permanent reminder of this danger (Kingsley and Raveh 1996, 76–77, chapter 8; Wachsman, Kahanov and Hall 1997; Kahanov and Royal 2001).

Dor's location was also advantageous regarding inter-regional terrestrial routes: about seven km northeast of the site, the Nahal Meʿarot stream (fig. 1) provided easy crossing through the Carmel ridge eastward–to the Wadi Milkh pass and further to the fertile Jezreel valley, the Jordan valley, and beyond in all directions (cf. Artzy 2006, 51).

## Dor's Bronze and Early Iron Ages, a Short Synopsis

Since Egyptian pottery at Dor is already attested in the LBA, this brief survey starts with that period. Excavations have reached LBA levels only minimally, in Area G at the centre of the mound, Phases G/12–11. They date to the second half of the 13th century BCE and end ca. 1200–1190 BCE (Stidsing and Salmon 2011; Sharon and Gilboa 2013). Though claims have been made that the LBA at Dor ended violently, by 'Sea People' activity, this is not attested archaeologically. But it is unclear what happens at Dor after ca. 1200 since the earliest stage of the Iron Age town, which is discussed next, cannot be dated prior to ca. 1140 BCE. Therefore the first half of the 12th century BCE is currently not represented and we are unable to determine whether this is accidental, or whether an occupational gap should be postulated. As explained below, this lacuna hinders to some extent the interpretation of the Egyptian phenomenon at Dor.

The early Iron Age sequence at Dor comprises six stratigraphic/chronological horizons, from early Ir1a to Ir2a in local terminology – between the late 12th /early 11th and the mid-9th century BCE (Sharon and Gilboa 2013; Waiman-Barak, Gilboa and Goren 2014, 316–318). During this time the town occupied the entire *tell*, was densely-built, fortified, and revealed mainly domestic but also public buildings. Dor's material culture during this long sequence shows remarkable continuity versus the Late Bronze Age. It also clearly clusters with that of sites to the north of Dor – in the ʿAkko plain and in south Lebanon – and not with those of the Philistine sites to the south, as does Dor's scope of commercial interactions. Therefore we repeatedly suggested that, notwithstanding the inadequacy of using all-encompassing definitions of group identities for the period and region in question, an appropriate appellation for Dor's inhabitants during this time span would be 'Phoenician'. Beyond the indigenous ('Canaanite') infrastructure, Dor's Phoenician population probably included a significant Cypriot element and also people from the Syrian coast. This heterogeneous population is coeval with (at least part of) the entity referred to in the Egyptian texts as Skl/Tjkr, who resided at Dor (in the Wenamun narrative), inhabited some part of the southern Levantine coast in the more-or-less contemporary Onomasticon of Amenope and who were listed among Ramesses III's foes at Medinet Habu in the 12th century (Gilboa 2005; 2006–2007, 233; Sharon and Gilboa 2013).[2]

Throughout these 250–300 years, Dor was one of the most active port towns along the East Mediterranean littoral, especially engaged in commerce with Cyprus, with other towns in Phoenicia (less so with Philistine sites) and with inland sites, for example in the Jezreel valley (Gilboa, Waiman-Barak and Sharon 2015 with references, and

[2] For another view, whereby only the Ir1a levels at Dor should be defined as "Sikil", after which (Ir1b) the town is conquered by Phoenicians from Lebanon and the site's population largely replaced, see Stern 1990, later somewhat qualified in Stern 2013, 13.

below). In addition, Dor's liaisons with Egypt, the focus of the current paper, are especially visible during this early Iron Age sequence.

After the end of this 'Phoenician' continuum, still during the Iron Age, Dor undergoes two transformations. In the second half of the 9th century BCE it is apparently taken over by the northern Israelite Kingdom, nearly all of its maritime contacts are severed (Gilboa, Sharon and Bloch-Smith 2015) and no Egyptian jars are attested any more. From the late 8th century until about 650 BCE Dor served as an Assyrian trading post (Gilboa and Sharon in press). Maritime contacts with Cyprus and Lebanon become very visible again then but Egyptian pottery remains all but non-existent.

## Dor's Egyptian Ceramics

Since this pottery has already been presented in detail, only the main points are summarized briefly here, starting with the chronology.

Translating the sequence described above into Egyptian terms, Egyptian ceramics at Dor (disregarding for the moment the 13th century) are present from some point between Ramesses VI's reign and the beginning of the 21th Dynasty (for dates e.g., Kitchen 1986, 465–466; Wente 2003, 116; Aston 2009, 20–22; Hornung, Krauss and Warburton 2006, 493; Bronk Ramsey *et al.* 2010) and then they are attested continuously till about the mid-22nd Dynasty. The phenomenon seems to have ended during Osorkon II's days (ca. 875/872–850/830; Kitchen 1986, 467; 1996, xxiii–xxiv; 2006 with references; Aston 1989, 149; Jansen-Winkeln 2006, 240–243; Hornung, Krauss and Warburton 2006, 493), or somewhat later. It endured for about two-and-a-half to three centuries.

About 750 Egyptian ceramic 'items' are recorded in the Dor data base (mostly fragments but also a few complete/semi-complete vessels), but it is clear that this is a minimal number. In the early Iron Age levels there is hardly a locus without an Egyptian jar fragment. A random selection of 180 fragments was investigated employing stereomicroscopy and 25 of these underwent petrographic analysis. All the specimens except one were manufactured of Nile clays.[3] No marl clays were identified, which is compatible with the fact that in Egypt too the types of vessels attested at Dor were also usually manufactured of Nile clays. Only one vessel of Egyptian shape was produced on the Carmel coast, most probably at Dor itself. Therefore we concluded that all (or nearly all) the pottery visually identified in the field as Egyptian-made is indeed so.

Dor's Egyptian pottery comprises almost solely large containers, both with narrow apertures, mainly amphorae and long ovoid jars, and wider ones – chiefly hole-mouth jars and 'meat jars'. Other containers – funnel-neck globular jugs and juglets – are rare, and so are open shapes. Therefore, this pottery represents mainly a commercial phenomenon, which is clearly different from the 'Egyptianizing ceramic phenomenon' of Canaan in the LBA and early Iron Age, which typifies only Egyptian administrative centres (Martin 2011). The pottery also outlasted Egypt's withdrawal from the Levant by about three centuries.

Most of the specific vessel types at Dor and their variety mirror those in Third Intermediate Period (TIP)[4] contexts throughout Egypt, but the predominance of closed over open shapes is quite the opposite of the distribution in habitation sites in Egypt. This too indicates that Egyptian ceramics reached Dor mainly as containers for some commodities. Fabric analysis, however, cannot pinpoint the specific production centres of the containers. Morphologically, the only shapes that have a more restricted geographical distribution in Egypt are the wide carinated jars, which according to Aston (1996, 107, fig. 6:3) are typical to Tell el-Yahudieh.

## A Comparative Perspective: Egyptian Containers at other Sites in the Levant

Since the longevity and the singularity of Dor's 'Egyptian jars phenomenon' is important in order to assess its meaning, I review here the most pertinent data regarding Egyptian containers outside their homeland in the relevant periods.

### Diachronic: Egyptian Jars in the Late Bronze Age at Dor and Elsewhere

As mentioned, the earliest Egyptian ceramics at Dor are of LB IIB date, about the second half of

[3] According to the 'Vienna System' classification: Nile B2, Nile silt mixed with mica and Nile silt mixed with organic inclusions; possibly also Nile E.

[4] In this paper 'TIP' starts with the 21th Dynasty. Terms such as "Libyan" (Jansen-Winkeln 2006; Ritner 2009: 1–6; Snape 2012) are not employed.

the 13th century BCE. A minimum of 50 vessels were recorded, comprising nearly 10% of the imports (the rest are mostly Cypriot). Similarly to the early Iron Age, most of them are store-jars and amphorae (Stidsing and Salmon 2011, table 100, pl. 31). About eight Egyptian fabrics have been identified, typical of the late New Kingdom (e.g., Aston *et al.* 1998, 137–144). Stidsing and Salmon demonstrate that between ca. 1250–1200 BCE, Egyptian containers progressively become more numerous. They also emphasized the marked differences between the Dor assemblage and those of Egyptian administrative centres in Canaan in almost every respect (shapes, fabrics, and the proportion of genuine Egyptian vs. Egyptianizing items);[5] and conclude that Dor must have had a special role in maritime contacts with various locales in Egypt during the 13th century. They suggest similar phenomena in further sites in the Carmel coast – ʿAkko plain stretch: Tel Nami, Tell Abu-Hawam and ʿAkko (Stidsing and Salmon 2011, 178–179).

However, as pointed to me by Michal Artzy, both at Tel Nami (late 13th/early 12th centuries) and in her excavations at Tell Abu-Hawam (Artzy 2006; 14th to about the mid-13th centuries), Egyptian ceramics are extremely scarce.[6] At ʿAkko, quantities and exact contexts/dates are currently unclear (Artzy 2006, 50; Ezra Marcus, personal communication).

Regarding Tell Abu-Hawam, beyond Artzy's excavations, an extensive 14th–13th century sequence has been unearthed in the early 20th century by R. W. Hamilton (Balensi 1980; Balensi, Herrera and Artzy 1993). Egyptian pottery attested there is extremely scant (Martin 2011, 237), but it is unclear whether this sort of pottery would have been recognized and/or or kept by Hamilton in the 1930s.

At other LBA sites in the southern Levant, Egyptian jars are very few (Martin 2011, 235–241; for Megiddo, which is close to Dor, see pp. 156–161). This is true even for Egyptian administrative centres, including those situated near anchorages. At Tel Mor, for example, where evidence unequivocally attests to Egyptian presence from the 15th to the 12th centuries BCE, actual containers shipped from Egypt were sporadic (Barako 2007, esp. p. 244; Martin and Barako 2007, 129, 145, 146).[7] At Jaffa, another long-lived Egyptian centre with a rich and variegated Egyptianizing ceramic assemblage (Burke and Lords 2010), only one category of small carinated jars has been currently identified as imported, but this evidence pertains only to the earliest, 15th-century stage (Burke and Lords 2010, 16, 17, 25).[8] The exception is Ashkelon, which is discussed further below.

Even more surprising is the fact that no Egyptian jars have been reported from sites along the shores of Syria and Lebanon, regions which by abundant textual and other evidence maintained extensive maritime contacts with Egypt during the LBA (Bell 2006; for Ugarit e.g. McGeough 2007, 327–328 with references). Examples are Ras Ibn Hani, Ugarit, Tell Tweini, Tell Kazel, Tell Arqa, Beirut, Sidon, Sarepta and Tyre. Occasionally, however, large Egyptian containers did reach more distant Mediterranean destinations, namely Hala Sultan Tekke and Maa-*Palaeokastro* in Cyprus, possibly during LC II, but mostly during LC IIIA, the 12th century BCE (respectively Eriksson 1995; Hadjicosti 1988, jar type 2b; Renson *et al.* 2014), as well as Kommos in southern Crete (especially during LM II–IIIB, Day *et al.* 2011, table 1).

Beyond Dor, the only Levantine site that produced a large collection of bona fide LBA Egyptians jars and amphorae is Philistine Ashkelon. Despite some stratigraphic uncertainties and evident re-depositions, most of them are associated with Phase 21 in Grid 38, when some sort of an Egyptian centre was established ca. 1200 (Martin 2011, 195–200). Martin underscores two points that are relevant here: (a) although Ashkelon served some sort of administrative role under the Egyptians, the abundance of containers from Egypt should rather be attributed to its role in maritime trade (Martin 2011, fig. 119 on p. 252). (b) stratigraphical ambivalence notwithstanding, it is clear that Egyptian containers reached Ashkelon before ca. 1200 BCE, evidenced by typologically

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5 Contra Stockhammer 2012, 93 who suggested that Egyptian jars in LBA Canaan were intimately related to Egyptian practices.

6 The latter site also produced an amphora handle bearing a cartouche of Ramesses II, Artzy 2006, 55. For other New Kingdom Egyptian jars handles with royal cartouches outside Egypt see Ventura and Siegelmann 2004 (from Tell Idham in the Akko plain, Seti I); Goldwasser 1990 (Tell Jerishe in the Sharon Plain, Semenekhkare); Goldwasser and Oren 2015 (North Sinai; Seti I); Eriksson 1995, 200 (from Hala Sultan Tekke in southeast Cyprus, also Seti I); and see below for another from Ashkelon.

7 Only two amphora rims were identified as Egyptian-made

8 The analysis of the Jaffa ceramics is on-going.

earlier shapes, by a handle probably bearing a cartouche of Seti I and by a jar in a primary LB I context. The scope of this earlier LBA trade, however, cannot be gauged.

**Synchronic: Egyptian Jars/Amphorae in the Early Iron Age East Mediterranean**

Currently Dor is the only site outside Egypt that has produced numerous Egyptian jars/amphorae in the early Iron Age. They surpass, by two orders of magnitude, such finds at other Levantine sites. Along the Carmel coast more sporadic examples are known from ʿAthlit (uncovered underwater; Zemer 1977, fig. 4) and Shiqmona (personal observation).

Regarding ʿAkko plain sites: At Tell-Abu Hawam, with two exceptions (Balensi 1980, pls. 10: 4; 12: 6) no Egyptian jars are in evidence from the large-scale exposure of early Iron Age levels, but the problem stemming from the selective way pottery has been saved in Hamilton's excavations has already been mentioned. At ʿAkko, Egyptian jars and amphorae *may* belong to the early Iron Age, but this will have to be corroborated by the current analysis of Moshe Dothan's excavations (Artzy and Marcus, personal communications). About 13 km north of ʿAkko, one jar was interred in tomb ZX of the Phoenician cemetery at Achziv (Dayagi-Mendels 2002, fig. 3.9:5).

Further north along the Levantine coast the situation remains much the same as in the LBA. In early Iron Age Syrian and Lebanese coastal sites, Egyptian jars are unknown. None, for example, were recognized in the large ceramic assemblages published from Tyre (Bikai 1978) and Sarepta (mainly Andreson 1988), or in the currently lesser known ones at Beirut (e. g., Jamieson 2011), or Sidon (Bordreuil and Doumet-Serhal 2013). Data regarding other major Phoenician port towns, such as Byblos, are lacking.[9]

Proceeding from Dor southward along the coast, one Egyptian jar and one amphora have been uncovered in the Philistine temple precinct at Tell Qasile (a roughly 2 km sail from the coast up the Yarkon river; Mazar 1985, figs. 47:13; 48:9; Ir1b) and another contemporary hole-mouth jar was published from the residential quarter there (Ben Dor Evian 2011, fig. 2:4). Mostly, however, such jars were found, again, at Ashkelon.

In the 'Philistine levels' overlying the Egyptian Phase 21 (in Phases 20–17, largely paralleling the Phoenician sequence at Dor), about 70 Egyptian/Egyptianizing fragments, including jars/amphorae, were identified, of which ca. 40 are in Stratum 20, the first Philistine phase of the 12th century BCE. Subsequently they become less numerous, and they occur least of all in Phase 17 (paralleling our Ir1|2 horizon to Ir2a). It is unclear, however, how many of the genuine Egyptian examples in the Philistine levels (most of them of Marl D and mixed clays) represent in fact re-depositions from Phase 21 (Martin 2011, 201; Daniel Master, personal communication). At least one complete jar was found in a primary context in Phase 18 (Birney and Doak 2011) and, based on typological considerations, Martin (2011, 201) suggests that some of the jars/amphorae in the Philistine levels are probably *not* residual. The situation at Ashkelon is therefore ambiguous to a certain extent.

When considering *inland* sites in the early Iron Age, the (near) absence of Egyptians jars and amphorae looms large. These vessels did not reach inner ʿAkko plain sites (Tell Keisan) nor major early Iron Age centres that are close to Dor, such as Yoqneʿam and Megiddo. Similarly, Philistia's extensively-excavated core cities (Tel Miqne-Ekron, Tell es-Safi/Gath and Ashdod, the latter lying ca. 1.5 km from the coast and 2 km from the anchorage of Tel Mor), did not produce any.[10]

Regarding further Mediterranean destinations: even Cyprus, which, as noted above, received Egyptian jars during LC IIC/IIIA, did not reveal any in early Iron Age contexts (Late Cypriot IIIB and Cypro-Geometric), and likewise, as opposed to the LBA, no Egyptian jars are known to have reached Crete in this time span.

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[9] Still, one fragment in Tyre X-1 (Bikai 1978, pl. 24:1; the Ir1|2 transition) must belong to an Egyptian 'meat jar', and at Beirut the fragment in Jamieson 2011, fig. 10:4, from a mixed context, is probably part of an Egyptian amphora.

[10] Three exceptions to this negative picture are known on Philistia's southern margins (the northern Negev desert). One is a small rounded jar at the rural site of Tel Esdar (Kochavi 1969, fig. 13:2) and two amphorae unearthed in the Philistine temple of Nahal Patish (Nahsoni 2009). The Egyptian jars seem to have reached these sites (and Tell Qasile mentioned above) through Phoenician ports, with Dor being a plausible candidate. This is so since Tell Qasile and Nahal Patish feature Phoenician ceramics produced on the Carmel coast (Waiman-Barak, personal communication) and at Tel Esdar the single Egyptian jar was found alongside the sole Phoenician jar there (but the specific origin of the latter has not been pinpointed).

## Discussion

Until recently, the nature of the evidence at hand dictated that studies of Egypt's relations with the Levant during the period considered here (the Ramesside/TIP transition to the mid-22nd Dynasty) have usually focused on political issues – oscillations in Egyptian hegemony and the impact of 'Sea Peoples' – and on artistic and other cultural influences (e. g., Leclant 1968; Redford 1973; 1985; 1992, 241–256, 289–297, 309–311; Kitchen 1986, 243–394; 2003; Wachsmann 1998, chapter 3; Weinstein 1998; 2012; Gubel 2000; 2009; Merrillees 2003; Schipper 2003). Due to the dearth of relevant textual evidence in Egypt (Kitchen 2003, 114–115), commercial aspects were extrapolated mainly from the Wenamun report and the Bible, conjectured from the Egyptian statuary in Byblos and gleaned from rare imported finds in Egypt such as the quintessential lapis lazuli bead with the mummy of Psusennes I, and some more lapis lazuli items (be they 'recycled' or not; Kitchen 1986, 267; Mumford 2007, 239, 241). Syntheses that have taken into consideration a broader *archaeological* dataset to assess commerce (including the movement of pottery) are mainly those by Mumford (1998; 2007, 258 and *passim*) and by Ben Dor Evian (2011). Aston's and others' discussions of 'Phoenician' pottery in Egypt have provided another facet to these liaisons, which is discussed later in this paper. The extensive phenomenon outlined here adds a new perspective to Egypto-Levantine contacts during this time-span.

The coastal distribution of the jars undoubtedly represents maritime exchanges, but the contents of the jars were certainly not the only commodities carried on board ships braving the 'Syrian Sea' in this period, and in all probability constituted secondary cargoes (see below). It is also possible that the most important goods were those travelling in the opposite direction – to Egypt. The durable jars, therefore, serve mainly as an index for maritime exchange of much larger scope. Regrettably, there is no way to translate the number of Egyptian jars at Dor to intensity of traffic,[11] but the singularity of the assemblage provides at least a proportionate view: at present, Egypt's maritime contacts with the north in the early Iron Age are attested at Dor inordinately more than at any other site, and most enduringly so.

There are many lacunae in our ability to characterize and contextualize this phenomenon. To begin with, it is unclear when it started. As mentioned, the earliest Egyptian jars at Dor date ca. 1250–1200, apparently more numerous towards 1200 BCE. Dor was certainly occupied earlier in the LBA, in the 14th and even 15th century BCE, as attested by residual pottery. But we know next to nothing about this settlement.[12]

Second is the crucial lacuna in our knowledge regarding Dor for the period roughly paralleling the first 50 years of the 20th Egyptian Dynasty – be it representative of an occupational hiatus or not. Consequently it is unclear whether the Iron Age liaisons exemplify a continuation of LBA practices, or some sort of 'revival' following a gap of a few generations – a fundamental issue.

As well, the distribution of the Iron Age Egyptian phenomenon – another essential aspect – is equivocal to some extent. Particularly, as mentioned, the scope of involvement of Ashkelon in these exchanges is unclear, but there is enough evidence to my mind to identify this site, as well as ʿAkko, as additional candidates participating in such ceramic (and other) exchanges. Currently it indeed seems that the distribution of these jars did not extend in any meaningful measure north of the Carmel coast/ʿAkko plain range.

Here I invoke the Wenamun account. Disregarding disputes as to its historicity, rationale and agenda, exact historical setting in the 20th/ 21st Dynasties transition and time of composition during the 21st / 22nd Dynasties era (Goedicke 1975; de Spens 1998, 124–126; Sass 2002; Wente 2003, 116; Schipper 2005; Winand 2011) the story demonstrates unmistakably that from an Egyptian point of view Dor was the best-known (but in this case disreputable) port in the southern Levant. Unfortunately, however, the narrative skips the reason for the Dor stop-over.

## Possible Contents of the Jars

Egyptian commodities bound for the Levant and packed in jars could have been and probably were many. The variety of products stored (but not necessarily mobilised) in various *New Kingdom* types of jars are discussed for example in Wood 1987 and Aston 2007 (both with references): wine, beer, honey and honeycombs, resin, almonds, dom fruit,

[11] For this problem see Manning and Hulin 2005, 283–284 with references, especially to Cline's (1994) work; Bell 2006, *passim*.

[12] As mentioned, Ashkelon provides some evidence of LBA Egyptian jars prior to 1250 BCE.

lentils, oils, fats, grains, flour, bread, meat and more. As mentioned, at Dor, both wide-mouthed and narrow-mouthed containers are in evidence, but how this reflects on their contents is unclear. Lacking direct data emanating from residue analysis etc., and in order not to slip entirely into the realm of speculation, I highlight some substances which spring to mind based on relevant archaeological or textual information.

First are Egyptian Nile perch, since they are the only other major Egyptian import to Dor in the early Iron Age, consumed despite the abundance of local fish (e. g., Raban-Gerstel *et al*. 2008; Bartosiewicz, Lisk and Zohar forthcoming). The association between Egyptian jars and fish has also been contemplated regarding Hala Sultan Tekke (Erikkson 1995, 200), and Ben Dor Evian (2011, 111) concluded that Egyptian jars in the Levant indeed held fish.

Doubtlessly, throughout the Iron Age, and at least from the 4th millennium, Egyptian fish, particularly Nile perch, were a coveted commodity in the southern Levant – consumed at both coastal and inland sites (Arndt *et al*. 2003; Van Neer *et al*. 2004; Lernau 2006 with references). They were probably transported in salted or dried state (Raban-Gerstel *et al*. 2008, 42).[13] At Dor, it has been clearly demonstrated that many fish were probably shipped whole (as indicated by cranial remains). Several were as long as 2 m and could not have fitted into the jars. A contextual association between jars and fish was sought, but could not be verified. Small salted fish, in contrast (gutted and un-gutted, see Janssen 1961, 28, 83) could have been accommodated in the jars.[14]

But the distribution of Egyptian fish in the Levant does *not* coincide with that of the jars. In the early Iron Age fish are known for example from Megiddo in the Jezreel valley, about 35 km inland from Dor (Lernau 2006), and from Kinneret on the Sea of Galilee (Thomsen 2010, 72, table 6).[15] It is logical to assume that the consumption of Egyptian fish in these inland sites was catered by southern Levantine port towns – Dor, Tell Abu-Hawam and/or ʿAkko. Since, however, no Egyptian jars are attested inland, fish probably reached these sites in sacks or baskets and this presumably was also the way they were transported on the boats themselves, in addition to large specimens simply being stacked on deck.[16] Large quantities of fish, packed in dozens of *baskets* were sent by Smendes and Tentamun to Wenamun while in Byblos – one of the many commodities he delivers to a rejoicing Zakarbaal. For the time being then, no link can be established between Egyptian jars and fish.

Lentils are another protein-rich commodity. More than 20 *sacks* of lentils were carried on the ship sent from Egypt to Wenamun and presented to the king of Byblos (line 2, 41). The lentils (similarly to the fish) are totally inessential for the plot and may provide another glimpse of the *realia* of maritime traffic between Egypt and the Levant. As mentioned, on this particular ship the lentils were shipped in sacks and not in jars, but for lentils in ceramic jars in Egypt see Aston 2007, 17.[17]

Lastly, I consider grains. Though grains were apparently usually transferred in volume-effective containers such as sacks (Gardiner 1941, 20 and *passim*; cf. Monroe 2007, 7), jars are also a very likely option. Archaeological evidence shows that grains were also stored in jars, for example at Deir el-Medina during the 18th Dynasty (Aston 2007, 17) and in a late New Kingdom to TIP context at Mendes (Mumford 2007, 249). In the former case, the excavators identified these jars as originating outside the Theban region (Bruyere 1953, 91), and therefore the grains must have been transported in them.

Furthermore, *maritime* transport of grains in jars (*dn*) has recently been argued for by Monroe, in relation to one of the so-called oven texts at Ugarit (RS 18.031=*PRU* 5 59 = *KTU* 2.38). This letter was sent from the king of Tyre and deals with the loss of

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13 For dry/salted fish, possibly from Egypt, sent in the later Iron Age from Philistia to Assyria, see Elat 1978, 136, 138, 248, 253–254.

14 A recent study (Sisma-Ventura *et al*. 2015) has shown that in the Iron Age Dor's inhabitants probably also consumed sea breams from the Bardawil lagoon in northern Sinai, just east of the Nile's Pelusiac branch. For the transport of water fowl in jars, see Janssen 1961, 24.

15 Evidence from Ashkelon, ʿAkko and other sites in the Levant is unavailable, though among Philistine sites, preliminary analysis points to the existence of some Nile perch at Tell es-Safi/Gath; see Lev-Tov 2012.

16 For commodities shipped in sacks and baskets, recorded at Ugarit, see also McGeough 2011, 176

17 Coincidentally or not, a very large concentration of lentils (of as yet undetermined origin) was uncovered at Dor in a primary destruction context (preliminarily http://dor.huji.ac.il/Download/2006_D5_Report.pdf); near the lentils lay a crushed Egyptian jar.

a Ugaritic ship sent to Egypt (Monroe 2009, 78, 98–99; including references to alternate readings of the term *dn*). Monroe also suggests that the well-known shipment of grains to Ura on the south Anatolian coast was conducted in jars (2007, 9).

Since the 1960's it has become clear that the last quarter of the second millennium BCE was marked by successive years of drought and famine around the Mediterranean (summaries and references in Kirleis and Herles 2007; Rohling *et al*. 2009; recently Kaniewsky *et al*. 2010; 2013; Roberts *et al*. 2011, e. g. 153, 158, figs. 2, 3; Litt *et al*. 2012; Langgut *et al*. 2014). This has often been considered a major instigator of the LBA collapse (Drews 1993, 77–84; Singer 2000, 24; Cohen and Singer 2006; Cline 2014, 142–147 with references) and the background for the several urgent requests for grain shipments in the late 13th century BCE.[18] Egypt's different climate regime meant that its crops could be relied on when others in the vicinity failed, but during this period Egypt itself was not exempt: food shortage, *inter alia* resulting from low Nile flows, is attested concurrently (Bernhardt *et al*. 2012, 617 and references; Butzer 2012, who dates this problematic state of affairs to between 1300–1100 BCE; Yeakel *et al*. 2014). Indeed, after Ramesses III and especially in late Ramesside times, textual evidence attests to famine, accompanied or caused by a partial loss of royal/temple control on grains and sharply fluctuating grain prices (Černý 1933; Wilson 1956, 279–280; Janssen 1961, 93; Kitchen 1986, 246; Redford 1992, 284; Antoine 2009a). Another factor to consider is that after its withdrawal from the Levant, Egypt lost its agricultural assets/estates in Canaan,[19] which certainly aggravated the situation at home.

All this, however, does not mean that grains could not have been obtained in Egypt any more. Among other consequences, the state of affairs described above resulted in the development of a competitive grain market and oscillating supply and demand and the stresses of competition could be alleviated by exporting grain (Warburton 1997, 333–334 with references). Regrettably, none of the evidence relates to the 11th to 9th centuries BCE, but perennial/ periodical acquisition of Egyptian grains in some parts of the Levant in this period is definitely a possibility (similarly Mumford 2007, 249).[20]

## Other Possible Commodities in Egypto-Levantine early Iron Age Maritime Trade

As mentioned, since we do not know what the jars contained it is unclear to what extent their contents were central to Egypto-Levantine exchange systems, or whether they were just piggy-backed on ships carrying much more important merchandise (Artzy 1997, 5). Cordage and sails, linen, flax, papyrus, beer and indeed grains (Bickel 1998, 162; Gubel 2009, 334) are only some examples for the 'usual suspects' regarding Egypt's exports to its Levantine neighbours, beyond luxuries and various trinkets such as amulets, scarabs and beads (summarized extensively in Mumford 1998; 2007; cf. Ash 1999; for beads also Ben-Basat 2011).

In the opposite direction, wood, timber and wooden artifacts (including maritime gear and components for ship hulls), silver, wine, oil, honey, resins and resinous products, spices, garments, purple-dyed textiles and wool, cattle and workforce were apparently the most valued merchandise supplied by the Levant (Knapp 1991, 35; Redford 1992, 210–212; Wachsmann 1998, 10, 39–40, 310–313; Altmüller 2001, 449; Serpico 2004, 97, 100; Ezzamel 2009, pl. 12A; Gubel 2009, 333, 336; Homsy-Gottwalles 2009). This is vividly attested by the exceptionally diverse cargo on the Egyptian ships returning to Egypt (apparently from Lebanon), described in the Mit Rahina inscription of the 12th Dynasty (Marcus 2007). Listed are wooden beams and planks, various fruits, cedar, fig and olive trees, oils, aromatics and terebinth resin – beyond metal and metal artifacts, various minerals and slaves.[21] This recalls Papyrus Anastasi IV:

[18] For the frequent allusions at Ugarit to grain shipped by sea (relative to other commodities) see Routledge and McGeough 2009, 24.

[19] Perhaps also exemplified by the above-mentioned cartouche-bearing jars.

[20] There are many other difficulties in assessing the consequences of the 'draught era' for long-range (or short-range) grain shipments in the late second/early first millennium. For the period discussed here, the difficulties in dating its end are crucial. For coastal Syria, for example, Kaniewsky *et al.* (2008; 2010) suggest that drier conditions prevailed till the 9th century, but dating the end is usually not precise enough in historical terms. Another complex issue is the variable ways and tempos in which different societies coped with and recovered from the (similar) environmental stresses (Riehl *et al*. 2014).

[21] For 'Syrian' slaves during the New Kingdom, e. g., Redford 1985, 194, n. 37.

"Your ship has come from Kharu laden with all manner of good things" (cited in Monroe 2009, 73). No information, however, relates to the TIP and therefore I discuss here again only commodities which by some evidence, however indirect, can be singled out as having been shipped to Egypt from or through the Carmel coast in the early Iron Age.

Most important are resins, shipped in jars. During the LBA, 'Canaanite' jars were quite prolific in Egypt (e. g., Aston 2004). Fabric analysis shows that among those analysed (from el-Amarna, Memphis and Buhen), jars produced on the Carmel coast and its immediate vicinity (including the Sharon plain) were abundant (Bourriau *et al*. 2011; Serpico *et al*. 2003; Smith *et al*. 2004; Ownby and Smith 2011; cf. Serpico 1999). Organic residue analysis demonstrated that these jars contained mostly *Pistacia* resin (exact species unidentified), which was also one of the main commodities shipped in numerous Carmel-coast jars on the Uluburun ship (Stern *et al*. 2003; 2008; Goren 2013; for a somewhat different view, McGovern and Hall 2015). Other 'Canaanite' jars at Memphis and Amarna that were apparently imported from the same region(s) probably held honey (see references above; Aston 2007, 17–18).

'Canaanite' jars in Egypt seem to dwindle in Ramesside times and specimens dating to the 20th Dynasty, especially to its latter part, are not numerous (Aston 2004, 180–184). Still, during the TIP several are known, from various sites both in Upper and Lower Egypt and Aston (1996, figs. 64:400; 110: XLIII/105; 111/ XLIII/246; 168: J) illustrates examples from Memphis, Amarna and Thebes, respectively. To Aston's lists one may add for instance jars at Akoris (Kawanishi, Tsujimura and Hanasaka 2010, front cover); Qantir (Laemmel 2008, pl.12, 1–6); and Heracléopolis Magna (López Grande, Quesada Sanz and Molinero Polo, 1995, pl. LXII). By their shape these jars are 'Phoenician', but 'Phoenician' does not necessarily mean Lebanese. In addition to sites in Lebanon, jars of these forms were extensively produced in 'Akko plain sites, such as Tell Keisan, and especially on the Carmel coast, most notably at Dor, where this is the most abundant shape in the early Iron Age (Gilboa, Sharon and Boaretto 2008; Gilboa, Waiman-Barak and Sharon 2015. That jars of these shapes were produced neither in coastal Syria, nor in coastal Philistia, nor in any inland Levantine site is attested by their extreme scarcity in these regions. Where investigated, 'Phoenician-looking' jars in such sites were indeed determined by fabric analysis to have been produced either on the southern Lebanese coast or in the 'Akko plain, or on the Carmel coast (Waiman-Barak, personal communication).

This, and Dor's close contacts with Egypt attested by the Egyptian jars, suggests that a significant part of the 'Canaanite/Phoenician' containers (and their contents) in TIP Egypt were supplied by the Carmel coast. The scope of this export cannot yet be assessed, yet if we hypothesize that every complete jar published from Egypt represents more numerous fragments, then 'Phoenician' exports to Egypt were probably much more frequent than currently apparent.

The importance of resins for life (and death) in Egypt cannot be overestimated and generally the centrality of these substances (both *Pistacia* and coniferous resins) in ancient Mediterranean trade is increasingly being recognized (Loret 1949; Jacobsen, Bryant and Jones 1998; Serpico and White 1998; Bardinet 2008; Pulak 2008, 295; Goren 2013). There is absolutely no reason to assume that resins did not circulate any more after the 13th century. Similarly to the LBA, in the TIP as well, they must have been one of the main commodities marketed in the 'Phoenician' jars. Resins would still have been used especially for ritual, mainly as incense, and for a variety of more secular purposes such as the caulking of joints in boats (Steffy 1994; references in Stern *et al*. 2003; Fabre 2004/2005, 109). They were also used in the treatment of mummies at least from the TIP onwards (Serpico and White 1998, 1043–1044).[22]

The sources of the resin shipped in Carmel-coast jars are not yet clear (during both the Bronze and Iron Ages). Studies of the Uluburun resins, rather limited in scope for the time being, suggested the central mountainous regions of Israel/Palestine (and to a lesser extent Jordan), based on the origin of the land snails in the resin jars (Welter-Schultes 2008); and anywhere in northern Israel/south Syria/northwest Jordan, based on pollen analysis (Jacobsen, Bryant and Jones 1998, 80). The chemical compositions of some of the Uluburun resins were comparable to those of extracts from modern plants in present-day Israel and in a 'Canaanite' jar found in Israel (Stern *et al.* 2008, 2194). However vague the emerging picture is (see

[22] Where both *Pistacia* and cedar and/or pine pitch were identified.

also Mills and White 1989; Hairfield and Hairfield 1990), presently it is seems that terebinth resins consumed in Egypt were mostly procured in the southern Levant, and shipped through port towns in the vicinity of the Carmel.[23]

Most likely, however, the Carmel region and vicinity not only served as a trans-shipment interface for resins acquired elsewhere, but also as a main production region. Of the suggested botanical sources for the LBA *Pistacia* resins, *P. atlantica* and *P. lenticus* (to which I would add *P. palaestina*) are plentiful in modern Israel including the Carmel mountains, and were so in antiquity (with a lesser representation of *P. atlantica* in the Carmel area; see conveniently http://www.wildflowers.co.il/english/; also Zohary 1962, map on p. 112; 1973; 1980, map on p. 170; Liphschitz 2007, 25, 27–28, 37–42, 49, incl. table 2.10).[24]

In addition, the Carmel could have also supplied coniferous resin, especially the plentiful resin of *Pinus Halepensis* (Aleppo pine; for its distribution in the Carmel region, see below, n. 26). This resin was prized in Egypt from Old Kingdom times at least till the 25th Dynasty (Bardinet 2008, 107–109, 111–113, 190, 243). Minimally, then, the Carmel should be considered as one of the main regions that supplied Egypt's demand in resins (in the same vein, Stern *et al*. 2003; 2008 with references to earlier publications) and after the disintegration of many of the LBA commercial spheres it probably became even more important.

Beyond Phoenician transport jars, TIP sites in Egypt also produced smaller Phoenician containers, especially Phoenician Bichrome jugs and small lentoid flasks (e. g. Aston 1996, fig. 35: middle and lower rows; 44:15; Laemell 2008, 184–185 and n. 73; pl. 12: 9, 10). Both categories of vessels were extensively produced along the Phoenician littoral – from Lebanon to the Carmel coast (Gilboa, Sharon and Boaretto 2008). Since no fabric analyses of these vessels in Egypt were conducted it is impossible to pinpoint their exact source, however beyond sites in Lebanon and the 'Akko plain, the Carmel must have been a major one. Dor has been demonstrated to be one of the main producers of such containers; fabric analysis in contemporary sites in Cyprus showed that such 'Phoenician' containers there were produced either in the Tyre-Sidon stretch or on the Carmel coast (in equal numbers; Gilboa and Goren 2015).

The contents of the Bichrome jugs are unknown, but – as already mentioned – small flasks, including many Dor-made ones, contained liquid(s) with cinnamon, and they were distributed both within the Levant and to Cyprus. It is therefore very likely that such (and other) luxurious commodities provide the *raison d'être* for the shipment of these flasks to Egypt as well (Gilboa and Namdar 2015).[25] Probably not accidentally, the artist that adorned Kenamun's tomb some centuries earlier chose to depict one of the Canaanite merchants as holding a Canaanite jar in one hand and a small flask in the other (Davies and Faulkner 1947, pl. 8).

Beyond resins and spiced liquids (and possibly the spices themselves) Dor must have supplied Egypt with a variety of other products, both procured in the immediate vicinity (quite probably oil and the above-mentioned honey), and obtained elsewhere. Its role as a major supplier of Mediterranean products during the early Iron Age was especially crucial, since significant parts of the Levant, most importantly coastal Syria, had lost their economic/commercial infrastructure by then.[26] For example, the Sharon and Carmel were among the most accessible regions that could have provided various wood and timber for diverse purposes, excluding of course cedars and other species of high-quality tall and straight trees such as Turkish pine and Parasol pine, for which journeys to and from more northerly regions were still inevitable. The important species in the Carmel and vicinity in this respect were oaks such as Palestine oak (*Quercus calliprinos*) and Mount Tabor oak

[23] It is yet unclear if the southern Levantine snails and pollen on the Uluburun travelled specifically in Carmel-coast made jars, but given their geographical origin and the dominance of Carmel jars over Syrian and Lebanese ones on board the ship this is highly likely. Incidentally or not, pollen analysis of a cargo of late Iron Age/Persian period amphorae retrieved from the Dor south lagoon suggests that they contained terebinth resin (and pine pitch; Jones, Bryant and Weinstein 1998), though whether these were shipped to or from Dor has not been determined.

[24] Though Liphschitz (2007, 118) thinks that *P. lenticus* was not widespread in the Carmel till after the Iron Age.

[25] It is unclear through which routes did the spices themselves (in their dry state) reach Phoenicia (Gilboa and Namdar 2015, 275–276; one possibility would be through Egypt.

[26] Also, importantly, along the Carmel coast, the commercially active Tel Nami has disappeared in the beginning of the 12th century.

(*Quercus ithaburensis*), and to a lesser extent Aleppo pine.[27] Among these probably the most important as a source of high-quality wood/timber in this region was the thick-trunked Palestine Oak. Today most trees of this species reach only about 3–4 m (Liphschitz 2007, 116), but specimens protected from grazing, cutting and other hazards (Liphschitz 2007, 25), such as near sacred tombs, are ca. 7 m and at times even 15 m tall.[28] *Pinus halepensis*, though under favourable conditions reaching 20 m, was probably exploited mainly for its resin (above) and not for wood.

In all likelihood, Dor also provided Egypt with further prestigious commodities – either produced in its vicinity or obtained through its Mediterranean contacts. The local production of purple at Dor from the early Iron Age to the early Hellenistic period has already been mentioned above and such production in the early Iron Age is attested by purple stains on inner surfaces of ceramic vats also at nearby Shiqmona[29] and at Tell Keisan in the 'Akko Plain (Peuch 1980, 226–227). This shows that purple (or rather purple-dyed wool; Schneider 2011) was not only supplied by the customarily-invoked Lebanese centres but from southern Phoenicia as well.

Lastly silver should be mentioned. The uses and possibly growing demand for this metal in Egypt during the TIP has recently been reassessed by Claus Jurman (2015). Whatever the ultimate source(s) of this metal in the early Iron Age Mediterranean might have been, Phoenicians were important intermediaries in its distribution. The Carmel to 'Akko plain stretch and the adjacent western Jezreel valley are the regions where early Iron Age silver hoards are best attested, at 'Akko, Tell Keisan, 'En Hofez, Dor and Megiddo. The Dor hoard is one of the largest Iron Age silver hoards ever found (Stern 2001; Thompson 2003; Thompson and Skaggs 2013; Eshel 2014).

To sum up, Table 1 lists the commodities exchanged between Egypt and the Carmel coast which are highlighted in this paper, bearing in mind that the goods exchanged were much more variegated.

Table 1 Merchandise travelling between Egypt and the Carmel coast discussed in this paper.

| From Egypt to Dor | From the Carmel region to Egypt | Through Dor to Egypt |
|---|---|---|
| Fish, mainly Nile perch (but not in jars); lentils; grains | Pistacia resin in jars; coniferous resin in jars; honey in jars; spiced liquids in small flasks (some with cinnamon); wood and timber: Palestine oak, Mt. Tabor oak, Aleppo pine; purple-dyed textiles | Resins; silver |

## Interim Summary: Just a Stop-over?

Sailing directly from the Delta to Lebanon was possible at times and could have been achieved in a few days (Marcus 2007, 146). However, this was not usually a preferable option, due to the prevail-

[27] For the distribution of these trees in the Carmel and Sharon (especially the northern Sharon) from prehistoric times to the present and their exploitation in ancient times see for example Zohari 1973; 1980; Horowitz 1979; Galili and Weinstein Evron 1985; Liphschitz, Lev-Yadun and Gophna 1987; Lev-Yadun *et al.* 1996; Weinsten-Evron and Lev-Yadun 2000; Kadosh *et al.* 2004; for these regions and others in Israel see also Liphschitz 2007, 25, 27–28, 37–43, 49, incl. table 2.10; Bardinet 2008, 107). However, the abundance in antiquity specifically of Mt. Tabor oak and Aleppo pine in the vicinity of the Carmel is a debated issue, see Liphschitz 2007, 118; for reasons not explained, Liphschitz treats Aleppo pine in archaeological sites in Israel as 'imports'.

[28] See http://www.wildflowers.co.il/english/plant.asp?ID=659. Data regarding the various types of wood used in Egypt, especially during the period in question are still not extensive enough, but both texts and archaeology demonstrate clearly that beyond local species (mainly *Acacia nilotica* and palms) and of course the most coveted cedars and pines, a variety of imported wood was used, also for ship construction (Gale *et al.* 2000; Gerisch, Manzano and Zazzaro 2007; Ward and Zazzaro 2007; Creasman 2014a; 2014b with references; Kuniholm *et al.* 2014, 594). This includes a (not too frequent) use of pine and oak but unfortunately the trees are usually defined only at the generic level. Still, Palestine oak, Mount Tabor oak and Aleppo pine are attested, usually postulated to come from Lebanon (e. g., Gerisch, Manzano and Zazzaro 2007, 182). Generally speaking, more often than not, ancient watercraft in the East Mediterranean were constructed from a variety of tree species (Wachsmann 1998, 217, 226–227), including Palestine oak, Mount Tabor oak and, less so, Aleppo pine (Fitzgerald 1994, 173–175; Wachsman, Kahanov and Hall 1997, 7; but these examples postdate the Iron Age by several centuries). Again, hardly any evidence of any sort exists for the Iron Age.

[29] Yet unpublished, analysed with High-Performance Liquid Chromatography by N. Sukenik.

Fig. 5 The southern part of the Carmel range (background on left) as seen from 11 km at noon on a summer day with average visibility.

ing northwesterly winds in this part of the Mediterranean (*Mediterranean Pilot V*, diagrams 1.151.1–1.54.4; somewhat less so in spring). Sailing through Dor (and/or through other anchorages in the southern Levant) would normally have been easier. One could set out from Egypt in the early morning with the local southerly breeze (*Mediterranean Pilot*, 46, table 1.175) to a distance of about 3–5 nautical miles from the shore.[30] Then, once out in open sea, with the west wind one could reach Dor. Sailing from Egypt towards Dor in a northeastern course could have also been conducted with a northwest wind, but with difficulties due to the marginal angle of the apparent wind relative to the course. Sailing from Dor further north with this northwest wind, was, however, impossible. Leaving Dor could only be achieved at night/early morning with the local diurnal southeasterly breeze (*Mediterranean Pilot*, 57, 58, e.g., table 1.186; Marcus 1998, 95), and after a few hours one would take advantage of the local southwest or west winds (e. g., *Mediterranean Pilot*, e. g. table 1.186) to return to shore, to a more northerly anchorage (though at times one could also cast anchor a short distance from the coastline); and so forth until reaching the point(s) of destination in Lebanon.

Coasting, however, was time consuming and risky, and so was the encounter with local populations and rulers, as vividly illustrated by Wenamun's misfortunes at Dor (see also Altman 1988; Tammuz 2005, 156, 160). Sailing from Egypt to Lebanon, therefore, posed grave dilemmas (but, in contrast, voyaging directly from Lebanon to Egypt was much easier, see Cvikel *et al*. 2014).

More often than not, then, ships sailing from the Delta to Lebanon had to find intermediate anchorages and Dor was one of the best choices. This is so due to the wind regime in this region, to its roughly mid-way position between Egypt and Lebanon, and owing to its natural setting providing reasonable anchorage in good weather. Also, after leaving the Delta there are no mountains close to the sea and landmarks are few, low and vague (Galili, Rosen and Zviely 2009, 364–365). The southwestern cliffs of the southern tip of the Carmel ridge (so-called in Arabic and Hebrew 'the overlooking nose', the 'Carmel nose'; figs. 4, 5) – about 5 nautical miles south of Dor – are the first prominent land mark visible from the sea (similarly Marcus 2002, 96). This means that targeting Dor was easier than locating other sites.[31]

[30] For ships northbound from Egypt the low-lying coasts of northern Sinai and Philistia had better be avoided unless really necessary; cf. Marcus 2002, 102–103; for the perilous coast of north Sinai see also Diodorus Siculus' testimony, cited in Fabre 2004/5, 25.

[31] For ships sailing in the opposite direction, after leaving Lebanon the first such landmark is the northern tip of the Carmel ridge; cf. Manning and Hulin 2005, fig. 11.1.

Based on the forgoing discussion, however, my main argument is that Dor's primary importance regarding Egypt was not (only) as a stop-over in some early Iron Age 'Byblos run' (cf. Marcus 2002, 409), but of different nature. The Carmel (and Sharon) regions, a relatively short sail from the Delta, could have provided Egypt with many Mediterranean arboreal products in demand, of merchandise traded through Dor's port, and quite likely of agricultural products obtained through trade with inland regions (more on this below). Dor's description in the Wenamun papyrus as a midway anchorage when heading to Lebanon therefore reveals only part of the story.

**Agents and Modes of Trade**

Beyond defining empirically the existence of exchange, the most difficult issues to assess are those related to the institutions and individuals involved in these 'commercial' endeavours, and the mode(s) of trade.

Since the phenomenon described here lasted for three centuries (or four if we add the LBA finds at Dor), it is *a priori* clear that exchanges between Egypt and the Carmel-coast communities were not contingent on any specific political context/interest. They probably resulted from the constant, mutual need for locally unavailable bulk and other commodities in these two nearby but agro-ecologically very different regions, and once in motion they probably also generated some economic interdependence. The collapse of many of the LBA commercial mechanisms and commercially-active regions rendered the Carmel/Sharon region even more essential. Maritime traffic was of course the best means of exchange, since it was much more rapid, cheap and better avoided interception and taxing by polities situated *en-route*, such as those in Philistia (cf. Ricmkan 1980 and Liverani 2003, 125–126). A crucial lacuna in our knowledge, as mentioned, is that we do not know when these extensive early Iron Age exchanges began: are they or are they not a direct continuation of LB II practices (or even Middle Bronze Age ones, see Marcus *et al*. 2008).

Scholars have often linked inter-regional trade – especially maritime trade that requires large investments in ships – to the demands and abilities of stable large-scale powers (Broodbank 2010, 258 with references). Examples abound, such as Marcus (2007, 174, 171) who sees the contacts between Egypt and the Levant under the 12th Dynasty as stemming from royal initiative**.** One of the most striking (and very relevant) indications that this is not always so is the discovery mentioned above that spices from the Far East reached Phoenicia for a long period in the early Iron Age, an epoch during which no 'great powers' existed in these and neighbouring geographical regions. These endeavours were initiated and executed solely by very small-scale societies/polities. This is in line with ever-accumulating evidence for long-distance trade in the Mediterranean during the early Iron Age, after the LBA collapse and before the emergence of territorial states and any other 'powers' (Sherratt 2012; overview in Gilboa, Sharon and Boaretto 2008).

Also, as well articulated by Routledge and McGeough (2009), overarching models/trajectories for the development of long-distance trade defined for the LBA/Iron Age transition, such as Andrew and Susan Sherratt's most influential 'luxuries to commodities'/'administered to entrepreneurial' (Sherratt and Sherratt 1991, 358; Sherratt 1998; also Artzy 1997) should be nuanced. It is quite clear that the boundaries between various modes of exchange – elite and sub-elite, royal and entrepreneurial and the endlessly contended 're-distribution', 'reciprocal' and 'market' mechanisms were fuzzier that previously postulated (so too Sherratt 2011: 10). Exchanges could have operated in tandem in several modes. Acknowledging this multiplicity renders the understanding of exchange modes even more difficult and it dictates that their decipherment be grounded in the specific relevant geographical and socio-political *realia*.

So who were the polities/institutions/individuals involved in the specific exchanges discussed in this paper? On the Levantine side, it is improbable that Dor's inhabitants were not actively involved in this trade during all these centuries, especially since the people of Dor were engaged in other extensive maritime contacts, for example with Cyprus and northern Phoenician entities (above). These must have been professionals, possibly members of some local trading elite (compare Liverani 2003, 132), who had the means, the skills and especially the extensive know-how required for such maritime endeavours – weather lore, navigation, the destination ports and the fluctuations in supply and demand in these destinations. Residents of Dor, naturally, were also best acquainted with the ways to locate their anchorages and overcome the risk in entering and leaving them. The Dor fleet/flotilla was indeed described (or envis-

aged) by the narrator of the Wenamun report, but in contrast to the Lebanese fleets mentioned in the papyrus, its function (beyond chasing Egyptian emissaries and postulated piratical activity) has received little attention.

Especially along the narrow Carmel coast, where the mountains are in such close proximity, the procurement of some of the merchandise traded by Dor, for example arboreal products, did not even necessitate any complex inland exchange mechanism – such as postulated, for example, for Ashkelon in Stager's (2001) 'Port Power' model. Dor was a perfect interface between mountains and sea (minus the cedars). However, Dor's inhabitants were also engaged in terrestrial commerce with inland southern Levantine regions whose products could be marketed further. This is implied, for example, by early Iron Age jars at Dor that were manufactured in the Jezreel valley, and these connections are further highlighted by various containers, large and small, sent from the Carmel coast to Yoqneʿam and Megiddo (Waiman-Barak, personal communication; also e. g., Arie, Buzaglo and Goren 2006, 562–563).[32] Dor was the main maritime outlet for the two major towns in the western Jezreel valley which controlled agricultural production in this region – Yoqneʿam and Megiddo.[33] Though no concrete data exist regarding the political organization in these regions in the early Iron Age, it would be logical to postulate a heterarchical structure among these polities; there is no reason to assume superiority or dominance by any of them. Yoqneʿam and Megiddo were respectively only 25 and 35 km away from Dor, a distance of one to two easy walking days (with donkeys). Residents/families of all these towns that were engaged in commerce must have had close, personal and long term liaisons. Therefore it seems that as formulated by network theory (e. g., Fukuyama 1999; relevant and succinct summaries in McGeough 2007, 31–33; Routledge and McGeough 2009; Malkin 2011, esp. 16, 19, 25–27, 31–32), this network[34] was self-organizing, lacking a co-ordinating body, and the social component in the exchanges was crucial, necessitating and generating personal contacts, obligations and trust. As argued in Gilboa, Sharon and Zorn 2014, many of the economic, including commercial activities in this period in the towns of this region were conducted at the household level. These households cannot of course be compared to the grand merchant households known especially from Ugarit, but for the suggestion that some of Ugarit's merchant families fled to the towns discussed here see Gilboa 2006–2007. Indeed, some evidence regarding the individuals involved in the import of Egyptian commodities to Dor (and by implication–of export to Egypt) is provided by the find-contexts of the Egyptian jars. Almost all those found in primary, systemic contexts are in elite dwellings, and generally speaking most of the jars are in domestic areas (Gilboa, Sharon and Zorn 2014).

All this, however, does not reflect directly on the specific modes of exchange. Both reciprocal exchanges along 'substantivist' lines and *bona fide* market transactions could have taken place (similarly Routledge and McGeough 2009: 28), the latter facilitated by silver used as currency (see above for the abundance of early Iron Age silver in the specific southern Levantine regions in question).

As mentioned, after the late LBA calamities, when commercial competition dwindled, and after the Egyptians lost their economic grip on Canaan, inhabitants of those agricultural centres and port towns that managed to survive, were bound to invest much effort in catering to the needs of the still important client to the south. Such operations probably also involved the permanent or seasonal, or *ad hoc* stationing of representatives in Egypt.

Egyptian initiative or even involvement in maritime transactions with the Carmel coast (and with other Levantine regions) is much more difficult to assess. Debates regarding Egypt's partaking in maritime trade have been many (summaries in Wachsmann 1998, 9–38; Monroe 2009, 189–192). During the late New Kingdom, for example, Ramesses III boasted about building a flotilla of *mnš*-boats, destined to acquire Djahi's goods

[32] Most probably, exchanges with farther regions, such as the highlands to the east, were in operation, but currently they are not attested archaeologically.

[33] Tell Abu Hawam in the Haifa bay was another Mediterranean outlet competing with Dor. It lies nearly equidistant from the Jezreel valley centres. Such competition could have rendered the network described below dynamic, possibly quite chaotic at times, with no port site being able to claim a singular nodal position. Tel Abu Hawam, however, has not yet produced evidence for intense early Iron Age maritime contacts to match that at Dor (see above and Gilboa, Waiman-Barak and Sharon 2015).

[34] In the sense of trade network.

(recorded in P. Harris I; de Spens 1998, 111),[35] but some scholars see the LBA/Iron Age transition as signalling the end of Egyptian maritime initiatives for a long while (e. g. Wachsmann 1998, 11, 40).

With respect to the institutions responsible for such trade in Egypt, despite the paucity of textual information and long-prevailing substantivist views regarding its exchange modes, where traders are understood as being mostly institutional agents and markets to be state-controlled (Bleiberg 1988; less categorically in Bleiberg 1995; Bickel 1998; to a large extent Fabre 2004/5, 96, n.48, 158–161), several scholars argue that this is not so (e. g., Zingarelli 2010, 78–79). They contend that there is enough evidence to indicate that during the late New Kingdom, progressively, and as late as the turbulent years of the late 20th Dynasty, long-distance exchanges, including ship-borne trade, were initiated not only by Crown and Temple but also by private entrepreneurs with genuine mercantile, profit-oriented interests (cf. also Moreno García 2014a; 2014b: 249–252). After the disintegration of the New Kingdom, royal exclusivity in maritime trade is even less likely (cf. Mumford 2007, 259).

However, regarding LBA/Iron Age maritime exchanges between Egypt and the Levantine coast more often than not Egyptian dependence on Canaanite/Phoenician/Syrian sailors and traders (with all sorts of contractual arrangements with the Egyptians) is perceived to be crucial (Goedicke 1975, 159; Scheepers 1991, 65–66; de Spens 1998, 113; Ash 1999, 96; Altmüller 2001, 449; Snape 2003, 63; Fabre 2004/5, 152, 155; Monroe 2009, 189–192, 225 with further references). Regrettably, beyond the Wenamun report no information relevant to the early TIP survives. On top of all this, joint ventures/alliances/partnerships and mixed crews (which are not necessarily synonymous) were certainly the norm, the former attested, for example by the *hubur*s[36] mentioned in Wenamun, and for the present paper Byblos' *hubur* with Smendes (1, 59) is naturally important.

The lack of concrete data regarding possible Egyptian maritime commercial initiatives during the late Rammeside period and the TIP and regarding possible Egyptian manipulation/regulation of Levantine exchanges is the main factor that renders the network perspective advocated above for southern Levantine exchanges with Egypt tentative. If, beyond acting as a consumption and production node, Egypt was still able to exercise some sort of control over these exchanges, this would introduce a hierarchic, central regulatory and asymmetric component to the system. On present evidence, however, this is unlikely, and as argued by many scholars, this is certainly not the impression the Wenamun report conveys.

## The End of the Egyptian Phenomenon at Dor

As mentioned, after a certain point within Ir2a, Egyptians ceramics are no longer attested at Dor, with few possible exceptions, though Iron Age occupation continues till the mid-7th century BCE. Above I suggested that the extensive early Iron Age Egyptian import may have ceased during Osorkon II's reign. Ben Dor Evian too (2011, e. g., 109, 111), dates the end of this import ca. 870 BCE. The cause, according to her, is to be sought on the Egyptian side, namely the disintegration of Egyptian power, and consequent disability to intervene abroad after this pharaoh's rule.

From the Dor perspective it is important to recall (see above), that the disappearance of Egyptian pottery coincides with the cessation of other long-lived maritime interactions between Dor and regions overseas, with a total transformation of the town's urban landscape, and with a change in the role of its anchorage. These concurrent radical changes are understood as resulting from the transformation of the Phoenician town into an Israelite administrative centre ca. the mid-9th century BCE (Gilboa, Sharon and Bloch-Smith 2015), which may have also been accompanied by a change in population. Therefore, and based on the foregoing discussions, I suggest that the disappearance of Egyptian ceramics and the cessation of the liaisons embodied by them, are likely linked to Dor's specific political fortunes, and not to transformations on the Egyptian side.

## To Conclude

Scholarly (and ancient) fascination with cedars, the perception of 'Phoenicia' as encompassing Leba-

[35] And somewhat earlier Egyptian involvement in overseas ventures is vividly preserved in Papyrus Lansing: "The ships' crews of every (commercial house) have received their loads so they may depart from Egypt to Djahi. Each man's god is with him. Not one of them (dares) say "We shall see Egypt again" (Caminos 1954).

[36] A Semitic loan word; Hoch 1994, 240–241.

non only (Bell 2006; Broodbank 2013, 449),[37] and till recently the lack of relevant archaeological data, have left an important tract of the early Iron Age Levantine littoral in the shadows. This, I hope, has now changed. Regardless of all the uncertainties enumerated above, the Dor finds must draw our attention to hitherto unattested enduring exchanges between Egypt and the Carmel (and Sharon?) region. Surely, the most coveted Mediterranean product in Egypt was cedar, which could not be acquired south of the Lebanese mountainous regions. This is also the commodity highlighted in texts originating in elite contexts and/or of propagandistic nature such as the Wenamun account. But the Dor port was reputed in Egypt not only because it provided, in times of need, a useful anchorage when sailing to Lebanon, but mainly since for hundreds of years ships from this port frequented Egypt (and vice versa) to exchange a medley of commodities.

Undoubtedly Dor and the Carmel/Sharon regions were not the only Mediterranean suppliers of various commodities to Egypt in the period under consideration. There were probably several circuits of exchange, based *inter alia* on different networks of social relations (Friedland and Robertson 1990; Routledge and McGeough 2009, 28). In the southern Levant, mainly Ashkelon, Tell Abu Hawam and ʿAkko should be considered. The latter two were important for the shipment of arboreal and agricultural produce from the Galilee and Israel's northern valleys.[38] Currently, however, archaeology showcases mainly Egypt's long-lasting commercial contacts with Dor. As well, the conjunction between text and archaeology, the endurance of the contacts between Egypt and Dor, and the very uneven distribution of Egyptian jars along the coasts of the Levant, illuminates non-random, destination-conscious shipping – even if the archaeological evidence at hand telescopes, so to speak, many instances of *ad-hoc* shipping. This stands in opposition to assessments that in antiquity coastal tramping was the norm (most notably in Braudel 1972, 102–107, his 'floating bazaars'; Horden and Purcell 2000, 141, 150, 160 and *passim*: "The short hops and unpredictable experiences of cabotage" (p. 365).

The selection of possible commodities discussed above certainly constitutes only part of the overall picture. The range of merchandise transported must have been modified constantly, *ad hoc*, to fulfill periodical, even annual shifts in demands of the societies involved in these exchanges. For example, fluctuations in grain, fish and wood availability, well-documented at least for parts of Egypt particularly for the reigns of Ramesses IX–XI (but also earlier, see above; Antoine 2009b), may have affected Egyptian demands from its neighbours in the north.

Only future discoveries and studies[39] will elucidate the extent and manner in which Egypt's early Iron Age contacts with Dor were distinctive, relative to those with other regions and specific polities in the Levant.

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[37] Which is indeed correct from about the mid-9th century BCE and on, but not for the early Iron Age (e.g., Gilboa, Sharon and Bloch-Smith 2015).

[38] But for the caveat regarding Tell Abu Hawam, see n. 33. In addition, the maritime role of Jaffa in the early Iron Age is as yet unclear, and generally data regarding this period there are currently very scant; see Burke 2011, 70–71. Perhaps we are also yet ignorant of another major port along the northern Sharon; Tell Zeror is a candidate.

[39] Such as fabric analyses of 'Phoenician' containers in Egypt. See Aston *et al.* 1998, 142–143 for the variety of Levantine fabrics in late New Kingdom and TIP contexts.

courtesy of Paradive, Israel; figures 3 and 4 were taken by Michael Eisenberg; fig. 5 was photographed from the yacht *Carmen* (Dudi Goldglass, captain) by Evgeny Kaminsky. The Tel Dor Project is supported by the Goldhirsh-Yellin Foundation, the Berman Foundation for Biblical Archaeology at the Hebrew University in Jerusalem, the Faculty of Humanities at the University Haifa, and by anonymous donors.

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# AND DEATH SHALL DO US NO PART: SIMULTANEOUS BURIALS IN MIDDLE BRONZE AGE SOUTHERN LEVANT

*Raz Kletter and Yosi Levy**

**Abstract**

Much has been written on funerary assemblages and burial customs of the Middle Bronze II in the Southern Levant (Kenyon 1960; 1965; Hallotte 1994; Baker 2012; Cohen 2012). Some MBII tombs show a unique phenomenon: simultaneous burial of several individuals together. It was first noticed by Kenyon (1960), but hardly discussed since. In this article we bring new evidence from the large MBII cemetery of Rishon le-Zion, Israel, and show that simultaneous burials appear in quite a few other sites. It is a significant phenomenon which deserves attention, though its meaning and the identity of those buried remain enigmatic.

Keywords: Middle Bronze, tombs, death, burial customs, Levant.

## Introduction

The salvage excavations carried by one of us (Y. Levy) at Rishon le-Zion, on the coastal plain 20 km south of Tel-Aviv, brought to light one of the largest Middle Bronze II (MBII) cemeteries found in the Southern Levant (Levy 1993; 2005; 2008; Shalev et al. 2013). There are several rural MB sites in the immediate vicinity (Ad 2008; Ad and Dagot 2008; Arbel 2008; Dagan and Marder 2010), but no large urban centre, hence, we are not sure to which site/s the cemetery was affiliated. More than 200 tombs were excavated in the 1990s; this is a minimum number, since more tombs existed, but could not be excavated or were not preserved due to the humid environment. Also, we excluded loci which could be tombs, but lacked secure evidence of human burial. Excavated tombs included 178 shallow pit tombs (Areas B, C, and E) and 23 complex deep shaft tombs (Areas A and F). Both types of tombs are typical of the MBII period; comparable cemeteries, though smaller, are known from nearby sites such as Dhahrat el Humraiya (Ory 1948), Jaffa (Kaplan 1955), Tel Qasile (Kletter 2006), Azor (Gorzalczany, Ben-Tor and Rand 2003), and Aphek (Kochavi, Beck and Yadin 2000).[1] The tombs held at least 605 burials. Of them, 339 burials were primary (articulated) and 221 were disarticulated. In the remaining 45 cases the human remains were too fragile to indicate the exact mode of burial. The disarticulated burials were not secondary burials moved from elsewhere, but remains of primary burials in the shaft tombs, which had been pushed aside to make room for newer burials (a few disarticulated burials could be the result of post-burial disturbances, for example by the modern development works).

The Rishon le-Zion tombs included a rich assemblage: thousands of pottery vessels, 154 scarabs and scaraboids, hundreds of bronze weapons, various personal items, sheep/goat bones, etc. (Figs. 1–2) We will not discuss here the issue of 'warrior graves' (see Philip 1995; Garfinkel 2001; Rehm 2003; Cohen 2012).


Fig. 1 Bronze dagger from Rishon Le-Zion, L607 B6084.

In the course of working on the finds we have noticed an enigmatic phenomenon: simultaneous burials. By this term we mean remains of two or more human individuals in articulation, found together in the same tomb and phase, apparently buried as part of one 'event'.

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[1] For MBII settlement patterns in the southern coastal plain see Uziel 2008.

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Fig. 2 Scarab from Rishon Le-Zion, B2874/2.

What do we mean by one event? Before the modern era with its mechanical tools, bodies were always interred one after another, as they were too heavy to be lifted up and disposed of together, at exactly the same moment. Thus even in mass burials after epidemics or wars, bodies were interred one after another. Unfortunately, archaeology cannot reconstruct the exact timing of each burial, since our ability to date – whether archaeologically or by methods of natural sciences – is limited to plus/minus a few dozens of years. When we find a row of articulated burials in the same locus, and the associated finds do not indicate different temporal phases, we cannot tell if one body was placed a day or a month before or after another. Stratigraphy helps, but tombs often do not exhibit clear, layered stratigraphy. One event of simultaneous burials means several primary burials found together, one next to the other, all maintaining anatomic articulation, without evidence for intervals. The adding of a new body did not cause disturbance to former skeletons, because the latter were not yet decayed, so the bones were still tied together by soft tissues. This can sometimes be seen from the arrangement of the burials, for example, when body parts of two skeletons (arms, legs) are intertwined. In such cases, we can assume that the span of time between the burials did not exceed several weeks, which is the typical time period required for the decay of the soft human tissues. This time period can last longer in extreme dry or frozen climates, or when the body is treated, for example, by mummification. However, in the warm and humid climate of Rishon le-Zion decomposition of bodies must have been fast, a matter of days or a few weeks at the most (Duday 2009: 50–52). Of course, intervals between burials could be shorter, a matter of minutes or hours rather than weeks.

Simultaneous MBII burials in the southern Levant were first noticed by Kathleen Kenyon at Jericho in the 1950s. Therefore, we discuss first the evidence from Jericho.

**Simultaneous Burials at Jericho**

Many MBII shaft tombs in Jericho show multiple *successive* burials, that is, earlier burials pushed aside to accommodate new, later burials. The pushing aside creates 'secondary heaps' of mixed bones (often of several individuals) and finds. In such tombs the last burials in each locus, which are usually kept in better articulation, give the best evidence about burial customs (Kenyon 1960: 263–4).

In the first Jericho report Kenyon noticed six tombs, each of them containing 4–13 *simultaneous* burials (Kenyon 1960, 264–5, Tombs G1, H6, H11, H13; H18, H22). She described them thus:

"These final bodies lay neatly disposed across the cleared space of the chamber. There can be little doubt that they were all put in together, and in the case …[when] the chamber was completely full of bodies, the limbs were so intricately intertwined that it would have been impossible for the bodies to have been put in successively" (Kenyon 1960: 265).

The bodies were usually placed in rows and seem to belong to families (adults and children together), though conclusive evidence is lacking. They follow general practices of MBII burials in Jericho, and are by no means poorer in finds than other MBII burials. All these simultaneous burials belong to the final MBII phase at Jericho. One could be tempted to relate them to the destruction of Jericho at the end of the MBII period. However, the skeletons showed no evidence of violence. Once the city was destroyed, the conquerors – or the survivors – would hardly have either the means or the motives to make such elaborate burials for war victims. Kenyon suggested that:

"It is therefore probable that disease of some sort was responsible for the simultaneous death of entire families. This may have taken place very shortly before the final destruction of the [MBII] town… The site was then completely abandoned for a considerable period, and therefore no subsequent burials were made in these tombs" (Kenyon 1960: 276–268).

This is possible. However, one should assume a quite complex scenario: a disease hit Jericho, yet the survivors managed to bury the victims quite

elaborately. A moment later they were conquered and the city was abandoned (the issue of LB abandonment is often tied to the 'biblical' conquest of Jericho; cf. Bienkowski 1986; Wood 1990; Scheffler 2013).

The finds published in the second Jericho reports only added to the mystery. One tomb (P19) included a row of seven burials side by side (Kenyon 1965: 171, 388–390). One primary burial (female, c. 28 years old) was perhaps earlier than the rest and was disturbed after interment. The six other skeletons (two male adults c. 24 and 26 years old; two c. 15- and 17-year-old girls; one boy and one girl, both c. 11 years old) were found in perfect order, placed simultaneously, but the three males lacked their right hands – and all six were killed by blows to the head with a blunt instrument (murdered – as indicated by the mutilation of the six skulls; it is hard to find another reasonable explanation for it). Kenyon suggested that this tomb belonged to a wealthy lady. It was robbed, but:

"[The] tomb-robbers were caught in the act, were accorded the time-honoured treatment of thieves in the east of having a hand cut off, and were then executed with other members of the family, and placed in the tomb they had violated" (Kenyon 1965: 171).

This is theoretically possible. Yet, would an entire family, including children, be executed for tomb robbery? If tomb-robbery was punishable by execution, why bother with cutting the hands off, and only those of the males? This custom is documented for 'ordinary' thieves, or for dead victims of war. Personal items, such as bracelets, scarabs, and leather sandals (indicating some wealth) were found in association with the six simultaneous burials. Would despicable tomb robbers be buried in neat order besides the person whose tomb they had violated, and be allowed to maintain valuables, which may have been the fruits of their hideous crimes? A more likely scenario is that all the burials in this tomb belong to the same family.

Chapman noticed the difficulties with Kenyon's interpretation of Jericho Tomb P19. He suggested that the burials relate to cutting off the hands of dead enemies as proof of their annihilation. Sometime after the first female burial,

"There was an enemy raid on the city, which did not result in its destruction, in which the members of the family of the deceased [female] were caught outside the city walls, perhaps working in the fields, and killed by the maces of the enemy, and the hands of the males, and only the males, were cut off as proof … After the attackers had been driven off, the relatives of the deceased recovered their bodies, and buried them with lavish offering and due ceremony in their family tomb" (Chapman 1987: 32).

Chapman's scenario is reasonable. The custom of cutting off and presenting the right hands (or penises) of enemies as proof of kill was common in Second Millennium BC Egypt. It finds corroboration in the recent discovery of 16 cut-off right hands in pits at Avaris/Tell el Dabᶜa (Bietak 2012). Burials with hands cut off, presumably victims of war, were also found in an Iron Age cave in the Samaria Mountains (Aizik and Peleg 2007).[2] If one follows Chapman, one should relate Jericho Tomb P19 with a surprise attack, since people would not be working outside the walls if the presence of an enemy was suspected. Also, it would be necessary to assume that the raiders killed an entire family including girls, and removed also the hand of the boy.

This reconstruction may explain Tomb P19, but does not fit other tombs from Jericho, which also show skeletons missing arms/hands. Tomb G73 has multiple successive burials with some missing arms (Kenyon 1965: 448–450, fig. 233). The eighteen burials from six successive phases in Tomb J19 all lacked one or two arms.[3] They cannot be explained as punished tomb robbers. Kenyon suggested that superstition was involved: the family removed the arms to prevent potential harm-doing by the dead (Kenyon 1965: 171, 372–374, fig. 184). It is certain that the Tomb J19 burials were not victims of enemy raids, since they were buried in successive phases. Jericho could not be surprised six times, with people venturing outside to meet the same deadly fate, over and over again. Removal of hands/arms exists elsewhere. For example, some Bronze Age burials at Enkomi (Cyprus) had portions of the right/left arms removed (Keswani 2004: 103). The lack of arms is a detail which occurs with some but not all simultaneous MB

[2] For mutilation of killed or captive enemies by the Assyrians, see De-Backer (2010); for biblical sources about mutilation see Lemos (2005).

[3] Or 19 burials, with one additional skull not shown in plan, Kenyon 1965: 372.

Table 1 Simultaneous Burials – Jericho

| Tomb | No. of Burials | Details and data about age/sex |
|---|---|---|
| G1 | 7 | Skeletons A-E, F, R |
| H6 | 4 | Two adults, two children |
| H11 | 12 | Nine adults, three children |
| H13 | 6 (at least) | Skeletons Ci, Bi, Ai, V, M, A. |
| H18 | 12 | One adult, eleven children; second adult placed on a wooden bed, perhaps (but not necessarily) from the same time |
| H22 | 12 | Four "not very old" adults, eight children |
| P19 | 6 | Two male adults (c. 24 and 26 years old); two girls (c. 15 and 17 years old); one boy and one girl (both c. 1 years old) |
| P17 | 18 | At least 3 children and 4 adults |
| M11 | 7 | Skeletons A-H; C is a young or small person |
| P23 | 2 | Skeletons C-D |
| P1 | 10? | Two phases: earlier (L, K, F, E, D, C and probably A) and later (Z,Y, R). More skeleton groups found, but not clearly simultaneous |
| A136 | ? | Possibly skeletons Ai, W, V and children Az, Z |
| J9 | ? | Skeletons J and K? |
| D64l, HAR | ? | Intramural burials |
| Total | 96 at least | |

burials; it occurs in non-simultaneous burials too. In the present paper we focus on the simultaneous burials and will not discuss this feature further.

Seven simultaneous skeletons were discovered in a row in Jericho Tomb M11 of Group V (Kenyon 1965: 227–229, fig. 105).[4] Tomb A136 was found packed to the roof with 26 burials in six successive stages, separated by short intervals of time, though in this case there is no decisive proof for simultaneous burials (Kenyon 1965: 466–468, fig. 246). However, with the Jericho II report it became clear that not all the simultaneous burials belonged to the latest MBII phase. In Tomb P23 from Group II a layer of seven adults in anatomical articulation was found. Some of the skeletons were disturbed and they were placed in more than one event. There were probably two stages of burial; at least the two latest burials seem simultaneous (Kenyon 1965: 286–8). A row of ten bodies was put in two stages in Tomb P1, though they could be successive, with short intervals in between each burial. This tomb is dated to Group II-Early III (Kenyon 1965: 295–298, fig. 143). In Tomb P17 of Group III there were eighteen burials, all placed simultaneously or during very short intervals of time, when earlier bodies were not yet decayed (Kenyon 1965: 359, fig. 175).

Simultaneous burials are perhaps documented also in built MB tombs inside the urban area of Jericho (Kenyon 1981: 349–350, Fig. 5, pls. 188–189; cf. Nigro 2009: Tombs D64l; HAR).[5] Of course, tombs with simultaneous burials could belong to different segments of the population (e. g., in terms of class), and vary in circumstances of burial.

Simultaneous burials appear in Jericho in c. ten out of 51 excavated tombs, with at least 96 burials (Table 1 below). Kenyon (1965:167–170) estimated that 772 individuals were buried in all the MB tombs at Jericho. Roughly speaking, simultaneous burials occupy c. 12 percent of all MB burials. Even if the general population number is unknown, Kenyon must be right in observing that the tombs in general represent a wealthier minority; while a large segment of probably poorer people is not represented (Kenyon 1965:170). The 'invisibility' of burials of the poor is documented in various other periods and regions (compare Morris 1987:105; Magness 2012).

The anthropological data are very limited, but prove that the Jericho simultaneous burials include males, females, and children. Though Kenyon spoke about "mass simultaneous burials", she interpreted some of them as burials of families. For example, in her view H6 represents a tomb of

[4] Kenyon divided the tombs into five groups based on the typology of the finds, I being the earliest and V the latest. Tomb M11 had two phases – the first from Group II and the second, with the simultaneous burials, from Group V.

[5] In her extensive catalogue of MB burials, Hallote (1994, Vol. II: 211) mentioned briefly Kenyon's views about Tombs J19 and P19.

Table 2 Multiple Primary Burials in Shaft Tombs – Areas A, F

| No. | Burials | Tomb | Details | Figures |
|---|---|---|---|---|
| 1 | 2 | F1 L764 Phase 2 | 1 female adult, 1 adult, B7924–5; skeletons not fully complete | 3–4 |
| 2 | 2 | F5 L720 Phase 2 | 2 adults, B7364–5, one badly preserved with leg above the other | |
| 3 | 2 | F9 L745+709 | 2 male adults, B7541, B7648 | Fig. 6 |
| 4 | 2 | F9 L716 Upper Phase | 1 male 1female, adults, B7265, B7330 | |
| 5 | 2 | F9 L763 | 1 male adult, 1 child, B7867–8 | Fig. 7 |
| 6 | 2 | F10 L759 Upper Phase | 2 adults, B7985–6, one incomplete with legs above the other | |
| 7 | 2 | A1 Level II L227 | Probably 2 adults, B2782+3, B2875+6, leg of one above that of the other | |
| 8 | 3 | F1L764 Phase 1 | 2 adults, 1child, B8086–8; leg of one adult above the other, but could fall after death; burials either simultaneous or in short time intervals | Fig. 5 |
| 9 | 3 | A5 Level II L251 | 3 children, skeletons not entirely complete, perhaps due to the humid environment | |
| 10 | 3 | A9 L215 Level II | 3 fairly complete skeletons with some intertwined arms/feet | |
| 11 | 4 | A6 Level V | 2 children, 2 adults (male and female); perhaps the adults were added after the children | |
| 12 | 4 | A6 Level II L224+L266 | 2 males, 1female, 1 child; near and partially above each other; but not described in detail | |
| 13 | 6 | A1 Level IV | 2 females, 2 adults, 2children. Very close and sometimes partially one above the other. Perhaps from several stages, but two are interlocked – probably simultaneous | |

an important person (one adult), his wife (second adult), and their children (Kenyon 1960: 454). Tomb H18 belonged to a family with the paterfamilias placed on a wooden bed, his wife (the second adult), and their children (Kenyon 1960: 488). As we have seen (above), even the six simultaneous burials in Tomb P19 were interpreted as one family, whether of tomb robbers (thus Kenyon 1965: 171) or of victims of war (thus Chapman 1987: 32).

An interpretation as burials of families is possible for some cases (H6), but does not fit all these tombs. For example, the relations between skeletons of adults and children in tombs H11 and H18 hardly fit families. The number of children in H18 seems exceptionally high, while the two male adults in the same age group in P19 do not fit a nuclear family. In addition, an explanation should be offered for the death of complete families together at the same time. Such tombs do not represent a natural death curve within a family (joint, extended or nuclear – we need not enter here into the complications of family structures, as discussed by Williamson 2003; Allen *et al*. 2008). Nine adults (H11), eight (H22) or eleven children (H18) do not die out at the same time in a family, unless in grave circumstances, such as famines, epidemics, or wars.

**Simultaneous Burials at Rishon Le-Zion**

Some Rishon le-Zion shaft tombs (Areas A, F) included two to six multiple primary burials side by side (Table 2).

Are these natural deaths of family members, added one after another over time, or simultaneous burials of victims of wars, famines or epidemics? In shaft-tombs, bodies could be added and the shaft could be re-opened many times. Closure was necessary as protection from scavenging animals. At Jericho, the shafts were closed at the bottom with stones. Kenyon concluded that the shafts were indeed re-opened many times for successive burials (Kenyon 1960: 425). Burials in the Rishon le-Zion shaft tombs were often successive, for example, the row of at least five primary burials in F11 L728 Phase 3. In this case, the skeletons are not simultaneous: earlier-placed skeletons are less well-preserved and are located partially under the later, better-preserved burials. Apparently, addition of new burials damaged the older ones. Still, the succession was quite fast.

None of the examples from the abovementioned shaft tombs is simultaneous beyond doubt. The documentation about relations between skeletons is often not sufficient and it is possible that these are successive burials.

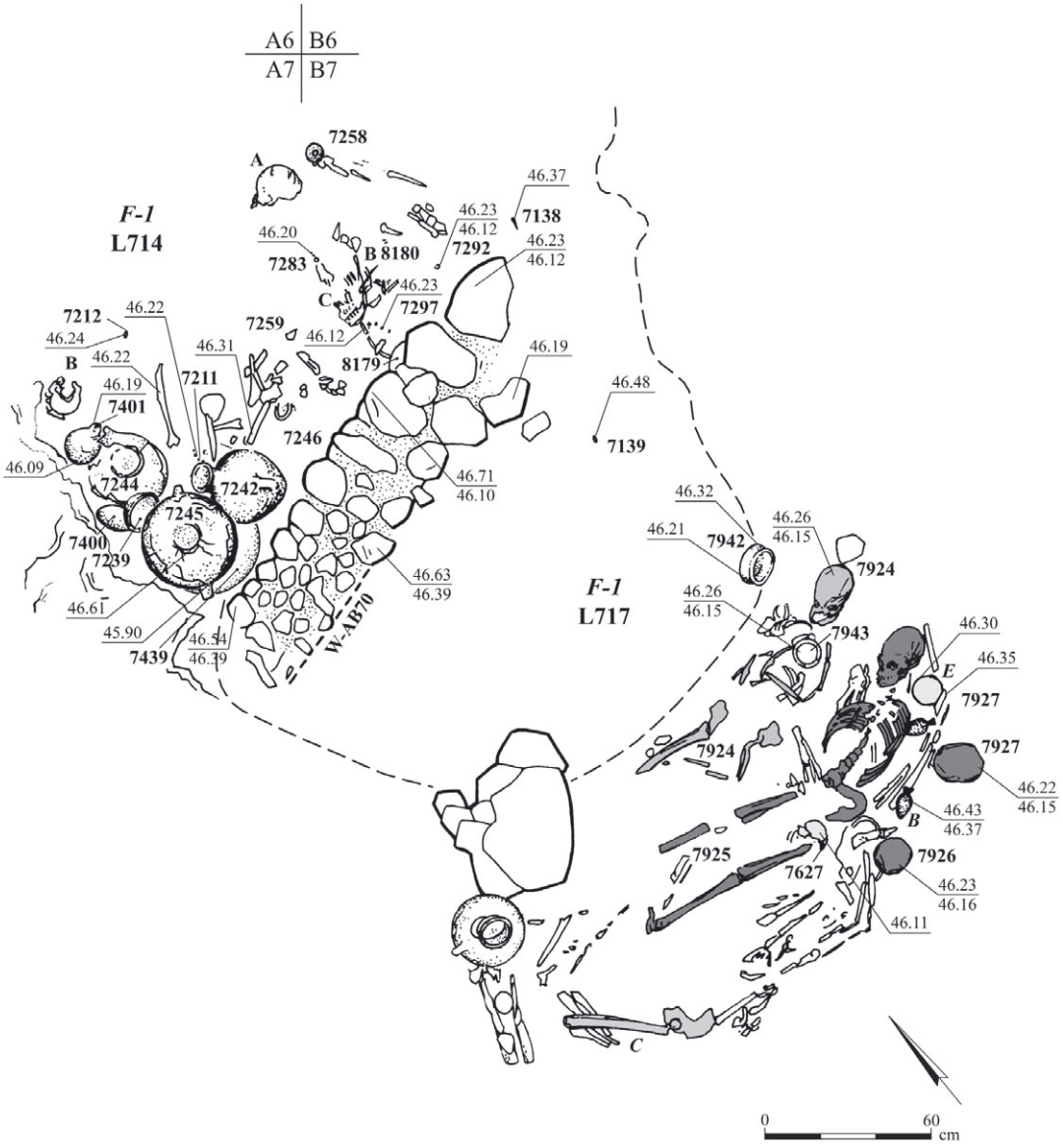



Fig. 3 Plan of Tomb F1 L764 Phase 2.

However, definite evidence comes from the pit tombs of Area B. We must stress that these are primary burials. The "secondary heaps" of bones and finds, common in shaft tombs of Areas A, F, and in MBII pit tombs at other sites, e.g., Tel Qasile (Kletter 2006), are not found here.[6]

Four tombs (out of 163) in Area B were defined as having remnants of secondary burials, meaning remains lacking anatomical articulation (Tombs B2, B6, B7, B128). In fact, each of these tombs had one clear, primary burial. The additional human remains were not secondary heaps, but only scant remains, a few badly-preserved and perhaps disturbed bones. In any case, this is a tiny, unrepresentative minority. Multiple primary burials appear in 29 tombs of Area B (Table 3).

[6] Secondary burials can also mean that the body is left to decay elsewhere and later all or some of the bones are collected for burial in the tombs (e.g., in ossuaries or coffins). This practice is not documented at Rishon le-Zion and is also not typical in the MBII period.

Table 3 Multiple Primary Pit Burials – Area B

| No. of Burials | No. of Tombs | Details |
|---|---|---|
| 2 | 23 | B1*, B12, B17*, B43*, B48, B49, B57*, B86, B89, B91, B92*, B98*, B100, B101+108, B105a*, B105b*, B107, B110, B135, B142, B149, B159, B167 |
| 3 | 5 | B24, B81, B115, B116, B123 |
| 4 | 1 | B104 |
| Total: | 29 | |

Legend: * denotes badly-preserved tombs, where the relations between the burials are uncertain.

At least eight of these multiple primary tombs show *simultaneous* burials – the most telling feature is intertwined limbs:

1. Tomb B24 (Figs. 8–9): three adults. The skeletons are complete (if they were successive, the earlier would have been at least partially disturbed). Two are intertwined: the head of one is placed on the other, but its leg seems to rest under the other's leg.


Fig. 4 Tomb F1 L764 Phase 2: View NE. Three articulated skeletons side by side; secondary bones along the edge of the burial niche.


Fig. 6 F9 L745, view NE: pair of articulated skeletons, one not yet fully exposed.


Fig. 7 F9 L763, view S: pair of articulated skeletons.

2. Tomb B89: one female adult and one child, very closely placed, partly touching. The adult head is maybe slightly disturbed and the feet are not preserved.
3. Tomb B91 (Fig. 10): one adult, one baby (1.5 years old), intertwined. The right arm of the adult was placed above the upper body of the baby, with the hand under the child's knee; one delicate arm of the baby was preserved though partially covered by the adult body. There is no doubt that the two burials were placed at the same time, or with only a short interval before decay sat in.
3. Tomb B104: two adults (ages 18–25; 30–40) placed parallel to each other and two children (7–8 years old). One child is between the

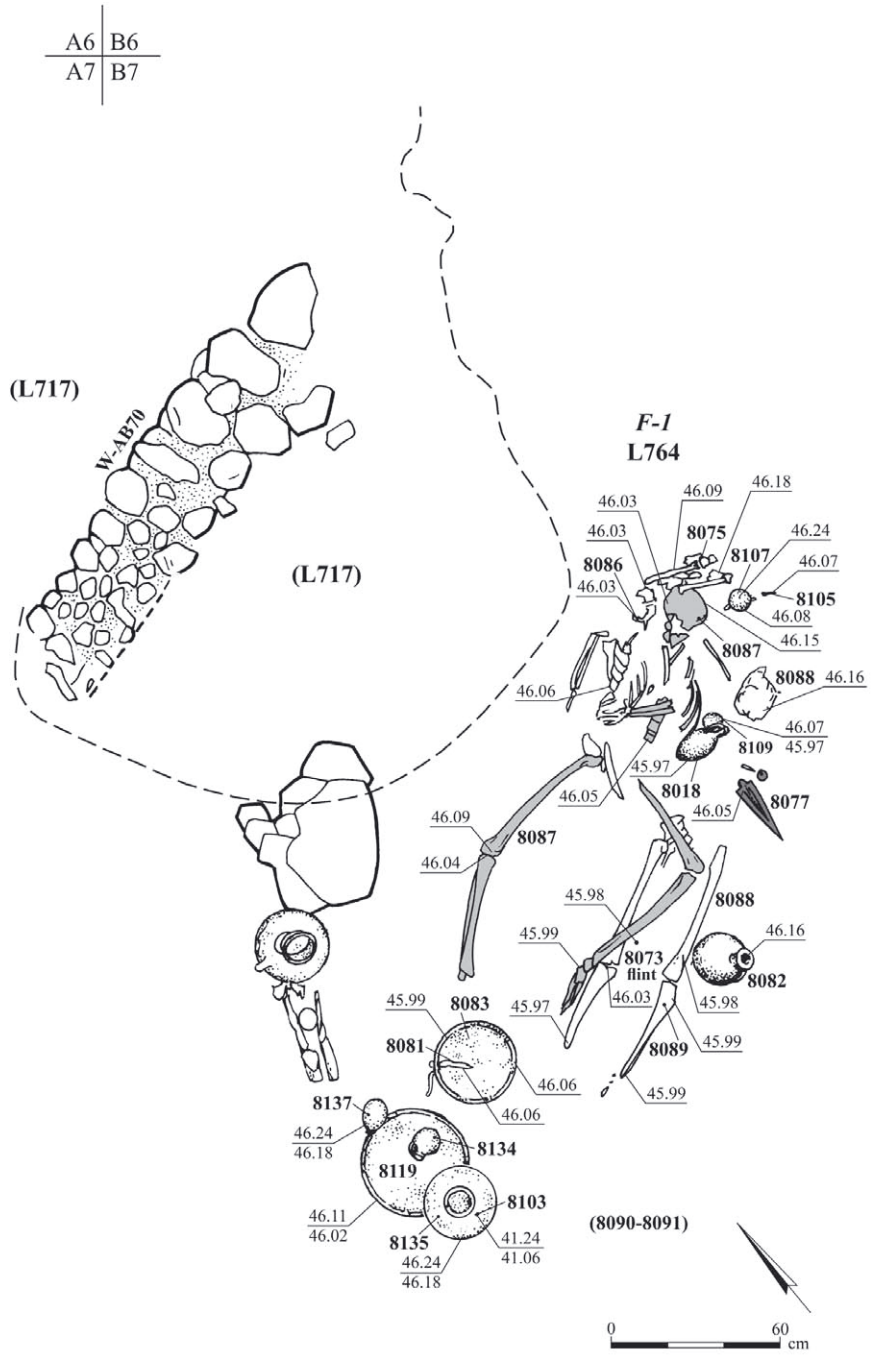



Fig. 5 Plan of Tomb F1 L764 Phase 1.

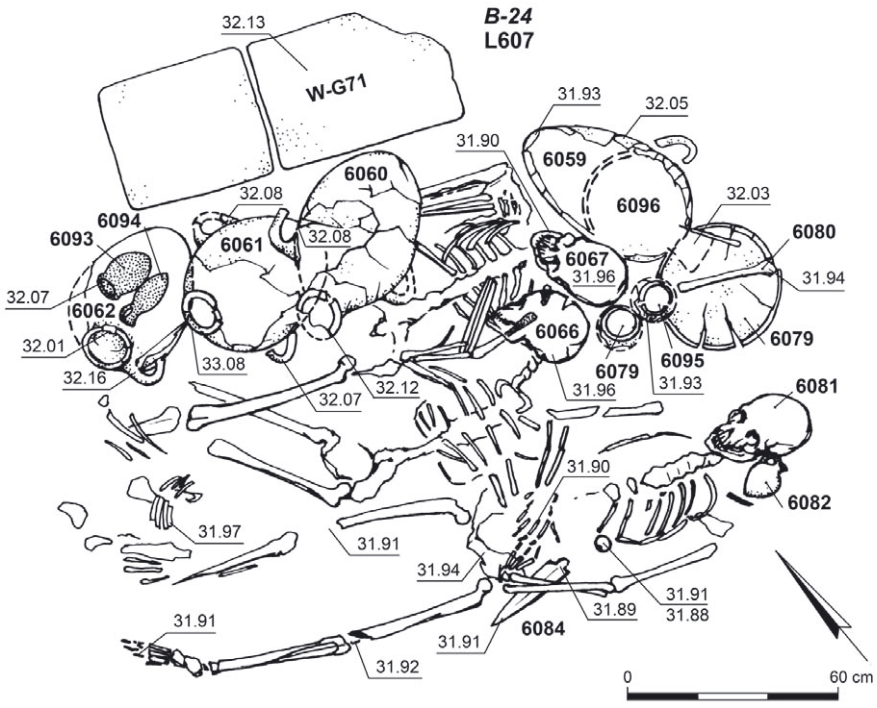



Fig. 8 Plan of Tomb B24.

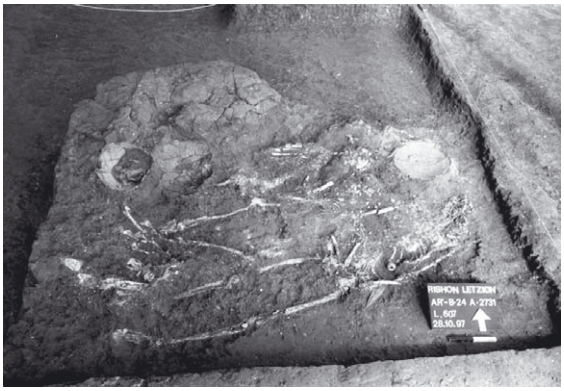



Fig. 9 Tomb B24, view N: three articulated skeletons; notice the bad state of preservation.

adult's legs, the second above their feet (not preserved or not shown in plan; but all the burials are primary and simultaneous). The dead seem to face their neighbours and are neatly arranged, the adults 'engulfing' the child in between. Presumably the child was added immediately after adult B6577, then the second adult B6574, finally the older child B6577 above the adults' feet. Adding a later burial would have required re-opening of the pit, therefore, disturbing the former burials. The


Fig. 10 Tomb B91, view E: tomb of an adult and a child.

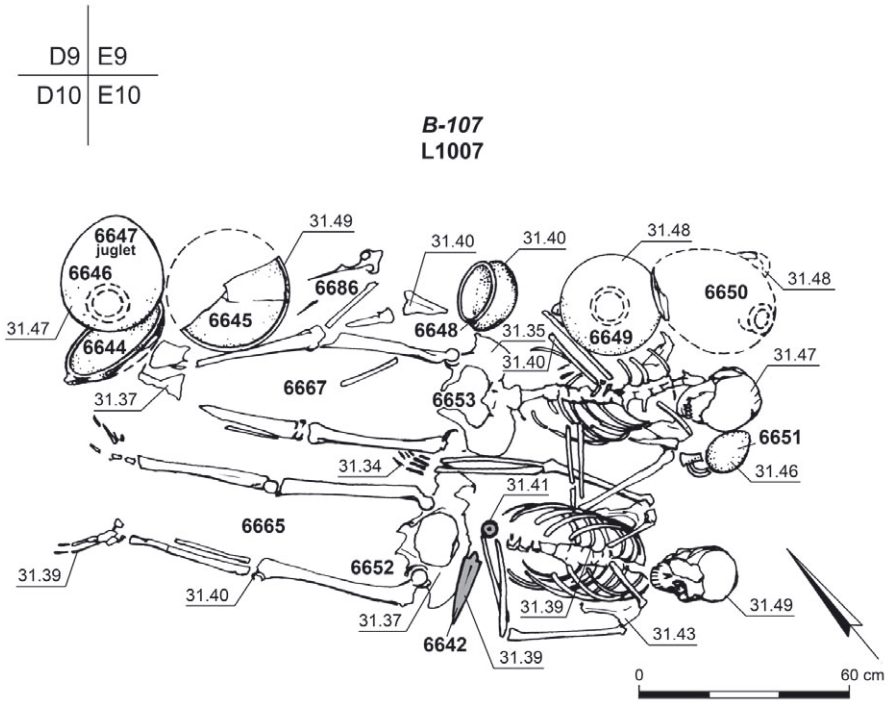



Fig. 11 Plan of Tomb B107.

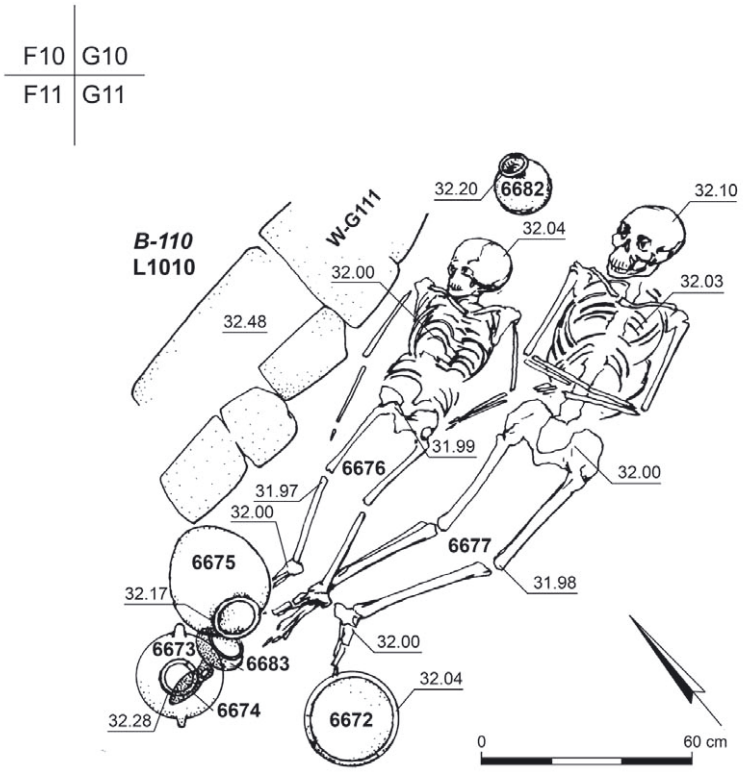



Fig. 12 Plan of Tomb B110.

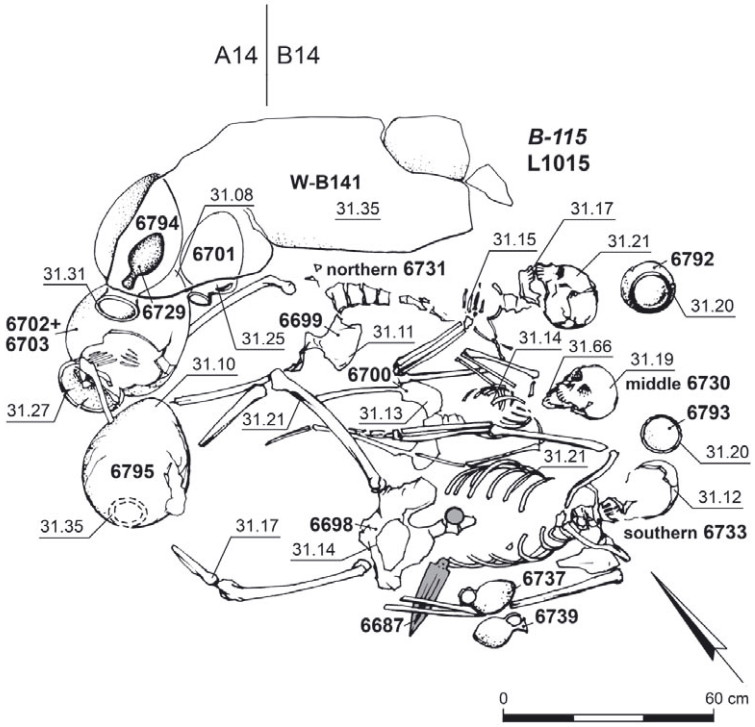



Fig. 13 Plan of Tomb B15.

four were laid immediately one after the other, or at least when the soft tissues were not yet decayed. It also seems that each burial was supplied with vessels, though we cannot always ascribe each vessel to a specific burial.

4. Tomb B107 (Fig. 11): two adults, B6667 (age 30–40) and B6665 (male, age 20–30). They are placed in intimate proximity without any disarticulation, and their arms are intertwined (probably B6667 above B6665; if so, B6667 was placed later, but in the same 'event').
5. Tomb B110 (Fig. 12): a child 8–9 years old (B6676) and an adult (B6677). The bodies closely match in position. The right foot of the adult was placed under the left foot of the child; there is no sign of disturbance in either skeleton.
6. Tomb B115 (Fig. 13): three burials – northern (B6731, 35–45 years); central (B6730, 6–7 years); and southern (B6733, 15–18 years). They are simultaneous since they are well preserved, intimately placed beside each another without damage to their 'neighbours', and intertwined. The right arm of B6733 was placed above the arm, chest and pelvis of B6730. The right leg of B6733 was placed above the legs of B6730 and B6731. The right arm of B6730 was placed above the hand of B6731. The order of placement was probably B6731 first, B6730 second, B6733 last; but the interval of time must have been very short. We note that the northern burial (B6731) seems to lack the right arm.
7. Tomb B116: three burials – northern (B6732, 30–40 years); central (B6734, 12–15 years); and southern (B9494, 18–25 years). It is difficult to assign some arm bones to specific skeletons. According to the excavation files, the arms were folded, but the plan suggests that the external burials had one extended and one folded arm. Anyhow, the burials match each other and are very close. We cannot determine the exact order of placement, but all are from one 'event'.
8. Tomb B142 (Fig. 14): an exceptional tomb with two burials: an adult B9510 (40–50 years old) *above* burial B9511 (age/sex unknown, but not a small child). The lower burial is better preserved (normally the opposite happens). This suggests that the damage to the upper burial was caused by post-depositional (perhaps recent) disturbances. The two burials are

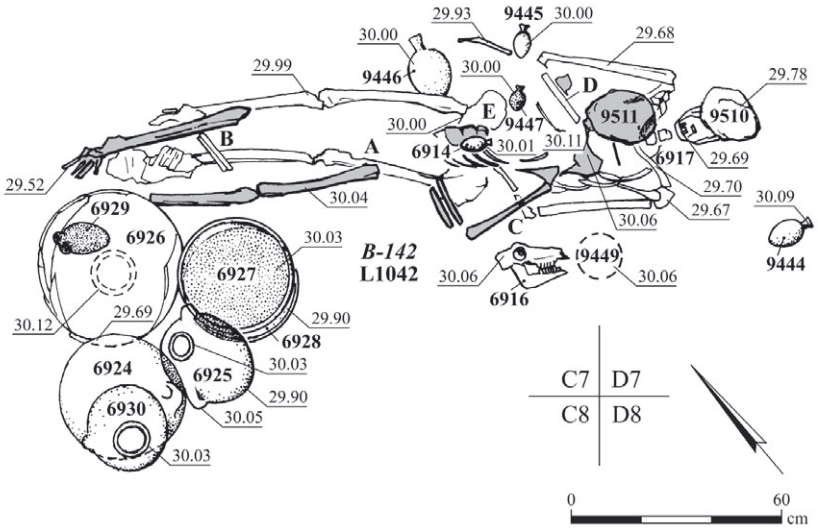



Fig. 14 Plan of Tomb B142.

simultaneous, because the upper one did not disturb the articulation of the lower. When it was placed, the lower body was intact, accepting the load without suffering disarticulation.

Twelve other tombs from Area B have remains that probably, but not certainly, belong to simultaneous burials (Table 4):

Table 4 Possible Simultaneous Pit Burials – Area B

| No. | Tomb | Details | Figures |
|---|---|---|---|
| 1 | B48 | 1 adult, 1child, facing each other, very close, skeletons fully preserved; the child's arm is perhaps under the adult's arm. | |
| 2 | B49 | 2 adults (18–25, 35–45 years old), close but without disturbing each other; sharing a large bowl, probably placed above the feet of both. | |
| 3 | B81 | 3 children: one incomplete, two almost complete. | |
| 4 | B86 | 2 adults, legs perhaps combined, but feet not preserved. | |
| 5 | B100 | 2 adults (30–40, 15–20 years old), perfectly preserved beside each other, the arm of one (B6561) is missing. | |
| 6 | B101+108 | 2 adults; one badly preserved, exact relations unclear. | |
| 7 | B123 | 3 children, 9–10 years (B6787); 2–3 years (B6786); and 2–3 years. Preservation is not very good, yet the right leg of B6785fits the position of the right foot of B6787. The head of B6785 was maybe placed on the feet of B6760. The order of positioning was first B6786, second B6787, finally B6785. | Fig. 15 |
| 8 | B135 | 1 adult, 30–40 years old (B9516), 1 child 4–5 years old (B9517). The tomb is not well preserved; the skeletons are close, but not intertwined. | |
| 9 | B149 | 1 child 6–7 years old (B9472=B6972), 1 adult 18–25 years old (B9473 =B6973). They rest close to each other, but are not intertwined. | |
| 10 | B159 | 1 male 30–40 years old (B9078), one child 9–10 years old (B9079). The two perfectly match in position, the child placed after the adult, covering the edge of his dagger, perhaps due to movement after decomposition. The time interval must have been short. | Fig. 16 |
| 11 | B167 | 2 adults: northern (B9124, 30–40 years old); and southern (B9125, 18–25 years). Placed in close proximity without disturbing each other. Most likely simultaneous. | |
| 12 | B168 | 3 burials: eastern (B9197, 20–30 years old, skull a bit tilted); central (B9198, 20–25 years); and western (B9199, 9–10 years, skull seems dislocated). B9199 partially above B9198. They could be two parents and a child – but we lack decisive proof. | |

Notes: total 12 tombs, 27 burials.

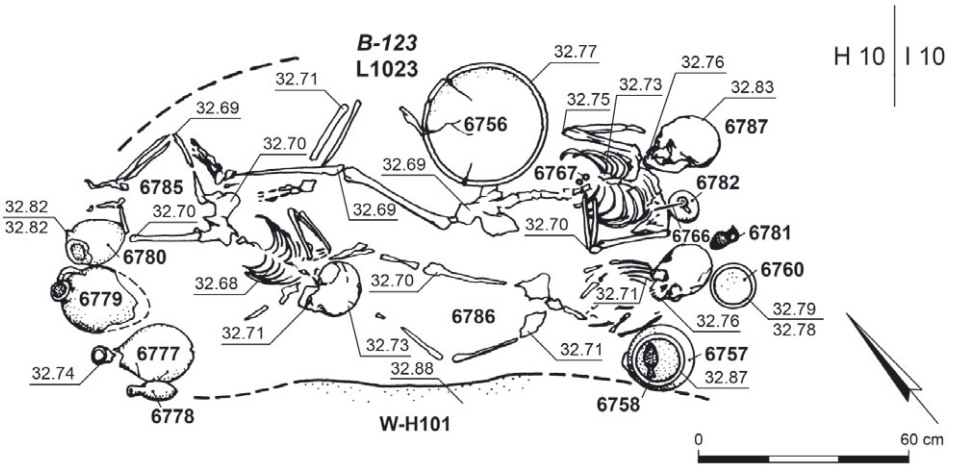



Fig. 15 Plan of Tomb B123.

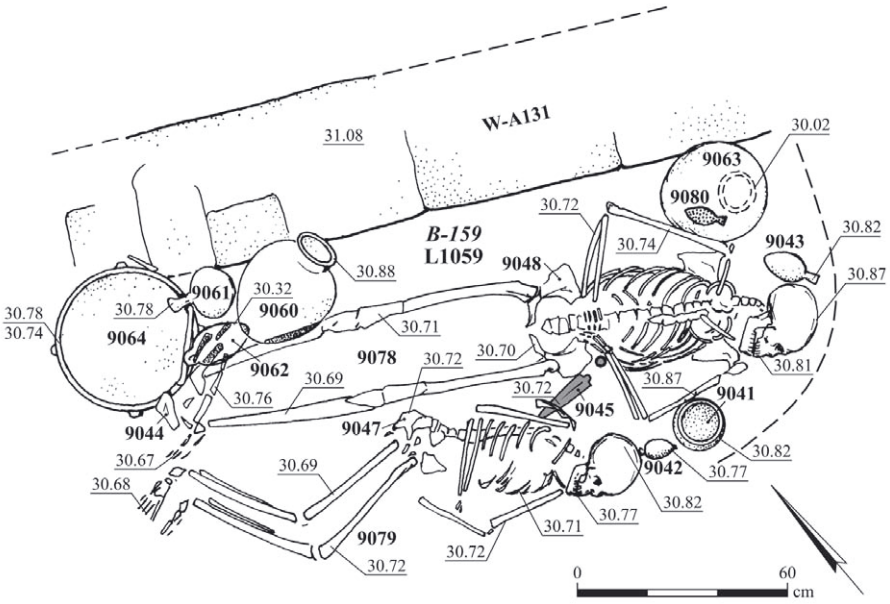



Fig. 16 Plan of Tomb B159.

The Rishon le-Zion Area B simultaneous burials were 'intimately' arranged side by side. Those buried together may have been family members, since they included males, females and children; but data on age/sex is limited. Some material was given for genetic analysis, but no results have been obtained. There is no evidence for violent deaths. Also the general mortality curve of the population seems natural (as reported by Vered Eshed and Yossi Nagar, who are preparing the data for the final report). The simultaneous burials often face one another (yet facial position could also be a result of decomposition, the head falling aside randomly). Often, simultaneous burials have intertwined arms or feet, yet maintain anatomical articulation.

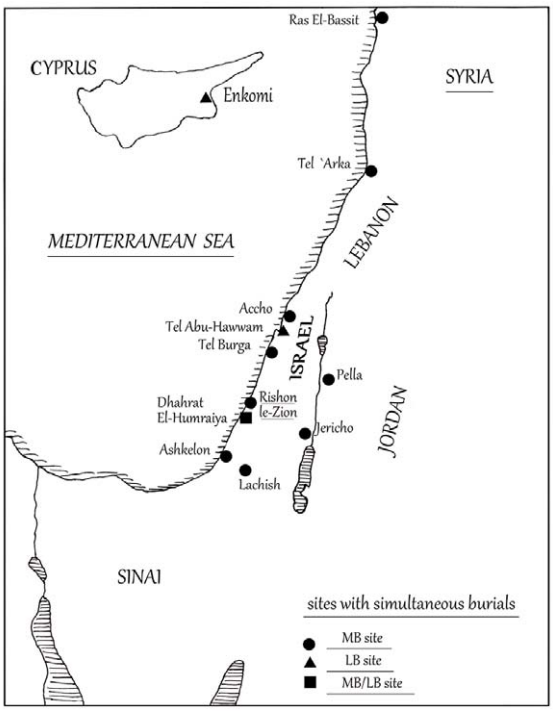
Addition of burials over time is not documented in Area B. The Area B shallow cist tombs lack a central shaft that could be re-opened for successive burial. Once a cist burial was covered it would have been impossible to re-open it and add another burial without disturbing – at least partially – the articulation of former burials. The excavators noted that the dark silt-like soil, which covered the burials, hardened considerably when dry, becoming difficult for excavating. Therefore, it was not

an easy task to expose carefully the skeletal remains. The ancients did not have at their disposal modern excavation methods (the first to use them in the Levant was Petrie in 1890). Such methods enable archaeologists to expose skeletons carefully without damaging the anatomical articulation, using various small tools (such as dental picks and brushes). The ancients also lacked the motive that we have for careful excavation of burials, that is, scientific research. Throughout history tombs have been robbed for valuables, but the robbers did not care about careful, methodical exposure of skeletons.

## Discussion

It is not an easy task to recover social meanings from the funerary record (Binford 1971; Saxe 1971; McHugh 1999; Laneri 2007). For the Intermediate Bronze Age tombs at Jericho, scholars reached very different conclusions concerning social structure from the same set of tombs (Shai 1983; Palumbo 1987).

It is important to note that simultaneous MBII burials are not limited only to Jericho and Rishon Le-Zion alone. They are documented from many sites, though the quality of the published data varies (Map 1). For old excavations, cases often remain in doubt. Simultaneous MBII tombs are known from Accho (one female adult and two children); from Tell 'Arka Level 13 Tomb 9 (two adults and a child, Thalmann 2006); from Tell Tweini tomb TW-A-000934 (a female and a c. 1 year old baby, Hameeuw and Jans 2008: 77, fig. 6);[7] and from Pella Tomb F106 (two adult females and a child, Bourke *et al.* 2007: 21–22). In a cemetery of 16 pit graves near Ashkelon, one grave included two nearly complete skeletons side by side (Erickson-Gini and Yisrael 2013: fig. 7, L129). Remains of more than one skeleton were reported from two more graves (L124, L127), but according to the plans, only one skeleton in each grave was anatomically articulated. At Tel Burga, a simple pit (L4), possibly of the MBII period, included three articulated burials of young adults, of which two were males (Golani 2011: 72, fig. 3). Simultaneous burials probably existed in cist tombs from the cemetery of Dhahrat el Humraiya on the Mediterranean coast, not far from Rishon le-Zion. Unfortunately the bad state of preservation of the skeletons prevents secure conclusions (Ory 1948: graves 2–3[?], 11, 51+52).




Map 1 Map of Sites with Simultaneous Burials

Two MBII graves with simultaneous burials were found in the Lachish 9000 cemetery, which included 17 shallow pit graves – mostly from to the MBII period (Singer-Avitz 2004: 971). Two articulated burials facing each other, a male c. 15 years old and a child c. four years old, were found in Grave 9002 (early MBII). Two articulated skeletons were discovered in Grave 9054 (MBII), both 20–25 years old (sex unknown). In addition, there was one secondary adult burial in this grave.

According to Singer-Avitz (2004: 1004), all the tombs in the cemetery were simultaneous, in that there is no evidence for re-opening of tombs or for heaps of pushed-aside burials. In her view, all the burials in a given tomb, both secondary and primary, were placed at the same time. This is possible; but only Tombs 9002 and 9054 were simultaneous in the sense defined here, that is, more than one skeleton in articulation (primary burials) buried at the same time.

At Jericho, all the simultaneous burials with clear anthropological data included both adults and

[7] For burials in Lebanon see also Gernez 2014–1015; Wagner Durand 2014. We are not aware of MBII simultaneous burials at Sidon, but not all the reports are available to us (Doumet-Serhal 2004; 2006; 2014).

children (Table 1). This seems also to be the case in other sites – adults and children were buried together at Accho, Tell 'Arka, Tell Tweini, and Lachish Grave 9002. At Rishon le-Zion too, most of the Area B simultaneous burials include adults and children; but a few have adults alone (B24, B107, perhaps also B142; cf. Lachish grave 9054).[8]

At Tell el-Dab$^{c}$a in the Nile Delta one finds burials of servants (in Stratum F) and (usually pairs of) donkeys at or near the entrances to tombs (Strata H to E/1). They accompany and are from the same time as the burials inside the tomb. However, they are not simultaneous burials as defined above, for they are not found in the same locus. Shaft tombs with multiple burials are found in Stratum D/2 (late MBII) at Tel el-Dab$^{c}$a. They are presumably family tombs, but with burials added over time (Forstner-Müller 2008; 2010; Schiestl 2008; 2009).

The phenomenon of simultaneous burials is also not limited to the MBII period: it continues in the LB period. Simultaneous burials were found at Ras el Bassit Tomb 46 (two adults and one child); Enkomi Tomb 19A (three adults – two males and one female); Dharat el Humraiya Tomb 57; Tell Abu Hawwam Tomb 6–7 (two adults, female and male); and possibly Enkomi Tomb 10 (two adults); (Darque 1996: 139; Gonen 1992: 86, 94; compare Keswani 2004: 102, but she uses the term simultaneous in a different sense, related to secondary burials). Darque (1996) suggested that these were family graves, and that the rarity of the phenomenon indicates that it resulted from accidents, or contagious diseases, which killed several members of the same family at the same time.[9] To the best of our knowledge, simultaneous burials are more common in the MB than in the LB period (based on numbers of published cases).

To the best of our knowledge, there are no simultaneous burials in the period preceding the MBII – the Intermediate Bronze Age (EBIV–MBI). In this period most of the tombs are single burials and the burials are often disarticulated (Greener 2006: 8–27; Cohen 2009:6).

Simultaneous MBII burials always appear as a small minority within larger assemblages from the same sites (compare Aspöck 2008). They are not limited to one specific region and appear in different MBII phases. It thus seems a regular, repeated burial custom. Apart from being buried together at one time, the dead share the same gamut of 'regular' MBII burials, documented in hundreds of non-simultaneous cave- and pit- tombs: the same types of tombs and of body positions, the same typical objects like jars, jugs, and bowls; the sheep/goat bones, the weapons, the personal ornaments, and so on (Kenyon 1960; 1965; Epstein 1974; Halotte 1994; 2002; Damati and Stepanski 1996; Ilan 1996; Maeir 1997; Baker 2006; 2012; Garfinkel and Cohen 2007; Gershuni 2008). There are no distinctive features that set simultaneous burials apart in terms of qualities and quantities of funerary objects. As far as the archaeological record is concerned, those dead are treated just like any other in the MBII society.

How should we explain the phenomenon of simultaneous burials? Several scenarios may be explored, but we lack clear answers:

A. *War victims.* Other than in a few exceptional cases (Jericho Tomb P19), there is no evidence for violence in MBII simultaneous burials. Since the phenomenon appears in several sites in different phases, it cannot be related to a single war. The dead include females and children, so they do not represent soldiers. Victims of war are normally buried in mass graves, in a way that differs from natural deaths in the same society. In addition, we would expect to find more evidence of violent deaths.[10]

B. *Criminals.* The explanation as burials of tomb robbers (or other types of criminals) can be safely ruled out, since the population buried in the simultaneous burials represents a 'normal' section of the society, including young children. They are buried in the same manner as other dead in this period. Execution by hanging or decapitation would be noticeable in skeletons, and 'heavy' criminals are often differentiated in death, for example, by burial outside regular cemeteries or with few or no burial gifts (Linderlauf 2001: 88–89; Olyan 2005: 606).

C. *Ritual Killing.* People were killed as part of rituals in various cultures, for example, retainers executed in the Royal Tombs of Ur (Wooley 1965; Davies 1981; Law 1985; Galvin 2005; Morris

[8] In the group of possible simultaneous tombs – Table 4 – the picture is as follows: five tombs contain adults with children (B48, B135, B149, B159, B168); five tombs adults only (B49, B86, B100; B101+108; B167); and two tombs of children only (B81; B123).

[9] For early Iron Age burials with two individuals from Greece see Ruiz-Gálvez 2007.

[10] Not all violent deaths are reflected in the skeletons, for example, poisoning. Yet such means were hardly used on a large scale against captives.

2014). Such a custom can explain some features of MBII simultaneous burials: the limited scale (few cases in each community); the inclusion of males, females and children; and similarity to other tombs. If death came by poison, the skeletons could remain complete. However, ritual murder is very rare (while simultaneous MBII burials are not), and is usually related to high-ranking individuals or to extreme circumstances (e. g. the sacrifice of sons during an enemy siege). The vast majority of MB simultaneous burials are not of especially high status, and they appear as part of 'regular', typical burials of this period.

D. *Famine*. We can rule out this explanation, because famines usually affect general populations (though different classes may be affected differently: Grada 2009; Kleber 2013). In addition, some simultaneous tombs include ample food gifts, such as portions of sheep/goat (Horwitz 2001).

E. *Diseases and Epidemics*. The fact that simultaneous burials included males, females and children can be explained by epidemics affecting entire populations (Greff 2005; Finkel and Geller 2007; Dutour 2013). This also fits the distribution and date of the simultaneous tombs. We may assume that there were several outbursts, or several diseases operating over time. A minority of the society perished, but still received the usual burial treatment of this period. Therefore, it could not be a horrible plague, which prevented the performing of elaborate burial rituals. Yet, it must have been severe enough to kill groups of people, perhaps even from the same families. It remains a possible explanation, but conclusive evidence is lacking.

F. *Communal Burials*. We tend to assume that MBII tombs are family tombs. However, could the simultaneous burials belong to communal, not family tombs? Those who died in the entire community during a certain period were "gathered" from different families to one tomb or burial niche. While theoretically possible, we do not believe that this is a convincing explanation. Family ties are very important in most human societies, and family members are usually responsible for treating the family dead. When "communal" cemeteries appear in Rome, the types of burial change, but the family still maintains its responsibility for burial (e. g., Bodel 2008: 180, 189; Olyan 2005: 603–610; Genesis 49–50). Communal burials are often limited to certain segments of the society, such as monks and nuns, poor people, or criminals (Linderlauf 2001). Yet MBII simultaneous dead are not differentiated from the rest of the community and do not show signs of exceptional circumstances, except the simultaneous mode of burial.

## Conclusion

In this paper we call attention to the enigma of simultaneous MBII burials in the Southern Levant and discuss the typology, geographical distribution, definition and possible explanations of these burials.

Perhaps the simultaneous burials relate to several factors, rather than one. For example, those buried simultaneously in Jericho Tomb P19 were violently killed for some offence or by an enemy, while the many children and few adults in Jericho Tomb H18 died in an epidemic. Since we do not know the exact structure or structures of MB families, we cannot be certain if these tombs represent family burials. Simultaneous burials appear in both pit and shaft tombs, so the tomb type is not a factor. The picture is striking since on the one hand, small groups of people from the same settlements are buried at the same time, not something that happens on a daily basis in peaceful conditions. If the tombs were family tombs, several deaths at the same time in a family must have been a shock to the survivors. On the other hand, the dead received the same regular treatment of non-simultaneous MBII burials, as if their death was just like any natural death in the society. Such a "business as usual" type of burial does not fit well with deaths by wars, horrible crimes, or lethal epidemics. At present we lack a convincing explanation for this tension.

Simultaneous burial is a meaningful phenomenon that merits further study. It is to be hoped that careful excavation and publication of more burials in the future will be able to solve this riddle.

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# IMPORTED POTTERY FROM ABYDOS: A NEW PETROGRAPHIC PERSPECTIVE

*by Ulrich Hartung[1], E. Christiana Köhler[2], Vera Müller[3], Mary F. Ownby[4]*

## Part I – Archaeology

*Introduction*

Abydos is an important site in the Egyptian Nile Valley, approximately 500 km south of Cairo, situated along the western edge of the flood plain near the village of Araba el-Madfuna. Its archaeological remains stretch back well into the early prehistoric period and it has been occupied continuously to this day. The significance of this site for the culture history of ancient Egypt lies in its role during the emergence of the early territorial state of Egypt around 3100 B.C.E. on the one hand, and in it being an important religious center in later Pharaonic times on the other.

This paper deals with an aspect relevant to the early history of Abydos, in particular with archaeological material from the necropolis at Umm-el-Qaab, which comprises a Predynastic cemetery as well as a royal necropolis for much of the Proto-Dynastic and Early Dynastic period (Table 1; Fig. 1). The site has been investigated archaeologically since the late 19th century by French and British excavators and again from the late 1970s onwards by a mission of the German Archaeological Institute in Cairo under the direction of Werner Kaiser and Günter Dreyer.[5]

It was W.M. Flinders Petrie who was the first scholar to describe ceramic vessels from the 1st Dynasty royal tombs that he had thought to be of foreign origin due to their un-Egyptian characteristics in clay fabric, quality, surface treatment and decoration.[6] What Petrie had initially believed to be imported pottery from the Aegean region later entered the literature under the label 'Abydos Ware' and became generally known to be Early Bronze Age (=EB) II imports from the Levant. However, discussions surrounding the suitability of the term 'Abydos Ware' as well as the precise place of manufacture of such material has been on-going ever since.[7]

The label 'Abydos Ware' itself has been generally rejected by archaeologists simply because it does not represent a ceramic ware at all, but rather a conglomerate of at least four different wares with variable surface treatment, clay fabrics, morphology, quality and most probably places of manufacture.[8] And yet, the term is still used by many,[9] most likely because its association instantly brings to mind those Levantine EB II imports first discovered by Petrie at Abydos which have been the object of so many studies throughout the 20th and 21st centuries in Egypt and the Levant. Therefore, the authors of this paper will refrain from applying this label directly to any of our imports, but refer to it only where appropriate for better comparability.

EB Levantine imports in Egypt have been of great significance to both archaeologists working in Egypt as well as in the Levant. They offer valu-

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1 German Archaeological Institute, Cairo. Author of the section on the material from Naqada IID and IIIA tombs in Cemetery U.

2 Institute for Egyptology, University of Vienna. Author of the introduction, conclusion and section on the material from the Naqada IIIB Tomb U-y and from Cemetery B.

3 Institute for OREA, Austrian Academy of Sciences, Vienna. Author of the section on the material from the tomb of King Den.

4 University of Arizona. Author of the section on the petrography.

5 See the preliminary excavation reports by Dreyer et al. included in the Bibliography. The project has been funded primarily by the Deutsche Forschungsgemeinschaft (DFG) and the German Institute of Archaeology in Cairo (DAIK).

6 Petrie 1901, pl. LIV; Petrie 1902, pls. VI:17, VIII.

7 E.g. Wright 1937, 59; Saad in Emery 1938, 50 (Type 12); Emery 1961, 204; Hennessy 1967; Amiran 1969, 59; Esse 1991; Kantor 1992; Stager 1992; Porat and Adams 1996; Porat and Goren 2001; Hendrickx and Bavay 2002; Sowada 2009; Braun 2011; Köhler and Ownby 2011; Köhler and Thalmann 2014; Müller 2014; Sowada 2014.

8 Cf. Braun 2011, 977–78; 2012.

9 E.g. Porat and Goren 2001; 2002; Wengrow 2006: 148; Sowada 2009, 39–44; 2014; Kafafi 2011; Miroshedji 2014, 320.

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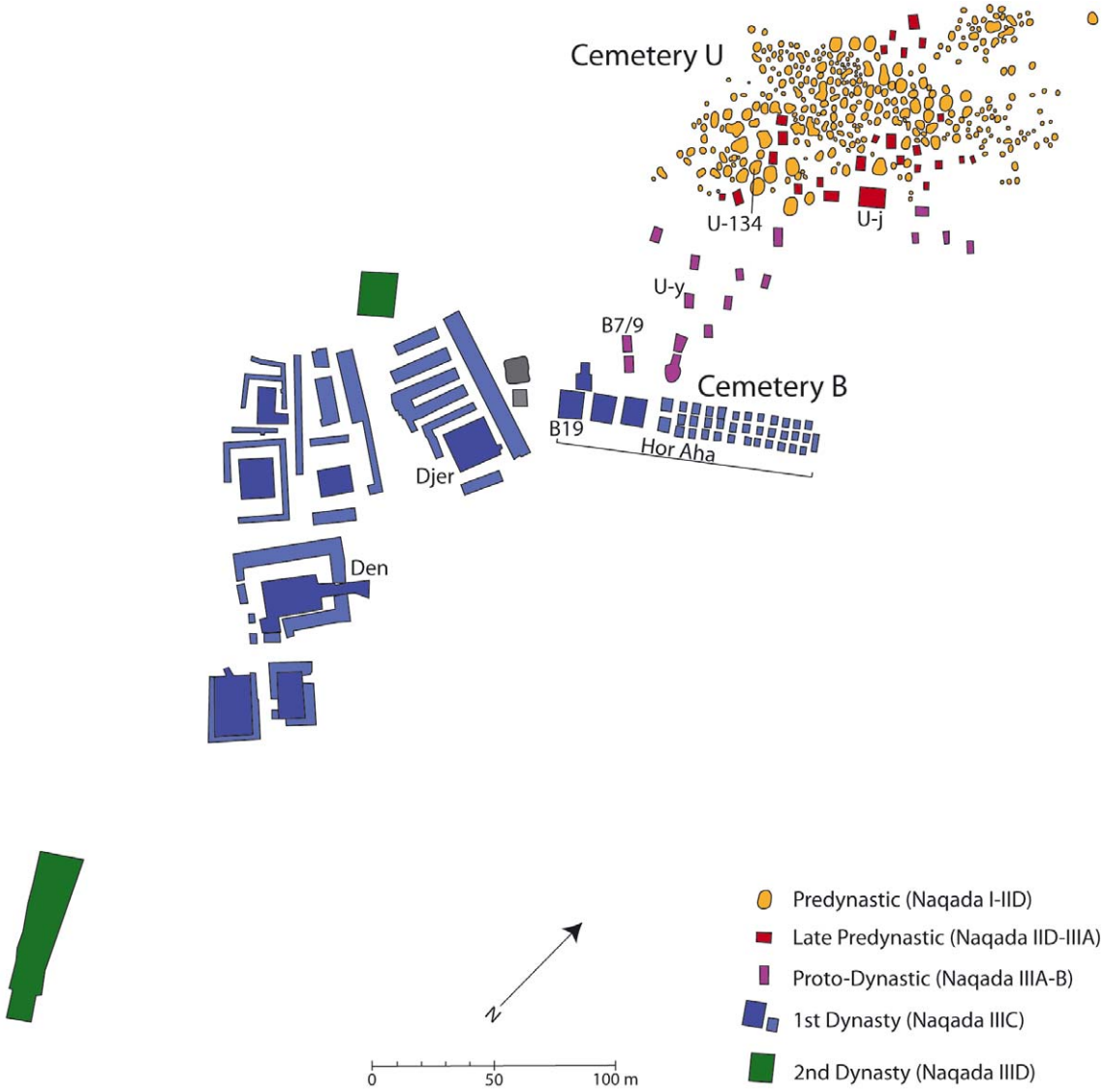


Fig. 1 General Plan of Abydos – Umm el-Qaab (with those tombs highlighted from where samples discussed in the text derive)

Table 1 – Chronological overview of the primary periods of occupation at Abydos – Umm el-Qaab

| **Ca. years B.C.E.** | **Area / Tombs** | **Relative Chronology** | **Historical chronology** |
|---|---|---|---|
| 2800–2700 | Tombs of Peribsen and Khasekhemwi | Naqada IIID | Late 2nd Dynasty |
| | Hiatus | | |
| 3050–2900 | Tombs of Djer, Wadji, Den, Adjib, Semerkhet, Qaa | Naqada IIIC1–3 | 1st Dynasty |
| 3200–3050 | Cemetery B | Naqada IIIB–C1 | Proto-Dynastic / Dynasty 0 – early 1st Dynasty |
| 3900–3200 | Cemetery U | Naqada I–IIIB | Predynastic – Proto-Dynastic |

able insights for interregional synchronisms and exchange, given that such imported material is today known to occur at various other contemporary sites in Egypt, including non-elite contexts, in considerable quantities and covering an almost uninterrupted sequence of variable intensity from the Predynastic to the late Old Kingdom periods. By far the largest number of early Levantine imported ceramic vessels still comes from the site of Abydos–Umm el-Qaab, and the authors take the opportunity to review the evidence with a fresh look at the chronology and possible places of manufacture.

*Research questions*

A study by two of the authors on imported ceramic vessels from the Early Dynastic Memphite necropolis at Helwan yielded significant results on the origins of Levantine imports found in 2nd Dynasty contexts.[10] Although of a slightly later date, four of the five imported vessels included in the study were relatively small polished, ovoid jars or juglets which showed great affinities to classical 'Abydos Ware' imports. The petrographic analysis revealed that their most likely place of manufacture was in northern Lebanon, which at the time stood in contrast to a strong trend to view 'Abydos Ware' as a product of the southern Levant.[11] One possible explanation evoked at the time was that, as the Helwan imports are of a later date, there may have been a shift in interrelations with Egypt from the southern to the northern Levant over time, i.e. from the 1st to the 2nd Dynasty. The other possible explanation was that the notion of the origin of 'Abydos Ware' itself was perhaps not entirely settled and more complex than widely appreciated.[12]

The latter had already been problematized by the discussion that arose from the analysis and publication of the large group of EB Ib imports from Tomb U-j by another of the present authors.[13] The results of various scientific methods, including X-ray Fluorescence (XRF), Neutron Activation Analysis (NAA) and petrography, proved to be inconsistent and difficult to interpret since they did not produce an unequivocal provenance for the vessels.[14] Especially the contribution by Porat and Goren, who concluded that the assemblage of vessels in question was almost entirely of Egyptian manufacture, triggered a vivid discussion in the field.[15]

It became obvious that more work needed to be done on this largest assemblage of EB I-II imports, at the site where such vessels were first discovered – Abydos. This present paper summarizes the results of a pilot study on 20 ceramic samples from different contexts conducted in fall 2014 (Table 2).[16]

**Cemeteries U and B**

Cemeteries U and B represent the northernmost area of Umm el-Qaab where tombs have been discovered to-date. The separation of these two areas from each other and from the rest of Umm el-Qaab is of modern origin; it does not reflect distinct topographical features or clearly segregated clusters of tombs. This distinction has also been subject to change in the course of archaeological investigations over the 20th century. Nevertheless, the occupation of these areas in relation to the rest of Umm el-Qaab does reflect a general trend in horizontal stratigraphy that describes a chronological development from north to south (Fig. 1).

The Predynastic Cemetery U represents the earliest phase of occupation at Umm el-Qaab and comprises some 650 graves dating from the early Naqada I Period until the early Naqada III Period (ca. 3900 – 3300 B.C.E.). These graves were excavated by the German mission between 1985 and 2002 and produced archaeological data that radically changed our view of Egyptian Predynastic

[10] Köhler and Ownby 2011.

[11] Henessy and Millet 1963; Hennessy 1967; Amiran 1969; Porat and Adams 1996; Nakano 1998; Porat and Goren 2001; 2002; Hendrickx and Bavay 2002; Campagno 2008.

[12] See also earlier studies by Wright 1937; Henessy and Millet 1963; Henessy 1967; Esse and Hopke 1986; Kantor 1992; Sowada 2009, 41.

[13] Hartung 2001; 2002.

[14] Cf. Pape 2001; McGovern 2001; Porat and Goren 2001.

[15] It also caused some archaeologists to search for possible manufacturing centers where Levantine potters may have operated in Egypt; cf. Hill 2011; Hill and Herbich 2011.

[16] The authors are grateful to the Ministry of State of Antiquities in Egypt for granting permission to transfer the samples from Abydos to the Institut Français d'Archéologie Orientale in Cairo. We also appreciate the close cooperation of Anita Quiles and Nadine Mounir Iskander at the IFAO and the funding provided by the University of Vienna to conduct the petrographic analyses.

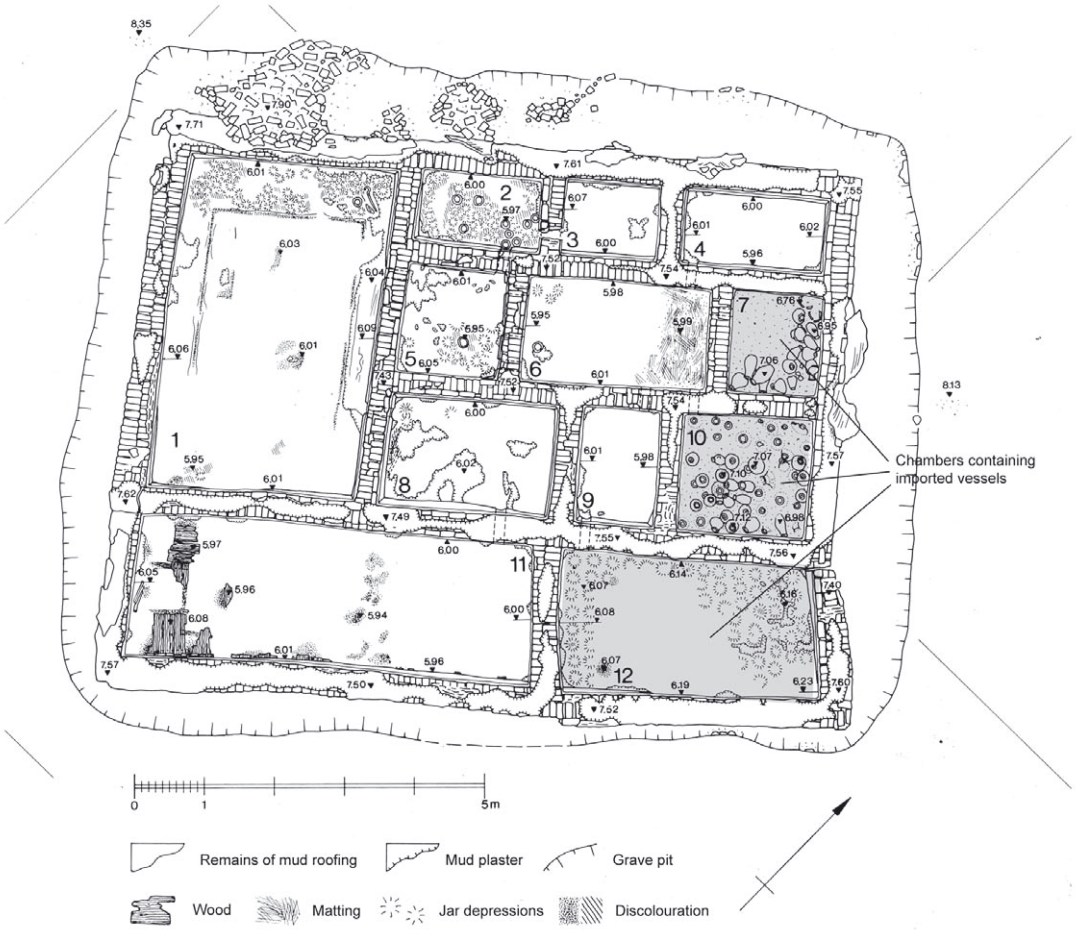


Fig. 2 Plan of Tomb U-j at Abydos

culture and society.[17] Imported Levantine pottery only appears in the later phase of cemetery occupation (from Naqada IID – ca. 3350 B.C.E. onwards) but comprised almost 500 vessels, the majority of which were from one single context, Tomb U-j.[18] The frequency of imported vessels drops significantly thereafter, although imports do not cease entirely.

*Imported jars from Naqada IID and IIIA tombs*

This study includes five ceramic samples from Predynastic tombs, i.e. one from Tomb U-134 and four from Tomb U-j. Being the largest structure in this cemetery, Tomb U-j is without a doubt the tomb of a late Predynastic ruler.[19] On the basis of the recovered Egyptian pottery, it has been dated Naqada IIIA1; the analysed remains of wood provided traditional C14 dates around 3320 B.C.E.[20]

Tomb U-j measures approximately 12.5 × 10 m and comprises 12 chambers of different size (Fig. 2). Although badly plundered, imprints and discolorations on the floor of the chambers and the distribution of pottery in the fill allow us to reconstruct the arrangement of the tomb equipment, at least in part. For instance, in Chambers 1 (beside a

[17] For more detail on previous research in this area, cf. Dreyer et al. 1990, 54–62; 1993, 24–56; 1996, 13–47; 1998, 79–123; 2000, 46–89; 2003, 69–85; 2006, 71–73; 1999; Hartmann 2011; in press; Hartung 1998; 2001; 2010; in press.

[18] Hartung 2001, 47.

[19] For a comprehensive publication of this tomb, see Dreyer 1998.

[20] Boehmer, Dreyer and Kromer 1993; for more recent absolute dates see also Dee et al. 2013.

wooden shrine, which probably contained the burial), 2 and 5 more than 500 jars of the Egyptian Wavy Handled class, some of which inscribed, may have been stored. Other chambers yielded either a large amount of Nile silt Rough Ware vessels such as beer jars, bowls and baking plates, or predominantly marl clay storage vessels. In Chamber 11 remains of several boxes made of cedar wood were preserved.

Chambers 7 and 10 yielded more than 200 ceramic vessels in a primary context and deposited in several layers. These vessels appear to be completely un-Egyptian, not only in terms of their shapes and decoration, but also with regard to their clay paste and temper, which differ fundamentally from the Nile silt and marl clay fabrics otherwise common in Predynastic Egypt.[21] Further, Chamber 12 must have also contained such jars, because fragments belonging to at least 150 additional imported vessels were found in its fill. Jar imprints on the floor and the walls suggest that almost 500 jars were deposited in layers also in this chamber.[22] In total, we estimate that this tomb once contained some 700 imported pottery vessels amounting to ca. 4500 litres of content volume.

As a general pattern, the vessels represent restricted vessel shapes and most probably contained wine.[23] Numerous fragments of Nile mud seals with seal impressions found in the three chambers where the imported jars were discovered[24] suggest that wine was considered a valuable commodity and that the wine jars – in contrast to the local Egyptian pottery in the tomb – had been monitored and sealed by an authority, perhaps at the point when this shipment arrived in the Nile Valley.

Although other individual imported jars are known from various Predynastic cemeteries and settlement contexts, the finds from Tomb U-j at Abydos represent the largest assemblage of imported pottery so far known for Predynastic Egypt. Additionally, three other roughly contemporary tombs probably also contained imported pottery, namely U-a (ca. 30 vessels), U-o (6 vessels) and U-k (some 40 vessels), but no vessel was found in a primary context. Two further jars may be ascribed to Tomb U-134 (dating to Naqada IID), and there were possibly other tombs with imports but this is impossible to ascertain due to the general disturbance of the cemetery.[25]

The Cemetery U assemblage of imported pottery is not very homogenous; the macroscopic observation of the vessels' clay fabric, their method of manufacture, surface treatment and quality reveal significant differences. Several ware groups can be distinguished which apply to a specific range of vessel shapes (Fig. 3 and 4): Jars of the largest Ware groups 1 and 2 constitute the main bulk of the U-j inventory (amounting to 43 % and 28 % of the assemblage, respectively), other groups (e. g. Ware group 3 with 11 % and Ware group 4 at 8 %) are much smaller or may even apply only to individual jars.[26] However, when comparing the U-j inventory with that of other tombs there are also remarkable differences suggesting that the assemblage in U-j represents a discrete group. Also, considering the variation between the ware groups it is obvious that the use of diverse clays and tempers, the variable technologies of manufacture, the application of different kinds of handles and decoration represent distinct potters' skills and styles. This would suggest different pottery making traditions and hence probably different places of provenance. On the other hand, the shapes of the vessels follow a degree of standardisation; in all the main groups plain bottle-shaped jars with narrow neck and mouth prevail (Fig. 3:a-b), while less restricted jars occur only occasionally (Fig. 3:c-d). This could be explained by the simple fact that bottle-shaped jars are much better suited for long-distance transport of liquids than vessels with wider mouth. Hence, the U-j assemblage may reflect a general effort of potters in different areas to adapt their production to the specific demands of the wine trade with Egypt. More typical wide-mouthed vessels may have been necessary to supplement the consignment if not enough special wine jars were available.

While local Egyptian wine making is not attested prior to Dynasty 0, viticulture and wine

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[21] For a detailed discussion of this material see Hartung 2001.

[22] Several vessels today in the Egyptian Museum Cairo (CG 11652–57, 11663), the Louvre (E 28005–9, 21807) and the British Museum (BM 27747–49, and perhaps also no. 58219) might come from this chamber, presumably removed by Amélineau during his excavations more than 100 years ago (*cf.* Amélineau 1899: pl. XIV and XV).

[23] Feindt 2001; McGovern, Glusker and Exner 2001.

[24] Hartung 2001, 216–238.

[25] Hartung 2001, 34–44.

[26] Hartung 2001, 15–34, 72–209.

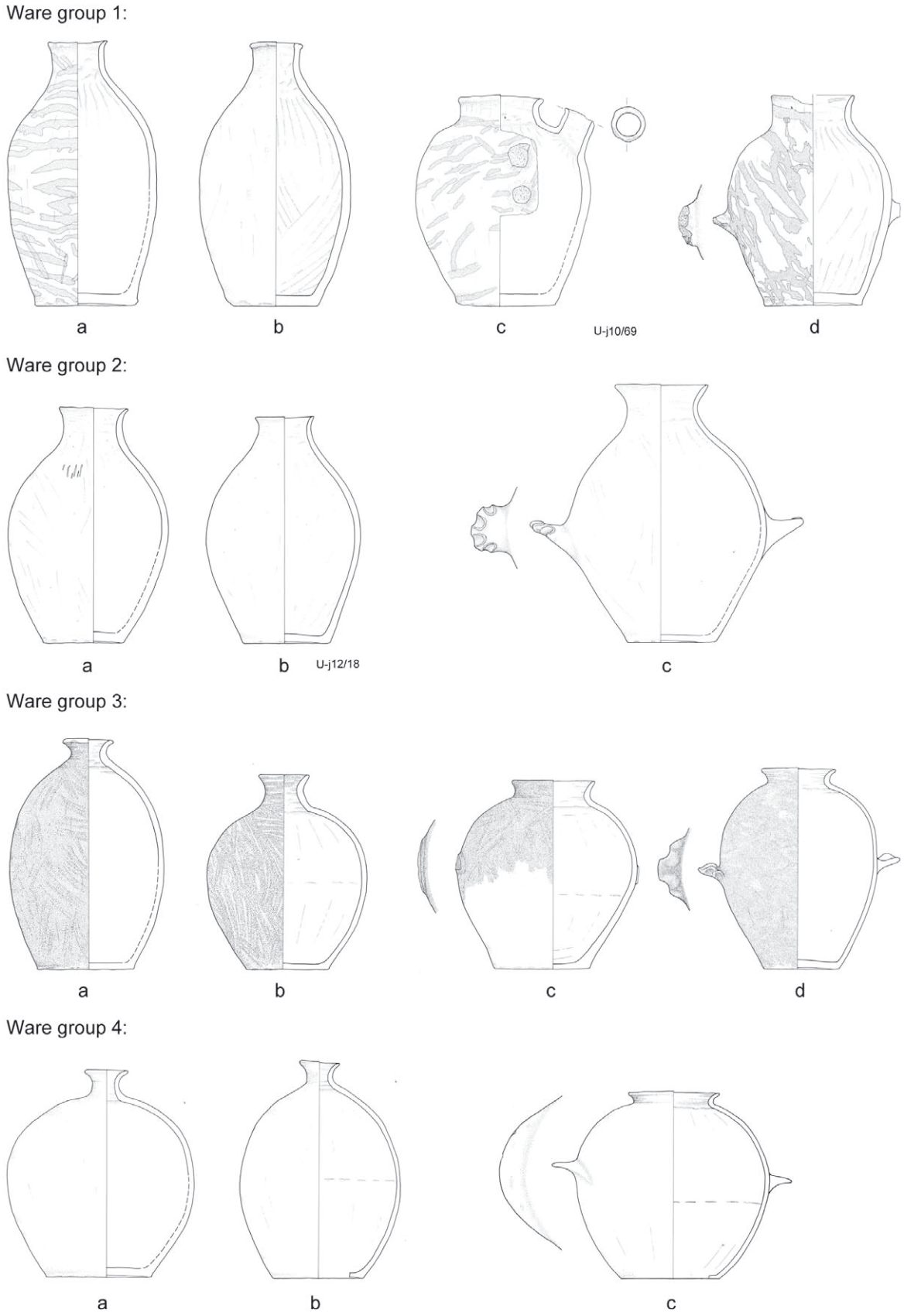



Fig. 3 Overview of shapes of Ware groups 1–4 from Tomb U-j; scale 1 8.

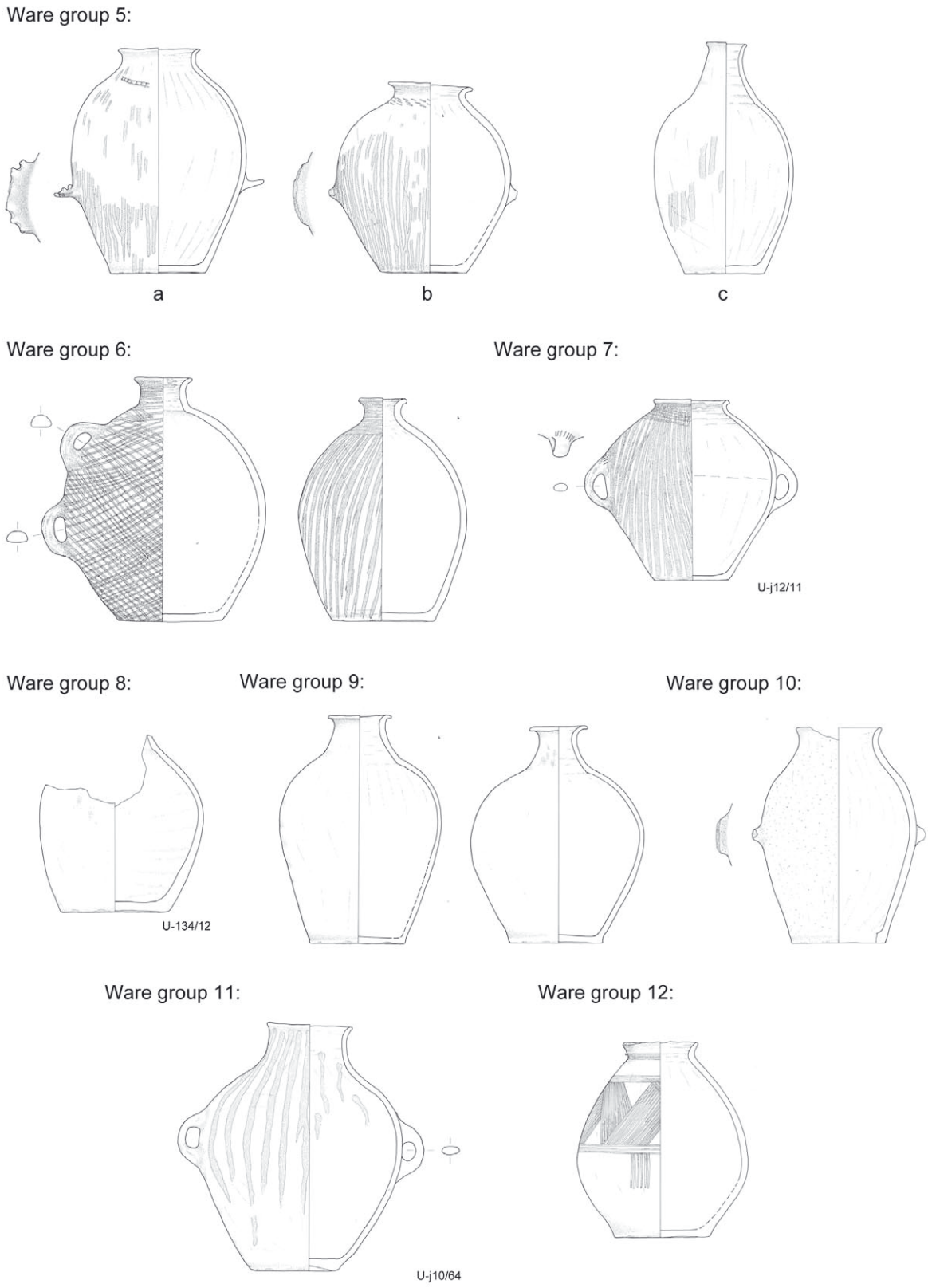



Fig. 4 Overview of shapes of Ware groups 5–12 from Tombs U-134 and U-j; scale 1 8

making seem to have started much earlier in the Levant,[27] suggesting that this region was the most likely provenance of wine in Predynastic Egypt. However, it is very difficult to find good parallels for the U-j jars in Levantine contexts, especially for the characteristic bottle-shaped jars. There are only a few vessels in the local EBI Levantine pottery assemblages, e. g. jars with vertical handles, ledge handles and with painted decoration, which can be considered comparable.

*Previous natural scientific analyses*

In order to establish a solid basis for the classification and to determine the possible provenance of the different ware groups, more than 200 vessels were previously sampled and analysed by different methods. Unfortunately, the findings of these analyses have not yet provided a consistent picture. Whilst the results of Neutron Activation Analysis (NAA)[28] and X-ray Fluorescence (XRF) analysis combined with petrographic analysis[29] left no doubt about the non-Egyptian provenance of the vessels, the results of another petrographic analysis conducted by N. Porat and Y. Goren[30] proposed a production place within Egypt.

The NAA data were compared with samples in the database used at the time with the nearest chemical matches indicating the possible provenance of the analysed jars covering an area from the northern Transjordanian plateau through the Jordan valley to the southern Palestinian hill country and Petra region.[31] The combination of XRF and petrographic analysis allowed for the definition of mineralogical and chemical subgroups[32] which were partly reflected by variations in the vessels' shapes and which confirm the general range of ware groups. The chemical composition of the clay also provided some information about the provenance of the vessels; for example the distinctively high percentage of chromium, vanadium and nickel in Ware group 1 samples is completely alien to Egyptian clays but known from Syria. Group 4 is characterized chemically by a very high iron content, which may point to the area of Lebanon. Samples of common red-striped painted ware from Tel Erani proved to be petrographically and chemically identical with group 5 vessels.[33]

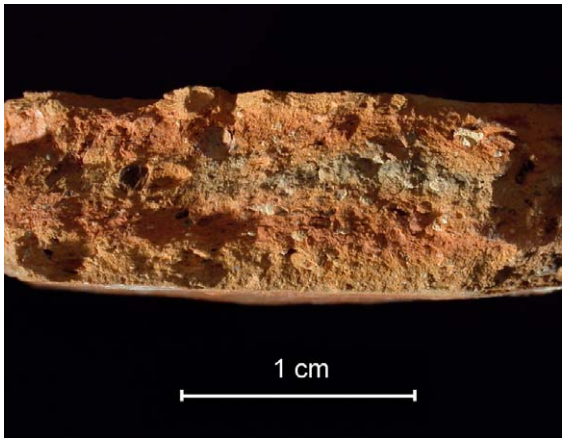
On the other hand, Porat and Goren defined several petrographic groups and noticed a considerable mixture of clays, as well as combinations of clays and temper that are not known in pottery assemblages from the region of the southern Levant.[34] As a result four groups of jars relating to the provenance of the vessels were established, namely *"definitely non-Canaanite"*, "*probably not Canaanite"*, *"possibly Canaanite"*, and finally "*definitely Canaanite"*. The latter group comprises only very few samples; two samples with basalt temper apparently originating in the central Jordan valley and Lower Galilee (Ware group 7, *cf.* Fig. 4 = Sample #3), three grog tempered samples without specific origin (Ware group 9, *cf.* Fig. 4), and two samples made from a loessy clay which may come from the southern coastal plain or north-western Negev.[35] Although most of the raw materials used for these jars can be found in the area of the southern Levant, the mixing of clays and temper appeared to be unknown to the EB pottery production in this region. Also, the fact that vessels of apparently similar shapes were made of different clays caused Porat and Goren to conclude that all the vessels must have been manufactured in the same area outside the southern Levant, and most likely in the Egyptian Wadi Qena, i.e. close to Abydos. Following this conclusion, the potters would have been either Egyptians who imitated Levantine ceramics and catered for Egyptian preferences or Levantine potters living and working in Egypt.[36]

*Samples analysed in this study*

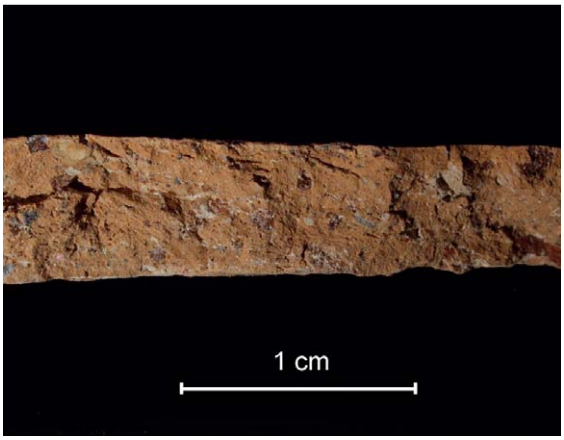
Although the small number of samples in this pilot study cannot be considered representative, the results from the new petrographic analysis presented here (see Part II) are very encouraging and seem to be a first step in the right direction to solve the apparent contradictions. A probable northern Levantine origin of the samples from Ware groups 1 and 2 (Samples #1 and #4, Figs. 3 and 5), i.e. the most substantial part of the U-j assemblage, would considerably change our per-

27 Hartung 2001, 68–69, with further references.
28 McGovern 2001.
29 Pape 2001.
30 Porat and Goren 2001; 2002.
31 McGovern 2001, 408.
32 Pape 2001, 443–460.
33 Pape 2001, 462–464; *cf.* Fig. 3.
34 Porat and Goren 2001, 468–476.
35 Porat and Goren 2001, 477–479.
36 Porat and Goren 2001, 479–481.

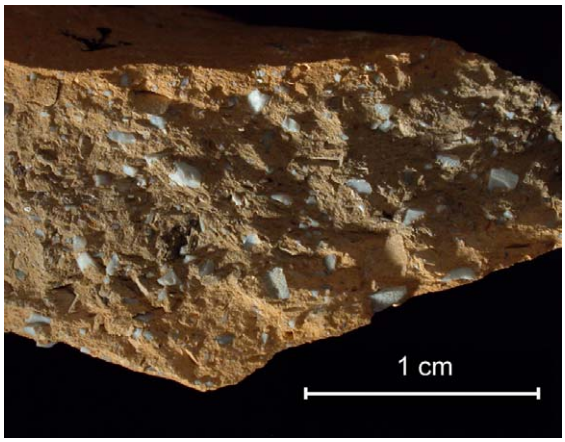

#1



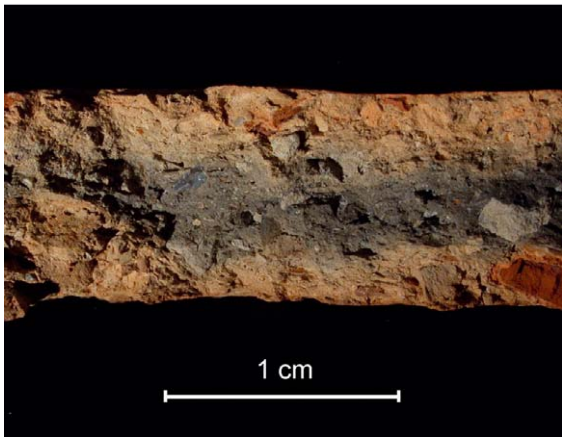

#2




#3




#4




#5

Fig. 5 Photographs of fractures of Samples #1–5; (c) DAIK, photos by F. Barthel

spective on Egyptian-Levantine interconnections. The samples belonging to Ware groups 7 and 11 from Tomb U-j (Samples #2 and #3, Figs. 4 and 5) seem to point in the same direction. With the new results, the U-j assemblage reflects a much wider trade network than hitherto known, comprising not only the southern Levant but also likely the northern Levant. Given the quantity of the U-j jars, and considering that Levantine potters obviously adapted their production to the demands of interregional commodity trade, such a substantial shipment was surely not the result of sporadic contacts but of well-established networks and well-planned logistics. That these networks reached back even further is indicated by the analysed jar base from Tomb U-134, which dates Naqada IID (sample #5, Ware group 8, Figs. 4 and 5), but also by the remains of a coffin made of cedar wood found in the contemporary Tomb U-127.[37]

Further, copper objects with high arsenic/nickel content from contemporaneous tombs at other Upper Egyptian sites and the still earlier Lower Egyptian settlement of Maadi (dating to Naqada I-IIBC) would suggest a source in Anatolia. Maadi provided additional evidence, such as rectangular stone houses with rounded corners primarily known from northern Palestine and Lebanon as well as imitations of the so-called Esdraelon-ware.[38] Finally, apparent imports in Buto phase III (dating late Naqada II-early III), which comprise a number of unusual ceramic bowl fragments that are comparable to northern Levantine coastal and Amuq plain (Phase F) ceramics, are noteworthy and also ought to be re-investigated in the future.[39]

In this context, the maritime trade along the coast[40] also gains new significance, since the most suitable method of transport of commodities, like the U-j wine jars, from the northern Levant would have been by boat, and less likely by overland donkey caravan.

### *Imports from later tombs in Cemetery U and from Cemetery B*

Now that excavations and primary data analysis of the material are complete and currently being prepared for publication, the German mission can contribute more insights to the discussion about imports from the subsequent phases.[41] These derive from tombs in Cemetery U which post-date Tomb U-j, and in particular from Cemetery B. Because all of these were plundered in antiquity and excavated repeatedly over the past 120 years, only very few imported pieces can be assigned to the individual tomb assemblages with certainty. In total, more than 600 imported vessel fragments were recorded in the fill, spoil heaps and debris associated with the tombs in Cemetery B, including those of Iry-Hor (B0/1/2), Ka/Sekhen (B7/9) of Dynasty 0, possibly that of an unnamed ruler (B40/50), Narmer (B17/18) as well as the large complex of King Hor Aha (B10/13/14/15/16/19) of the early 1st Dynasty (Fig. 1). There is little doubt now that these tombs also contained ceramic imports which may be expected given the elite status of their owners. But it is important to remember that due to the significant transformation processes that almost all of the tombs in Umm el-Qaab were subject to, it is very possible that the pottery fragments collected from Cemetery B include material from adjacent other 1st Dynasty tombs and vice-versa. The main chamber of King Djer is ca. 30 meters distant from the westernmost chamber B19 of Hor Aha. It is therefore likely that a good part of the highly burnt, and thus unclassified pieces (N=44) derive from the tomb of Djer that was greatly destroyed by fire; although the main chambers of the tomb of Hor Aha also exhibit secondary burning. But it is very unlikely that all or very many of the fragments found in Cemetery B have been displaced from later 1st Dynasty tombs. This is supported by two observations, the first is that the imported vessels from Cemetery B tend to be smaller and of lesser volume than those from the tomb of Djer suggesting that they may represent separate shipments. The other important factor is that a large number of imported vessels from Cemetery B, especially those with ledge handles, coil applications and spouts, find closer parallels in Levantine EB Ib than in EB II contexts and that vessels of EB II character, i.e. classical 'Abydos Ware', were found

[37] Cf. Hartung 2001, 315. Recent analyses of textiles in Predynastic Egyptian tombs from as early as the 5th Millennium B.C.E. consistently yielded remains of coniferous resin, which may have also derived from Lebanon; cf. Jones et al. 2014.

[38] *cf.* as a summary e. g. Hartung 2001, 298–307, 313–315; 2013, 183–186.

[39] Köhler 1998, 37–39, Pls. 68, 74.

[40] *cf.* e. g. Gophna 2002; Sharvit et al. 2002.

[41] The full publication of this material will be presented in the forthcoming *Umm el-Qaab* series of the German mission.

intermingled with these. The importance of this material, therefore, is that it covers the time span between the Predynastic Period and the early 1st Dynasty before the rule of King Djer who was the successor to Hor Aha. Djer's reign has frequently been synchronized with the beginning of the EB II in the Levant because 'Abydos Ware' imports, especially of the Combed Ware variety, had then only been recognized to come from his and later royal tombs of the 1st Dynasty.[42] While the early imports from Cemetery U have superficially little in common with those from 1st Dynasty contexts, the Proto-Dynastic imports may assist in bridging the two phases in more than just a chronological sense since they all seem to share a common provenance. The Cemetery B imports may therefore be considered in a continuum with the imports from the Predynastic Period and with classical 'Abydos Ware'.[43]

Among the vessels sampled and analyzed petrographically is a previously published piece from around Tomb U-y[44], which is a mud brick-lined structure of early Naqada IIIB date, thus being slightly later than Tomb U-j. It is a squat, flat based jar with vertical handles and irregularly combed surface (Sample #6; Figs. 6:1, 7:1) and has been assigned to the silty shale clay group. Because it is so very similar to imported material from the later 1st Dynasty royal tombs[45] there were some initial doubts as to whether it was really a part of this tomb's assemblage or if it had been displaced from elsewhere at Umm el-Qaab.[46] That this need not be the case and that vessels with combed surface may have appeared prior to the reign of Djer is supported by more than 80 imported combed vessel fragments found all over Cemetery B, of which one piece has been included in the analyses (Sample #9; Figs. 6:2, 7:2) and also assigned to the same petrographic group as the vessel from U-y. Also, several fragments of such combed vessels were found by Petrie in Tomb B19 of King Hor Aha, today in the Ashmolean Museum.[47] What is interesting, too, is that the earlier vessel from Tomb U-y exhibits a different style of combing, with the combing pattern being applied irregularly and in different directions, whereas those from Cemetery B and many later vessels of the combed ware have broader and generally more regular combing patterns.

Among the Cemetery B samples analyzed and discussed in this paper are also two jars with polished surface of which one (Sample #7; Figs. 6:3, 7:3) is a small jar with multiple vertical handles on the shoulder formed from clay also of the silty shale group. It was found in numerous fragments concentrating around the complex of King Hor Aha and is in shape similar to a vessel found by Petrie in the tomb of Djer.[48] The other piece is a base fragment of a slightly different, more narrow vessel form (Sample #8; Figs. 6:4, 7:4) corresponding to the red polished jugs and jars typical of 'Abydos Ware'[49] and frequently compared with the so-called 'Metallic Ware' of the Levant. On its base it has a potmark comprised of two simple squares which have been incised before firing.[50] Whilst its fabric belongs to the shale group, it contained noticeable quantities of quartz.

Finally, the lower part of an ovoid jar with flat base and wet-smoothed surface (Sample #10; Figs. 6:5, 7:5) was found in fragments around Tomb B7/9. Although it exhibits less diagnostic features and its shape and plain surface character are quite different from the vessels previously mentioned, as well as from the vessel characteristics usually attributed to 'Abydos Ware', it was made from similar raw materials, a shale clay but in this case with igneous inclusions. It could be regarded as a descendant from the imported bottles found in Tomb U-j (especially Ware group 2, Fig. 3) whose majority share with it a comparably plain appearance, shape and clay fabric.

Vessels of this plain ware represent the largest of four main groups of imported jars in Cemetery B, making up 26 % of over 600 fragments, the oth-

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42 Wright 1937; Henessy 1967; Amiran 1969; Adams and Porat 1996, 98; Braun 2011.

43 Hartung 2001, 60 already discussed the possibility of EB II imports being somewhat earlier than the reign of Djer.

44 Hartung 2001, no. 457.

45 cf. Petrie 1902, pl.VIII:6

46 Hartung 2001, 42, 60; Müller 2014, 243.

47 R.E. 4029. We are grateful to L. McNamara for providing photographs and more details about this piece. The vessel is also mentioned by Nakano 1998, 11 and Müller 2014, 243. The same tomb chamber contained another interesting imported vessel with pattern burnishing and vertical handles previously published by Hartung 2001, Taf.86.

48 Petrie 1902, pl.VIII:7

49 Petrie 1902, pl.VIII:1–5.

50 Such simple square potmarks have been observed previously on 'Abydos Ware' vessels, in particular on those of Porat's Group A, of which some were also incised before firing. Adams and Porat 1996, 104.

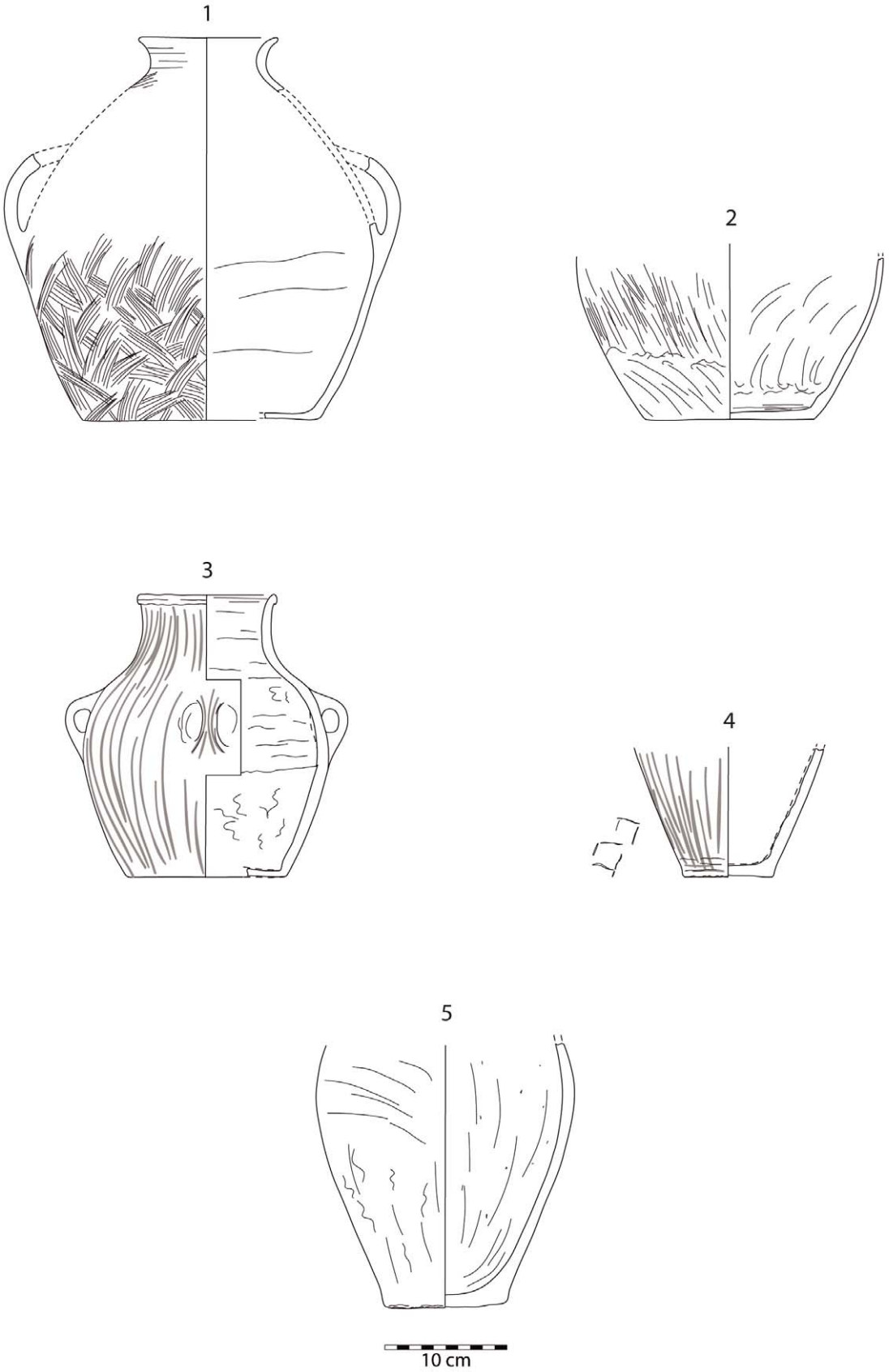


Fig. 6 Levantine imports from tomb U-y and from Cemetery B


Fig. 7 Fracture photographs of Levantine imports from Tomb U-y, Cemetery B and the tomb of King Djer

er larger groups being vessels with red slip and wet-smoothed surfaces (16 %), vessels with polished surfaces (15 %) and with combed surfaces (14 %).[51] The remainder of fragments fall into different smaller categories or could not be classified due to erosion or burning. This distribution of wares and fabrics, and the range of shapes result in a rather heterogeneous character for these vessels, similar to the assemblage of imports from Tomb U-j. They may in fact have a variety of sources, even though the petrography of the samples in this study may point to one general region.[52] Many of these imported vessels, in particular the polished and combed wares, may represent a chronological backward extension to the classical 'Abydos Ware' of the EB II, and would push its first occurrence in Egypt back by several generations of rulers, or approximately 150 years, when taking the combed

[51] In general, the imported vessels appear to be coil built by hand although the interior surface is often not preserved.

[52] We intend to enlarge the sample for further petrographic analysis in order to better appreciate the variety of wares and clay fabrics.

ware specimen from the Naqada IIIB Tomb U-y as the earliest evidence.[53]

## Royal Tombs of the 1st Dynasty

The royal tombs of the later 1st Dynasty complete the sequence of kings until the end of that Dynasty, i.e. Djer, Wadji, Den, Anedjib, Semerkhet and Qaa. This part of the necropolis has been subject to the most intensive ancient and modern transformation processes including looting, deliberate destruction, architectural alterations during later Pharaonic periods and archaeological investigations. Excavations of the late 19th and early 20th centuries, especially by Amélineau and Petrie, yielded large quantities of archaeological material of which much had been transferred to European and North American museums. Other material that was not deemed worthwhile for removal, e. g. fragmentary artefacts, was dumped with backfill in the tomb chambers and in the massive spoil heaps surrounding the tombs. The more recent excavations by the German mission invested great effort in re-excavating several of these tombs and their surroundings in their entirety, which significantly increased the evidentiary basis of Early Dynastic material culture and understanding of the archaeology of these early royal tombs. As a result, new data have also been collected pertaining to the classical 'Abydos Ware', its precise character, variability and volume.[54]

The sample from the tomb of Djer, #15 (Fig. 7:6), derives from a relatively large ovoid jar with flat base, at least one vertical handle, orange-red slip and very irregularly burnished surface.[55] It is particularly interesting because the type of vessel could fall into the group of red polished jar imports typically attributed to the 'Abydos Ware', but of a lesser quality than the so-called 'Metallic Ware' jars. Of note is its irregularly polished surface which shows a striking similarity in character with the wavy or vertical burnishing on jars in early EB layers at Tell Arqa.[56] It has been assigned to the silty shale clay group, which this jar shares with many of the imports described above and below.

Since the material from the tomb of Djer is still under study, the imported pottery from the tomb of Den and its surroundings, excavated between 1985 and 2002, will be highlighted here to illustrate the heterogeneity of what is considered the classical EB II 'Abydos Ware' and the difficulties surrounding this very label.

### *Imported pottery in the tomb of King Den*

Since the time of Hor Aha the burial chambers have increasingly grown in size reaching a high point during Den's reign when the ground-floor measured ca. 140 m² with a depth of nearly 7 m below the surface.[57]

These huge burial chambers were used for the deposition of large amounts of tomb equipment encompassing not only furniture and boxes with personal items but also enormous quantities of liquids and food kept in vessels made of pottery and stone. In addition, some chambers on the southern side of the tomb of Den were used as magazines, while each subsidiary grave was also equipped with a number of vessels and other items. Although the dimensions of the burial chamber decreased after the time of Den, it is possible that the reduction of space in the royal chamber was compensated for by an increased use of some of the subsidiary chambers as store-rooms.[58] The burial complex of King Den is the only tomb with a floor consisting of massive granite slabs that had to be brought into the pit via a ramp. Only in a second construction phase was this ramp converted into a staircase that was eventually used during

[53] This would correspond well with the current absolute date for the EB Ib/EB II transition at least in the southern Levant between c. 3250–3000 B.C.E., and with the notion that this transition was gradual and not occurring simultaneously across different areas; cf. Regev et al. 2014; Sharon 2014, 51. This correlation may also be indirectly corroborated by the association of Naqada IIIB Egyptian imports with those typical red-polished juglets, here called Proto-Metallic Ware, in EB Ib contexts in Jordan; cf. Fischer 2014.

[54] For the possible contents of the Levantine vessels, see Serpico and White 1996 and more recently Dee et al. 2015.

[55] The pottery from the tomb of Djer will be published by R. Hartmann in the Umm el-Qaab monographs series. We are grateful to her for allowing this sample to be included in this study.

[56] Strata 20–19, cf. Köhler and Thalmann 2014, Fig. 12 and pers. comm. J.P. Thalmann, to whom we are very grateful for providing comparative material and valuable advice.

[57] See the compilation of relevant data in Engel 2008, 37–40. Short overviews on the development of the cemetery can be found in Dreyer 2011; 2007; 2003 and Engel 2008. For more detail see the preliminary excavation reports, by Dreyer et al. 2011 with the literature mentioned there in footnote 1.

[58] Compare Engel 2008.

the burial but that still allowed the tomb to be roofed considerably earlier than that event.

Furthermore, each royal tomb had (at least) one enclosure situated close to the cultivated land.[59] These enclosures of the 1st Dynasty were also surrounded by a large number of subsidiary graves that amounted to nearly 600 in the tomb complex of Djer (330 around the tomb plus 269 around the enclosure).[60] Accordingly, the amount of objects deposited in these vast complexes is enormous.

As already mentioned above, the various transformation processes in this cemetery during the past 5000 years were considerable. None of the tombs in this respect is affected as much as the tomb of Den. Due to the heavy fire in the burial chamber – probably intensified by the draft from the staircase – all its objects were either completely destroyed or severely affected by the flames and broken into small bits and pieces. Only a few objects could be found still *in situ*.

As nearly all vessels imported from the Levant found in the vicinity of the tomb of Den show traces of this conflagration, it seems highly probable that the majority of them was once deposited in Den's burial chamber – and not in one of the many subsidiary tombs.[61] This is also corroborated by the find of several bases of imported jars and juglets in its north-eastern corner.[62] Apart from these vessels, at least 250 additional vessels can be reconstructed from fragments distributed in the filling and dump hills surrounding the tomb. In no other royal tomb at Abydos were deposited so many containers of foreign origin. Thus the reign of Den definitely defines an apex within EB II as observable in the amount of imported jugs and juglets from the Levant found at Abydos, a picture also supported by the discovery of imports in contemporary tombs throughout Egypt.[63]

Interestingly jars with combed surfaces and wavy handles belong to an EB II vessel type that was already present during EB I and continued into EB III.[64] In the inventory of EB II it is, however, more the exception than the rule. Another type reminiscent of EB I is a jar with a neck of moderate dimensions in the assemblage of EB I though with a longer neck.[65] It resembles the jars of Tomb U-j without handles designed, according to Hartung, for long-distance trade. In contrast to its forbears, however, usually two tubular handles were attached to their bodies and their surfaces were burnished. The burnishing strokes either cover the whole body in a vertical direction or display a net-pattern that is sometimes divided into fields by means of vertically burnished bands. This jar type is only represented in small numbers.

The majority of imported containers from the tomb of Den consists of slender juglets with single strap handles reaching from their rims to their high shoulders. These were sometimes supplemented by two lug handles attached to opposite sides of the shoulder at right angles to the strap handles: in all probability they symbolize in a miniaturized form loop handles that are regularly found on jars from EB I onwards. This vessel type is the prototype for the hieroglyph W9 that is generally used as a determinative in words meaning ointments and different oils. As suggested in another context,[66] at least some of the jars could have contained wine.

Similar to the evidence in U-j, the ceramic material from the tomb of Den displays great diversity in shapes, surface treatments, types and numbers of handles, manufacturing techniques,[67] as well as in clays and tempers. Accordingly, scholars tried to classify the material into different groups.[68] The present classification is, however,

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59 While the evidence suggests three enclosures for King Hor Aha (see Bestock 2008; 2009), enclosures are still missing for some kings of the later 1st Dynasty, one of which is King Den, see also Vaudou 2008; Adams and O'Connor 2003; 2008; 2010; 2011.

60 The number 590 for the amount of subsidiary tombs at Umm el-Qaab in Vaudou (2008, 150) must be a typographical error; in recent excavations on behalf of the German Archaeological Institute Cairo the number of 330 could be ascertained, see erstwhile Dreyer 2014, 3. For the number of subsidiary graves at the enclosure see Bestock 2008, 52; Vaudou 2008, 150.

61 Neither the subsidiary chambers nor the store-rooms on the southern side of Den's tomb exhibit signs of burning. Especially those fragments found in the north-eastern dump hills could once have belonged to Djer's tomb that was also severely affected by the fire.

62 Dreyer 1998, 142–145 with fig. 31.

63 For this compilation see table 3.7 in Hendrickx–Bavay 2002, 71.

64 Müller 2014, 249 fig. 1b.

65 Müller 2014, 249 fig. 1a.

66 Müller 2014, 247–248.

67 For the use of potter's wheels in the EB see Roux–de Miroschedji 2009.

68 See for instance: Braun 2012; Sowada 2009: 39–44; Hendrickx–Bavay 2002: 70.

very unsatisfactory as the criteria are not well established and the terminology is not coherent.

*Terminology of EB II jars and juglets*

As noted earlier, the labelling of imported EB II jars and juglets as 'Abydos Ware' is rather unfortunate and is simply due to its first find spot in the Early Dynastic royal cemetery at Abydos.[69] For a number of reasons, we do not consider this term well defined as it is not applicable to all of the material. The variety of vessel shapes, materials and qualities suggests that they do not represent a homogenous body of ceramics, i.e. a ceramic ware, and that their origins are to be sought in different areas.

Recently, some authors have also favored the term 'Metallic Ware' instead,[70] and often both designations are used side by side.[71] This designation is also not without ambiguities[72]: certain other wares, especially in Northern Syria and Mesopotamia, are also named with this term. These wares are not only of different clays and shapes but also date to different periods than the 1st Dynasty vessels.[73] Furthermore, this term was chosen because of the hardness of the ceramic fabric and the metallic sound of some of the vessels when struck lightly.[74] While this property is subjective to a certain degree, scholars use the term for a great variety of vessels in the Levant that comprise a whole range of different jugs, juglets, jars and even open shapes with different surface treatments, clays and qualities.[75]

At the same time, many scholars differentiated between the burnished and the painted vessels although the latter are frequently burnished too, and also have the same shapes as some of the vessels defined as *Metallic Ware*.[76] Due to their light-coloured surface painted with red, brown or black geometric designs, the latter group is designated by others as *Light-Faced Painted Ware*.[77] Several authors would consider *Red Polished Ware* as a distinct third group by describing it as a heterogeneous group deriving from the middle and southern regions of the southern Levant.[78]

Given these terminological contradictions, a more precise classification and terminology is called for. In the context of this article, the vessels shall thus very generally be termed "EB II jars and juglets"[79] and each will be described with their specific properties.

For a new classification of this diverse vessel group not only aspects of surface treatment and manufacturing techniques should be taken into consideration but also the fabrics, petrographic classification and their possible place of origin. The analysis of 9 samples of different vessel types is a first step in this respect. As this material is still in the process of documentation it was not yet possible to create a coherent typology according to ware groups as could already be accomplished for Cemeteries U and B. The compilation below should therefore be considered as of preliminary character.

*Light Faced Painted Ware (= LFPW)*

This pottery group is considered here as a separate ware group because its distinctive decoration and its light coloured clay do not occur with other imported vessels found in the tomb of Den.[80]

With its light surface (10 YR 8/4 very pale brown)[81] the section of which turns to light grey towards the inside, Sample #12 from juglet T-W/71 (Figs. 8 and 17:1), preserved only in its lower part,

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69 Petrie 1901, pl. LIV; Petrie 1902, pls. VI: 17, VIII.

70 Greenberg–Porat 1996.

71 For instance, de Miroschedji 2014, 320 summarizes the red burnished and painted jugs with the term Abydos ware, while Northern Metallic Ware is not defined.

72 For a critical view on this term see Hendrickx and Bavay 2002, 70; Braun 201, 19.

73 See literature in Braun 2012, fn. 18. This is probably why the term was qualified as Northern Canaanite Metallic Ware by some scholars.

74 Braun 2012, 26–27, Greenberg and Porat 1996, 6.

75 Sala, for instance, defines the pattern-combed jars of Transjordan as *Metallic ware* for EB II as well as for EB III, see Sala 2014: 262 (EB II), 264 (EB IIIa), 268 (EB IIIb). In contrast Sowada 2009: 40 summarizes the red-burnished ware with this term. Finally, Greenberg and Porat (1996, 5) used the term to describe the plates, bowls, juglets and jars of a certain clay group in "*…the upper Jordan Valley, and the adjacent regions of northern Transjordan, the Golan, the Galilee, and the Lebanese Biqᶜa*".

76 See for instance Braun 2012 to name but one.

77 For the definitions of these wares see most recently Braun 2012. For a complex treatment of the painted vessels see Genz 1993.

78 But see Braun 2012, 11 who notes that also this designation is not used coherently.

79 This is in accordance with the terminology used by Hendrickx and Bavay 2002.

80 This is in accordance with Genz 1993; 2002 and Braun 2012.

81 According to Munsell Soil Color Charts. In the following descriptions the number code used in the charts are omitted, only the designations of the colours mentioned there are cited.

Fig. 8 T-W/71 with Sample #12, tomb of Den, Light Faced Painted Ware

Fig. 9 T-aB/253 with Sample #16, tomb of Den, plain burnished

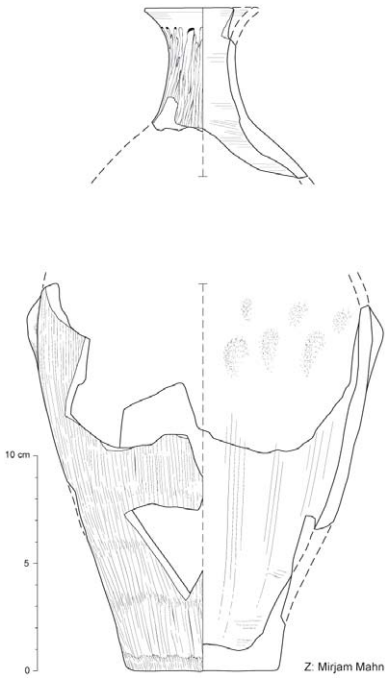



Fig. 10 T-aB/271 with Sample #18, tomb of Den, plain burnished and combed

Fig. 11 T-aB/251 with Sample #17, tomb of Den, red burnished

Fig. 12 T-KK/75 with Sample #11, tomb of Den, red burnished

belongs to the group of *LFPW*. Typically, this type of vessel has a painted decoration on its neck and shoulder which are missing in the case of this vessel that stands only to a height of 7,9 cm. The surface was burnished with very fine strokes in a vertical direction. Unfortunately the surface of the interior was affected by an aggressive substance so that the production technique is not clearly visible. The few marks conserved on the otherwise very even surface points to a fine smoothing with the fingers in a horizontal direction. Macroscopically the fine clay consists of clearly visible limestone and small stones of whitish, greyish and dark colour.[82] It has been classified petrographically in the calcareous volcanic group.

*EB II juglets and jugs with burnished and combed surfaces*

Sample #16 was taken from jug T-aB/253 (Figs. 9 and 17:2) that is preserved to a maximum height of 24,5 cm reaching from the base to the neck. The pink surface in the lower 15 cm is vertically burnished with very fine strokes, while the strokes are nearly horizontal in the part above, i.e. the whole surface is plain burnished. The vessel has been coil-built on a turning device from which it was string-cut. The interior surface is quite uneven with many finger strokes and displays clearly visible bulges from the poorly smoothed coils. The section is of a reddish grey colour. With the assistance of a hand lens, the clay can be described as extremely fine with a lot of very fine shale inclusions, some fine sand and sporadic black stones. Petrographically it belongs to an unusual, sandy clay fabric in the shale group.

Although the adjoining shoulder is missing, there is no doubt that the rim and lower part belong to the same vessel, juglet T-aB/271 (Figs. 10 and 17:3) from which Sample #18 was taken. The vessel can be reconstructed to a height of 30,8 cm. On its shoulder two lug handles have been applied to which in all probability a strap handle attached to the rim was added. The pinkish surface has been burnished with short, narrow, strokes that have been set vertically. Also the base is covered with burnishing. The surface on the upper part has been horizontally combed before it was burnished. The vessel was coil-built on a turning device, the interior surface of the base revealing turning marks. In contrast, the body shows marks of the smoothing of the coils in a first step in a vertical direction and in a second step in horizontal direction. Viewed by hand lens the reddish-yellow section has many visible inclusions of shale in different sizes and limestone, with sporadic quartz. Petrographically, the fabric was classified in the silty shale clay group.

Sample #17 belongs to the very slender juglet T-aB/251 (Figs. 11 and 17:4) of which only the neck, the rim, the strap handle and a few body sherds are missing. Otherwise it is well preserved. It stands to a height of 25,3 cm. The broad dark grey clay has a thin oxidation-zone. The light reddish brown surface was covered with a red wash that has been burnished vertically with irregular strokes. A pot-mark was incised on the shoulder post-firing. The vessel is coil-built on a turning device. The base has been smoothed in a spiral direction while the body has been smoothed with the fingers in a horizontal as well as diagonal direction. The neck has been attached with a clearly visible bulge on the inside, with the overlap not completely smoothed in several places of the body. The vessel has a string-cut base that otherwise was not smoothed. With the assistance of a hand lens the clay looks extremely fine showing only a few limestone particles, and many very fine sand and shale particles. The petrographic analysis places this piece in the calcareous clay group.

The red burnished surface of the more bulgy jug T-KK/75 (Figs. 12 and 17:5), from which Sample #11 was taken, has in addition to a relatively broad strap handle a ridge below the neck. Together with the body-sherds that cannot directly be attached to the preserved parts, about one quarter of the vessel is preserved, allowing for the complete reconstruction of the profile. It has a height of 34,6 cm. The vessel was handmade using the coiling technique with an even surface smoothed with the fingers in all directions. As the base is missing, it cannot be discerned if a turning device was used. The section has a grey core and light red oxidation-zones. The visible inclusions consist of shale, a few white stones, a few limestone particles and a few black particles; its clay group has been determined as silty shale by petrography.

A third variant with a red burnished surface is represented by the squat vessel T-aB/283 (Figs. 13 and 17:6) that is only preserved in height to shortly

[82] To this writer the clay looks levigated, but M. Ownby has kindly noted that levigation of clays for pottery production is difficult to establish with certainty without the examination of the original clay source.

Fig. 13 T-aB/283 with Sample #19, tomb of Den, red burnished

Fig. 15 T-aB/288 with Sample #13, tomb of Den, plain net burnished

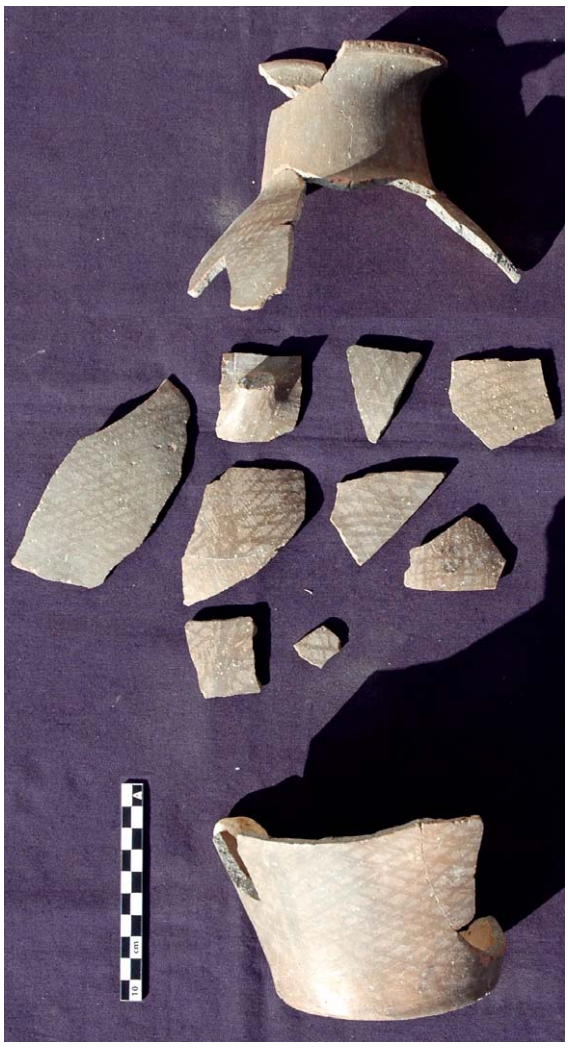


Fig. 14 T-aB/257 with Sample #14, tomb of Den, red net burnished

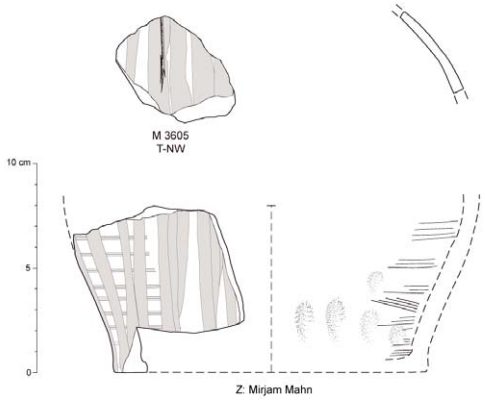



Fig. 16 T-aB/290 with Sample #20, tomb of Den, plain net burnished and combed

above the belly, reaching 20,4 cm. Sample #19 derives from this vessel. Two loop handles had been attached to the body. Its surface was covered with a red wash that was darkened by the conflagration of the tomb. In addition, a few burnishing strokes were applied very casually, mostly in a vertical direction while crossing and loops were not excluded. The vessel has been coil-built on a turning device as revealed by the concentric smoothing marks on the interior base. The uneven surface of the body is covered with rows of finger imprints and smoothing marks in all directions that still reveal the bulges of the coils. In many places the surface is chipped away by decomposed limestone. The very fine clay has several cavities and is of a middle grey colour with a dark grey core. Very few inclusions are visible with a hand lens in only small quantities, consisting of shale, quartz, mica, grey and black stones. The clay fabric also falls into the silty shale group.

Jar T-aB/257 (Figs. 14 and 17:7), to which Sample #14 belongs, is reconstructed from numerous fragments which could not be joined; preserved are the base, rim and neck, the upper part of the shoulder, a few body sherds and part of a loop handle. The entire vessel can be reconstructed to a height of ca. 35 cm. While only partially preserved, the two loop handles can be reconstructed at the height of the belly. At 9,8 cm in diameter the rim is rather wide. The light red surface is covered with a weak red wash that has been pattern burnished. While the neck is covered with narrowly set burnishing strokes in a vertical direction, the body was divided into fields by vertically burnished bands that have been filled with net-burnished patterns. The vessel was coil-built on a turning device as revealed by a spiral on the base and wheel marks on the rim. The body has been smoothed with the fingers in a vertical direction covering zones with finger imprints only poorly. The section has a very broad grey core with a very thin red oxidation zone. A lot of shale inclusions in all sizes are visible with a hand lens, while the amount of limestone and white stones is minimal. According to the petrographic analysis the clay fabric is shale-based.

Juglet T-aB/288 (Figs. 15 and 17:8), represented by Sample #13, again consists of different parts that cannot be directly joined. While the lower part is preserved above the maximum diameter, a part consisting of the shoulder and neck cannot be directly attached and the rim is missing. The reconstructed height should be around 35 cm. Although no handle could be attributed to this vessel, it is quite probable that a strap handle was once attached to the rim. The neck has been vertically burnished with narrow strokes, and the body is covered with a loosely set net-pattern that started at a height of 7 cm. The vessel was coil-built on a turning device and was string-cut. The interior surface of the base has spiral finger marks; the body was horizontally smoothed with the fingers but reveals clear zones of finger imprints at the overlaps of the coils. The neck shows wheel turning marks. The section is predominantly gray and has only a narrow pink oxidation-zone on the outer part. A large amount of shale inclusions are clearly visible with a hand lens as well as plentiful quartz, while limestone was only detected in small quantities. The petrographic analysis places it in the shale clay group with quartz.

Sample #20 was taken from the lower part of squat jar T-aB/290 (Figs. 16 and 17:9) to which eight body sherds can be attributed; no handle is preserved. The base can most probably be reconstructed to a diameter of 15 to 16 cm. The reddish brown surface of the body was first combed horizontally and then covered with a burnished net pattern that was made up of broad strokes and wide spaces. The very even interior surface was smoothed with a spatula after it was coil-built. The grey section has very narrow oxidation-zones and reveals a lot of black particles that could be shale and a few quartz inclusions. Petrographically its fabric is in the silty shale group.

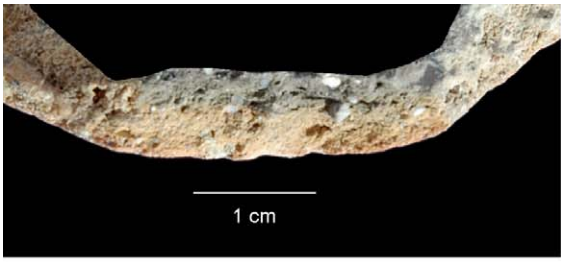
The assemblage of imports presented here can be considered a typical sample of what would have been previously labelled 'Abydos Ware'. Some of the vessels would also have fallen into the group designated by some scholars as 'Metallic Ware'.

## Part II – Petrographic analysis

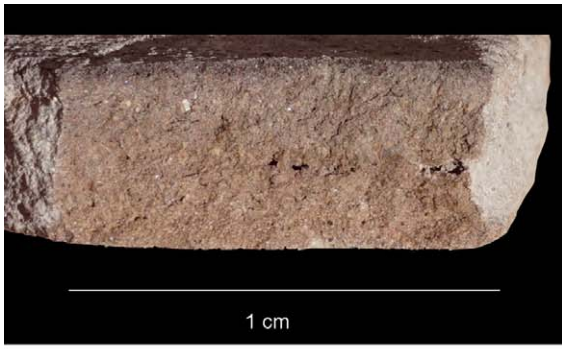
### *Samples and methodology*

The petrographic analysis was conducted at the Archaeometry Laboratory of the Institut Français d'Archéologie Orientale, Cairo. The analysis of the 20 thin sections with a petrographic microscope at 100× magnification followed standard procedures.[83] Both the inclusions and clay were charac-

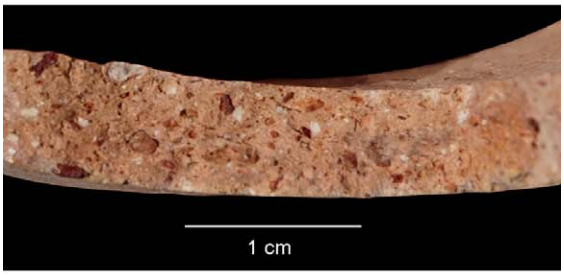
[83] see Bourriau and Nicholson 1992; Ownby 2010; Whitbread 1995.



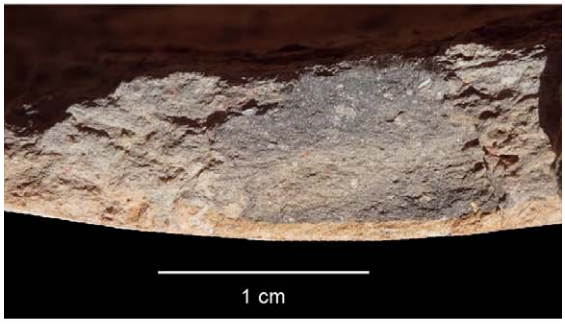

1. section of Sample #12, calcareous volcanic group, T-W-071



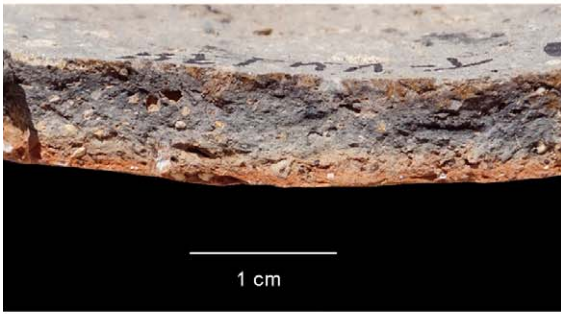

2. section of Sample #16, probably shale, sandy group, T-aB-253



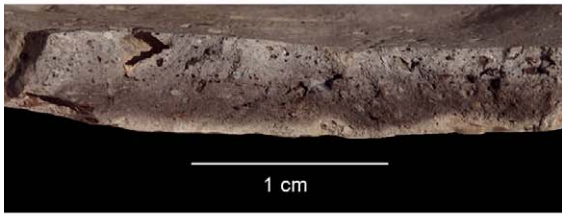

3. section of Sample #18, silty shale group, T-aB-271




4. section of Sample #17, calcareous group, T-aB-251




5. section of Sample #11, silty shale group, T-KK-075




6. section of Sample #19, silty shale group, T-aB-283


8. section of Sample #13, shale quartz group, T-aB-288


7. section of Sample #14, shale group, T-aB-257


9. section of Sample #20, silty shale group, T-aB-290

Fig. 17 sections of the analysed samples from the tomb of Den

terized, and their features noted. All of the provenance assignments are postulated as the thin sections were not compared to ceramic raw materials or kiln material from known sites. Geological maps and some soil maps were consulted to arrive at the postulated provenance.[84]

*Results*

As in previous studies on early ceramic imports from Abydos[85] the petrographic analysis revealed a range of materials that share some characteristics. Similar clays could appear with different inclusions and similar inclusions could be present within varying clays. This relates intimately to the geology of the region where they were produced, and in fact is a classic feature of Levantine pottery.[86] Nevertheless, the samples could be divided into groups with related clays that likely represent a similar geologic origin for the raw materials.

1. Calcareous Clay Group

The first group comprises three samples with calcareous clay and various other inclusions. Sample #3 from Tomb U-j (Fig. 4) is made of a clay comprised of ostracoda, foraminifera, sparry and micritic limestone, and calcite. Notable volcanic inclusions were present comprising glassy vesicular basalt (often weathered orange) and ophitic alkali olivine basalt/diabase (Fig. 18a). Some of the glass has altered becoming iron-rich and clayey while the calcite in the clay likely derives from the alteration of pyroxene.[87] Less common in the paste and of fine-size are inclusions of plagioclase, quartz, iddingsite (altered olivine), chert, and pyroxene. This sample was assigned to Ware group 7 and was similarly described by Pape[88] who noted the calcite, chalk, basalt and lime in-filled 'bubbles' for the iron-containing glass. He suggested the foraminifera were Upper Cretaceous in date. Likewise, Porat and Goren[89] noted the calcareous clay with glassy and ophitic basalt.

The two other samples in this group are both EB II juglets from the tomb of Den. Sample #12, the lower part of a Light Faced Painted juglet (Figs. 8, 17:1), has a calcareous clay with a high amount of foraminifera and only a single inclusion of basalt/diabase. The glass fragments are lacking except for one possible example. Calcite and micritic to sparry limestone are common, while fine-sized pyroxene and plagioclase are rare. Scattered throughout the paste are iron-rich clay pellets, but these and the other inclusions are likely natural to the clay deposit. Sample #17, a juglet of the Red Burnished Ware (Figs. 11, 17:4), has some foraminifera in the calcareous clay, but in quantities less than Sample #12 and more than Sample #3. However, calcite is the least in this sample among the three. Iron-rich clay pellets are conspicuous and other inclusions are very fine to coarse-sized quartz grains and micritic limestone up to very coarse in size. Fine-sized plagioclase, pyroxene and chert are rare in the paste. A single hypocrystalline alkali basalt fragment was observed.

2. Shale Clay Group

A set of eight samples have clay that is likely from the weathering of shale outcrops, particularly as many of the samples contain shale fragments in the paste. Silty quartz is not common in these samples. Two samples contain igneous rock fragments. Sample #1, a jar from Tomb U-j classified as Ware Group 2b (Fig. 3), has a shale-derived clay and what appears to be broken down fragments of granite to diorite with quartz, plagioclase, potassium feldspar, opaques, biotite and amphibole as mineral constituents.[90] Also present are mafic volcanic rock fragments, probably andesite, which are porphyritic with an iron-rich matrix, common coarse-sized plagioclase, and opaques. Inclusions of basalt are hypocyrstalline with plagioclase, opaques and probably iddingsite. Cataclastic grains, of metamorphic origin, appear to represent deformed granite and granodiorite. Also present are common quartz and fragments of micritic limestone along with rare gypsum/anhydrite (possibly due to alteration of the igneous

[84] e. g. Bartov 1994; Beydoun 1977; Dan *et al*. 1975; Dubertret 1955; Ilaiwi 1985; Said 1962; Shazly 1977; Sneh *et al.* 1998a and b.

[85] Porat and Goren 2001, 2002. This present study would not have been possible without the generous geologic assistance provided by Kamal Badreshany and Mohamed Fathy Abd El Fattah.

[86] Ownby 2010.

[87] see Fawcett 1965.

[88] Pape 2001, 428, 435, 440.

[89] Porat and Goren 2001, 470, 476–477; 2002, 256, 263.

[90] Hartung 2001, 144.

rock as gypsum/anhydrite was seen attached to a feldspar). Clusters of epidote could represent alteration products; a supposition supported by the weathered appearance of the feldspar. The sample was described by Pape[91] as containing tuffaceous chalk, basalt, biotite or amphibole, sericitized anorthoclase (potassium feldspar), orthoclase (potassium feldspar), and little plagioclase. Significantly, he identified sandstone particles comprising quartz and potassium feldspar with an iron matrix. Pape[92] suggested a terrestrial carbonate from a spring formation was present that is likely the gypsum/anhydrite currently identified. This inclusion was called gypsum by Porat and Goren[93] who noted fragments of granite to diorite, basic and acid volcanic rocks, and cataclastic rocks in the paste.

A sherd with similar inclusions and clay is Sample #10 from Cemetery B (Figs. 6:5, 7:5), assigned to Fabric Ib. The igneous fragments are larger in this sample and show more metamorphic alteration, particularly a cataclastic texture (Fig. 18b). Porphritic likely andesite fragments are also more common, but some exhibit a finer texture. Micritic limestone was absent, while some potential felsic/acid rocks and chert were noted, unlike in Sample #1. A single fragment of volcanic tuff in Sample #10 (Fig. 18b) is similar to those in Samples #12 and #13 from the tomb of Den. A few possible sandstone to siltstone fragments were noticed in this sample.

Sample #4, a spouted jar from Tomb U-j, Ware Group 1 (Fig. 3), has a shale clay with a calcareous component and large, angular chert fragments that were probably intentionally added[94] (Fig. 18c). Few other inclusions are present, mostly being quartz, sparry limestone, foraminifera, and phosphate. The common chert was noted by Pape[95] and Porat and Goren,[96] who also noted the phosphate and calcareous inclusions. A sample of Ware Group 8 from Tomb U-134, Sample #5, has a similar clay to Sample #4 though lacking the calcareous component and intentionally added angular chert (Fig. 18d). Instead, chert is uncommon and could be natural to the clay. Other inclusions are rare quartz and the paste is dominated by shale fragments, some of which are iron-rich. The latter inclusions can have silty quartz. Sample #8, a jar fragment from Cemetery B of Fabric Ic (Figs. 6:4, 7:4), also comprised a shale-derived clay but in this case with fine to medium-size quartz. Several shale fragments seem similar to those in Samples #4, #5, and #14. This sample also has a calcareous component in the paste. Iron-rich shale inclusions, some with quartz, are common as are iron oxides in general. This represents another similarity with the other three samples.

Two samples in this group belong to vessels from the tomb of Den. Sample #14 (Figs. 14, 17:7), has a shale derived clay with a calcareous component, but the clay appears different than in Samples #4 and #5. However, a few of the shale inclusions are similar, though these are likely to be natural to the clay deposit representing variable clay sources from similar outcrops. Iron-rich shale fragments are also present. One similarity to Samples #4 and #5 is the prevalence of iron oxides. Beyond quartz, micritic and sparry limestone, and rare foraminifera, other inclusions are uncommon. Sample #13 (Figs. 15, 17:8), is likely related to Sample #8 with sand-sized quartz, shale, and a calcareous component. Some iron-rich shale pieces with or without quartz are present. Micritic limestone is the dominant calcareous material with rare foraminifera. Unusual glassy tuff inclusions with hematite, probably volcanic, are similar to rare examples in Samples #10 and #12. Interestingly, the clay for Sample #10, from Cemetery B is shale-derived, but that for Sample #12, a Light Faced Painted Ware juglet, from the tomb of Den is a foraminiferous calcareous clay. This may once again indicate the utilization of raw materials from a similar geologic deposit with slight differences, particularly as the current sample shares affinity with Sample #8, which is related to Samples #4, #5, and #14. In fact, a single shale fragment in Sample #13 is very much like those in the latter three samples and the clay is similar to that for Sample #14.

### 3. Silty-shale Clay Group

This group has the most samples, nine, and comprises those with a silty and iron-rich clay often having shale inclusions that feature common silty quartz. Some of the shale inclusions are similar to those seen in the previous group. A jar assigned to either Ware Group 11 or 1 from Tomb U-j, Sample

[91] Pape 2001, 419, 423, 430.

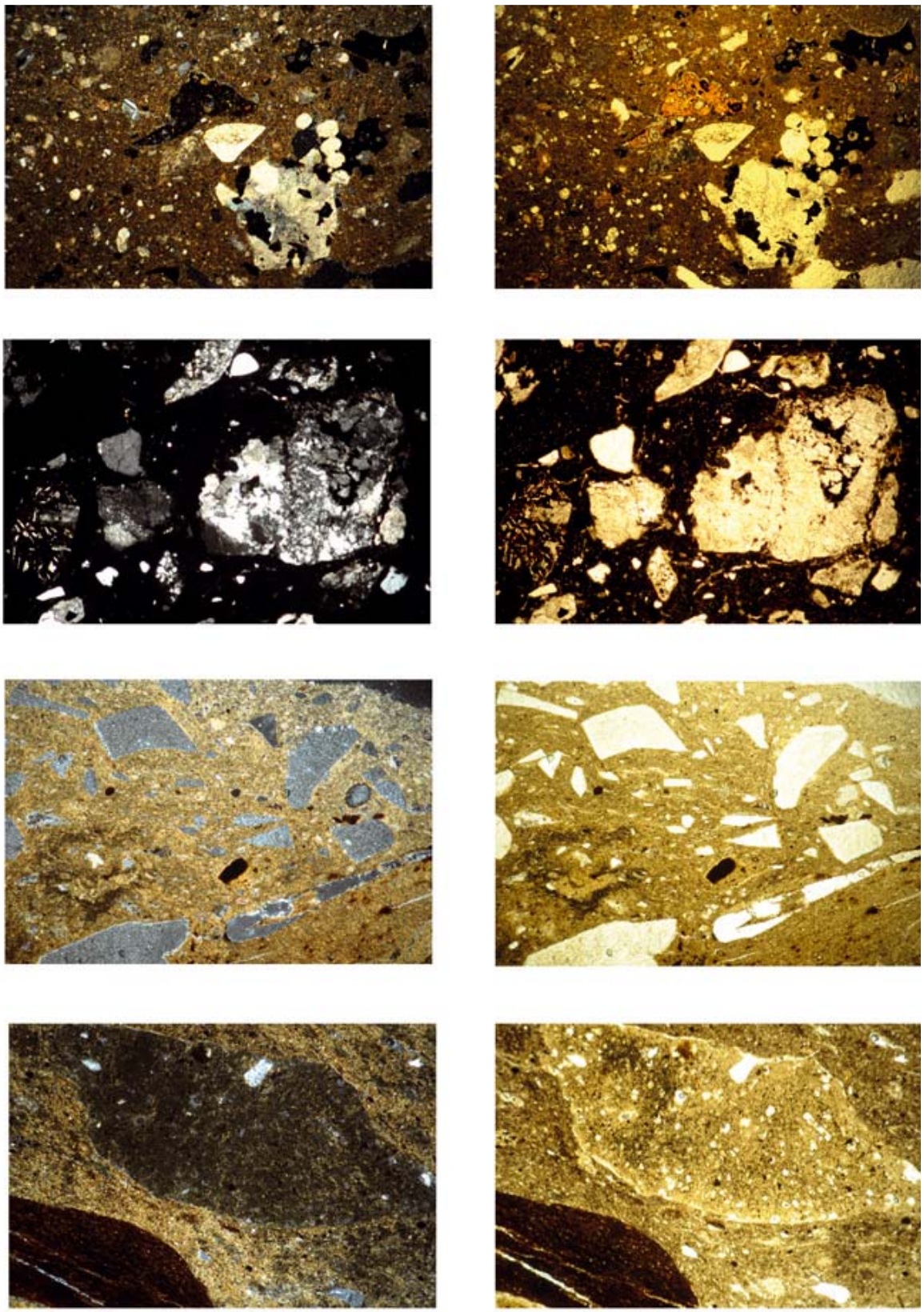
[92] 2001, 433.

[93] Porat and Goren 2001, 470, 475; 2002, 256, 261.

[94] Hartung 2001, 120.

[95] Pape 2001, 421, 431.

[96] Porat and Goren 2001, 469, 474; 2002, 255, 260.


a)
b)
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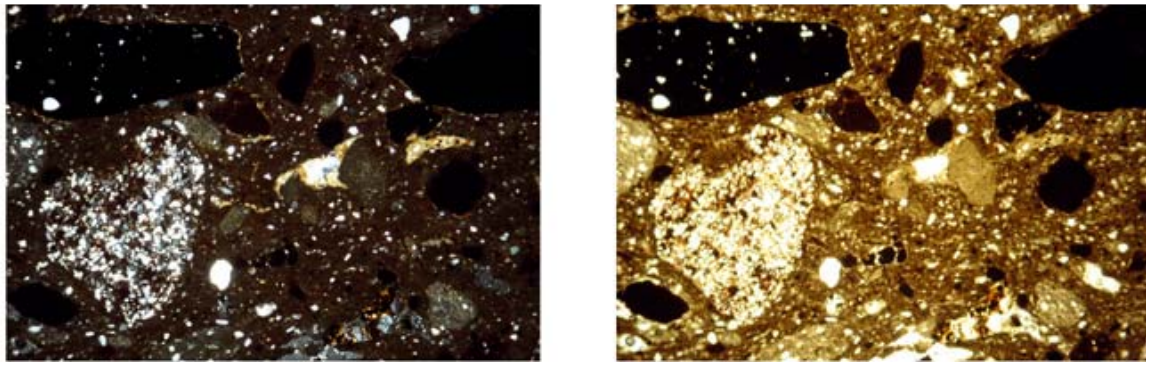

e)

Fig. 18 Thin section images of samples representative of the clay groups. Image on the right is in plane polarized light, image on the left is in cross polarized light. Magnification is 100x.
a) Sample #3 from the Calcareous clay group – squat jar with handles from Tomb U-j
b) Sample #10 from the Shale clay group –Plain ware vessel from Cemetery B
c) Sample #4 from the Calcareous clay group – spouted jar from Tomb U-j
d) Sample #5 from the Shale clay group – a fragmentary vessel from Tomb U-134
e) Sample #18 from the Silty-shale clay group – Plain Burnished and Combed Ware vessel from the tomb of King Den

#2 (Fig. 4), has a shale-derived clay with common silty quartz.[97] Along with shale inclusions, most having silty quartz, are coarse-sized biogenic limestone fragments. Chert, biotite, amphibole, potassium, and plagioclase were rare inclusions. A single likely diorite fragment was identified. In fact, Porat and Goren[98] assigned this sample to the clayey-silty category with igneous temper. Pape[99] also identified some sericitized anorthoclase (potassium feldspar) and amphibole along with the iron-rich, silty clay and possibly Upper Cretaceous foraminifera.

Sample #6, a Combed Ware sherd of Fabric Ia from Tomb U-y (Figs. 6:1, 7:1), has an iron-rich shale-derived clay with no limestone. Rather, a few angular rhomb-shaped inclusions of anhydrite were in the paste; otherwise most of the inclusions were very fine to medium-sized quartz and feldspar. Some of the quartz and feldspar probably originates from sandstone as a single fragment with clay matrix, quartz, feldspar, and iron-rich oolites was seen. Quartz and feldspar may also have come from the intact shale fragments, although some of these fragments lacked such inclusions, particularly the more iron-rich ones. A number of the shale inclusions were analogous to some seen in Sample #14 (Fig. 14), from the tomb of Den. Sample #6 is slightly less silty than others in this group. Sample #7 from Cemetery B (Figs. 6:3, 7:3) has a shale-derived clay with silty quartz plus some fine to medium- sized quartz and feldspar. Most of the paste is iron-rich and closely resembles that in Sample #6, particularly the iron-rich shale fragments with or without quartz and feldspar inclusions. Rhomb-shaped anhydrite is absent but phosphate may be present. Although a similar sandstone fragment was not seen, a few fine sandy inclusions were noted. Sample #9 from Cemetery B (Figs. 6:2, 7:2) is also of Fabric Ia and is a Combed Ware jar. While there are iron-rich inclusions, some having silty quartz, the clay is more similar to Sample #11 (Fig. 12; see below). However, this sample lacks a calcareous component making it also similar to the two other sherds of Fabric Ia, although having less sand-sized quartz and feldspar. Few other inclusions were noted and all are likely natural to the clay deposit. This is reinforced by the presence of a large fragment of siltstone with a clay matrix, and a sandstone fragment with iron-rich clay matrix. The weathering of such siltstone and sandstone outcrops probably contributed quartz, feldspar, and clay to create the raw materials for these samples.

Five samples of classical EB II vessels are also in this group. Sample #11 (Fig. 12) is of silty clay with inclusions of shale, some of which also have silty quartz and others that have some calcareous inclusions. Most resembled the clay and suggest a

[97] Hartung 2001, 206.

[98] Porat and Goren 2001, 469, 475; 2002, 255, 261.

[99] Pape 2001, 429, 434, 440

deposit of eroding shale and siltstone as the source for the paste. Even the micritic and sparry limestone and few calcite inclusions are likely to be natural to the clay deposit. Some of the shale resembles that seen in Sample #14 (Fig. 14), also an EB II jar of Plain Net Burnished Ware, though this sample has little silty quartz and common dispersed micritic limestone. The clay is similar to that in Sample #9 and the presence of a siltstone fragment with clay matrix also links these two samples. Also comparable to Sample #9 is Sample #15 (Fig. 7:6), which has common silty quartz and feldspar along with a few iron-rich inclusions, some having silty quartz. Rare siltstone fragments mostly lack a matrix but the quartz and feldspar within them closely resemble those in the paste. Sample #18 appears related to Sample #6, a Combed Ware sherd, and to Sample #7, a Polished Ware sherd. The clay is fairly iron-rich with notable shale inclusions, some having silty quartz (Fig. 18e). Iron-rich shale fragments with and without silty quartz are also common. Micritic limestone was present though uncommon and one fragment had coarse-sized quartz. This sample also shares some affinity with Samples #9, #15, #19 and #20 (see below). Notable was a single possible volcanic rock fragment. Sample #19, a squat jar of the Red Burnished Ware (Fig. 13), has a shale-derived clay with common silty quartz and some iron-rich shale fragments. Some of the latter contain silty quartz. Notable are the rare inclusions of sandstone and siltstone rock fragments. These appear to be the source materials for the clay, quartz, and feldspar inclusions in the paste. A single fragment of limestone had quartz inclusions. Sample #20 (Fig. 16) is similar though the grain-sizes are slightly larger. This seems to relate to the siltstone fragments present in the paste that also have fine-sized quartz and feldspar. Thus, these inclusions could be termed fine sandstone. A fragment of sandstone is present with an iron-rich matrix and grains of quartz and feldspar. Shale fragments are common, being more noticeable than in the other samples in this group. Overall, the clay is slightly more iron-rich, though both Samples #19 and #20 are similar to Sample #9.

Sample #16, a juglet of the Plain Burnished Ware from the tomb of Den (Fig. 9), has a unique paste with common micritic limestone and sand-sized quartz with minor potassium feldspar. The clay does have an iron-rich component and could be shale-derived. Few other inclusions are present. The quartz and feldspar in some of the limestone may suggest it is related to Sample #18 (Fig. 10), which also has sand-sized quartz and feldspar in the clay.

*Discussion*

The petrographic analysis revealed that many of the samples were produced with a related set of raw materials, as noted by Porat and Goren.[100] Often this involved clay that appeared derived from eroding shale and either more or less amounts of silty-quartz from the shale or siltstone deposits. Sandstone and limestone were infrequent but significant inclusions that confirm the geologic environment for the source of raw materials was dominantly sedimentary. The rare volcanic grains and feldspars suggest a minor volcanic component may also be nearby. Other samples had a more calcareous clay with distinct inclusions of volcanic rocks. However, the shale and silty-shale clay groups are notable for their appearance from the Naqada IID period to the 1st Dynasty.

*Imported Pottery in the tomb of Den*

The analysis of the imported pottery in the tomb of Den revealed some variation in the raw materials utilized to produce vessels traditionally assigned to the classical 'Abydos Ware'. While the identification of inclusions with a hand lens would not call for a clear-cut distinction into groups, the petrographic analysis indicated four of the nine samples were made with a silty-shale clay, while three had a shale clay. Interestingly, similar ceramic styles fall into different clay groups, i.e. the calcareous and silty shale group. At the same time, a variety of styles seem to have been produced of similar raw materials. For example, the juglet T-aB/288 (#13, Figs. 15, 17:8) with a plain net-burnished surface had a shale clay with some quartz, while a jar T-aB/257 (#14, Figs. 14, 17:7) with a red net-burnished surface had a shale clay with a calcareous component.[101] Conversely, the samples in the silty-shale group, comprising most of the analyzed samples, could display different surface finishes. Two vessels display a red bur-

[100] Porat and Goren 2001, 479–480; 2002, 265–266.

[101] This decoration is typical for vessels otherwise subsumed under the term 'Metallic Ware'.

nished surface, jug T-KK/75 (Sample #11, Figs. 12, 17:5) and squat jar T-aB/283 (Sample #19, Figs. 13, 17:6). The surface of juglet T-aB/271 (Sample #18, Figs. 10, 17:3, 18e) was first combed and afterwards burnished, while squat jar T-aB/290 (Sample #20, Figs. 16, 17:9) displays a net burnished pattern above a combed surface. Further, most of the raw materials utilized for producing the EB I-II jars from the tomb of King Den found parallels in the earlier material from Tombs U-j, U-y, and Cemetery B.

The source of this clay is suggested to be the Lower Cretaceous formations found in the Levant that contain common sandstone, siltstone, and iron-rich shales with or without quartz.[102] Weathered volcanic inclusions, particularly Mesozoic basalts, can be present and the outcrops are adjacent to the highly calcareous Upper Cretaceous formations (Cenomanian-Turonian and Senonian-Paleocene). Thus, the sandstone, siltstone, glassy tuff, and volcanic rock fragments could be from the Lower Cretaceous deposits. The limestone seen in some samples, but mixed in with shale fragments, could be due to the erosion of the Upper Cretaceous outcrops along with the Lower Cretaceous formations creating a secondary deposit of clay. The rhomboidal anhydrite, which has replaced gypsum, noted in Sample #6 could be from Albian deposits within the Lower Cretaceous outcrops,[103] while phosphate is known from Upper Cretaceous deposits.[104] Chert is also available in the Senonian-Paleocene formations, but its addition is suggested to be from crushed rocks. Porat and Goren[105] noted this technological tradition in a few EB II vessels from Arad. It was also suggested to occur in Middle Bronze Age jars found at Memphis in Egypt that were assigned a provenance of the Akkar Plain in northern Lebanon.[106]

There is clearly a link here between the classical 'Abydos Ware' and what is called in the Levant 'Metallic Ware'. In fact, Porat and Goren[107] discuss this possibility but note that there are few similarities. The 'Metallic Ware' analyzed by Greenberg and Porat[108] was produced from shale and silty clays with some carbonate inclusions, siltstone, and weathered volcanic rock fragments. The latter are visually similar to the glassy tuff inclusions seen in Samples #10, #12, and #13. They also noted the muscovite in the clay and suggested it derived from the siltstone fragments, but did not seem to have samples with sandstone. In large part, the descriptions appear similar to most of the samples analyzed here. Greenberg and Porat[109] suggested Lower Cretaceous deposits in the Upper Galilee as the source for the raw materials due to similarities between contemporaneous Canaanite pottery and 'Metallic Ware'. Porat and Goren[110] noted that samples with a calcareous component in their Nubian assemblage clays were not similar to the 'Metallic Ware'. However, the more iron-rich samples lacking calcareous inclusions and associated with Lower Cretaceous deposits were correlated to the samples of Greenberg and Porat.[111] This is an important point as the current study suggests some links between samples with and without calcareous inclusions and views all of the shale and silty shale clay vessels as from a similar related set of raw materials. In fact, the petrographic descriptions provided here are related to those for Fabric pEBI noted by Badreshany for 'Metallic Ware' from the Beqa'a Valley and comprising approximately 50 % of the EB II-III assemblage in this area. Likewise, Fabric Group 1 from Sidon as described by Griffiths is comparable and was common in EB II-III strata from this site. This suggests a much broader distribution and possibly production of shale-derived clay pottery.[112] Analysis of additional samples of 'Metallic Ware', especially from Lebanon, would clarify the raw materials utilized and any differences that could relate to the area of production.

Similar raw materials were noted for two samples from 2nd Dynasty contexts at Helwan.[113] Sample Op.4/180 has some basalt inclusions and Sample P01-10 has limestone and sandstone. Both were linked to the Lower Cretaceous deposits and suggested to come from northern Lebanon. Further, there are similarities between the samples with silty shale clay and the EB II-III vessels of Fabric VI in Badreshany and Genz,[114] who connected

[102] Beydoun 1977, 328–329; Dubertret 1955, 18–30; Porat and Goren 2001, 476; 2002, 263.
[103] Doummar 2005, 104, 159, 167.
[104] Dubertret 1955, 29.
[105] Porat and Goren 2001, 474; 2002, 260.
[106] Ownby 2010, 131.
[107] Porat and Goren 2001, 476; 2002, 261.
[108] Greenberg and Porat 1996, 13–16.
[109] Greenberg and Porat 1996, 16–18.
[110] Porat and Goren 2001, 476; 2002, 261.
[111] Porat and Goren 2001, 476; 2002, 263.
[112] Badreshany 2013, 462–469; Griffiths 2006, 283–287.
[113] Köhler and Ownby 2011.
[114] 2009, 355–356.

this to the 'Metallic Ware' of Greenberg and Porat (1996). Their pottery derived from the site of Tell Fadous-Kfarabida located north of Byblos. Local resources are more calcareous, so Fabric VI was suggested to be non-local. The most prominent outcrops of Lower and Upper Cretaceous deposits are present in the area around Beirut.[115] Additional exposures are to the north and can be variably accessed through wadis. This region is where the current set of samples and the samples from Helwan are suggested to derive. This coastal location would have facilitated export to Egypt and there were known ties to the area during the 1st Dynasty. However, it is likely that several areas along the northern Lebanese coast are potential sources, and comparison to raw materials is necessary to confirm the suggested provenance.

*Imported Pottery from Cemetery B*

The slightly earlier imported pottery found in Cemetery B was produced with similar raw materials. Specifically, a Polished Ware vessel (Sample #7) and a Combed Ware vessel (Sample #9) were made with a silty-shale clay, while another Polished Ware vessel (Sample #8) was produced with a shale clay containing quartz, likely from sandstone. In fact, a Combed Ware vessel from Tomb U-y (Sample #6) was also made with a silty-shale clay, but probably dates to the early Naqada IIIB period. All of these samples bear some resemblance to the raw materials used to produce the samples from the tomb of King Den. This suggests long-term exploitation of the Lower Cretaceous deposits for pottery production, an idea supported by the use of similar raw materials for two of the vessels from Tomb U-j dated to the Naqada IIIA period. The Plain Ware vessel (Sample #10) from Cemetery B with igneous inclusions is similar to Sample #1 also from Tomb U-j further supporting the suggestion that the earlier Tomb U-j vessels and the slightly later Cemetery B vessels were made in a similar area. The provenance of the latter will be discussed below, but for those produced of Lower Cretaceous deposits, a source in northern Lebanon is suggested.

Twenty-one samples of mostly Combed Ware vessels of the Old Kingdom from Giza have also been examined petrographically.[116] The results suggested that fourteen were likely to be from coastal Lebanon; however, most appeared made with a clay derived from the erosion of limestone outcrops (i.e. rendzina) rather than exclusively Lower Cretaceous deposits. Two samples had inclusions more indicative of the Lower Cretaceous outcrops but with common quartz, limestone, and chert suggesting some mixing of materials in a secondary deposit from Lower and Upper Cretaceous (i.e., limestone) outcrops. This would make them dissimilar to the examples analyzed here that are of much earlier date. Sowada[117] noted that the distribution of Combed Ware covers the area of the northern to the southern Levant. Further, several scientific studies of this ware suggest that the Egyptian samples derived from areas in Palestine and Lebanon, specifically near Byblos.[118]

*Imported pottery from Tombs U-j and U-134*

Clearly, the imported vessels in Tomb U-j were manufactured with raw materials that were similar to those later utilized for producing Plain Ware, Combed Ware, Polished Ware, and other classical 'Abydos Ware' vessels. This indicates a similar source for all of the vessels but with some variation in the available raw materials. Sample #2 has a silty-shale clay likely related to Lower Cretaceous deposits and thus possibly from northern Lebanon. The spouted jar, Sample #4, and Sample #5 from Tomb U-134 both had a shale clay suggestive of the Lower Cretaceous formations. The angular chert fragments in Sample #4, which may have been intentionally added, could have come from the Upper Cretaceous Cenomanian-Turonian and Senonian deposits that contain chert.[119] Both samples could have been made with raw materials available in northern Lebanon.

While a shale-derived non-calcareous clay was used to produce Sample #1, the inclusions of granite to diorite, basalt, and andesite are unusual. A similar paste was used to produce Sample #10, a Plain Ware vessel from Cemetery B. Notably, the basalt fragments are not similar to those in the samples suggested to have been made with raw materials from the Lower Cretaceous formations. Rather they have a porphyritic texture with iron-rich matrix and large plagioclase grains but few

[115] See map Badreshany 2013, 466.
[116] Wodzinska and Ownby 2011.
[117] 2009, 155.
[118] Sowada 2009, 156, 167–179.
[119] Beydoun 1977, 329, 332–333.

other inclusions. One diorite fragment appears to have an attached piece of andesite suggesting a common origin for both. The granite shows some cataclastic textures indicative of possible metamorphic pressure. The clusters of epidote may support this suggestion as these can be the result of hydrothermal alteration of igneous rocks. These two jars were likely produced in an area with some metamorphic alteration, intermediate plutonic and volcanic rocks, and sedimentary deposits that included shale. In fact, diorite can form above a subduction zone due to partial melting of mafic rocks. This could explain the cataclastic textures and also the weathering suggested by the altered plagioclase, gypsum/anhydrite, and epidote. Alternatively, an area where a magma of intermediate composition extruded volcanic rocks but also was present as a dike creating coarser-grained diorite to granite is a possibility. The dike then could have undergone pressure resulting in the cataclastic textures of the igneous rocks with subsequent weathering. Shales are common in Lower Cretaceous deposits but diorite and andesite are notably rare. There are some Lower Cretaceous mafic volcanic rocks, however. In fact, Sample #2, also a jar from Tomb U-j, contained a likely igneous rock fragment (and was classified as such by Porat and Goren[120]) and a silty-shale clay suggested to derive from the Lower Cretaceous deposits. Thus, Samples #1 and #10 may have been made in an area in Lebanon with Lower Cretaceous shale and volcanic rocks, and possible reworked older igneous sediments. Older Jurassic volcanic rocks should also be considered and in the area of Beirut, Cretaceous and Jurassic formations are placed unconformably revealing more of the Jurassic deposits.[121] Igneous rocks are also exposed at the southern end of the Jordan Valley, but here the Lower Cretaceous shale formation is rarely exposed. Much more research is required to to identify the provenance of these vessels.

The squat jar with handles, Sample #3, consisted of a calcareous clay with foraminifera, basalt/diabase and glassy vesicular basalt fragments. The fresh appearance of these volcanic grains may suggest they derive from Neogene deposits located near calcareous outcrops.[122] Neogene calcareous formations containing benthic and other foraminifera are present in northern Lebanon where Neogene volcanic deposits are also found including basalt and diabase.[123] Thus, these samples may be from the northern part of Lebanon along the Akkar Plain. Identification of the foraminifera species would confirm rather the calcareous clay was from the Neogene or Upper Cretaceous formations. The latter mostly lack volcanic inclusions. Of note, Sample #3 was assigned to the Lower Galilee by Porat and Goren.[124] A few areas in this region do have an association of Upper Cretaceous calcareous deposits and Pliocene basalt and volcaniclastic material, therefore, comparisons would need to be made between raw materials in the Lower Galilee and northern Lebanese Neogene deposits.[125] A similar paste was used to make only one other vessel, Sample #12 a LFPW-julget (Figs. 8, 17:1) from the tomb of Den signifying some continuity in the use of these raw materials. The paste of jug T-aB/251 (#17, Figs. 11, 17:4) may be related though with very little volcanic inclusions or calcite. The broad distribution of calcareous Upper Cretaceous deposits means that the origin of this sample is also difficult to specify precisely, though the basalt inclusion could indicate either northern Lebanon or the Lower Galilee area.

While Sample #3 was suggested by Porat and Goren[126] to be of "*Canaanite origin"*, Sample #4 was assigned as "*probably not Canaanite*", and Samples #1 and #2 were classified as "*definitely not Canaanite*". Rather, they suggested the vessels had been made from raw materials derived from the Wadi Qena in Upper Egypt.[127] The geology of the Wadi Qena does include rare shale outcrops of Upper Cretaceous date along with more extensive deposits of Upper Cretaceous Nubian Sandstone.[128] Lower Cretaceous volcanic rocks such as basalt and andesite are not present in this area. Fifty kilometers from the Nile Valley are found Precambrian granite, granodiorite and adamellite along with Precambrian biotite gneiss, psammitic hornblende, and migmatite. In a few places Precambrian metavolcanics crop out comprising metamorphosed rhyolite, dacite, andesite, basalt and pyroclastics. The weathering of these outcrops would produce a

[120] Porat and Goren 2001, 472; 2002, 258.
[121] Dubertret 1955, 22.
[122] Dubertret 1955, 40.
[123] Beydoun 1977, 322, 326, 328.
[124] Porat and Goren 2001, 477; 2002, 263.
[125] Abdel-Rahman and Nassar 2004, 548–549.
[126] Porat and Goren 2001, 477–479; 2002, 263–265.
[127] Porat and Goren 2001, 479–280; 2002, 265–266.
[128] Said 1962.

broad mix of rock types and would need to travel some distance to reach places where shale and sandstone are present. The Abydos samples in this study with volcanic rocks would not match the metavolcanics in the Wadi Qena. The two samples with igneous rocks and andesite would also not find a comparison with the Precambrian formations in this part of Egypt. Finally, the silty shale and shale clay group is less likely to be from Wadi Qena as siltstone and shale are uncommon and most of the exposed Upper Cretaceous and Pliocene deposits are calcareous. Further, due to the history of the Tethys Sea, shale is common in the south and siltstone in north but there are few areas where they are associated. Rather, shale is often found with sandstone. Nevertheless, there are examples of shale-derived clay being utilized to produce local Egyptian pottery, particularly in the Predynastic.[129] However, there is little silty quartz or sandstone in these samples and their appearance is dissimilar to the samples analyzed in this study. Only through raw material sampling in this area and the purposed areas of Lebanon can a clear idea of provenance be attained.

Several statements by Porat and Goren[130] on Predynastic imports have proven true based on the results of the current analysis, 1) a single area of production using related raw materials is highly likely; and 2) this area was not in Palestine (except for possibly Sample #3). While three petrographic analyses performed on the material from Tomb U-j all identified the same clays and inclusions, the interpretation of their origin is what varies. Establishing a provenance for samples through petrographic analysis relies mostly on indirect evidence using geologic maps and published reports. This information can change over time as more work is conducted in an area. Further, additional archaeological and ceramic evidence can be acquired that suggests other areas are more promising as production locations. As more knowledge is gained, petrographic interpretations may change.

## Part III – Conclusions

Although this sample of 20 imported Levantine EB I-II pottery vessels from Abydos–Umm el-Qaab only represents a tiny fraction of the hundreds of imported vessels from this site, it opens up new avenues of research and indeed encourages more scientific analysis and interpretation of such imported material in Pre-, Proto- and Early Dynastic Egypt.

What is important is that these samples stretch over a period of some 400 years, from the late Predynastic Period (Tombs U-134 and U-j), via the Proto-Dynastic Period and early 1st Dynasty in Cemetery B, and up to the tomb of King Den of the middle of the 1st Dynasty, i.e. between ca. 3350–2950 B.C.E. Across these phases, the samples fall into distinct groups, but all phases share at least one of the three petrographic groups, i.e. the silty shale group, whilst the calcareous volcanic group occurs in the earliest and latest set of samples. This would strongly suggest that there is a degree of chronological continuity on the one hand and inherent heterogeneity within one period, on the other. This can be illustrated with the imports from the tomb of King Den; the different kinds of wares, which have been classified largely on the basis of surface treatments, sometimes share the same petrographic group suggesting that different ceramic styles were produced in the same area. Conversely, the same ware, such as Red Burnished Ware, is represented by different petrographic clay groups, i.e. the silty shale and calcareous group, meaning that the same style of pottery was sometimes made of different raw materials.

Another important aspect to consider is that in the Predynastic Period, wine seems to have been the main commodity transported in the imported vessels until the Egyptians discovered wine making for themselves in the Proto-Dynastic Period. However, this did not end trade relations with the Levant, since other commodities, i.e. resin, oils or other fatty liquids, probably replaced wine as a predominant imported commodity suggesting that the drive to maintain contacts with Egypt was strong.

Even though many of the vessel shapes discussed in this paper find archaeological parallels in southern Levantine EB Ib and EB II assemblages it is interesting to note that recent excavations in early EB layers in the northern Levant have also yielded useful local parallels, both in shape and in surface treatments.[131] This is supported by the petrographic analysis which places the silty shale group

[129] Ownby in press; Ownby 2014, 221.

[130] Porat and Goren 2001, 480–481; 2002, 266–267.

[131] E.g. at Tell Arqa, strata 20 and 21. Pers. comm. Jean-Paul Thalmann. And see Köhler and Thalmann 2014, Figs.11–15. Also EB II material from Tell Fadous Kfarabida, cf. Genz 2010, Fig.12; 2014: 71, Fig.7, although Phase II is still not well exposed. See also Badreshany 2013 for a recent summary of EB II-III pottery in Lebanon.

near the Lower Cretaceous outcrops in northern Lebanon. The petrographic analysis of this particular material therefore is significant for two reasons; firstly because it documents that these ceramic imports of different qualities and obvious heterogeneity are made from quite similar raw material and thus originate in the same wider region, i.e. probably the northern Levant. That is in itself not a new discovery since 4th Millennium early Predynastic Egyptian interconnections with Byblos or its environs have been considered for some time, based primarily on timber, resin, ivory objects and other exotic materials.[132] A possible central Levantine origin has also long been considered for certain vessel types of the EB II imports, in particular for the polished jars and juglets.[133] But the focus has always been more strongly directed upon the south, especially in recent years, which may be due to several reasons. One is probably that a close relationship has been established petrographically between 'Abydos Ware' and 'Metallic Ware'[134] and that the latter has long been regarded as a southern Levantine product being manufactured in the region of the Golan Heights and Mount Hermon.[135] The other reason is that a strong Egyptian influence has been detected at numerous EB Ib southern Levantine sites suggesting that contacts between that region and the Nile Valley were close. Nevertheless, more recent research on Lebanese material supports the notion that 'Metallic Ware', or EB II–III Lower Cretaceous shale derived ceramic wares, was not only manufactured in northern Palestine but also across much of central and northern Lebanon, where Lower Cretaceaous outcrops occur, and especially along the Biqa$^{c}$ plain.[136] The wide distribution of this material across the Levant suggests that such shale derived pottery was manufactured in highly specialized and centralized industries indicating reasonably complex socio-economic structures and economic networks that would help to explain the large number of vessels exported, at least in EB II–III.[137]

Our study provides more clarity and scientific substantiation to the suggestion that from the late Naqada II period onwards, i.e. about half a millennium prior to the start of the Old Kingdom, interregional contacts between Egypt, and the southern and northern Levant were close and regular and that the southern Levant was clearly not the only, or not the chief exchange partner. Our investigation has also brought a solution to the problem about the nature of those EB Ib imports from Tomb U-j, where a southern origin could not be demonstrated. As Porat and Goren had pointed out "*the great majority of the so-called Canaanite ceramic assemblage from Tomb U-j in Abydos was not imported from Canaan"*,[138] with which we fully agree. But they are clearly not of Egyptian manufacture and instead likely point to the northern coast of Lebanon.

This would allow for the suggestion that the contacts with the north were direct and via the sea, likely related to the early trade in timber, and that intermediaries were possibly not necessary.[139] It raises the question what role the southern Levantine EB Ib–EB II sites with strong Egyptian influence have really played in facilitating this contact. For example Beth Yerah, a site in the Galilee, has been discussed as a possible early Egyptian entrepôt for the trade in commodities such as resin and oil acquired from the north and transported in 'Metallic Ware' jars.[140] Some would even go as far as to say that the early Egyptian state maintained more than just trading posts, but colonies in the south during EB Ib, i.e. the late Predynastic and early Proto-Dynastic Period, and that parts of the southern Levant were an 'Egyptian colonial territory'.[141] There is no doubt that Egyptian influence was significant in this region[142], but it is also necessary to remember that at this time, there was no single territorial state system or entity in the Nile Valley, but several, probably competing regional polities.[143] From an Egyptian perspective, it is necessary to consider that these regional and still

[132] Prag 1986; Hartung 2001, 245–388; de Miroschedji 2002; Braun and van den Brink 2008; Hartung 2014.

[133] Wright 1937; Henessy and Millet 1963; Henessy 1967; Esse and Hopke 1986; Kantor 1992.

[134] Cf. Esse 1991; Greenberg and Porat 1996; Porat and Adams 1996; Braun 2010, 28.

[135] Porat and Adams 1996; Porat and Goren 2001, 466; Porat and Goren 2002; Greenberg and Eisenberg 2002 and most recently Miroshedji 2014, 320.

[136] Badreshany and Genz 2009; Badreshany 2013, 263, 462, Fig.5.5.

[137] Badreshany 2013, 591.

[138] Porat and Goren 2002, 267.

[139] See also Köhler and Thalmann 2014, 191.

[140] Cf. Greenberg and Eisenberg 2002; Sowada 2009, 52.

[141] Miroshedji 2002; 2014, 212. See also Wilkinson 1999, 152–155.

[142] Hartung 2001, 385–388; 2014.

[143] Campagno 2002; Köhler 2010.

developing state polities had their own logistical challenges to overcome. Consideration of a variety of interpretive avenues, in addition to a colonial state enterprise in the southern Levant, is therefore prudent.[144] As much as the picture about the socio-economic circumstances and possible origins of commodities exported from the Levant is proving to be rather complex, also the political and socio-economic situation in the Nile Valley has to be regarded as in constant flux during the Pre-, Proto- and Early Dynastic Periods and following a variety of narratives.

This exchange certainly had its ups and downs, the ups being the early Naqada III period as measured by the hundreds of imported vessels in Cemetery U as well as the royal tombs of the 1st Dynasty. The downs being the Proto-Dynastic Period and the 2nd and 3rd Dynasty, although contacts never entirely ceased. It would probably be naive to measure the level of intensity of contacts on the basis of vessel counts alone because there does seem to be a general relation between tomb size (i.e. wealth of the owner) and number of vessels, at least for the time until the end of the 1st Dynasty. This explains the large quantities of imported vessels in the Memphite region due to the high concentration of very large and very well-equipped elite tombs in the area.[145] There is possibly also a relation between the length of a king's reign and the number of vessels from that king's reign, given that King Den probably ruled for at least 30, possibly even more than 40 years, and that his tomb contained very many imported vessels.[146] The death of a king and his burial would have resulted in the removal of a large portion of ceramic containers from the economic distribution circuit. The current estimate for the length of the 1st Dynasty should also be considered in this contexts as the eight kings of that dynasty probably ruled for some 200 years;[147] a long time span over which a lot of material could have been imported. However, almost the same could be said about the 2nd Dynasty kings, except that their tombs produced hardly any imported vessels.[148] But there are too many unknowns in this equation, because several 2nd and 3rd Dynasty royal tombs are poorly investigated, and indeed still missing. There is no obvious reason why contacts with the Levant should have suddenly ceased because many of the kings of the 2nd Dynasty also had long and stable reigns and very large, monumental tombs, suggesting economic wealth and buying power. Also, imported Levantine vessels were deposited in non-elite tombs until at least the middle of the 2nd Dynasty, indicating that the exchange networks were operational.

What is also still unsolved to this day is the question, what exactly the Nile Valley merchants could offer in exchange for northern Levantine goods, given that there are so few early Egyptian imports in the archaeological record of the north.[149] More research is necessary to investigate all these questions and the authors hope to pursue these in the near future on a much broader basis.

144 Hartung 2013a, 25–27.

145 E.g. Emery 1938–1961; Saad 1951, pl.LXXII:19–21. It is worth noting that not all of the previously published Levantine style vessels from early Memphite tombs are necessarily imported, see Köhler and Ownby 2011.

146 Nakano 1998; but see also Müller 2014.

147 cf. Köhler 2013; Dee *et al.* 2013.

148 The most recent publication on the tomb of Ninetjer in Saqqara by C. Lacher-Raschdorf (2014) does not mention any imported pottery.

149 Badreshany 2013, 578.

Table 2 – Overview of samples discussed in this study in chronological order of contexts

| Fig. | Provenance | Sample/Field/ Vessel Number | Short Description | Petrographic group | Probable date |
|---|---|---|---|---|---|
| 4<br>5<br>18d | Abydos,<br>U-134 | #5<br>134/12; Hartung No. 437 | Lower part of a globular jar; Ware group 8 | Shale | Naqada IID |
| 3<br>5 | Abydos, U-j | #1<br>U-j 12/18;<br>Hartung No. 238 | Ovoid jar; Ware group 2 | Shale igneous | Naqada IIIA1 |
| 4<br>5 | Abydos, U-j | #2<br>U-j 10/64;<br>Hartung No. 449 | Globular jar with vertical handles and painted decoration (vertical stripes); Ware group 11 or 1 | Silty shale | Naqada IIIA1 |
| 4<br>5<br>18b | Abydos, U-j | #3<br>U-j 12/11;<br>Hartung No. 428 | Globular jar with vertical handles and painted red stripe decoration; Ware group 7 | Calcareous volcanic | Naqada IIIA1 |
| 3<br>5<br>18c | Abydos, U-j | #4<br>U-j 10/69;<br>Hartung No. 154 | Spouted jar with vertical handles and flimsy painted red stripe decoration; Ware group 1 | Shale chert | Naqada IIIA1 |
| 6:1<br>7:1 | Abydos, U-y | #6<br>U-y/1;<br>Hartung 2001 No. 457 | Base and rim fragments of a squat jar with flat base, restricted rim, vertical handles and combed surface; Fabric Ia | Silty shale | Early Naqada IIIB |
| 6:2<br>7:2 | Abydos<br>Cemetery B | #9<br>BS-11 | Base fragments of a jar with flat base and combed surface; Fabric Ia | Silty shale | Dynasty 0/ early Dynasty 1 |
| 6:3<br>7:3 | Abydos<br>Cemetery B | #7<br>BS-2 | Fragments of a small squat jar with flat base, cylindrical neck, multiple vertical handles and streaky polished surface; Fabric Ia | Silty shale | early Dynasty 1 |
| 6:4<br>7:4 | Abydos<br>Cemetery B | #8<br>BS-8 | Base fragment of a jar with flat base, streaky polished surface and pre-firing potmark; Fabric Ic | Shale quartz | Dynasty 0/ early Dynasty 1 |
| 6:5<br>7:5<br>16b | Abydos<br>Cemetery B | #10<br>BS-14 | Base fragments of an ovoid jar with flat base and wet-smoothed surface; Fabric Ib | Shale igneous | Dynasty 0 |
| 7:6 | Abydos, Tomb of Djer | #15<br>O-(1), O-KK-NO.3 | Base fragments of an ovoid jar with flat base, vertical handle, orange-red slip and irregularly burnished surface | Silty shale | Early Dynasty 1 |
| 12<br>17:5 | Abydos, Tomb of Den | #11<br>T-KK/75 | Fragments of a globular juglet; red burnished | Silty shale | Dynasty 1 |
| 8<br>17:1 | Abydos, Tomb of Den | #12<br>T-W/71 | Base fragment of a juglet with burnished surface, Light Faced Burnished Ware | Calcareous volcanic | Dynasty 1 |
| 15<br>17:8 | Abydos, Tomb of Den | #13<br>T-aB/288 | Fragments of a juglet; plain net burnished | Shale quartz | Dynasty 1 |
| 14<br>17:7 | Abydos, Tomb of Den | #14<br>T-aB/257 | Fragments of a jar; red net burnished | Shale | Dynasty 1 |
| 9<br>17:2 | Abydos, Tomb of Den | #16<br>T-aB/253 | Base fragment of a jug with burnished surface; plain burnished | Shale? sandy | Dynasty 1 |
| 11<br>17:4 | Abydos, Tomb of Den | #17<br>T-aB/251 | Fragments of a juglet; red burnished | Calcareous | Dynasty 1 |
| 10<br>17:3<br>18e | Abydos, Tomb of Den | #18<br>T-aB/271 | Fragments of a juglet with small lug handles; plain burnished and combed ware | Silty shale | Dynasty 1 |
| 13<br>17:6 | Abydos, Tomb of Den | #19<br>T-aB/283 | Fragments of a squat jar; red burnished | Silty shale | Dynasty 1 |
| 16<br>17:9 | Abydos, Tomb of Den | #20<br>T-aB/290 | Base fragment of a squat jar with burnished surface; plain net burnished and combed | Silty shale | Dynasty 1 |

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# EGYPTIAN CHRONOLOGY: RAMESSES II THROUGH SHOSHENQ III, WITH ANALYSIS OF THE LUNAR DATES OF THUTMOSES III

*Rolf Krauss*

## Introduction

The traditional order of Shabaqo and Shebitqo has been questioned recently, implying that Bokchoris was overthrown ca. 712 BC by Shebitqo, rather than by Shabaqo in ca. 721 BC.[1] Bubastide and Dyn. 21 relative chronologies present severe uncertainties. It has been, and is still an open question whether Osorkon II reigned for three or four decades. Furthermore, I revive here the old idea that Herihor ruled Egypt between Ramesses XI and Smendes. By contrast, Ramesside relative chronology appears to be fairly certain, yielding at least 199 y or 200 y+ 303 d and thus more or less 200 or 201 full years for the interval between the accession of Ramesses II and the latest generally accepted attestation of [Ramesses XI] on I Shemu 25 in year 10 [*wḥm mswt :* corresponding to regnal year 28]. It irritates me that Aidan Dodson opts for replacing the linear succession of Ramesses IX, X and XI by a scheme of overlapping reigns.[2]

But how does TIP chronology relate to NK chronology, and in particular to 1 Ramesses II as determined by the lunar date in his year 52? Below I try to eliminate some of the uncertainties with the help of lunar dates as implied by Tepi Shemu dates, inductions of Apis bulls, and dates of the Feast of the Valley. A parallel study by Rita Gautschy will appear in JEH under the title "The Tepi Shemu feast: A tool for testing chronologies of Dynasty 21 to 25?" She has sent me her manuscript and asked me to refer to it below.

For the astronomical computations I use Uraniastar 1.1 which computes lunar positions on the basis of Ernest Brown's lunar theory in the slightly abridged version of Jean Meeus;[3] for the reliability of Uraniastar, see Maria Firneis.[4] As a control, I employ the more recent program Alcyone Ephemeris 4.3 (http://www.alcyone.de/ae/documentation/Index.html) which is based on Steve Moshier's analytical ephemeris and the lunar ephemeris of Michelle Chapront-Touzé and Jean Chapront, both adjusted to Jet Propulsion Laboratory's ephemeris DE 404.[5] These programs allow corrections for Δt (delta t), the difference between Universal Time and Terrestrial Time that results from the slowing of the earth's rotation.[6]

A list of first and last days of lunar visibility for Egyptian and Babylonian localities has been published online by Rita Gautschy.[7] There might be occasional differences between Gautschy's list and what I cite in what follows – namely in such cases where crescent visibility is computationally doubtful. I determine the odds of visibility in doubtful cases by an empirical uncertainty zone,[8] according to the principle first formulated by Peter J. Huber.[9] Note also that I occasionally cite a LD 1 which differs by 1 day from what I cited in earlier studies, especially in *Sothis- und Monddaten* (1985). In that publication, I relied upon the astronomical tables of Paul Viktor Neugebauer and the crescent visibility criteria of Carl Schoch which are now slightly outdated.

## Late Bubastide chronology

Ptolemy's Canon combined with Saite relative chronology enabled Egyptologists of the 19th century to establish the absolute chronology of Dyn. 26 barring the question of whether 1 Psamtik I was 663 or 664 BC. Richard A. Parker could

1 Bányai 2013, 46–129; for a critique of this thesis see Broekman 2015.

2 Dodson 2012, 187.

3 Pietschnig 1992.

4 Firneis 2003, 48.

5 Lange 2005.

6 For the effect of Δt in the case of Babylonian eclipses listed in Ptolemy's Alamagest, see Krauss 2014, 32, with literature.

7 http://www.gautschy.ch/~rita/archast/mond/mond.html

8 Krauss 2012, 17–22.

9 Huber 1982, 25–27; Huber 2011, 189.

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determine 1 Psamtik = 664 BC on the basis of a lunar date in a document of 12 Amasis.[10] Serapeum stela CSSM No. 192 attests year 26 of Taharqa.[11] The induction date of the respective Apis is computable as IV Peret 9 = September 11 in 664 BC corresponding formally to 27 Taharqa, overlapping 1 Psamtik I; the result confirms Parker's date, 690 BC, for 1 Taharqa.[12]

Since, for example, as late as 713 BC Yamani of Ashdod could seek aid from a Pir'u (Pharaoh), the Kushite invasion does not yet seem to have taken place.[13] Thus Shebitqo as predecessor of Shabaqo seems to have conquered Egypt in 712 BC at the earliest and ruled over Egypt at least until Sargon II's inscription of Tang-i Var,[14] which shows that Shebitqo was in control of Egypt in 706 BC at the latest. Thus Shabaqo's reign would have begun between 706 and 704 BC and lasted 14 full years until Taharqa's accession in 690 BC, his highest attested date being year 15, Payni 11 [II Shemu 11].[15] On the other hand, Kitchen points out that "Shilkanni/So (Osorkon IV) is not yet known to have been called 'Pharaoh' explicitly by either Egyptian or foreign sources. By contrast, in contemporary papyri the Nubian rulers in Egypt are called ... 'Pharaoh' ..."[16] Under these premises the pir'u of 713 could be a Kushite.

If, alternatively, Shabaqo was the predecessor of Shebitqo, he may have invaded Egypt between 712 and 706 BC or possibly earlier. According to Auguste Mariette[17] (with whom Mohamed Ibrahim Aly[18] agrees) the Bokchoris Apis (XXIV.1) and its predecessor (XXII.7) which died in 37 Shoshenq V had been buried in one and the same vault. The latter mentioned another vault where he found a stela dated to 2 Shabaqo and also remains of a cartouche (?) with /// *kꜣw*, indicative of *ḏd-kꜣw-rꜥ*, the throne name of Shebitqo.[19] Jean Vercoutter misunderstood Mariette, as if the latter had found an inscription dated to Shabaqo's year 2 on a wall of the vault where Bokchoris had buried Apis XXIV.1 in year 6.[20] In combination with the attested reign-length of Shabaqo and the Tang-i Var inscription, Vercoutter's mistake resulted in dating the Kushite invasion in 721 ± 2 BC, corresponding to 2 Shabaqo and 6 Bokchoris.[21] In spite of the correction there is indeed a chronological connection between the Kushite conquest and Bokchoris via Apis XXIV.1. The latter bull was buried in 6 Bokchoris, the latest year attested for him who reigned, according to Manetho, for 6 years before his defeat. If the Manethonian tradition is correct, then the Kushite conquest would have taken place within a year or so after the death of Apis XXIV.1. Furthermore, Apis XXIV.1 connects Bokchoris and the Bubastide kings via his predecessor Apis XXII.7 which died in 37 Shoshenq V and had been inducted in 12 Shoshenq V. The latter's Apis predecessors – Apis XXII.6 and XXII.4 – determine the relative chronology between 28 Shoshenq III and 12 Shoshenq V.[22]

Table 1 Apis bulls, inducted or buried between 28 Shoshenq III and 6 Bokchoris

| Apis Mariette numbers | induction | burial | life span |
|---|---|---|---|
| XXIV.1 | ≥ 37 Shoshenq V | 6 Bokchoris | ? |
| XXII.7 | 12 Shoshenq V<br>IV Peret 4 | 37 Shoshenq V<br>III Akhet 27 | ca. 25 years |
| XXII.6 | ≥ 2 Pami | 11 Shoshenq V | 17 (+ 3 ?) |
| XXII.4 | 28 Shoshenq III<br>II Akhet 1 | 2 Pami | 26 years |

If Apis XXIV.1 lived the maximum life span of 26 years attested for Apis bulls,[23] then there would be an interval of about 21 undocumented years between 38 Shoshenq V and 1 Bokchoris, provided that Apis XXIV.1 was born and installed soon after the burial of Apis XXII.7 in 37 Shoshenq V.[24] At some time between 38 Shoshenq V and the accession of Bokchoris, Tefnakhte took over Mem-

[10] Parker 1957a, 208–212; see now Donker van Heel 1995, 93–99.

[11] For the objects with CSSM numbers see Malinine 1968.

[12] Krauss 2007a, 342–344.

[13] See Payraudeau 2014, 10, for a concise presentation of the arguments which date the Kushite invasion in 712 BC.

[14] Frame 1999, 31–57; Kahn 2001, 1–3.

[15] Block statue BM 24429, cf. Leclant 1954, 16–18.

[16] Kitchen 2009, 164.

[17] Mariette 1857, 24; 1904, 215.

[18] Aly 1991, 309.

[19] Mariette 1857, 26; Mariette 1904, 228.

[20] Vercoutter 1960, 65–67; for the corrected view see Aly 1991, 307–312, also Payraudeau 2014, 5 and Krauss 2005b, 177.

[21] Jansen-Winkeln 2006b, 261 n. 189.

[22] Apis XXII.6 succeeded immediately on XXII.4; Mariette had Apis XXII.5 in the wrong place.

[23] Vercoutter 1958, 342 n. 4.

[24] The Serapeum inscriptions do not mention the birth or introduction of Apis XXIV.1 and refer only to the burial.

phis.[25] In his regnal year 20 (?) Piye drove a non-royal Tefnakhte out of Memphis;[26] whether Tefnakhte could return and when Bokchoris took over Memphis is moot.

Zoologists proved evasive when I enquired about the maximum life span of cattle. My impression was that ageing animals do not die of old age, at least not in the zoological garden of Berlin where I enquired, but rather are put down. For about 20 years and more as the natural life span of *Bos primigenius taurus*, see <http://es.wikipedia.org/wiki/Bos_primigenius_taurus>. The same source cites an extraordinary 49 years as documented-age-at-death of a cow, making it possible that an Apis could have lived more than 26 years. For the unexpected premature death of a formidable bull aged 11 years, see El País, 24 March 2013: "Muere 'Ratón', el toro estrella", <http://sociedad.elpais.com/sociedad/2013/03/24/actualidad/1364149746_913556.html>.

Apis XXII.6 was buried in 11 Shoshenq V (CSSM 26); he was inducted at the earliest in 2 Pami, who ruled between Shoshenq III and V for at least 6 full years.[27] Apis XXII.4 died in 2 Pami (CSSM 22); he was inducted on II Akhet 1 in 28 Shoshenq III and lived for 26 years which implies that 1 Pami fell 52 years after the accession of Shoshenq III corresponding to 39 years of Shoshenq III + 13 years of Shoshenq IIIa or IV.[28]

If 52 + 6 + × + 38 = 96 + × = regnal years from 1 Shoshenq III to 38 Shoshenq V are combined with the life span of Apis XXIV.1 which lived at least 5 years under Bokchoris and may have lived for the otherwise attested maximum of 26 years, (96 + y + × + 5) to (96 + × + y + 21) years result for the interval between 1 Shoshenq III and 5 Bokchoris; × refers to years of Pami after year 6 and y to the uncertain interval between the death of Apis XXII.7 and the birth of Apis XXIV.1. Note that intervals of 1, 2, and 3 years without an Apis are attested.[29] Under these premises and if reckoned from 713 BC ± 1 for the death of Apis XXIV.1, then the years 814 BC ± 1 + × + y to 835 BC ± 1 + × + y result for 1 Shoshenq III.

As I have shown in a revision of Ludwig Borchardt's "Apis-Inthronisationen bei Vollmond",[30] it follows from Ptolemaic and Saite cases that the induction of Apis bulls took place around full moon or to be more precise on lunar day (LD) 15 ± 3.[31] The minimum distance between the inductions of Apis XXII.4 and XXII.7 is about 41.5 years, if 6 full years are assumed for Pami. The exact minimum distance of 41 y + 183 d corresponds to 15148 d = 513 lunar months (LM) – 1 d which means that the induction of Apis XXII.7 fell on average one lunar day earlier than the induction of Apis XXII.4. If 9 regnal years are assumed for Pami, then the distance between Apis XXII.4 and *XXII.7 amounts to 16243 d = 550 LM + 1 d which would mean that the induction of Apis *XXII.7 fell on average one lunar day later than the induction of Apis XXII.4.

An 11-year reign of Pami is assumed by Jürgen von Beckerath,[32] which would result in a distance of 16973 d = 574 LM + 23 d between the inductions of Apis XXII.4 and XXII.7. The two events would then not fall within the same narrow interval of lunar days as expected. There are also no coincidences if Pami's reign length is presumed to have been 7, 8 or 10 years.[33] Under the present circumstances, a reign of Pami exceeding 9 years seems to be no option.[34] Table 2 presents the possible induction dates for Apis XXII.4 and XXII.7 with reference to 1 Shoshenq III, considering 6 (XXII.4) or 9 (*XXII.4) years for Pami.

The lunar induction dates for Apis XXII.4 and XXII.7 are connected via Shoshenq III with the lunar feast dates of *Tepi Shemu*. The feast lasted for 5 days; it began on LD 1 of civil I Shemu (Tepi Shemu) or on LD 1 of lunar I Shemu corresponding to lunar month IX (see Excursus 2). In Bubastide sources the feast is explicitly attested by the date Louvre C.258 and implicitly by frag. 7 of the Karnak priestly annals; further feast dates can be inferred from frag. 1b and frag. 2. At closer scrutiny frag. 1b may not be an event of the Tepi Shemu feast; for reasons of reference to earlier literature I retain here frag. 1b, though marked as questiona-

[25] For year 38, see Beckerath 1995, 95.

[26] Piye ruled at least until a year 24. A year 30 (or 40) is by no means certain, see Kitchen 1973, 152 n. 292.

[27] Cf. Jansen-Winkeln 2006b, 245, referring to Bickel 1998, 31–56.

[28] Cf. Jansen-Winkeln 2006b, 244, citing Dodson 1993.

[29] Vercoutter 1958, 341f.

[30] Borchardt 1935, 62–68.

[31] Krauss 2007a, 347f.

[32] Beckerath 1997, 98.

[33] 12 years yield borderline coincidences; 17 years would be okay.

[34] But see Payraudeau 2014, 127 n. 82.

ble. Note that the deletion of frag. 1b would have no consequences for the determination of 1 Shoshenq III (Table 2).

(Louvre C.258) I Shemu 11 in 11 Takeloth II, arrival in Thebes of HP Osorkon *m ḥ3b.f nfr n tpy šmw*; inscription of priest Hori.[35]
**(?)** (frag. 1b) I Shemu [1] in 7 Pedubast I: introduction of *jt nṯr P3-dj-Jmn*.[36]
(frag. 2) I Shemu 19 in 8 Pedubast I: introduction of vizier *P3-nty-jw.f-ʿnḫ*.[37]
(frag. 7) I Shemu 26 in 39 Shoshenq III; *ḥb Jmn*; introduction of a vizier.[38]

Louvre C.258 refers to the confirmation of an earlier priestly introduction on the day when HP Osorkon arrived at Thebes to take part in the Tepi Shemu feast. According to Ricardo Caminos this was the second time in year 11 of Takeloth II that HP Osorkon came to Thebes; the first time was about four months earlier, when he subdued a rebellion.[39]

Jean-Marie Kruchten asserts as apparently self-evident that the *ḥb Jmn* of frag. 7 refers to the Tepi Shemu feast.[40] I adduce the following reasons for the identification. David Aston has coherently argued that Takeloth II and Pedubaste I were rivals in Thebes when Shoshenq III ruled in Memphis.[41] The interpretation of Nile Level Record (NLR) no. 24 as 12 [Shoshenq III] = 5 Pedubast I has been argued by Kenneth A. Kitchen and is now generally accepted.[42] According to Aston year 22 of Shoshenq III must have followed soon on year 24 of Takeloth II or immediately on Takeloth II's year 25, as the latter's highest known year date. Louvre C.258 and frag. 7 coincided approximately with the same lunar day, if their distance is determined as 32 years + 15 days,[43] corresponding to 396 average lunar months + 0.9 days; the date of frag. 7 was on average one lunar day later than that of Louvre C.258. Since the latter refers explicitly to the Tepi Shemu feast it follows from the lunar distance that the *ḥb Jmn* of frag. 7 refers to the same feast.

Furthermore, provided that HP Osorkon arrived on time for the Tepi Shemu feast (Louvre C.258), it follows that the date of frag. 7 refers to an early feast day. Under these premises, frag. 2 and also frag. 1b would have fallen on late feast days. Table 2 lists the resulting lunar months (LM) and days (LD) which correspond to the civil dates of Louvre C.258, frgs. 1b, 2 and 7 in the time span between 855 and 813 BC. The time span accommodates the interval 814 BC ± 1 + × + y to 835 BC ± 1 + × + y for 1 Shoshenq III as argued above. The lunar months (Roman numerals) are counted within the civil year, taking I Akhet 1 as the earliest beginning of a lunar month and reckoning a blue month like a regular lunar month.[44]

I accept LDs 30 to 5 as astronomically feasible interval for the Tepi Shemu feast days. The inclusion of LD 30 accounts for the possibility that an old crescent can be missed on this day and LD 1 declared one day early. I also accept an astronomically computed LD 6 as a rather improbable, but not to be excluded possible last day of the Tepi Shemu feast, taking into account that a lunar month could have begun a day late when a lunar month of 29 days is given 30 days by a mistaken guess.[45]

Table 2 implies 852, 841, 830 or 816 BC as astronomically possible solutions for 1 Shoshenq III. In all four cases the lunar correspondences imply that 1 Shoshenq III = 5 Takeloth II and 5 Petubast I = 12 Shoshenq III. The solutions – 1 Shoshenq III = 841 or 816 BC – are astronomically preferable over 830 BC, and they imply, in the case of Louvre C.258, that an old crescent was missed on a LD 30, so that the lunar month which ended by mistake on the preceding day still had a standard length of 29 days. Furthermore, it is quite possible that HP Osorkon arrived in year 11 of Takeloth II on I Shemu 11 on the eve of the Tepi Shemu feast.[46] Thus Louvre C.258 may refer not to the first feast day or LD 1, but to the previous day. In the latter case it would be unnecessary to presume an observational mistake on I Shemu 11 being a LD 30.

35 Kruchten 1989, 257–263.
36 Kruchten 1989, 25f.
37 Kruchten 1989, 36–44.
38 Kruchten 1989, 61–80.
39 Caminos 1958, 10–42.
40 Kruchten 1989, 80.
41 Aston 1989, 139ff.
42 Kitchen 1973, §§ 106–107; cf. Jansen-Winkeln 2006b, 248 n. 103.
43 Implying 5 Takeloth II = 1 Shoshenq III, see Krauss 2006a, 409.
44 A blue month is defined by a LD 1 on the first as well as on the last day of a 30-day civil month.
45 For an estimate of how often this might occur, see Krauss 2006a, 401.
46 For this possibility, see N.N. on Takeloth II in Wikipedia (accessed 4/4/2015).

Table 2 Alternative years for 1 Shoshenq III, corresponding to years of Tepi Shemu feasts and years of Apis inductions. The possible induction dates of Apis XXII.7 correspond to 6 full years for Pami; the alternative dates for *XXII.7 correspond to 9 full years.

| | lunar days (and months) of Tepi Shemu dates | | | | Apis inductions | | |
|---|---|---|---|---|---|---|---|
| 1 Shoshenq III | 11Takelot II Louvre C.258 | ? *7 Petubast I frag. 1b* | 8 Petubast I frag. 2 | 39 Shoshenq III frag. 7 | XXII.4 | XXII.7 | *XXII.7 |
| 855 | 29 | *5* | 4 | 29 | 14 | 12 | 14 |
| 854 | 10 | *16* | 15 | 11 | 24 | 22 | 25 |
| 853 | 20 | *26* | 25 | 22 | 5 | 3 | 6 |
| **852** | **IX.1** | *VIII.7* | **IX.6** | **IX.3** | **15** | **14** | **17** |
| 851 | 12 | *17* | 16 | 13 | 26 | 25 | 28 |
| 850 | 23 | *28* | 27 | 24 | 7 | 6 | 9 |
| 849 | 4 | *9* | 8 | 5 | 18 | 17 | 19 |
| 848 | 15 | *20* | 19 | 15 | 29 | 28 | 29 |
| 847 | 26 | *1* | 30 | 26 | 10 | 9 | 10 |
| 846 | 7 | *12* | 11 | 7 | 20 | 19 | 21 |
| 845 BC | 17 | *23* | 22 | 18 | 1 | 29 | 3 |
| 844 | 27 | *4* | 3 | 29 | 12 | 10 | 14 |
| 843 | 8 | *14* | 13 | 10 | 22 | 21 | 24 |
| 842 | 19 | *24* | 23 | 20 | 3 | 3 | 5 |
| **841** | **VIII.30** | *VIII.5* | **IX.4** | **IX.1** | 15 | **14** | **16** |
| 840 | 11 | *16* | 14 | 12 | 25 | 24 | 26 |
| 839 | 22 | *27* | 26 | 22 | 7 | 5 | 7 |
| 838 | 3 | *8* | 8 | 3 | 17 | 16 | 18 |
| 837 | 14 | *19* | 18 | 14 | 28 | 26 | 29 |
| 836 | 24 | *30* | 29 | 25 | 9 | 7 | 10 |
| 835 | 5 | *11* | 10 | 6 | 19 | 18 | 21 |
| 834 | 15 | *21* | 20 | 17 | 30 | 29 | 2 |
| 833 | 26 | *2* | 1 | 27 | 11 | 10 | 12 |
| 832 | 7 | *11* | 12 | 8 | 22 | 21 | 23 |
| 831 | 18 | *23* | 22 | 19 | 3 | 2 | 4 |
| **830** | **VIII.29** | *IX.5* | **IX.4** | **IX.29** | **13** | **12** | **14** |
| 829 | 10 | *16* | 15 | 10 | 24 | 23 | 24 |
| 828 | 21 | *26* | 25 | 21 | 5 | 4 | 6 |
| 827 | IX.2 | *VIII.7* | IX.6 | IX.3 | 15 | 14 | 17 |
| 826 | 12 | *18* | 17 | 14 | 26 | 25 | 28 |
| 825 | 22 | *28* | 27 | 24 | 7 | 6 | 9 |
| 824 | 4 ? | *9* | 8 | 5 | 18 | 17 | 19 |
| 823 | 14 | *20* | 18 | 15 | 29 | 28 | 30 |
| 822 | 26 | *1* | 30 | 26 | 10 | 9 | 11 |
| 821 | 7 | *12* | 11 | 7 | 21 | 19 | 21 |
| 820 | 17 | *23* | 22 | 18 | 2 | 30 | 2 |
| 819 | 28 | *4* | 3 | 29 | 12 | 11 | 13 |
| 818 | 9 | *14* | 13 | 10 | 23 | 21 | 24 |
| 817 | 19 | *25* | 24 | 21 | 4 | 2 | 5 |
| **816** | **VIII.30** | *VIII.6* | IX.5 | IX.2 | **14** | **13** | **16** |
| 815 | 10 | *16* | 14 | 12 | 25 | 24 | 26 |
| 814 | 22 | *27* | 26 | 22 | 6 | **5** | **7** |
| 813 | 3 | *8* | 7 | 3 | 17 | 16 | 18 |

Note that 852 BC is a formal possibility for 1 Shoshenq III, despite LD 6 as lunar correspondence for the civil date of frag. 2. The latter could have been interpreted as a LD 5 by a mistaken guess about the presence of old crescent on I Shemu 14 which would have been a LD 1 following on a 29-day lunar month. The same mistake is not feasible if 1 Shoshenq III were 827 BC, since in that case the lunar month that preceded had 30 days.

Table 2 also indicates the lunar days on which the Apis induction dates XXII.4 and

Table 3 Month lengths preceding the dates of Louvre C.258 and frag. 7, provided 1 Shoshenq III = 830 BC.

| Louvre C.258 | | frag. 7 | |
|---|---|---|---|
| 11 Takelot II, I Shemu 11 : 824 BC | length of lunar month | 39 Shoshenq III,<br>I Shemu 26 : 792 BC | length of lunar month |
| III Peret 13 = LD 1 | 30 days | III Peret 28 = LD 1 | 30 days |
| IV Peret 13 = LD 1 | 29 days | IV Peret 28 = LD 1 | 29 days |
| I Shemu 11 = LD 29<br>I Shemu 12 = LD 1 | | I Shemu 26 = LD 29<br>I Shemu 27 = LD 1 | |

XXII.7/*XXII.7 fell in the respective years of Shoshenq III and V. Since the inductions occurred on LDs 15 ± 3, regardless of whether Pami ruled for full 6 (XXII.7) or full 9 years (*XXII.7), the length of his reign cannot be determined on the basis of the Apis induction dates.

An obstacle in identifying 1 Shoshenq III as 830 BC is that old crescent would have been missed on LDs 29 in the cases of Louvre C.258 and frag. 7, resulting in month lengths of 28 days. Such month lengths would be acceptable if they resulted from mistaken observation at the end of two consecutive 29-day months. Parker and Dubberstein noted the possibility that Mesopotamian new crescent observation may have "resulted now and then in a twenty-eight-day month, when two months of twenty-nine days came together and bad weather conditions resulted in giving thirty days to the first month".[47] They cite two Assyrian astrological reports which refer to lunar months of 28 days; in one case the report stated explicitly that "the moon st[ood there] on the 28th day".[48] On analogy, Egyptian observers might have mistakenly surmised old crescent on a **LD 30 which actually was a LD 1 of a 29-day lunar month and then counted the last day of a subsequent 29-day month as day 28. Table 3 presents the corresponding data for Louvre C.258 and frag. 7 under the premise that Shoshenq III = 830 BC yielding 11 Takeloth II = 824 BC and 39 Shoshenq III = 792 BC. The situation of two subsequent 29-day months is not the case. Only one of the impeding 28-day lunar months could be removed by assuming that the date of Louvre C.258 refers to the eve of the Tepi Shemu feast. The same solution is not possible in the case of frag. 7 which asserts I Shemu 26 as a day of the Tepi Shemu feast.

The solution 1 Shoshenq III = 830 BC would close the gap of undocumented years between 38 Shoshenq V and 1 Bokchoris, but it would add 11 undocumented years to the interval between Osorkon I and Shoshenq III. By contrast, the solution 1 Shoshenq III = 841 BC adds 11 undocumented years to the interval between Shoshenq V and Bokchoris. Below, I consider 841 as well as 830 BC as possibilities for 1 Shoshenq III, despite the astronomical problems which are inherent in 830 BC; I am also aware that relative chronology barely allows 841 BC as the accession year of Shoshenq III, if the Kushite invasion took place in ca. 712 BC.

Finally, I mention that Gautschy in her study in a forthcoming issue of JEH tests certain alternatives, notably assigning year 12 in NLR 24 not to Shoshenq III, rather than to Takeloth II, and dating priestly introductions during the Tepi Shemu Feast on a specific day, rather than any of the five feast days.

## Early Bubastide chronology

Between Shoshenq I and Shoshenq III the reign lengths of the following kings are to be taken into account: Osorkon I – Shoshenq IIa Heqakheperre – Shoshenq IIb Tutkheperre – Shoshenq IIc Makheperre – Takeloth I – Osorkon II. Shoshenq IIa, IIb and IIc for whom only their burials are known will have had very short reigns.[49] A year 33 is reported on linen along with a year 3 on another piece of linen from the same mummy dated by braces with the name of Osorkon I stamped on a *menat*-tab.[50] Since "normally, the braces and pendants are the *latest-dated* items on these mummies (unlike some of the bandages), and hence may pro-

[47] Parker and Dubberstein 1942, 4.

[48] Thompson 1900, XLIII; see now Hunger 1992, 11, 37.

[49] Broekman 2011, 50, with literature; Broekman 2014, 349–351.

[50] Quibell 1898, 10f.

visionally be taken as evidence for the general date of burial,"[51] the interment can be dated to the time of Osorkon I or shortly thereafter. Under this premise it is generally assumed that year 33 refers to the reign of Osorkon I. The Manethonian tradition preserves 15 years for Osorkon I which Kitchen has tentatively understood as a corruption from 35 years.[52]

The reign lengths of Osorkon II and Takeloth I present severe problems. Takeloth I's reign is poorly attested. Taking up a line of reasoning by Hermann Kees and others,[53] Gerard P. F. Broekman argues that NLR nos. 16–21 date to the reign of Takeloth I.[54] The texts form a cluster insofar as they cite the officiating HP of Amun and regnal years though without the name of a king. Three texts name HP Iuwelot, a son of Osorkon I; one of his texts preserves a regnal year 5. Kitchen points out that "according to the so-called *stèle de l'apanage*, Iuwelot was but a youth in Year 10 of his father Osorkon I. Hence, the Year 5 in which he was high priest cannot well be that of Osorkon I, but must belong to a successor: Takeloth I ...".[55] The other three texts name HP Smendes III who is also inferred to be a son of Osorkon I;[56] his texts preserve regnal years 8 and 13 or 14.[57] Under these premises it is highly probable that the king to whose regnal years Iuwelot and Smendes III refer is their brother Takeloth I. Broekman concludes that Takeloth I probably ruled for 13 years; he points out that the Manethonian tradition as preserved in Africanus attributes 13 years to a Takelothis as successor of Sesonchis (Shoshenq I), Osorthon (Osorkon I) and "three others"; Eusebius omits the repetition of "three others". Since the "three others" may well correspond to Shoshenq IIa-c, the identification of "Takelothis" with Takeloth I is quite acceptable.

It is generally assumed that Osorkon II was the predecessor of Shoshenq III,[58] at least as ruler of Memphis. The Serapeum stela CSSM 18 attests year 23 for Osorkon (II) Meriamun Si-Bast on the occasion of an Apis burial. Broekman attributes NLR no. 14 which is dated to year 29 of "User-mare-setepenamun" to Osorkon II on the basis of the orthography of the word *ḥ ʿpj*.[59] Furthermore, Kitchen takes up the suggestion that year 22 (10+10+2) as date of the *sed*-festival of Osorkon II in Bubastis is a slip for year 30 (10+10+10), the normal year for a *sed*-festival and he presumes a total of 31 years.[60] On the other hand, Aston has argued on genealogical grounds that Osorkon II may have reigned for 40–45 years.[61] In a critical review of Aston's arguments Jansen-Winkeln concludes that "it is not too bold to suggest a reign of at least 30–40 years for Osorkon II".[62] He points to the fact "that it is precisely from the reign of Osorkon II that we have so many more monuments, both royal and private: far more than from the eras of Shoshenq I, Osorkon I and Shoshenq III who are otherwise the best documented of the TIP".[63] The induction of an Apis in 28 Shoshenq III implies that its predecessor was inducted around year 3 of Shoshenq III at the latest. If an Apis bull intervened between 23 Osorkon II and ca. 3 Shoshenq III and lived for the maximum span of 26 years, a maximum of ca. 45 years would follow for Osorkon II. For the astronomical possibilities of 31 or 42 regnal years of Osorkon II see Excursus 2.

Table 4 presents the chronological consequences up to 1 Shoshenq I, if 1 Shoshenq III is either 830 or 841 BC and if Osorkon II ruled for ca. 30 or 40 years, Takeloth I for 13 years, Shoshenq a–c together ca. 1 year and Osorkon I ca. 35 years.

Provided that 1 Shoshenq III is 830 BC and that Osorkon II ruled ca. 30 years, the latest resulting possibility for 1 Shoshenq I is ~930 BC. If 1 Shoshenq III = 841 BC and if Osorkon II ruled for ca. 40 years, then the earliest resulting possibility for 1 Shoshenq I is ~951. The possibilities result in ~951/940 BC to ~941/930 BC, corresponding to ca. 940 BC ± 10 years which includes the traditional 945 BC for 1 Shoshenq I.

## Chronology of late Dyn. 21

As recognized by Eric Young,[64] frag. 3a of the priestly annals mentions the introduction of a

[51] Kitchen 1973, § 11 n. 57.
[52] Kitchen 1973, § 89.
[53] Kees 1964, 195f; Beckerath 1966, 46 n. 22; Kitchen 1973, §§ 95–96.
[54] Broekman 2011, 49f.
[55] Kitchen 1973, § 96.
[56] Kitchen 1973, § 157.
[57] Beckerath 1966, 48.
[58] Jansen-Winkeln 2006b, 243.
[59] Broekman 2002, 174f.
[60] Kitchen 2006, 301; cf. Beckerath 1994, 50 n. 289 with older literature.
[61] Aston 1989, 145–148.
[62] Jansen-Winkeln 2006b, 241.
[63] Jansen-Winkeln 2006b, 241.
[64] Young 1963, 99–101.

Table 4 Alternative first regnal years from Shoshenq I to Shoshenq III

| | | | | |
|---|---|---|---|---|
| 1 Shoshenq III | (830) 841BC | | (830) 841 BC | |
| 1 Osorkon II | (~860) ~871 | ~30 years | (~870) ~881 | ~40 years |
| 1 Takeloth I | (~873) ~884 | 13 | (~883) ~894 | 13 |
| Shoshenq IIc | – | – | – | – |
| Shoshenq IIb | (~874) ~885 | ~1 | (~884) ~895 | ~1 |
| Shoshenq IIa | – | | – | – |
| 1 Osorkon I | (~909) ~920 | ~35 | (~919) ~930 | ~35 |
| 1 Shoshenq I | (~930) ~941 | 21 | (~940) ~951 | 21 |

priest in 2 Osorkon the Elder; the son of the respective priest was introduced in 17 Siamun according to frag. 3b:
frag. 3a: introduction in 2 Osorkon the Elder on I Shemu 20.
frag. 3b: introduction in 17 Siamun on I Shemu [1];

If it is accepted that Osorkon the Elder ruled for 6 years as listed in Manetho,[65] then Young's identification of frag. 3a results in genealogically acceptable 21 years as the interval between the introductions. Furthermore it is possible to interpret the dates of frag.s 3a & 3b as lunar Tepi Shemu dates, i.e. as LDs 1 to 5 and compute the corresponding possibilities in absolute chronology.[66]

Recently Frédéric Payraudeau discovered a fragment (code: P) of the Karnak priestly annals which documents introductions of priests in three successive generations from Siamun to Osorkon I and simultaneously confirms the existence of Psusennes II:[67]
introduction of Nesamun in year [///] Siamun on I Prt [///];
introduction of Nesanchefenmaat, son of Nesamun, in year 11 Psusennes II on I Shemu 13;
introduction of Hor, son of Nesanchefenmaat, in year 3 Osorkon I on II Akhet 14.

Payraudeau presumes that the introductions refer to eldest sons respectively and that at most 25 years elapsed between successive introductions. If so, it becomes quite improbable that Psusennes II ruled for more than the 13 years which can be attributed to him with probability. Kitchen cites "year 13 in Karnak priestly annals No. 3B line 6, *later than Siamun*, and hence *only* attributable to the next king, *i.e.* (Hor-) Psusennes II." [68] Since Shoshenq I apparently ruled for 21 years, as attested on the Silsile stela and also listed by Manetho, there would be about 25 years between the introductions of Nesanchefenmaat and his son Hor.

Note that in an earlier publication, I attributed 24 years to Psusennes II, suggesting that regnal year 19 of "Pharaoh Psusennes" which is cited in the text of the larger Dakhleh stela refers to Psusennes II.[69] Payraudeau argues that the introduction of a father and son in 11 Psusennes II and 3 Osorkon I implies 13 regnal years for Psusennes II. I accept his argument and the resulting attribution of the respective year 19 to Psusennes I.

Payraudeau interprets the introduction date "year 11 Psusennes II on I Shemu 13" of frag. P as LD 1 to 5 of the Tepi Shemu feast and combines it with the dates of frag. 3a and 3b as LDs 1 to 5.[70] Table 5 presents the possibilities which can be characterized by 954, 943 or 929 BC as alternative accession years of Shoshenq I. Under the premise that 1 Shoshenq I ≈ 945 BC, Payraudeau decided in favor of Shoshenq I: 943–922 BC, Psusennes II : 956–943 BC, Siamun : 975–956 BC and Osorkon the Elder : 980–975 BC. Accordingly, Siamun ruled for 19 years, which corresponds to the general assumption that Manetho's 'Psinaches', the predecessor of Psusennes [II], refers to Siamun and also that the 9 years of Psinaches are to be emended in 19 years for Siamun.[71]

In the following, I reckon with the possibilities 1 Shoshenq I: 954, 943 or 929 BC. Let me remind the reader that these are the same astronomically computed possibilities which I based on the *weresh*-feast date of the larger Dakhla stela.[72] My argument still holds good, but besides attributing the larger Dakhla stela to Shoshenq I, I now see the small possibility that its *weresh*-date refers to the reign of Shoshenq III (see Excursus 3). Under

65 Cf. Kitchen 1973, § 4, § 11 n. 55.
66 Krauss 2006a, 408–411.
67 Payraudeau 2008, 293–308.
68 Kitchen 1973, § 391, and, slightly different, Kitchen 2009, 191.
69 Krauss 2005a, 44; Krauss 2006a, 412.
70 Payraudeau entrusted to me the honorable task of computing the lunar dates of frag. P.
71 Cf. Kitchen 1973, § 31.
72 Krauss 2006a, 411–412.

Table 5 Alternative years BC for 1 Shoshenq I and corresponding years of Tepi Shemu feasts of Osorkon the Elder, Siamun, and Psusennes II.

| 1 Osorkon Elder | Lunar month and day of Tepi Shemu dates | | | 1 Shoshenq I |
|---|---|---|---|---|
| | 2 Osorkon frag. 3a | 17 Siamun frag. 3b | 11 Psusennes II frag. P | |
| 991 BC | IX.5 | IX.2 | IX.5 | 954 BC |
| 990 | 15 | 12 | 15 | |
| 989 | 26 | 23 | 26 | |
| 988 | 7 | 4 | 7 | |
| 987 | 17 | 15 | 17 | |
| 986 | 28 | 26 | 28 | |
| 985 | 9 | 7 | 9 | |
| 984 | 20 | 17 | 20 | |
| 983 | 1 | 28 | 1 | |
| 982 | 12 | 9 | 12 | |
| 981 | 22 | 19 | 23 | |
| 980 | IX.3 | VIII.30 | IX.4 | 943 |
| 979 | 14 | 11 | 14 | |
| 978 | 24 | 22 | 24 | |
| 977 | 5 | 4 (3?) | 5 | |
| 976 | 16 | 14 | 16 | |
| 975 | 27 | 25 | 27 | |
| 974 | 8 | 5 | 8 | |
| 973 | 19 | 16 | 19 | |
| 972 | 30 | 26 | 30 | |
| 971 | 11 | 8 | 11 | |
| 970 | 21 | 18 | 21 | |
| 969 | 2 | 29 | 2 | |
| 968 | 12 | 11 | 12 | |
| 967 | 23 | 21 | 23 | |
| 966 | IX.4 | IX.2 | IX.4 | 929 |

these premises I use the *weresh* date as most probably referring to Shoshenq I.

**Dates of the 'Inscription historique'**

Of further use for establishing the chronology of Dyn. 21 is the inscription of Djehutymose, a steward and granary archivist at Karnak Temple. The text was first published by Edouard Naville as 'Inscription historique de Pinodjem III' and recently presented by Kruchten.[73] It reports a series of oracles between regnal years 2 and 5 of a king whose name is not preserved, but who can be identified as Amenemope, Osorkon the Elder, or Siamun. These three possibilities result from the fact that Pinudjem II who acted as HP in the oracle sessions from year 2 to 5 is attested under Amenemope and until he died in 10 Siamun. Kruchten left the attribution open:[74]

"Faute d'élements déterminants, le relief et le texte gravé à l'initiative de Djéhoutymose sont, en général, attribués au règne de Siamon, probablement parce que des trois pharaons précités, Siamon est le plus souvent mentionné dans la documentation thébaine (n. 5: Kitchen 1973, § 233). Mais rien n'exclut, à mon sens, qu'il ne soit plutôt du règne d'Osochor ou d'Amenemopé."

Kruchten could determine the date of the first oracle of the Djehutymose inscription as IV Akhet 23 in year 2 being 65 days after the beginning of the Opet feast;[75] the latter began on the fixed date II Akhet 19.[76] According to Kruchten, "la fête d'Opet de l'année susdite (*rnpt tn*)"[77] fell also in regnal year 2. But note that the copy of the text has

[73] Kruchten 1986.

[74] Kruchten 1986, 323.

[75] Kruchten 1986, 71f; cf. Jansen-Winkeln 1990, 243; Römer 1994, 245 n. 390.

[76] Schott 1950, 107.

[77] Kruchten 1986, 71f, 311.

Table 6 Trial attribution of oracle 6 to year 3 of Osorkon the Elder

| 3 Osorkon the Elder | Lunar months and days of Tepi Shemu feast dates | | | | 1 Shoshenq I |
|---|---|---|---|---|---|
| | oracle 6 | frag. 3a | Frag. 3b | frag. P | |
| ~~1014 BC~~ | ~~IX.5~~ | ~~IX.5~~ | ~~IX.1~~ | ~~IX.5~~ | ~~979 BC~~ |
| 989 | IX.5 or 6 | IX.5 | IX.2 | IX.5 or 4 | 954 |
| 965 | IX.5 | IX.4 | IX.2 | IX.4 | 929 |

"this calendar year (*rnpt tn*)", not "regnal year (*rnpt zp/ḥ3t zp*)". If I am not mistaken, the Djehutymose inscription presents "*rnpt zp/ḥ3t zp*" in all the oracles dates preserved.[78] Thus it is possible that the regnal year count did change during the 65 days after the Opet feast, or it may have occurred before or after those 65 days.

In the case of oracle 3 on /// Shemu day 2 in year 2, Kruchten presumed that it could refer to LD 1 in II Shemu on which lunar day the Feast of the Valley began.[79] On the other hand, he definitely identifies year 3, I Shemu 10, the date of oracle 6, as the last day of the *Tepi Shemu* feast:[80] "La fête en question est facile à identifier: la seule festivité liée à Amon qui à ce moment de l'année s'étendait sur plus d'une journée et qui à ce titre comportait un jour de 'rentrée du dieu (*sʿq-nṯr*)' était 'sa première fête du premier (mois) de shemou'." He notes that the *Tepi Shemu* feast lasted from LD 1 to LD 5. Thus year 3, I Shemu 10, as date of oracle 6, implies that I Shemu 6 was LD 1. If so, LD 1 of the Feast of the Valley would have fallen in the preceding year approximately on II Shemu 17, quite distant from /// Shemu 2 as date of oracle 3. In other words, oracle 3 does not refer to the Feast of the Valley.

The day number '10' of oracle 6 was copied by Naville; today no legible traces remain. The writing of 5+5 digits one above the other is unusual, though not without parallel, as Kruchten noted. Since the date I Shemu 10 is unfavorable in the calendars of lucky and unlucky days whereas I Shemu 9 or 8 are favorable, Kruchten presumes that Naville's reading is incorrect, and that he may have copied one or two digits more than actually present. Here I definitely do not follow Kruchten, since there are no indications that the calendars of lucky and unlucky days were of any practical importance. As far as I am aware, Rosemarie Drenkhahn's study is the only one on this subject; she came to the conclusion that "ein intensiver Gebrauch von Tagewählerei an Hand der Kalenderlisten ist weder im Bereich des Königtums noch im Alltag durch die datierten Inschriften nachweisbar".[81] Thus I presume that I Shemu 10 in Djehutymose oracle 6 was indeed a LD 5 and that the respective LD 1 was I Shemu 6.

There were only two astronomical possibilities between 1000 and 950 BC for I Shemu 10 being a LD 5, namely 989 (Jan 2) and 965 BC (Dec 26); the next possibility earlier than 989 BC (Jan 2) would have been 1014 BC which is too early for 3 Amenemope in any chronology. While the astronomical situation is clear in 965 BC, there is a slight problem in 989 BC insofar as it cannot be decided whether LD 1 fell on I Shemu 5 or 6, since at sunrise the crescent stood in the uncertainty zone and might have been sighted or not.[82]

Oracle 6 cannot be attributed to 3 [Siamun], since counting backwards from frag. 3b (17 Siamun) or frag. P (11 Psusennes II) does not yield a LD 1 near I Shemu 6. Oracle 6 appears to be attributable to Osorkon the Elder and Amenemope as well, as shown in the trial tables that follow; the corresponding possibilities for 1 Shoshenq I are added for orientation.

Table 6 presents the chronological implications if oracle 6 is dated to 3 Osorkon the Elder. Provided that his Tepi Shemu date of year 2 (frag. 3a) is a late day of the *Tepi Shemu* feast, then I Shemu 6 in the following year is also a late feast day, whether the Djehutymose inscription is dated to the time of Osorkon the Elder or not.

The astronomical possibility 3 Osorkon the Elder = 1014 BC is chronologically out of the question, since it implies 1 Shoshenq I = 979 BC which is too far outside of 1 Shoshenq I = ca. 940 ± 10 years. If 3 Osorkon the Elder overlapped 989 or 965 BC, then 1 Shoshenq I corresponded to 954 or 929 BC which is just compatible with ca. 940 ± 10 years for 1 Shoshenq I.

78 Kruchten 1986, 29f.

79 Kruchten 1986, 317f.

80 Kruchten 1986, (237, 321), 246.

81 Drenkhahn 1972, 94.

82 For the general situation cf. Krauss 2012, 18; for a similar specific situation see Fig. 1 below (on –1454/2/17).

Table 7 Trial attribution of oracle 6 to year 3 of Amenemope

| 3 Amenemope | Lunar months and days of Tepi Shemu feast dates | | | | |
|---|---|---|---|---|---|
| | oracle 6 | frag. 3a | frag. 3b | frag. P | 1 Shoshenq I |
| ~~1014 BC~~ | ~~IX.5~~ | ~~IX.3~~ | ~~IX.1~~ | ~~IX.4~~ | ~~968 BC~~ |
| 989 | IX.5 or 6 | IX.3 | VIII.30 | IX.4 | 943 |
| ~~965~~ | ~~IX.5~~ | ~~IX.4~~ | ~~VIII.29~~ | ~~IX.4~~ | ~~918~~ |

Table 7 presents the chronological implications if oracle 6 is dated to 3 Amenemope. The astronomical possibilities of 3 Amenemope overlapping 1014 or 965 BC and corresponding to 1 Shoshenq I falling in 968 or 918 BC, are at odds with 1 Shoshenq I = ca. 940 ± 10 years. By contrast, 3 Amenemope = 989 BC is compatible with ca. 940 ± 10 years for Shoshenq I. If 3 Amenemope = 989 BC, then I Shemu [1], the date of frag. 3b, was a LD 30 in 959 BC = 17 Siamun. It is possible that old crescent was missed on I Shemu [1] and the day mistakenly reckoned as LD 1.

If oracle 6 is atributed to Amenemope it follows from the distance to frag. 3a (2 Osorkon) that he would have had a reign of 10 years. According to Kitchen regnal year 10 of Amenmope might be attested on linen from mummy 124, although "this may just possibly be Year 10 of Siamun."[83] The 9 years which Manetho listed for Amenophthis can be understood as 9 full years and × months. Thus a 10-year reign of Amenemope is quite possible.

**Chronology of early Dyn. 21**

George Daressy reported "Amenemope year 49" as bandage epigraph on a piece of *linges tombés*.[84] The reconstructions which are accepted nowadays are: "[year × of king] Amenemope; year 49 [of king Psusennes I]" or "[year × of king] Amenemope; year 49 [of HP Menkheperre]".[85]

If "[year × of king] Amenemope; year 49 [of king Psusennes I]" is reconstructed, then the possibilities for year × of Amenemope are determined by the attestations for HP Smendes II. The latter donated two pairs of bracelets to the burial of Psusennes I in Tanis and was thus in office at the beginning of the new king's reign.[86] Furthermore, HP Smendes II and king Amenemope are attested on pendants and braces from mummy 135 (second find of Deir el-Bahri).[87] Since no further documents with the name of HP Smendes II are known, a short tenure of office is evident, and HP Pinudjem II will have succeeded him early in the reign of Amenemope who appears to be the successor of Psusennes I.[88]

If the Djehutymose inscription is attributed to Amenemope, then Pinudjem II was in office on IV Akhet 23 (oracle 1) in 2 Amenemope, and HP Smendes II will have died shortly before in year 1, if not early in 2 Amenemope. Since HP Smendes II donated objects for the burial of Psusennes I, the king must have predeceased the HP. If so, the last year of Psusennes I would have overlapped 1 Amenemope or the beginning of 2 Amenemope, be it within the frame of a coregency or in some other unknown way.[89]

Africanus and Eusebius both have 40+x years for Psusennes [I]; therefore it is probable that year 49 of Daressy's bandage epigraph would have been the last year of [Psusennes I],[90] corresponding in relative chronology to 1 or perhaps 2 Amenemope. If the 4 years which Manetho lists for Amenemnisut be accepted, together with the 26 years for Smendes, then Dyn. 21 would have begun about 78 years (= 26 + 4 + 48 y) before 1 Amenemope or in 1070/69 BC, provided that 3 Amenemope, I Shemu 10 = January 2, 989 BC corresponds in absolute chronology to the date of Djehutymose oracle 6. Note that this outcome is more or less identical with 1069 BC for 1 Smendes, which Kitchen proposes by adding 124 years for Dyn. 21 to 945 BC as 1 Shoshenq I.[91]

If, by contrast, oracle 6 is attributed to 3 Osorkon the Elder,"[year × of king] Amenemope;

[83] Kitchen 1973, § 388.

[84] Daressy 1896, 78 .

[85] Cf. Lull 2006, 220–223, for an overview with commentary; more recent are remarks by Dodson 2012, 68.

[86] Montet 1951, 149: nos. 598–601. For a discussion of the bracelets see Kitchen 1973, § 30 (III) and Lull 2006, 248.

[87] Daressy 1907, 35.

[88] Kitchen 1973, § 25.

[89] For an overview of suggestions and possibilities see Lull 2006, 218–223.

[90] There are other attestations of a regnal year 49, presumably of Dyn. 21, cf. Lull 2006, 222f.

[91] Kitchen 2009, 191; the text has the slip 114 instead of 124 years for the length of Dyn. 21.

year 49 [of king Psusennes I]" may imply that year 1 Amenemope began during year 49 of Psusennes I without an overlap. Note that there is no connection between "Amenemope" and "regnal year 49" by for example *nty* or *ḥft*. Under these premises, the beginning of Dyn. 21 would have been in ca. 1080 BC (see also Excursus 4).

It is evident from the stela of banishment that HP Menkheperre did not count the years of his pontificate at first.[92] He might have begun a year count sometime after the return of the banished which would account for the bandage epigraph "year 48 *n* HP Menkheperre" from mummy 105 (second find of Deir el-Bahri).[93] If such a count referred to the installment as HP, year 48 would include about 2 years under Smendes, 4 years under Amenemnisut and 42 years under Psusennes II. According to Beckerath, the length of Menkheperre's life "scheint nun durch das Auftreten von Geschenken des Hohenpriesters Esbendede (Smendes), Sohn des Mencheperre, im Sarg Psusennes' I. eindeutig entschieden: Mencheperre muss bereits vor diesem König gestorben sein ...."[94] Still, Psusennes I may have died in his regnal year 49 shortly before HP Menkheperre died, enabling Smendes II to become next HP and to donate bracelets for the burial of Psusennes I, dying himself very soon thereafter. Such a scenario does not allow for the reconstruction "[year × of king] Amenemope; year 49 [of HP Menkheperre]".[95]

A way out is a shared pontificate of HP Menkheperre and HP Smendes II as suggested by José Lull who argues that Menkheperre abdicated as HP in favor of his son Smendes II, after assuming a kingly role, finally dying under Amenemope.[96] He bases his argument on mummy braces depicting HP Menkheperre, which were made by HP Pinudjem II and used for mummy 113 from Bab el-Gasus in the time of Amenemope.[97] The braces possibly indicate, but do not prove, that HP Menkheperre was alive when HP Pinudjem II had them made; their purpose might have been to commemorate the deceased, but still highly revered HP Menkheperre.

**Transition from Dyn. 20 to 21**

The traditional view that at the end of Dynasty 20 HP Payankh succeeded HP Herihor is no longer tenable. Jansen-Winkeln argues consistently in favor of HP Herihor as successor of HP Payankh.[98] A number of Egyptologists have accepted the revision, while others continue to oppose it.[99] Recently, Lull has approvingly discussed Jansen-Winkeln's reasoning.[100]

The revision calls into question the chronological relationship of Herihor to Smendes and Pinudjem I. There are attestations of Herihor once in a year 5 and twice in a year 6. The year 5 date, IV Shemu 16, is the day Wenamun departed Thebes at HP Herihor's order.[101] He came to Tanis "in (the area) where Smendes and Tentamun are",[102] both described as *nꜣ snntjw-tꜣ j.dj Jmn n pꜣ mḥt n pꜣjj.f tꜣ* (II, 35).[103] Actually, the Wenamun-report leaves it open in whose "*rnpt-zp/ḥꜣt-zp* 5" Wenamun departed Thebes for Tanis.

Wenamun had orders to bring cedar wood from Syria for the construction of a new Userhat bark. A well-known text in the Theban temple of Khonsu asserts that Herihor carried out the construction of a new bark. There might not have been enough time for construction work by Herihor, since Wenamun spent at least two years in the Levant before eventually returning to Thebes. Herihor is last documented in a year 6, but perhaps also in a year 7 (see below). Lull suggests solving the chronological problem by interpreting the respective texts as anticipatory:[104] "Es posible que las escenas representadas en relación a la Userhet se adelantasen a los acontecimientos."

The point is that Herihor uses royal titles in his inscriptions concerning the Userhat bark. The inscriptions may date soon after Wenamun's departure, or perhaps after his return, or they may date before Wenamun's departure, if they are anticipatory. There is also the possibility that Wenamun's report and Herihor's respective inscriptions as well are literary fictions.[105]

92 For the Stela of Banishment see Excursus 4.

93 Daressy 1907, 30; Lull 2006, 221–223.

94 Beckerath 1968, 29.

95 Jansen-Winkeln 2006a, 231.

96 Lull 2006, 250.

97 Lull 2006, 252f

98 Jansen-Winkeln 1992, 22–37.

99 Egberts 1998, 93 n. 4 and 5; Jansen-Winkeln 2006a, 226 n. 47.

100 Lull 2006, 111–115.

101 Gardiner 1932, 61,1; 62,8.

102 Egberts 1998, 99.

103 Egberts 1998, 101; Lull 2006, 134f, both with literature.

104 Lull 2006, 115.

105 For the literary analysis of "Wenamun", see for example Schipper 2005, 223–330.

Herihor's texts of year 6 refer to the renewal of burials:
year 6, II Akhet 7: HP Herihor commanded to renew the burial of Sety I; hieratic docket on coffin of Sety I.[106]
year 6, III [Akhet? Peret?] 15: HP Herihor commanded to renew the burial of Ramesses II; hieratic docket on coffin of Ramesses II.[107]

Maspero read and reproduced in his facsimile "III Peret 15", stating that the docket "a été effacée à l'éponge, puis surchargée. Le début en est encore visible en partie, et nous donne heureusement la date du procès-verbal." Daressy read and transcribed "III Akhet 15", commenting that Herihor's text "a été lavé, si bien qu'il est impossible de le rétablir en son entier et que je n'en donne la transcription que sous toutes réserves".

The problem cannot be solved by simply preferring Maspero's reading over Daressy's.[108] The point is that the docket has been washed off, and the traces remaining are indistinct. The coffin was shown in Paris on the occasion of the Ramesses II exhibition in 1976. The entry in the catalogue describes the washed off text as "presque illisible".[109] At that time, apparently no attempt was made to read what remained with the aid of UV light or to make infrared photos.

A year 7 might be added to Herihor's dossier. Within the layers of Sety I's mummy bandages, Maspero found a *toile* with the epigraph "year 7, II Peret 16: day of burying Sety I, l.p.h." In lower layers were "deux lambeaux de bandelettes" with epigraphs identifying the shreds as linen strips made by HP Pinudjem I in year 10 and by HP Menkheperre in year 6.[110] Maspero concluded that the mummy was restored in year 7 which followed year 6 of Menkheperre's linen. As far as I can tell Maspero's conclusion has been generally accepted,[111] regardless of its implication that the re-burial would have taken place 25 years or more after Herihor commanded it. The mummy of Sety I was brought from his own tomb to the Inhapi cache in 10 Siamun.[112] The mummy might have been re-wrapped in connection with the transfer, and linen might have been used from the re-burial at the time of Herihor, together with other old linen from year 10, time of Pinudjem I, and year 6, time of Menkheperre. If so, it is possible that Herihor's command was carried out within months and that year 7 is the year subsequent to year 6 of Herihor's command.[113]

But if a year 7 of Herihor be not accepted, then the dates which name Herihor and Pinudjem I could indicate that Herihor was active until a year 6 and that Pinudjem I succeeded him as HP in the same year 6 in which two of his dockets are attested:
Year 6, III Peret 7; HP Pinudjem I ordered to renew burial of Thutmoses II;
Year 6, IV Peret 7: HP Pinudjem I ordered to renew burial of Amenhotep I.

If year 6 in the dockets of Herihor and Pinudjem I refers to the same regnal year 6 of [Smendes], then there would be an overlap, since Herihor would have been active in year 6, III Peret 15 (Maspero's reading) and Pinudjem I earlier in year 6, III Peret 7. There would be no overlap if Herihor's date is read with Daressy as III Akhet 15. Jansen-Winkeln points out that Herihor and Pinudjem I may have had their own year counts independent of the regnal years of Smendes.[114]

The overlap could be eliminated by any year of Pinudjem I earlier than year 6. Such a date seems to be present on a mummy bandage of Nodjmet, the wife of Herihor.[115] Maspero did not unwrap the mummy of Nodjmet completely.[116] When Grafton Elliot Smith later examined the mummy he reported "on the sole of each foot there was a bandage bearing an inscription in hieroglyphics. That on the left foot simply read "High Priestess [sic] of Amun"; and that on the right foot contained a reference to "the first year of Pinotmou"."[117] Presumably, the one on the left read "High Priest of Amun",[118] while the "first year of Pinotmou" on the right presumably referred to an anonymous "regnal year 1" in which HP Pinudjem I had the linen woven.

106 Maspero 1889, 553; Pl. XII; Daressy 1909, 30.
107 Maspero 1889, 557 (facsimile); Daressy 1909, 32 (hieroglyphic transcription).
108 Cf. Černý 1946, 25; Lull 2006, 129.
109 L[etellier] 1976, 317.
110 Maspero 1889, 554f.
111 Cf. for example Kitchen 1973, § 386 (38); Lull 2006, 216.
112 Černy 1946, 27f.
113 If so, the regnal year change would have occurred between II Akhet 7 and II Peret 16.
114 Jansen-Winkeln 2006a, 229.
115 Lull 2006, 157, with literature.
116 Maspero 1889, 569f.
117 Smith 1912, 96f.

For example, Kitchen dates the Nodjmet bandage to 1 [Smendes], arguing that the "date is of a piece with those of Pinudjem I as high priest ... from other bodies ... ".[119] Since Kitchen identifies HP Herihor as the predecessor of HP Payankh, the dating of the Nodjmet bandage to 1 [Smendes] has no further implications. Lull, by contrast, dates the Nodjmet bandage to 1 [Psusennes I], pointing out that HP Pinudjem I would be unattested in years 2, 3, 4 and 5 of [Smendes], if the Nodjmet bandage of year 1 would refer to 1 [Smendes]. [120] He accepts, on the other hand, a much larger gap of about 22 years between the first dated mention of Pinudjem I as king in 16 [Smendes] and in 8 [Psusennes I] as the second and last mention.

Pinudjem I is explicitly attested as HP in a series of ten dates between year 6, III Peret 7 and year 15, III Akhet 6.[121] Thereafter, he is cited in a year 16 as king in the filiation of his son HP Masaharta;[122] the text does not indicate whether Pinudjem I was dead or alive at the time. In a year 8 and in his capacity as king he ordered the osirification of King Ahmose. The same hand which wrote the Ahmose docket is seen in a docket on the mummy of Prince Siamun, citing an osirification at the command of his majesty (*ḥm.f*) on the same day in a year 8 as the Ahmose docket. The same hand is seen again in the epigraph on the *linceul* of princess Sitkamose's mummy with the anonymously given order of an osirification in a year 7.[123] It is generally agreed that all three osirifications occurred on the order of King Pinudjem I in years 7 and 8. Nowadays, Egyptologists interpret the series of dates naming HP Pinudjem I from year 6 to 15 as regnal years of Smendes, whereas year 8 of Ahmose's osirification is interpreted as regnal year of Psusennes I. Nevertheless, Elizabeth Thomas stated that the latter identification is only valid "if the priest and king [Pinudjem I] are to be distinguished and the years accepted in this sequence".[124]

In addition to the three osirifications in years 7 and 8, there is a fourth case, the osirification of Ramesses III in 13 [Smendes] on the command of HP Pinudjem I. Thomas pointed out that it is methodologically preferable to interpret the four osirifications as being close in time, since these are the only cases of osirification known at all, whatever 'osirification' might have meant. Following the lead of Thomas, I suggest dating the osirifications of Ahmose, Prince Siamun and Princess Sitkamose to 7 and 8 [Smendes], five to six years prior to that of Ramesses III in 13 [Smendes]. Another point which favors the dating of all four osirifications to the time of Smendes is that restorations and re-burials of mummies in the time of Psusennes I would have been presumably the responsibility of the contemporaneous HP Menkheperre, not of a king Pinudjem who is otherwise unattested by any activity during the pontificates of Menkheperre and of Masaharta. I presume that HP Pinudjem I died in 15 or 16 [Smendes] and was succeeded by Masaharta.

Under these premises, I fall back on the old and nowadays mostly discarded idea that Herihor ruled Egypt between the death of Ramesses XI and the accession of Smendes. The equivalent idea is implied by Jansen-Winkeln when he remarks about the possible chronological relationship of Herihor to Smendes:[125] "... es ist keineswegs sicher, ob Smendes gleichzeitig mit Herihor begonnen hat, Regierungsjahre zu zählen. War er, wie einige meinen, der Sohn des Herihor, wäre es sogar wahrscheinlich, dass seine eigene Zählung erst nach Herihor einsetzte."

Marie-Ange Bonhême evaluated the kingly role of Herihor under the presumption that he was the predecessor of Payankh, concluding:[126] "... il ne semble pas, en droit, avor été reconnu roi. Mais la théorie n'empêche pas la pratique, même si elle l'affaiblit. Quoiqu'institutionnellement Hérihor ne soit pas roi, il a cependant exercé presque toutes les fonctions royales alors même qu'en extension l'expression de son pouvoir régalien fut réduite. ...". By comparison, Lull characterizes Herihor as "a ruler acting on behalf of the god Amun himself, and perhaps it was this position that placed some limitations on his royalty."[127] Herihor might have ruled Egypt between the death of Ramesses XI and the accession of Smendes, regardless of the niceties of his protocol. Table 8 presents the chronological possibilities which result from the tenta-

[118] Cf. Kitchen 1973, § 38 with n. 182.
[119] Kitchen 1973, § 18.
[120] Lull 2006, 86, 124, 126, 154, 157.
[121] Lull 2006, 154–158.
[122] Lull 2006, 195.
[123] Maspero 1889, 538, 541.
[124] Thomas 1966, 257.
[125] Jansen-Winkeln 1992, 37.
[126] Bonhême 1979, 283.
[127] Lull 2009, 246.

Table 8 Chronological possibilities for a 7 year reign of Herihor

| 1 Shoshenq I | Oracle 6 | 1 Smendes | Herihor |
|---|---|---|---|
| 929 BC | 965 BC = 3 Osorkon | 1055 BC | ca. 1063–1056 BC |
| 943 | 989 BC = 3 Amenemope | 1069 | ca. 1077–1070 |
| 954 | 989 BC = 3 Osorkon | 1080 | ca. 1087–1081 |

tive attributions of oracle 6 of the 'Inscription historique', 126 years for Dynasty 21 and suggested 7 regnal years for Herihor.[128] Further consideration of Herihor's possible reign requires a discussion of Ramesside chronology including the accession year of Ramesses II.

**Chronology of Dyns. 19/20**

The relative chronology of Dyns. 19 and 20 appears to be established within narrow limits.[129] Aidan Dodson and I presented the arguments which speak for Amenmesses as usurper within the reign of Sety II.[130] Furthermore, I date the reign of Amenmesses versus the reign of Sety II by interpretation of DB 3 of 7 Tewosre as the date of the lunar Feast of the Valley and its distance to the lunar date of 52 Ramesses II (see Excursus 1).

Recently, a year 4 of Sethnakhte became known, without indication of the month and day.[131] The new date fits into the chronological framework of lunar Feasts of the Valley dates of Tewosre (DB 3) and Ramesses III (DB 10), if it refers to the very beginning of regnal year 4, followed within a few days by the accession of Ramesses III.[132] In this case the distance between DB 3 (7 Tewosre) and DB 10 (7 Ramesses III) amounts to 10 y + 11 d or 124 mean synodic months minus 0.8 d, which means that the civil dates of DB 3 and DB 10 coincided with the same LD.

Gautschy assigns the Feast of the Valley date DB 9 to 6 Ramesses VII which results in a shift of all regnal years from 1 Ramesses VII up to the last one of Ramesses XI by one year in comparison to Ramesside relative chronology as set out by Erik Hornung in 2006.[133] I accept her attribution of DB 9 with little reservation.

For Ramesses VIII only year 1 is documented, but the possibility of a year 2 cannot be excluded.[134] There has been also some discussion about the length of Ramesses X's reign.[135]

Parker assumed that the Epiphi feast was celebrated on one and the same lunar day on the attested civil days IV Shemu 2 in 3 Ramesses X and on III Shemu 28 in year 7 of the era *wḥm mswt* or 25 Ramesses XI.[136] If so, 3 Ramesses X and 25 Ramesses XI would have been separated by 31 years, implying a 9 year reign for Ramesses X. But Parker's suggestion was found untenable.[137]

Morris Bierbrier pointed out the possible existence of a second HP Ramessesnakht in Dyn. 20 on the basis of Theban graffito 1860a, implying that regnal year 8 of the graffito could refer to the reign of Ramesses X.[138] Lull's discussion is the most recent, subsuming the earlier arguments of Lanny Bell and Jansen-Winkeln; he concludes that HP Ramessesnakht of graffito 1860a is the same HP who is known from 1 Ramesses IV to 2 Ramesses IX.[139]

The highest date generally attributed to Ramesses XI is I Shemu 25 in year 10 [*wḥm mswt*: (corresponding to regnal year 28)] in LRL no. 9. On the day cited the scribe Dhutmose had received a letter sent to him from Thebes to somewhere in Nubia; it appears that the scribe Dhutmose accompanied the general Payankh on a campaign.[140] The date would have marked the end of Ramesses XI's reign only by coincidence. Kitchen suggests that graffito Spiegelberg, no. 714, which mentions the General's [Payankh] arrival at Thebes coming from the south on III Shemu 23, belongs to the same year 10 [*wḥm mswt*] as the date in LRL No. 9.[141] Note that the graffito would date to year 11 *wḥm mswt* or regnal year 29, if the accession

[128] Janssen-Winkeln 2006a, 230 supposes „up to 8 years".
[129] Hornung 2006, 211–217.
[130] Krauss 1976; Krauss 1977; Krauss 1997b; Dodson 2010, 31–82.
[131] Boraik 2009.
[132] See Bennett 2008a, 120 n. 39;
[133] Gautschy 2014, 142; Hornung 2006, 210–217.
[134] Hornung 2006, 216.
[135] Hornung 2006, 216f.
[136] Parker 1957b, 163f.
[137] Cf. for example Beckerath 1994, 88.
[138] Bierbrier 1972, 195–199.
[139] Lull 2006, 47–49.
[140] Wente 1967, 11–12.
[141] Kitchen 1973, 417; for details see Lull 2006, 75–76.

date of Ramesses XI was indeed III Shemu 20.[142] Furthermore, Edward F. Wente suggested that LRL no. 41 dates to year XII [*wḥm mswt*], corresponding to year *30 of Ramesses XI, since the recipient is known from graffito Černy no. 1393 dated to a year 12 on I Shemu 8–9.[143] Provided the graffito does indeed refer to [*wḥm mswt*] 12, then its date would be less than three months before the end of *30 Ramesses XI. These suggestions are justified if HP Herihor was in office after Payankh at the end of Ramesses XI's reign. If Payankh was still alive at the beginning of year *29, then Herihor could have spent the second part of year *29 and most of year *30 on work in the First Hypostyle Hall of the Khonsu temple which he achieved as HP in the name of Ramesses XI.[144]

The computable intervals between the accession of Ramesses II and the last attestation of [Ramesses XI] add up to 199 y + 303 d, following Kitchen as cited above. If the possibilities of years *29 and *30 of Ramesses XI are accepted, then there would have been 200 y + 3 d and 201 y + 287 d between the accession of 1 Ramesses II and the presumed dates in *29 or *30 Ramesses XI. If the Feast of the Valley date DB 9 fell in 6 Ramesses VI as Gautschy suggests, and if Ramesses VIII ruled one year only, then the distance between the accession of Ramesses II and I Shemu 8–9 in *30 Ramesses XI (*wḥm mswt* year *XII) amounted to 202 y + 287 d.

## The lunar date of Ramesses II

A LD 1 is recorded in a ship's log as occurring on II Peret 27 in 52 Ramesses II when the ship lay at anchor in Piramesses.[145] The most recent computations of the astronomically feasible solutions are by Rita Gautschy as cited above and Peter J. Huber. In detail, Huber's solution yields

"… 9 possible dates for the accession year of Ramesses II, namely 1340, 1329, 1315, 1304, 1290, 1279, 1265, 1254 and 1240 BC. Four of them (underscored) are fully supported by the recorded *psḏntyw* date, and 1254 BC is partially supported. The remaining four possibilities cannot be *excluded*, but in my view it would be reckless to claim that the recorded *psḏntyw* date *supports* any of them. Presumably, the earliest two and the latest two chronologies are outside of the historically plausible range, and the five remaining chronologies 1315, 1304, 1290, 1279, 1265 have relative probabilities of 0.34, 0.07, 0.07, 0.07, 0.45 respectively. So we end up with 1315 or 1265 BC as the astronomically most probable chronologies for year 1 of Ramesses II."[146]

Huber refers here to astronomical probability in the case of a single lunar date. I would argue that it is not justifiable to favor the astronomically more probable situation over the less probable one if a single lunar date is concerned which is not qualified by further information such as is available for the lunar dates of Thutmose III. The methodical approach is also different for a set of chronologically connected lunar dates which yields different possible solutions; here one should prefer the statistically most probable solution. I suggest that all astronomically possible solutions for the Piramesses lunar date have the same historical-chronological probability, regardless of their astronomical probability.

Note that Huber does not list 1 Ramesses II = 1268 or 1276 BC as astronomically viable solutions. If 1 Ramesses II = 1276/75 BC, then II Peret 27 fell in year 52 or 1225/25 BC on a LD 2; the preceding lunar month ended after 30 days on II Peret 25 in 1225 BC. Thus the identification of II Peret 27 by mistake as LD 1 would presuppose that the preceding II Peret 26 fell on a lunar day 31, which is otherwise unattested.

If 1 Ramesses II = 1268/67 BC, then year 52 is 1217/16 BC; II Peret 27 fell in 1217 BC on a LD 28. The identification of LD 28 as LD 1 by mistake is possible (see above). Such a situation was not given in 1217 BC: II Peret 27 fell in a lunar month of 29 days and the preceding lunar month had 30 days.

Table 9 presents the combination of TIP and Ramesside chronological possibilities with the possibilities for 1 Ramesses II. The two sets differ depending on whether Herihor had an independent reign or not. The possibility that 1 Shoshenq I = 929 BC and 1 Smendes ≤ 1055 BC with Herihor having no independent reign, results in 1 Ramesses II = 1254 BC. This is barely feasible if the inter-

[142] Beckerath 1994, 89–91.

[143] Wente 1967, 15, 17.

[144] For an overview and evaluation of the scenes on the walls and columns of the First Hypostyle Hall, see Lull 2006, 91–92, 97–99.

[145] Janssen 1961, 12, 33.

[146] Huber 2011, 186–190.

[147] Beckerath 1994, 96.

Table 9 Alternative years for 1 Ramesses II; Herihor 0 or 7 years; the sign ≤ means „is less than or equal to".

| 1 Shoshenq I | 1 Smendes | distance Ramesses II : Ramesses XI | Herihor | 1 Ramesses II | 1 Ramesses II lunar referenced |
|---|---|---|---|---|---|
| ~~929 BC~~ | ~~≤ 1055 BC~~ | ~~200/202~~ | ~~0 y~~ | ~~≤ 1257/55 BC~~ | ~~1254 BC~~ |
| 943 | ≤ 1069 | 200/202 | 0 | ≤ 1271/69 | 1265 |
| 954 | ≤ 1080 | 200/202 | 0 | ≤ 1282/80 | 1279 |
| | | | | | |
| 929 BC | ≤ 1055 | 200/202 | 8 | ≤ 1265/63 | 1265 |
| 943 | ≤ 1069 | 200/202 | 8 | ≤ 1279/77 | 1279 |
| 954 | ≤ 1080 | 200/202 | 8 | ≤ 1290/88 | 1290 |

val between 1 Ramesses II and the end of Ramesses XI's reign amounts to 201 to 203 years which implies an overlap of Ramesses XI and Smendes. Ramesside and TIP chronology do not seem to allow for the lunar referenced year 1 of Ramesses II being earlier than 1290 BC or later than 1265 BC; a further narrowing can be achieved via the synchronisms between the NK and the Near East.

## Egyptian New Kingdom – Near Eastern synchronisms

The use of synchronisms between the Egyptian kings Amenhotep III and IV and their contemporaries in Assyria and Babylon presupposes a determination of the interval between 1 Akhenaten and 1 Ramesses II. According to Beckerath the reigns of Amenhotep III and Amenhotep IV/Akhenaten are chronologically linked by wine jar dockets of 38 [Amenhotep III] and 1 [Amenhotep IV] found in Amenhotep III's palace at Molqata, Western Thebes.[147] The wine jar dockets of the period correspond to the time when the wine was bottled and the jars docketed in ca. II Akhet, or mid-August to mid-September in the Gregorian calendar.[148]

Wine jar dockets which were found at Amarna document Akhenaten's regnal years 4 through 17. The year 4 dockets refer to the last vintage before the founding of Amarna in regnal year 5. Amarna vintages I to XIII correspond to Akhenaten's regnal years 5 to 17. Amarna vintages XIV and XV are datable to regnal years 1 and 2 of King Ankhkheprure Smenkhkare. Since the change in the respective royal year count occurred approximately during the vintage month II Akhet,[149] the few jars dated to year 3 will have belonged to the vintage of year 2.[150]

Whether queen Ankh*et*kheprure Nefernefruaten *ꜣḫt n ḥj.s,* widow and successor of King Ankhkheprure, had a year count of her own cannot as yet be determined. If so, then regnal year 1 of Amarna vintage XVI, the last attested vintage at Amarna, would be her year 1. Otherwise Amarna vintage XVI and the corresponding year 1 would belong to Tutankhaten/amun. The dockets of Amarna vintage XVI are characterized by *ḥrj kꜣmw* as the chief vintner's title which had been in use up until year 13 of Akhenaten when it was replaced by *ḥrj bꜣḥ*. The latter title was used from Amarna vintage IX, or 13 Akhenaten, until vintage XV.[151] Note that vintages XIV to XVI attest that Amarna was occupied for three years after the death of Akhenaten, regardless of the attribution of the vintages to specific rulers.

Finds from the tomb of Tutankhamun show that nine vintages occurred in his reign;[152] a wine jar docket of a year 10 refers presumably to the time of Akhenaten.[153] The death of Tutankhamun in III or IV Peret sets the accession time of Aya.[154] A wine jar docket from Deir el-Medina is dated to a year 2 and mentions the funerary temple of Aya; nevertheless, the date could belong to Haremhab's reign.[155] Securely dated monuments of Aya are a donation stela of the king of year 3 and two stelae both dated to IV Akhet 1 in year 4;[156] the latter date fell about 4 to 5 months before the end of regnal year 4. Under these premises 33 to 34 years elapsed between the beginning of 38 Amenho-

148 Hornung 1964, 78 n. 51; Hornung 2006, 206.
149 Beckerath 1994, 99.
150 Beckerath 1994, 99; Krauss 1997a, 238; Aston 2013, 294.
151 Krauss 1997a, 239–241.
152 Černý 1965, 1–3.
153 Tallet 1996, 369–383.
154 Hornung 2006, 208.
155 Hornung 2006, 208f.
156 *Urk*. IV 2109, 2110.

tep III and the end of 4 Aya. By contrast, Gautschy reckons 36 years from the beginning of 38 Amenhotep III to the end of 4 Aya, interpreting DB 36 and the date of Akhenaten's oath on the occasion of the foundation of Amarna as LDs 1.[157] DB 36 is not attributable to Amenhotep III, but is rather a date of Ramesses III;[158] Akhenaten's oath on IV peret 13 in his year 5 is not attested as a lunar date.

It is possible to determine the distance between Amenhotep III and Aya on the basis of visitor's graffiti from Saqqara. I have argued that two such graffiti from the time of Ramesses II imply dates of lunar regulated feasts in Memphis;[159] my interpretation has been accepted by Gautschy.[160] There are other graffiti of the same kind implying 33 years between the beginning of 38 Amenhotep III and the end of 4 Aya.[161]

Haremhab ruled for at least 14 years as recently argued by Jacobus van Dijk on the basis of wine jar dates from debris in Haremhab's tomb.[162] He may have been buried shortly after bottled wine of year 14 reached Thebes or shortly before the arrival of wine from the year 15 vintage. According to Josephus' copy of the Manethonian king list, Harmais < Haremhab ruled 4 y + 1 m. Since Aya ruled at least for 4 years and Haremhab for more than 4 years, the Manethonian figure is usually thought to refer to Aya. Under the premise of 14 regnal years, I suggest that the 4 y + 1 m of Harmais belong to Haremhab himself, but should be emended to *14 y + 1 m, implying that Aya is missing in Josephus' copy of Manetho.

Ramesses I is attested in year 1 on I Shemu 10 and in year 2 on II Peret 20.[163] According to Manetho he would have ruled for 1 y + 4 m, but these figures look suspiciously like an inverse of the preceding 4 y + 1 m of Harmais. The comparatively sparse documentation for the reign of Ramesses I may be compatible with a year over and above the attested 2 years.

Of Sety I's reign the years 1 through 9 and 11 are attested.[164] Kenneth A. Kitchen once argued for either an 11 or 15 year reign of Sety I,[165] which Peter Brand "dismissed as a chronological fantasy, leaving no proof for a long fifteen-year reign."[166] A reign of 18 years as suggested by Gernot Wilhelm is out of the question.[167] However, Jacobus van Dijk has cast doubt on the reading 'year 11' of the Gebel Barkal stela, and would date it by style to early in Sety's reign.[168] The arguments carry weight but are not conclusive. Furthermore, even if the Gebel Barkal stela were to be dated to year 3 rather than 11, the amount of archaeological remains from the reign of Sety I appears to allow more than 10 regnal years.

At least 10 full regnal years are implied by the information about the speos built by Sety I at Kanais. According to the text Kanais B, Sety I surveyed the deserts on III Shemu 20 in year 9,[169] i.e. in the last days of regnal year 9, since III Shemu 24 is the accepted regnal year change.[170] The excavation of the speos and its decoration will have taken some time and therefore the earliest possible date for Ramesses II's accession would have been 365 + 7 days after the survey on III Shemu 27,[171] implying that the reign of Sety I lasted at least 10 full years.[172]

To sum up: If full years are reckoned, then 59 to 60 dead reckoned years result for the interval between 1 Akhenaten (following on the incomplete year 38 of Amenhotep III) and 1 Ramesses II. If the Memphite visitors' graffiti are taken into consideration, one of the dead reckoned years is eliminated. Considering the uncertainties about the reign lengths of Aya, Ramesses I, and Sety I, some 3 to 5 years might be missing in the record.

The Assyrian king Aššur-uballit I corresponded with Akhenaten; his letters Kn 15 and 16 are preserved. The contents of the first letter appear to place it near the start of his reign.[173]

Aššur-uballit I ruled from 1363–1328 BC according to John A. Brinkman.[174] Hermann Gasche et al. suggest a reduction of 7 years for Aššur-uballit I on the premise that a 354-day lunar calendar was used in Assyria until the reign of Tiglath-

157 Gautschy 2014, 142.
158 See Excursus 1.
159 Krauss 2006, 418.
160 Gautschy 2014.
161 Krauss 2015.
162 Van Dijk 2008.
163 KRI I, 3–4.
164 Hornung 2006, 211; Kitchen 2000, 43
165 Kitchen 1980, 170.
166 Brand 1998, 347.
167 Wilhelm 2009, 116.
168 Dijk 2010, 325–332.
169 RITA 1, 56f.
170 Brand 1998, 339–341.
171 Brand 1998, 341–344.
172 For details see Krauss 2015.
173 Beckerath 1997, 61; Klinger 2006, 314.
174 Brinkman 1977, 345.

pileser.[175] By contrast, others argue consistently that the Assyrians intercalated lunar months resulting in a solar year chronology.[176] According to the short Assyrian chronology of Joachim Boese and Gernot Wilhelm, Aššur-uballit I ruled from 1353 to 1318 BC (+2 / –1 year).[177]

If Kn 15 was written in 1 Aššur-uballit I at the earliest, corresponding to 16 Akhenaten, or in 35 Aššur-uballit I at the latest, corresponding to 2 Akhenaten, then 1 Akhenaten fell in an interval of 51 to 48 years between 1368 and 1319 BC (+2 / –1 year), according to the short Assyrian chronology. Thus the short Assyrian chronology implies the interval 1308 to 1259 BC (+2 / –1 year), for 1 Ramesses II, if at least 60 years are reckoned for the time between 1 Akhenaten and 1 Ramesses II. The interval accommodates the astronomical possibilities 1265, 1279, 1290 and 1304 BC for 1 Ramesses II.

Should the long Assyrian chronology be historically correct, then 1 Akhenaten fell in a 49 year interval between 1378 and 1329 BC and 1 Ramesses II were to be sought between 1318 and 1269 BC, implying the astronomical solutions 1315, 1304, 1290 and 1279 BC with 1265 BC not included. In combination with the possibilities for 1 Ramesses II on the basis of TIP and Ramesside chronology (see Table 9), the alternative Assyrian chronologies allow 1265, 1279 and 1290 BC for 1 Ramesses II, but definitely not 1304 or 1315 BC. The question is which Assyrian chronology is correct?[178]

The Babylonian kings Kadašman-Enlil I and his successor Burnaburiaš II exchanged letters with Amenhotep III and his successor Akhenaten. Kadašman-Enlil I complained in letter Kn 3 that Amenhotep III did not invite him to a great festival.[179] The only corresponding event known to Egyptologists is a Sed festival. Amenhotep III celebrated three Sed festivals – in years 30, 34, and 37.[180] Since Kadašman-Enlil I does not mention a similar, earlier festive occasion, it is feasible that his complaint followed the first. It is improbable that Kadašman-Enlil I referred to the Sed festival of year 37, if Burnaburiaš II corresponded with Amenhotep III towards the end of the Egyptian king's reign of 37 years + × months. There is at least a slight doubt whether Burnaburiaš II acceded to the throne before the death of Amenhotep III. According to Cord Kühne, the traces of the Egyptian king's name to whom Burnaburiaš II addressed KN 6 suit the throne name of Amenhotep III.[181] Kühne's reading is accepted as possible, but not certain.[182] Note that Burnaburiaš II protested against the Assyrian contact with Egypt in Kn 9, a letter which appears to be quite clearly directed to Akhenaten, notwithstanding the fact that the Egyptian king is addressed as 'Nibkhururiya'.[183]

Babylonian chronology is linked to Assyrian chronology. The shortening of the latter by Boese and Wilhelm implies a shortening of Babylonian chronology as well. According to Boese's short Babylonian chronology, 1 Burnaburiaš II fell in the interval 1356 to 1343 BC or 1349 (+7/–6) BC.[184] These figures result from a) a 10-year reduction of Brinkman's figures for the Assyrian chronology of the 14/13th century BC; b) a variation of ± 5 years for the Kassite kings nos. 22–36 according to Brinkman; c) a variation of +2/–1 years for the middle Assyrian reign lengths according to Boese and Wilhelm.[185]

If I understand Brinkman correctly, then Boese's figures for Burnaburiaš II are to be slightly modified. As cited above, Brinkman's variation of ± 5 years refers to Kassite kings nos. 22–36 which do not include Burnaburiaš II; Brinkman counts him as no. "?19". Since, according to Brinkman, "the dates for kings ?18–?21 are subject to an even wider margin of variation because of the more than usually hypothetical nature of the reconstruction of that part of the dynasty",[186] 1 Burnaburiaš II would have fallen in the interval 1349 (7+x/–6–x) BC corresponding at least to 1357 to 1342 BC.

Using Egyptian chronology as it was determined in the late 1970s (cf. Bierbrier, Wente/van Siclen, and Krauss), Boese suggested narrowing the time span for Burnaburiaš II.[187] To avoid circular reasoning I reckon here with 1 Burnaburiaš II = 1349 (7+x/–6–x) BC as a strictly Assyrian-Bab-

175 Gasche 1998, 63.
176 Mebert 2009, 104.
177 Boese 1979, 38.
178 For recently expressed doubts about the short Assyrian chronology, see Devecchi 2012, 158–166.
179 Moran 1992, 7f.
180 Beckerath 1994, 23f.
181 Kühne 1973, 129 n. 642.
182 Boese 1982, 16f; Moran 1992, 12 n. 1.
183 See for example Moran 1992, XXXVIII n. 137.
184 Boese 1982, 17.
185 Boese 1982, 15 n. 7.
186 Brinkman 1976, 30 n. 86.
187 Boese 1982, 16.

Table 10 Alternatives for 1 Burnaburiaš II and resulting years 1 of Ramesses II

| 1 Burnaburiaš II | years of Amenhotep III | 1 Akhenaten | interval of 1 Ramesses II | 1 Ramesses II lunar referenced |
|---|---|---|---|---|
| | 30 | | | |
| | 31 | | | |
| 1356+x/1343–x | 32 | 1350+x/1336+x | 1290+x/1276–x | 1290 or 1279 |
| 1356+x/1343–x | 33 | 1351+x/1337+x | 1291+x/1277–x | 1290 or 1279 |
| 1356+x/1343–x | 34 | 1352+x/1338+x | 1292+x/1278–x | 1290 or 1279 |
| 1356+x/1343–x | 35 | 1353+x/1339+x | 1293+x/1279–x | 1290 or 1279 |
| 1356+x/1343–x | 36 | 1354+x/1340+x | 1294+x/1280–x | 1290 or 1279 |
| 1356+x/1343–x | 37 | 1355+x/1341+x | 1295+x/1281–x | 1290 or (1279 ?) |
| 1356+x/1343–x | 38 | 1356+x/1342+x | 1296+x/1282–x | 1290 or (1279 ?) |

Table 11 Chronological alternatives between Ramesses II and Shoshenq III with 1 Ramesses II dependent on Near Eastern synchronisms

| 1 Shoshenq III | | ~~***830*** BC~~ | ***841*** BC | | ***830*** BC | ***841*** BC |
|---|---|---|---|---|---|---|
| 1 Osorkon II | ~30 y | ~860 | ~871 | ~40 y | ~870 | ~881 |
| 1 Osorkon I | | ~~~906~~ | ~920 | | ~920 | ~930 |
| 1 Shoshenq I | | ~~***929***~~ | ***943*** | | 943 | 954 |
| 1 Smendes | | ~~~1055~~ | ~1069 | | ~1069 | ~1080 |
| *1 Herihor | | ~~~1062~~ | ~1076 | | ~1076 | ~1087 |
| *30 Ramesses XI | | ~~~1063~~ | ~1077 | | ~1077 | ~1088 |
| 1 Ramesses II | | ~~***1265***~~ | ***1279*** | | 1279 | 1290 |

ylonian date without any modification on the basis of absolute Egyptian chronology. Table 10 shows the results if the possible accession years of Burnaburiaš II and the interval of at least 59 years between 1 Akhenaten (following on the incomplete year 38 of Amenhotep III) and 1 Ramesses II are combined. For example, if Burnaburiaš II's accession occurred as early as in 32 Amenhotep III, then 1 Ramesses II fell in 1356+x BC minus 7+59 = 1290+x BC at the earliest and in 1343+x BC minus 7+62 = 1276–x BC at the latest.

As Table 10 shows, the short Babylonian chronology is compatible with both 1279 and 1290 BC = 1 Ramesses II, whereas 1265 and 1304 BC are not. If, according to Brinkman's long Assyrian chronology, the accession of Burnaburiaš II would have taken place 1359 ± (5+x) BC,[188] then the lunar referenced year 1 of Ramesses II could have been 1290 or 1304 BC, but not 1279 BC as can be interpolated in Table 10 under the premise of an applicable value of × in 1359 ± (5+x) BC. In combination with the Egyptian relative chronology between Akhenaten and Ramesses II, the *long* Assyrian and Babylonian chronologies imply 1304 and 1290 BC as alternatives for 1 Ramesses II, whereas 1279 BC does not appear to be an option. The *short* Assyrian and Babylonian chronologies imply both 1290 and 1279 BC as possibilities for 1 Ramesses II, whereas the short Assyrian chronology alone implies 1265 BC.

The Assyrian synchronism yields an interval of 48 to 51 years for 1 Akhenaten. By contrast, the Babylonian synchronism yields an interval of only 20 years for 1 Akhenaten. If both synchronisms are valid, we could rely on the Babylonian synchronism alone which allows 1290 and 1279 BC for 1 Ramesses II, though not 1265 BC. Table 11 presents the possible combinations of 1 Ramesses II being either 1290 or 1279 BC with Ramesside and TIP chronologies.

Removing 1 Ramesses II = 1265 BC as viable, also removes the possibility of 1 Shoshenq I = 929 BC, together with the combination of 1 Shoshenq III = 830 BC and 30 regnal years for Osorkon II. 1 Ramesses II = 1279 BC can result from either 1 Shoshenq III = 830 or 841 BC, if in the first case, the reign length of Osorkon II was 40 years, or in the second case 30 years; the two possibilities are identical between Ramesses II and the accession of Osorkon II. If 1 Shoshenq III =

[188] Brinkman 1976, 31.

841 BC and Osorkon II ruled for ca. 40 years, then the resulting accession year of Ramesses II = 1290 BC. The scheme cannot be modified by removing Herihor, since this would result in an overlap between the last years of Ramesses XI and the accession of Smendes.

The uncertainties in Bubastide chronology (1 Shoshenq III; reign length of Osorkon II) and Dyn. 21 chronology (attribution of oracle 6 to either Amenemope or Osorkon the Elder) cannot be avoided. The possibilities of 954 or 943 BC for the accession year of Shoshenq I remain, whereas 929 BC can be relinquished.[189] The resulting possibilities for 1 Smendes are 1069 or 1080 BC. Reckoning from 1290 BC as the accession year of Ramesses II, and assigning DB 9 to Ramesses VII, year *30 of Ramesses XI would last from April 1088 at least to January 1087 BC or from April 1077 to January 1076 BC, if reckoned from 1279 BC. Thus there would be about 7 years between the end of Ramesses XI's reign and the accession of Smendes, corresponding to a reign of Herihor.

**Lunar dates of Thutmoses III**

The question arises how the chronology of Dyn. 18 can be correlated with the suggested Ramesside and Bubastide chronology. The lunar dates of Thutmoses III appear to be an anchor for the absolute chronology of Dyn. 18. In an initial reaction to the shortening of Haremhab's reign, David A. Warburton and I suggested retaining 1 Ramesses II = 1279 BC, but to lower 1 Thutmoses III from conventional 1479 to 1468 BC. We noted that the suggestion results in a difficulty with the lunar date of 24 Thutmoses III.[190] On closer scrutiny the difficulty proves to be insuperable.

Lunar dates are recorded for years 23 and 24 of Thutmoses III which are conventionally linked to 1490, 1479, 1468, or 1465 BC as astronomically possible first regnal years. Dead reckoning yields 126 + × years between 1 Thutmoses III and 1 Akhenaten; if Manetho's 9 y + 8 m for Thutmoses IV are accepted, then 128 + × years are available.[191] Since 59 + y to 60 + y years elapsed between 1 Akhenaten and 1 Ramesses II, 185+x+y to 188+x+y years elapsed between 1 Thutmoses III and 1 Ramesses II. Thus 1 Thutmoses III = 1464/1465+x+y BC would result if 1 Ramesses II = 1279 BC, and 1475/1476+ x+y BC, if 1 Ramesses II = 1290 BC. This results in 1 Thutmoses III = 1465 or 1490 BC being barely possible to quite improbable.

The year 23 lunar date of Thutmoses III refers to the Battle of Megiddo on I Shemu 21 specified as *day of the feast of pesedjentyw exactly*. Although the text states precisely on which day *pesedjentyw* occurred, nevertheless a debate about an emendation of the recorded date began in the 1940s and came full circle about 60 years later.[192]

The other lunar date of Thutmoses III refers to a foundation ritual in Karnak Temple. The king ordered preparations to be made for the ritual on II peret 30, when *waiting for the day of pesedjentyw* (*ḥr sȝwt hrw n psḏntyw*). Originally the text was understood as saying that *pesedjentyw* or LD 1 coincided with II Peret 30; this was also Parker's interpretation.[193] By contrast, Edward F. Wente argues that II Peret 30 was the day when the order was given in expectation of *pesedjentyw*.[194] Beckerath after collating the inscription confirms Wente's interpretation:[195]

"Es handelt sich demnach an dieser Stelle nicht um das Datum des Neumondtages, an dem das Strickspannen hätte stattfinden sollen, sondern um den des Befehls zu seiner Vorbereitung. Es kann allerdings als sicher angesehen werden, dass das Wunder des Amun noch am gleichen Tag stattfand (Wente is hierüber wegen der Lücken unseres Textes im Zweifel). Denn es ist ganz ausgeschlossen, dass man auf dieser Stele das Datum des Vorbereitungsbefehles, nicht aber das des im Mittelpunkt der Erzählung stehenden Ereignisses verewigt hätte. Außerdem wird dort gesagt, dass der Befehl erlassen wurde, 'während man auf den Neumondtag wartete'. Dieser Ausdruck kann sich aber nur auf den 30. Tag eines Mondmonats beziehen."

Thus according to Wente and Beckerath the order was given at an unspecified time on II Peret 30, the day being a LD 30; their interpretation implies that III Peret 1 was a LD 1. On these premises, I suggest that the order was given at the beginning of calendar day II Peret 30, before it could have been known whether the day would be

[189] For the vexed problem of Shoshenq I's campaign to Palestine see Excursus 5.

[190] Krauss 2009, 134.

[191] Hornung 2006, 201ff.

[192] spalinger 2005, 91f; Krauss 2006a, 420–422.

[193] Parker 1957c, 40.

[194] Wente 1975, 265–272;

[195] Beckerath 1981, 48.

a LD 30 or LD 1. If 1 Thutmoses III fell in 1479 BC, then the calendar day II Peret 30 of year 24 corresponded to February 17 in 1455 BC, beginning at dawn, around 5 h 55 m (local time zone).[196]

The determination of II Peret 30 as old crescent day or first day of lunar invisibility (*pesedjentyw*) depended on whether the moon was sighted or not. To an observer at Karnak Temple the moon rose on II Peret 30 or February 17 in 1455 BC at an azimuth of 116.4°, coinciding more or less with the azimuth of sunrise on winter solstice in 1995 as observed by Luc Gabolde who also determined the respective horizontal elevation.[197] As seen from Karnak the eastern horizon line is 39.75 km away and rather low; at an azimuth of 116.4° the horizon has an elevation of ca. 1°. If refraction is considered, then the moon could have become visible at topocentric altitude of 1.5° or about 6 h 10 m on February 17 in 1455 BC. If the crescent was sighted at all, it attained Bruin's optimum visibility altitude at 6 h 23 m,[198] whereas the sun rose about a quarter hour later. Thus there would have been enough time for the king to order the preparation of the ritual between the beginning of the calendar day and shortly before sunrise, when it was clear whether the day was *pesedjentyw* or not. As indicated in Fig. 1, the astronomical situation was such that the crescent might have been sighted or not in 1455 BC on II Peret 30. In other words, the *pesedjentyw* Thutmoses III awaited, fell according to astronomical computation either on III Peret 1 or on II Peret 30.

II Peret 29 or February 16: x: lunar position after UraniaStar 1.1; ○ : lunar position after Alcyone Ephemeris; Δt of JPL horizons; II Peret 30 or February 17: +: lunar position after UraniaStar 1.1; ◊ : lunar position after Alcyone Ephemeris; Δt of JPL horizons; uncertainty zone between solid lines.

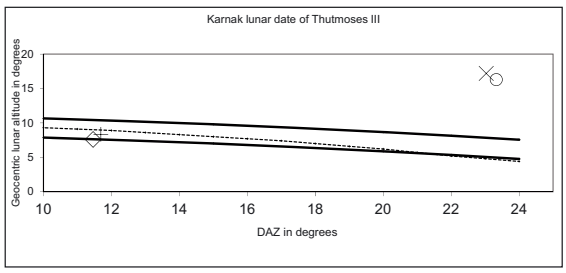



Fig. 1 Geocentric lunar positions on February 16 and 17 in 1455 BC at solar altitude 0°.

Table 12 presents the atronomical possibilities for the lunar dates of Thutmoses III, complemented by the respective LD of II Peret 30 in year 24. It ought to be a LD 30 according to Beckerath's reasoning. The criterion is unrestrictedly compatible with 1 Thutmoses III = 1479 or 1454 BC and restrictedly with 1504 BC, though not at all with the other years which are tested in Table 12.[199]

As Table 12 implies, the lunar dates of years 23 and 24 per se could refer to 1479 and 1454 BC, but not to 1465, 1468, and 1490 and 1493 BC and barely to 1504 BC as first years of Thutmoses III.[200] If 1 Thutmoses III were 1490 BC, then both recorded lunar dates would not match the computed dates. If 1 Thutmoses III were 1468 BC, then recorded and computed Megiddo date coincide, but the computed Karnak date is off by +2 days. If 1 Thutmoses III were 1465, then there is a 50:50 chance that recorded and computed Megiddo date coincide, but the computed Karnak date is off by at least –1 day.

Recorded and computed lunar dates agree in the same way, be 1 Thutmoses III = 1454 or 1479 BC. The time of moonrise on February 11 in 1430 BC, corresponding to 1 Thutmoses III = 1454 BC, was more or less the same as on February 17 in 1455 BC (1 Thutmoses III = 1479 BC). There was a difference insofar as the moon rose at an azimuth of ca. 108.5° for which there are no exact elevation values available. Nevertheless, Gabolde assures me that the difference in elevation between azimuth 116.4° and 108.5° must be very small and if so, the moon would have become visible or not more or less at the same time as in 1455 BC (1 Thutmoses III = 1479 BC). Note that 1454 BC is too late for 1 Thutmoses III, since it implies that 1 Ramesses II is later than 1279 BC which is to be excluded, at least according to the results presented above.

Huber recently calculated the lunar dates of Thutmoses III. For the Megiddo date as I Shemu

196 Krauss 2004, 282ff.

197 Gabolde 2009a, 5 n. 14, 170. Note that in an email to Gabolde dated Nov 2, 2008, I retracted with apologies my criticism (as voiced in Krauss 2006b) of his determination of the orientation of the Akhmenu towards the rising sun at winter solstice.

198 For Bruin's optimum cf. Yallop 1997, 14 and Krauss 2012, 14.

199 Note that the LD of II Peret 30 has to be counted forward in time.

200 Aston 2012, 291f, 307, 310 takes the risk of accepting 1493 BC as accession year of Thutmoses III.

Table 12 Correspondences in absolute chronology for the lunar dates of Thutmoses III

| 1 Thutmoses III | Computationally Megiddo *pesedjentyw* Would fall on | Computationally Karnak *pesedjentyw* would fall on | LD of II Peret 30 (Karnak date) |
|---|---|---|---|
| 1504 BC | I Shemu 20 in 1482 BC | III Peret 1 in 1480 BC | 29 or 30 |
| 1493 BC | I Shemu 22 in 1471 BC | III Peret 2 or III Peret 3 in 1469 BC | 28 or 29 |
| 1490 BC | I Shemu 20 in 1468 BC | II Peret 29 in 1466 BC | 2 |
| 1479 | I Shemu 21 in 1457 | II peret 30 or III Peret 1 in 1455 | 30 |
| 1468 | I Shemu 21 in 1446 | III Peret 2 in 1444 | 28 |
| 1465 | I Shemu 20 or 21 in 1443 | II peret 29 in 1441 | 2 or 3 |
| 1454 | I Shemu 21 in 1432 | II Peret 30 or III Peret 1 in 1430 | 30 |

21 and the Karnak date as II Peret 30, "the years 1479, 1454, and 1429 BC give exact matches for Thutmoses III, year 1 for both moon dates". By contrast, the Megiddo date as I Shemu 20 and the Karnak date as III Peret 1 yield "only one perfect fit for both dates, namely 1504 BC".[201] For all practical purposes, Huber's results and mine are formally identical, if the historically excluded years 1504 and 1429 BC are disregarded.

Any interpretation of the astronomical results has to consider that both lunar dates of Thutmoses III are qualified by contemporaneous information. The Megiddo date is qualified as *day of the feast of pesedjentyw exactly*, the Karnak date as *when waiting for the day of pesedjentyw*, which expression can only refer to the "30. Tag eines Mondmonats". Thus the leeway for assuming observational mistakes is restricted; and in my opinion, there is no leeway at all.

The problem remains how to harmonize 1 Ramesses II = 1279 or 1290 BC and 1 Thutmoses III = 1479 BC which corresponds to a distance of 189 or 200 years respectively. Since dead reckoning yields 185/186+x+y years between 1 Thutmoses III and 1 Ramesses II, it would appear that 1 Thutmoses III = 1479 and 1 Ramesses II = 1290 BC are historically correct; the three years which would be not documented might be hidden in the reigns of Ramesses I, Sety I, and perhaps Aya. By contrast, the 200 year distance between 1479 and 1279 leaves an undocumented gap of about 14 years which cannot be hidden between Amenhotep III and Ramesses II. Thutmoses IV and Amenhotep II are candidates for increased reign lengths as suggested, for example, by Aston.[202] The proportional relationship between presumed 10 regnal years of Thutmose IV and the number of his preserved scarabs has irritated me, ever since Bertrand Jaeger published his lists of Dyn. 18 seal amulets.[203] By comparison with the number of scarabs preserved from the reigns of Amenhotep II and III I felt tempted to conclude that Thutmoses IV had a reign of about 20 years. I am no longer tempted, despite Aston's general arguments in favor of a long reign of Thutmoses IV.

I cite the following reasons for preferring 1 Ramesses II = 1279 BC. According to Luc Gabolde, the orientation of the Small Aten Temple was determined by sunrise seen in the *akhet*-like gap in the eastern mountain ridge on IV Peret 13 in 5 Akhenaten, the day when the city was founded.[204] Taking up Gabolde's argument Juan A. Belmonte asserts that the solar alignment could have been observed "between 19–20 February in the proleptic Gregorian calendar, equivalent to the margin of a day to IV Peret 13 of the year 1335 BC. In fact, considering the dynamics of the Egyptian calendar, in all the four years focused on 1335/36 BC .... If this is true, we would have a new key archaeoastronomic date that would fix year 5 Akhenaten in 1335 ± 4 BC."[205] Furthermore, there was the omen of the sun god which Murshili II received on his campaign to Azzi in regnal year 10. If the omen was indeed an eclipse, then it could have been that of June 24 in 1312 BC. According to Jared Miller, it was around his year 7 that Murshi-

[201] Huber 2011, 192.
[202] Aston 2012, 298–306.
[203] Jaeger 1984a; 1984b.
[204] Gabolde 2009b.
[205] Belmonte 2013, 421.

li II dealt with the Egyptian official named *Ar-ma-a(-aš)* who is to be identified with Haremhab before he became king.[206] Murshilis' dealings with Haremhab would date about a decade after the death of Nipkhururiya which occurred in one of the last years of Šuppiluliumas, implying that Nipkhururiya was identical with Napkhururiya Akhenaten. If Akhenaten died about 1325 BC, then 1 Ramesses II = 1279 BC, whereas 1 Ramesses II = 1290 BC would be excluded. These arguments are impressive and I would like to accept 1279 as 1 Ramesses II, even if the odds are in favor of 1290 BC.

**Excursus 1: Dates of the Feast of the Valley and of a Nile ferrying by Amun**

Acccording to Medinet Habu Calendar (*MHC*) 135, the Feast of the Valley began on LD 1 in II Shemu. *MHC* 135 & 159 state that Amun was to rest in the funerary temple of Ramesses III and to receive offerings on LD 1 and LD 2, described as the first and second day of the feast.[207] Thus it appears that the cult statue of Amun departed Karnak on the first feast day, crossed the Nile, visited Deir el-Bahri in a procession, and spent the night in Ramesses' funerary temple.[208] Various inscriptions mention points along the processional route at the Feast of the Valley, usually without chronological information.[209] The material from Deir el-Medinah is meagre.[210] For example, oDM 127, vs 1–2, datable to the time of Ramesses II, notes a "day of offering to Amun at the Valley Festival",[211] whereas the *Giornale* of 3 Ramesses X does not mention the Feast of the Valley, although all entries of II and III Shemu are preserved.[212]

Numerous Ramesside visitors left graffiti in western Thebes on pillars of the Djeser-Akhet temple. The texts refer to a feast of Hathor in IV Akhet and offerings to Hathor and Amun in II and III Akhet; the texts also refer to offerings for Meretseger or Hathor in III and IV Peret and, finally, to offerings for Hathor and Amun in II and III Shemu. Marek Marciniak published and commented on these graffiti;[213] Ashraf I. Sadek translated the texts and provided a philological commentary.[214] Marciniak ascribed the graffiti which are dated to II and III Shemu to participants in the Feast of the Valley. Four graffiti on pillars VII and VIII mention that Amun "rested" (*jw Jmn htp m* ...) or "was in" (*jw Jmn m* ...) a funerary temple:

DB 3 : year 7, II Shemu 28; Amun rested in the funerary temple of Tewosre.[215]

DB 9 : year 6, III Shemu 9; *jw Jmn-Rᶜ nswt* [*ntrw*] *m tȝ ḥwt ᶜȝt jmntt Wȝst tȝ ḥwt nswt-bjt Wsr-mȝᶜt-Rᶜ stp ////jmntt Wȝst*.[216]

DB 10 : year 7, III Shemu 9; Amun rested in the funerary temple of Ramesses III.[217]

DB 32 : year 3, II Shemu 20; Amun was in the funerary temple of Ramesses II.

Since the Feast of the Valley is the only known occasion when Amun of Karnak rested in a funerary temple, Marciniak accepted not only the graffiti of II Shemu, but those of III Shemu, as well as references to the Feast of the Valley. He dated the ensemble of the graffiti paleographically to the "deuxième moitié" of Dyn. 20,[218] "qoique certains d'entre eux peuvent être légèrement antérieurs".[219] Nevertheless, DB 17 is dated explicitly in 32 Ramesses II, though Marciniak considers attribution to Ramesses III.[220] This is out of the question, since the 32nd and last year of Ramesses III lasted only from I Shemu 26 to the accession of Ramesses IV on III Shemu 15, whereas DB 17 is dated to IV Akhet 1 in regnal year 32.

Table 13 presents the possible fits of DB 3, 9, 10 and 32 into Ramesside chronology according to exact computation. The absolute dates for the 20th dynasty correspond to the relative chronology as currently established.[221] The absolute dates depend a) on the alternatives 1 Ramesses II = 1290 or 1279 BC and b) on the premises that DB 3 (Tewosre) and DB 10 (temple of Ramesses III) refer to a LD 1 or LD 2. The latter days are preferable to the lunar date of 52 Ramesses II. Under the

206 Miller 2007.
207 Nelson 1934, 42.
208 Schott 1934, 73f.
209 Kruchten 1989, 345 n. 3.
210 For a possible description of the feast in the time of Ramesses VI, see KRI VI 341.13–342.1.
211 KRI III, 557.
212 Botti 1928, Pls. 54–59.
213 Marciniak 1974.
214 Sadek 1984.
215 KRI IV 376; Peden 2001,
216 KRI VI 102; but cf. Peden 2001, 122 n. 395.
217 KRI V 337.
218 Perhaps a slip for "première moitié"?
219 Marciniak 1974, 38–40.
220 Marciniak 1974, 42.
221 Hornung 2006, 214–217.

premise that the reign of Amenmesses was included within the reign of Sety II, the interval between the lunar date of 52 Ramesses II and DB 3 (Tewosre) corresponds to the proper lunar interval between LDs 1 or 2 which amounts in this case to 36 y + 121 d = 449 LM + 1.7 d.[222] If, by contrast, the interval between the two dates is extended by an independent 4 year reign of Amenmesses, then the interval results in a LD 15 (full moon) for DB 3, while a LD 1 or 2 is to be expected on the basis of MHC. The interval between the lunar date of 52 Ramesses II and DB 10 (Ramesses III) corresponds to the sum of the distances 52 Ramesses II : DB 3 + DB 3 : DB 10, i.e. (36 y + 121 d) + (10 y + 11d) = 573 LM + 1 d.

The attribution of DB 3 to Tewosre is certain, since she was deposed and her memory prosecuted. When Amun is said to rest in the funerary temple of a specific king, that pharaoh is not necessarily the ruling king as shown by an inscription in the tomb of Neferhotep (TT 49; temp. Aya) stating that Amun spent the night during the Feast of the Valley in the funerary temple of Thutmoses III (or I).[223] To do justice to this premise I test the dates of DB 9, 10 and 32 against the regnal years of other Ramesside kings. No one seems to doubt that DB 10 dates to Ramesses III; nevertheless, a later king cannot be excluded out of hand. Since the accessions of Ramesses III and VII are possibly 50 years or two full lunar cycles apart, civil III Shemu 9 of DB 10 could have coincided with a LD 1 in 7 Ramesses VII.[224]

There is another possibility which is linked to DB 9. Following Kitchen,[225] Peden ascribes DB 9 and its fragmentary throne name Usimare-setepen/// to Ramesses IV though noting "the unexpected use of the ... early prenomen in this text ...".[226] Peden alludes to the well-known fact that Ramesses IV changed his nomen in his 2nd year from Usimare Setepenamun to Heqamare Setepenamun.[227] Since DB 9 is dated to a year 6, it should not be ascribed to Ramesses IV. The restoration "setepen[amun]" is open to question; the traces are indistinct and would also suit the throne name of Ramesses II or of Ramesses VII.

In *Sothis- und Monddaten* I assigned DB 9 to Ramesses VII. Klaus Ohlhafer pointed out to me an obstacle insofar as no funerary temple is attested for Ramesses VII. He also noticed that the date of DB 9 would fit in 6 Siptah. If so, Amun would have spent a night of the Feast of the Valley in the temple of Ramesses II, not in the temple of Siptah. Now Gautschy assigns DB 9 to Ramesses VII.[228] The assignment to Siptah has no repercussions for absolute chronology, but the alternative results in a shift of one year of all regnal years from 1 Ramesses VII up to the final regnal year of Ramesses XI. I accept Gautschy's choice despite the lack of evidence for the existence of a funerary temple of Ramesses VII. (The reader may remember Kitchen's dictum:[229] "Absence of evidence *so far* is **not** of itself valid evidence of historical absence in the distant past. Please note!").

DB 32 fits in year 3 of Ramesses VI and would also fit in 3 Ramesses X, if DB 9 is assigned to Ramesses VII (or if Ramesses VIII had a regnal year 2, a possibility which I do not intend to follow up, to avoid a yet more complicated time table). In both cases, Amun would have rested in the funerary temple of Ramesses II.

Table 13 is based on the alternatives 1 Ramesses II = 1290 or 1279 BC. The latter difference of 11 years which corresponds to a lunar "half" cycle is reflected in Table 13 by pairs of lunar days which are in general one day apart. For example, the date of DB 3 (Tewosre) corresponds to a LD 3 if 1 Ramesses II = 1290 BC, but to a LD 2 if 1 Ramesses II = 1279 BC. Since according to MHC Amun was to rest on LDs 1 and 2 in the funerary temple, 1 Ramesses II = 1279 BC might be preferred over 1290 BC. Furthermore, Table 13 provides alternative calendar years for the regnal years of Ramesses IX, X and XI, to allow for the possibility that DB 9 be assignable to Ramesses VII.[230]

DB 32 (temple of Ramesses II) would possibly fit in two reigns. There are two possible fits for DB 10 (temple of Ramesses III) or only one fit. There is only one fit for DB 3 (Tewosre) and two possible fits for DB 9 (temple of Usimare-setepen///). Under

[222] Krauss 1997b, 175–177; Krauss 2006a, 415f.

[223] Davies 1933, 57 n. 15.

[224] If Sethnakhte had 4 full regnal years, then DB 10 would date neither to 7 Ramesses III nor to 7 Ramesses VII. The alternative would be 7 Ramesses IX, under the additional premise of a year 2 of Ramesses VIII.

[225] KRI VI 102.

[226] Peden 2001, 122 n. 395.

[227] Beckerath 1984, 246f.

[228] Gautschy 2014, 142.

[229] Kitchen 2009, 178.

[230] Hornung 2006, 216.

Table 13 alternative years for DB 3, 9, 10 and 32; modified after Krauss 2006, Table III.8.9.

| alternatives for regnal year 1 | Tewosre | Usimare setepen/// | Usimare meriamun = Ramesses III | Usimare setepenre = Ramesses II |
|---|---|---|---|---|
| | DB 3: year 7<br>II Shemu 28 | DB 9: year 6<br>III Shemu 9 | DB 10: year 7<br>III Shemu 9 | DB 32: year 3<br>II Shemu 20 |
| | LM & LD | LM & LD | LM & LD | LM & LD |
| Ramesses II<br>1290/1279 BC | – | X.27 / X.27 | – | X.6 / X.7 |
| Merneptah<br>1224/1213 | – | X.22 / X.20 | – | IX.29 / IX.28 |
| Sety II<br>1214/1203 | – | X.28 / X.27 | – | X.6 / X.6 |
| Amenmesses<br>1214/1203 | – | – | – | X.17 / X.17 |
| Siptah<br>1198/1187 | – | **XI.3 / XI.2** | – | X.11 / X.10 |
| Tewosre<br>1202/1191 | **XI.3 / XI.2** | – | – | – |
| Sethnakhte<br>1201/1190 | – | – | – | IX.28 / IX.25 ! |
| Ramesses III<br>1198/1187 | – | X.21 / X.21 | **XI.2 / XI.2** | IX.29 / IX.28 |
| Ramesses IV<br>1167/1156 | – | X.7 / XI.6 | – | X. 16 / X.14 |
| Ramesses V<br>1161/1150 | – | – | – | X.20 / X.19 |
| Ramesses VI<br>1157/1146 | – | X.24 / X.24 | X.6 / X.5 | **X.3 / X.2** |
| Ramesses VII<br>1148/1137 | – | X.21 / X.20 | **XI.2 / XI.1** | IX.30 or **X.1**. /<br>IX.28 |
| 1147/1136 | | XI.2/XI.1 | | |
| Ramesses VIII<br>1141/1130 | – | – | – | – |
| Ramesses IX<br>1140/1129 | – | X.28 / X.27 | XI.9 / XI.9 | X.7 / X.6 |
| *1139/1128* | – | *XI.9 / XI.9* | *X.20 / X.20* | *X.17 / X.16* |
| Ramesses X<br>1122/1111 | – | –/– | –/– | X.21 / X.20 |
| *1121/1110* | – | –/– | –/– | ***X.2 / X.1*** |
| Ramesses XI<br>1117/1106 | – | X.26 / X.25 | XI.8 / XI.6 | X.4 / X.4 |
| *1116/1105* | – | *XI.8 / XI.6* | *X.18 / X.16* | *X.15 / X.15* |

these circumstances I draw conclusions as regards relative and absolute chronology on the basis of DB 3 (Tewosre) and DB 10 (temple of Ramesses III).

*Other relevant Djeser-akhet graffiti*

Besides the four graffiti which mention Amun resting in a funerary temple, there are other Djeser-akhet graffiti dated between II Shemu 10 and III Shemu 3.[231] The time span makes it probable that these graffiti were written in connection with the Feast of the Valley. The texts refer mostly to Hathor in accordance with private rituals at the festival.

DB 31 is the only Djeser-akhet graffito which cites an explicit date in connection with the Feast of the Valley: "year 22, II Shemu 23; offering to

[231] Marciniak 1974, 41, Table I.

Hathor during the Beautiful Feast of the Valley of Amun-Re, King-of-Gods."[232] Note that Marciniak transcribes the day number as '23' which I have corrected into '22'.[233] Now I would like to retain '22' only as a possibility and to accept Marciniak's reading. (I thank Günther Vittmann for his advice on the hieratic writing of this number.)

My earlier attempts to analyse the DB graffiti assigned DB 31 to Ramesses XI, though I did not fail to note that a rock fall might have destroyed Djeser-akhet during or even shortly before his reign since the temple still functioned under Ramesses IX.[234] Now I no longer consider Djeser-Akhet accessible to visitors in 22 Ramesses XI, attributing DB 31 to Ramesses III or to Ramesses II. Since the text mentions neither the resting of Amun nor offerings as noted in *MHC*, there is no compelling reason why DB 31 should refer to a LD 1 or 2. The civil date II Shemu 23 corresponded in 22 Ramesses III to X.27 and to X.4 in 22 Ramesses II.

There might have been propitious days for offerings to Hathor. Visitors might have come to Deir el-Bahri on specific days during the month-long festival or on other days which were coincidentally convenient. An example is DB 36 dated to III Shemu 1 in year 21 [Ramesses III]; the date fell on a LD 24. In this case a scribe Mery-Ptah and User-Montu, *Sm*-priest and steward of the *ḥwt Nb-mȝʿt-Rʿ* prayed to Hathor and Amun. The text of DB 36 does not imply that its date coincided with Amun's resting in a mortuary temple on a LD 1 or 2. Gautschy assigns DB 36 to Amenhotep III,[235] evidently interpreting the citation of the mortuary temple of *Nb-mȝʿt-Rʿ* as contemporaneous with Amenhotep III. By contrast, Sadek identified Woser-Montu as a well-known Ramesside person:[236] "Wosermontu is almost certainly the same man who appears both in the undated Tomb 277 of Amenemone, and Tomb 148 of Amenemope who served under Ramesses III, IV and V".

It remains open whether the assertion of MHC 135 that the feast began on LD 1 in II Shemu is to be interpreted as "first LD 1 in civil II Shemu" or as "LD 1 of lunar II Shemu, i.e. lunar month X since I Akhet 1". The calendric settings of the four graffiti which refer to Amun's resting in a funerary temple are as follows:
DB 3: in lunar month XI which began in civil II Shemu;
DB 9 & 10: in lunar month XI which began in civil III Shemu;
DB 32: in lunar month X which began in civil II Shemu.

Thus not only the civil month of the feast appears to be variable, but also the lunar month of which X and XI are attested. Without taking notice of the DB graffiti Anthony Spalinger presumed that the feast began on the first LD 1 which occurred in civil month II Shemu:[237] "... the Valley Feast was conditioned by the civil month of Payni, not by lunar month 10. (If the latter were the case then *ḥb Ỉnt* might turn up in civil month 11, Epiphi, from time to time." Although civil month 11 turns up from time to time, the Beautiful Feast of the Valley does not seem to be determined by lunar month X, since lunar month XI occurs. The variable timing of the Beautiful Feast of the Valley remains to be explained.[238]

### *Ferrying Amun across the Nile in II Shemu*

Deir el-Medina ostraca mention days when Amun crossed the Nile or was expected to do so. I have discussed these cases in my "Sothis- und Monddaten".[239] It seems possible that such ferrying was associated with the Beautiful Feast of the Valley since it occurred in II Shemu.[240] Table 14 lists the sources, some of which are included in KRI.

Table 14 sources of ferrying dates

| source | regnal year | civil date of ferrying |
|---|---|---|
| oGardiner 11 (KRI VI, 248f) | 2 [Ramesses V] | II Shemu 25 |
| oCG 25265 | 5 [Ramesses IV] | II Shemu 1 |
| oTurin 57044 (KRI V, 510) | 26 [Ramesses III | II Shemu *29[241] |
| oTurin 57034 | 22 [Ramesses III | II Shemu 12 |
| oCG 25538 (KRI IV, 315) | 6 [Sety II] | II Shemu 25 |

[232] Sadek 1984, 89.
[233] Krauss 1985, 137.
[234] Lipinska 1967, 28–30; Pinch 1993, 10–11; Peden 2001, 122.
[235] Gautschy 2014, 142.
[236] Sadek 1984, 65; citing Helck 1961, 100.
[237] Spalinger 1995, 32.
[238] Marciniak 1984, 32f; Krauss 1985, 141–144.
[239] Krauss 1985, 145–148.
[240] Haikal 1972, 14–15; Massart 1957, 183; Schneider 2011, 448–449 who refers to CG 25538 (Sety II) alone, omitting any reference to Krauss 1985, 145–148.

Evidently, ferrying in years of Ramesses III, IV and V occurred on average on the same LD ± 2 d in civil II Shemu.

Table 15 relative lunar distances of ferrying dates

| | distance in y and d | distance in LM and d |
|---|---|---|
| oTurin 57044 : oTurin 57034 | 4 y + 17 d | 50 LM + 0.5 d |
| oTurin 57034 : oCG 25265 | 14 y + 354 d | 185 LM + 0.8 d |
| oCG 25265 : oTurin 57044 | 10 y + 337 d | 135 LM + 0.4 d |
| oCG 25265 : oGardiner 11 | 3 y + 24 d | 38 LM – 3d |
| oTurin 57044 : oGardiner 11 | 13 y + 361 d | 173 LM – 2.8 d |
| oTurin 57034 : oGardiner 11 | 18 y + 13 d | 223 LM – 2.3 d |

The average lunar day of the ferrying in years of Ramesses III, IV and V can be determined by reference to DB 3 (7 Tewosre) and DB 10 (7 Ramesses III). Furthermore, the average lunar ferrying day in 6 Sety II can be determined by its distance to the lunar date of Ramesses II.[242] (Coincidentally there is a distance of exactly 50 years or two lunar cycles between 6 Sety II, II Shemu 25 and 2 Ramesses V, II Shemu 25). As Table 16 shows, the ferrying dates are on average 13.5 (lunar) days later than DB 10/DB 3 or the lunar date of Ramesses II. Provided that DB 10 and DB 3 fell on LD 1 or 2, it follows that the ferrying dates refer on average to days just before full moon.

Table 16 relative lunar months and days of ferrying dates

| | average distance to DB 10 | average distance to DB 3 |
|---|---|---|
| oTurin 57034 | 184 LM + 14.4 d | 308 LM + 13.6 d |
| oTurin 57044 | 234 LM + 14.8 d | 358 LM + 14.0 d |
| oCG 25265 | 369 LM + 15.2 d | 493 LM + 14.4 d |
| oGardiner 11 | 407 LM + 12.1 d | 531 LM + 11.3 d |
| | | |
| | average distance: lunar date of Ramesses II to 6 Sety II, II Shemu 25 | |
| oCG 25538 | 29 y + 118 d | 362 LM + 12.9 d |

Table 17 presents the astronomically exact values for lunar month and day of the ferrying dates under the premise of 1 Ramesses II = 1290 or 1279 BC.

Table 17 lunar months and ferrying dates referred to 1 Ramesses II.

| 1 Ramesses II | 1290 BC | 1279 BC |
|---|---|---|
| oCG 25538 | X.14 or 15 | X.14 |
| oTurin 57034 | X.17 | X.16 |
| oTurin 57044 | X.17 or 18 | X. 16 |
| oCG 25265 | IX.17 or 18 | IX.16 |
| oGardiner 11 | X.13 or 14 | X.14 |
| | average: LD 16 | average: LD 15.2 |

It appears that the Nile ferrying of Amun took place around full moon on LD 15 ± 2 in lunar month X, except in the case of oCG 25265 when it occurred in lunar month IX. The latter case was a month too early for the Beautiful Feast of the Valley,[243] whereas the other cases occurred in the civil month of the feast. Since MHC does not remark on the return of Amun from the festival, it remains open whether it lasted only for those two days which are specified in MHC. By comparison, the five days of the Tepi Shemu feast are listed one by one in MHC 1451ff.

I am tempted to suggest that Amun could have rested the first two days in the funerary temple of the ruling king and then afterwards spent a series of days in the temples of earlier kings. Under this premise the ferrying dates II Shemu 12, II Shemu 25 and 28 could refer to Amun's return to the east bank. But given the dates of DB 9 and 10 in III Shemu, the known ferryings in II Shemu could have taken place before the Beautiful Festival of the Valley. It remains only a possibility that the ferrying dates are to be associated with the festival or had another objective.[244] By contrast, the DB graffiti DB 3, 9, 10 and 32 are associated with the feast by Amun's resting in a funerary temple which is in turn asserted in MHC.

## Excursus 2: Tepi Shemu feast dates

The Tepi Shemu feast is documented at Thebes from Dyn. 20 to 26;[245] according to MHC 1451ff. The feast began on LD 1 in the first month of Shemu (Tepi Shemu) and lasted 5 days. LD 1 in I She-

[241] Day 28 is designated as "eve" of the ferrying, see Krauss 1985 145 n. 3, and RITA V, 414.

[242] Note that 6 Sety II began on II Peret 29/III Peret 6 (mid-December 1199 BC) and ended on IV Akhet 28/I Peret 1 (mid-October) 1198 BC, see Beckerath 1994, 73. For a convoluted lunar dating of the ferrying in oCG 25538, see Borchardt 1935, 77–78.

[243] Since the feast took place at times in III Shemu (DB 9 and DB 10), after II Shemu as its proper month, it may have been celebrated a month earlier as well, in I Shemu.

[244] In one case Amun ferried over to libate (*w3ḥ mw*) for the "Kings of Upper and Lower Egypt" (oCG 25265); a libation is also mentioned 4 days before the ferrying on oTurin 57034.

[245] Schott 1950, 104–105.

Table 18 dated Tepi Shemu feasts of the early Saite era and of the Third Intermediate Period

| source | type | regnal year | civil date |
|---|---|---|---|
| Demotic Pap. Vienna | oracle | 14 Psametik I[247] | I Shemu [5] |
| | | | |
| frag. Fitzw. 68 | introduction | 18 Osorkon III | I Shemu 6 |
| frag. 9b | introduction | ? | I Shemu 15 |
| frag. 7 | feast, introduction | 39 Shoshenq III | I Shemu 26 |
| frag. 2 | introduction | 8 Pedubast I | I Shemu 19 |
| ~~frag. 1b~~ | ~~introduction~~ | ~~7 Pedubast I~~ | I Shemu [1] |
| Louvre C.258 | arrival for Tepi Shemu feast | 11 Takelot II | I Shemu 11 |
| frag. 5d | *wḥm ḥzwt* | 11 /// | I Shemu /// |
| ~~frag. 5c~~ | ~~[introduction?]~~ | ~~23 [Osorkon II]~~ | ~~I Shemu [1]~~ |
| frag. 5b | [introduction?] | 14 [Osorkon II] | I Shemu [1] |
| frag. 26–27 | introduction | 11 T[akelot I] | I Shemu 25 |
| frag. P | introduction | 13 Psusennes II | I Shemu 13 |
| frag. 3b | introduction | 17 Siamun | I Shemu [1] |
| frag. 3a | introduction | 2 Osorkon the Elder | I Shemu 20 |
| | | | |
| Djehutymes inscription | oracle | 3 [Amenemope] or 3 [Osorkon] | I Shemu 10 |

mu can be interpreted as "LD 1 in civil I Shemu" or as "LD 1 in lunar I Shemu, corresponding to lunar month IX"; in the latter case the first feast day could have occurred on one of the last days of civil IV Peret. For the relationship of civil months to lunar months see Excursus 3.6. The Tepi Shemu dates of Dynasties 21 and 22/23 occurred between the end of November and mid-December in the proleptic Gregorian calendar and thus during a season when weather conditions might have been unfavorable for astronomical observation. This is at least implied by the astronomer Arthur von Auwers in a 19th century report on observational conditions at Luxor in November/December.[246]

Table 18 presents a list of attested or inferred Tepi Shemu feasts, primarily from the fragments of the Karnak Priestly Annals (code: frag.).

The Tepi Shemu feast is attested in Bubastide sources explicitly by Louvre C.258 and implicitly by frag. 7. Most of the introductions which are known from the Priestly Annals are datable to the Tepi Shemu feast by inference, as originally suggested by Pascal Vernus[248] and formulated by Jean-Marie Kruchten as follows:[249] "l'introduction de nouveaux prophètes intervenait principalement pendant le premier mois de Chemou (*tpj šmw*). De fait, sur les seize entrées dont le mois est connu un total de onze, soit 69 %, est daté de Paschons." Kruchten cites the following introduction dates which did not fall in I Shemu: I Akhet [...]; III Akhet 17; III Peret 9; III Peret [...] and IV Shemu 5.

The relatively high number of unequivocally documented priestly introductions in I Shemu; the coincidence of the Tepi Shemu feast and an introduction in the case of frag. 7; and further, the telling way in which the introduction dates are distributed throughout I Shemu (days 1, 6, 12, 13, 20, 25, 26) make the assumption probable that introductions regularly took place during the Tepi Shemu feast, i.e. on lunar days 1 to 5. The assumption can be supported in the case of frag. 2 by determining its distances to Louvre C.258 and frag. 7. Note that introductions during the Tepi Shemu feast have nothing to do with the moon as such; rather they are indirectly related to the moon insofar as they took place during the Tepi Shemu feast which was lunar regulated.

In my earlier studies of the Tepi Shemu feast days, I was unaware that there are 4 out of altogether 15 dates which coincide with I Shemu [1]. In all four cases the date is written "I Shemu" without day number. Following Egyptological convention I read in each case *I šmw sw* [1] albeit I have a slight doubt whether such a reading always

246 Auwers 1877, 37 n. 1.

247 Parker 1962, 7–8.

248 Vernus 1975, 24.

249 Kruchten 1989, 243.

corresponds to the ancient scribe's intention. Since on average I Shemu 1 and a LD 1 coincide only every 25 years, it is to be expected that the documented introductions on I Shemu 1 are in general not dates of the Tepi Shemu feast. One or the other of the four introductions could have been chosen to fall on the first day of a decade. This could be the case in frag. 1b from 7 Petubastis I, which I have used as Tepi Shemu feast day.[250] Since the introductions frag. 1b (7 Petubastis I) and frag. 2 (8 Petubastis) are 384 days or 13 average lunar months apart, they did not fall in general in the same lunar month although they coincided approximately with the same lunar day. Whereas the LD 1 that corresponded to frag. 2 was a day in civil I Shemu or, respectively, in lunar month IX, the LD 1 that corresponded to frag. 1b was a day in civil IV Peret or in lunar month VIII of the respective calendar year. Nevertheless, if 7 Petubastis II = 817 BC, then the date of frag. 1b fell in lunar month IX resulting from the preceding I Akhet 1 being LD 1 and II Akhet being a blue month (II Akhet 1 and II Akhet 30 being LDs 1). The odds were 50 : 50 that the situation repeated itself 14 years after 817 in 803 BC and 25 years before 817 in 842 BC.

One might argue that frag. 7 implies that the Tepi Shemu feast ought to have begun in 7 Petubastis I approximately on I Shemu 26. The reason is that the date of frag. 7 is 25 years or a full lunar cycle later than frag. 1b, implying that I Shemu 26 as the recorded day of the Tepi Shemu feast in 39 Shoshenq III, would also have been a day of the Tepi Shemu feast, 25 years earlier in 7 Petubastis I. Nevertheless, a calendar year in which I Shemu 26 is a LD 1, is possibly one in which a blue month occurs which could result in I Shemu [1] being a day in lunar month IX. Thus it remains open whether frag. 1b refers to an introduction which did take place during the Tepi Shemu feast or not.

Frag. 3b is dated to 17 Siamun, I Shemu [1]. If 17 Siamun was 970 BC (corresponding to 1 Ramesses II = 1290 BC), then I Shemu [1] was LD 2 of lunar month IX that had begun on IV Peret 30. In this case frag. 3b would correspond to a day of the Tepi Shemu feast. If, by contrast, 17 Siamun was 959 BC, then I Shemu [1] was LD 30 of lunar month VIII that had begun on IV Peret 2. Nevertheless, in this case, frag. 3b could be a mistaken date of the Tepi Shemu feast, if old crescent was missed on I Shemu [1].

A more complicated case is presented by frags. 5b and 5c which are both dated to I Shemu [1] and refer to introductions by inference. As shown below, it is possible that either none or only one of the dates is a day of the Tepi Shemu feast. Thus of the four cases in which an indicated or inferred introduction took place on I Shemu [1], one appears not to be on Tepi Shemu feast days (frags. 5c), while in the remaining three (frags. 1b, 3b and 5b) the question remains open.

In what follows I attempt to interpret frags. 5 and 26–27 as dates of the Tepi Shemu feast. Frag. 5 refers to a series of introductions; the text may be rendered as follows:[251]

frag. 5a: year /// *nswt* [*Wsr*]*kn*; day of [introduction] ///
5b: year 14, I Shemu [1]/// *nswt Wsr-mꜣᶜt-Rᶜ-stp.n-Jmn zꜣ rᶜ* ///
5c: year 23, I Shemu [1]/// *Wsr-mꜣᶜt-Rᶜ-*[*stp.n*]*J*[*mn*]
5d: *wḥm ḥzwt* year 11, I Shemu ///[king ];
5e: year ///
5f: *Wsr-mꜣᶜt-Rᶜ-stp.n-*[*Rᶜ*] *Mry-Jmn šsnq zꜣ Bꜣst* [= Shoshenq III]
(introduction of a vizier)

Since the king mentioned in frag. 5f is Shoshenq III, Kruchten argues that the royal names of 5b and 5c refer either to Shoshenq III or to Osorkon II:[252]

"De ces deux hypothèses, la première me paraît la plus vraisemblable, si on tient compte de la circonstance que les textes 5c et 5d concernent la même personne 'introduite', comme Pa-di-Amen [of frag. 1], en deux temps à Karnak, ce qui suppose une date pas trop éloignée pour les deux inscriptions. De fait, en admettant que l'an 23 du text 5c appartienne à Chéchonq III, il faudrait nous reporter au règne d'Osorkon III, une quarantaine d'années plus tard, pour rencontrer un 'an 11' auquel rattacher le text 5d." Thus Kruchten concludes that year 11 of frag. 5d refers to year 11 of Takelot II.[253] In Aston's chronology, there would have been 15 years between 23 Osorkon II and 11 Takelot II, provided Osorkon II ruled for 31 years. If, by contrast, frag. 5c is attributed to Shosh-

[250] Krauss 2006a, 409–411.
[251] Kruchten 1989, 52–55.
[252] Kruchten 1989, 55.
[253] Kruchten 1989, 55.

Table 19 combinations of frags. 26–27 and 5b/c as Tepi Shemu dates of Takeloth I and Osorkon II, if 1 Shoshenq III is either 830 or 841 BC.

| 1 [Osorkon II] BC / length of reign in years | | Lunar month and day of KPA fragments | | |
|---|---|---|---|---|
| last regnal year 831 BC | last regnal year 842 BC | frag. 5c: I Shemu [1], 23 [Osorkon II] | frag. 5b: I Shemu [1], 14 [Osorkon II] | frag. 26–27: I Shemu 25, 11T[akeloth I] |
| 853 BC /23 y | | IX.4 | VIII.26 | IX.27 |
| 854/24 | | VIII.23 | VIII.16 | IX.17 |
| 855/25 | | VIII.12 | **IX.5** | **IX.6** |
| 856/26 | | IX.1 | VIII.24 | IX.25 |
| 857/27 | | VIII.20 | VIII.13 | IX.14 |
| 858/28 | | VIII.9 | IX.2 | **IX.3** |
| 859/29 | | VIII.28 | VIII.21 | IX.22 |
| 860/30 | | VIII.17 | VIII.10 | IX.12 |
| 861/31 | | VIII.7 | **VIII.29** | **IX.1** |
| 862/32 | | VIII.26 | VIII.19 | IX.20 |
| 863/33 | | VIII.16 | VIII.8 | IX.10 |
| 864/34 | 864 BC / 23 y | IX.5 | VIII.27 | VIII.29 |
| 865/35 | 865 /24 | VIII.24 | VIII.16 | VIII.18 |
| 866/36 | 866 / 25 | VIII.13 | VIII.5 | IX.7 |
| 867/37 | 867 / 26 | IX.2 | VIII.24 | IX.26 |
| 868/38 | 868 / 27 | VIII.21 | VIII.14 | IX.15 |
| 869/39 | 869 / 28 | VIII.10 | **IX.3** | **IX.4** |
| 870/40 | 870 /29 | VIII.29 | VIII.22 | IX.24 |
| 871/41 | 871 / 30 | VIII.19 | VIII.12 | IX.13 |
| 872/42 | 872 / 31 | VIII.8 | **IX.1** | **IX.3** |
| | 873 / 32 | VIII.27 | VIII.20 | IX.22 |
| | 874 / 33 | VIII.16 | VIII.9 | IX.11 |
| | 875 / 34 | VIII.5 | VIII.28 | VIII.30 |
| | 876 / 35 | VIII.24 | VIII.17 | IX.19 |
| | 877 / 36 | VIII.14 | VIII.7 | IX.8 |
| | 878 / 37 | IX.3 | VIII.26 | IX.27 |
| | 879 / 38 | VIII.22 | VIII.15 | IX.17 |
| | 880 / 39 | VIII.12 | IX.5 | IX.6 |
| | 881 / 40 | IX.1 | VIII.24 | IX.25 |
| | 882 / 41 | VIII.20 | VIII.13 | IX.15 |
| | 883 / 42 | VIII.9 | **IX.2** | **IX.4** |

enq III, then year 11 of frag. 5d would presumably be 11 Iuput I, 9 years after 23 Osorkon II.[254]

If frags. 5b and 5c date to the same reign, then 8 years = 98 LM + 26 days separate them. The distance implies that either none or only one date refers to a day of the Tepi Shemu feast. The attribution of 5b or 5c to Osorkon II rather than to Shoshenq III is probable, provided that one of the pair was a date of the Tepi Shemu feast, since neither can accommodate the Tepi Shemu date of 39 Shoshenq III (frag. 7). Below I combine frags. 5b and 5c with frag. 26–27. The latter concerns a priestly introduction on I Shemu 25 in year 11 of a king T[akelot] whose identity Kruchten left open.[255] If this date refers to a Tepi Shemu feast day, it cannot be attributed to Takeloth II, since in his year 11 the feast began on I Shemu 11 or 12 (see main article).

Frag. 26–27 cannot be assigned to Takeloth III, should the introduction on I Shemu 6 in 18 Osorkon III as recorded on frag. Fitzwilliam Museum E SS 68d refer to a day of the Tepi Shemu feast.[256] Provided that the synchronism 28 Osorkon III = 5 Takeloth III in NLR 13 means that

[254] Cf. Jansen-Winkeln 2006b, 249f.

[255] Kruchten 1989, 122.

[256] For the Fitzwilliam Museum fragment see Kruchten 1989, 144.

the dates of frag. 26–27 and the Fitzwilliam fragment are 16 years + 19 days or 198 LM + 12 days apart, then frag. 26–27 is not a day of the Tepi Shemu feast, if the Osorkon III date is such a day.[257] The dates would match Tepi Shemu feast days if their distance were 15 years + 19 days. Under these circumstances I test frag. 26–27 as date of Takeloth I. Table 19 sets out the combination of the dates of frag. 26–27 and frags. 5b and 5c under the following premises: corresponding to the possibilities of 1 Shoshenq III, the final year of Osorkon II fell in 842 or 831 BC and his reign lasted at least (sic) 23 years; Takeloth I ruled 13 years (see main text). It is evident that the respective civil dates of regnal years 14 or 23 Osorkon II and 11 Takeloth I can only pertain to the Tepi Shemu feast, if they fall in the interval LD 1 to 5 in lunar month IX.

As Table 19 shows, there are cases (shaded) in which I Shemu [1] in 14 Osorkon II and I Shemu 25 in 11 Takeloth I fall in IX.1–5; accordingly, Osorkon II could have ruled for 28, 31 or 42 years, if his reign ended either in 842 or 831 BC. If his reign ended in 842 BC there is also the possibility of 39 regnal years; the computational possibility of a 53 regnal years seems not to be an option.

### Excursus 3: The *wrš*-date of the larger Dakhleh stela

The text of the larger Dakhleh stela relates the circumstances of an oracle on the occasion of a *wrš*-feast of Seth, Lord of the Oasis, on IV Peret 25 in year 5 of a pharaoh Shoshenq who had long been identified as Shoshenq I or III.[258] Recently, however, Olaf Kaper,[259] Troy Sagrillo,[260] and I have all proposed Shoshenq I.[261] Now Anthony Leahy has reopened the question by pointing out quite correctly that Shoshenq III could have sent an envoy to Dakhleh in his year 5.[262]

According to my interpretation, the *wrš*-feast of the Dakhleh stela is a lunar event which can be dated to 939 BC, implying 1 Shoshenq I = 943 BC, provided 1 Ramesses II = 1279 BC. Understanding the *wrš*-date as lunar has been criticized by Kenneth A. Kitchen:[263] "there is no evidence whatsoever that the *weresh*-feast date of the god Seth on the Dakhleh stela was a lunar feast (no mention of *pesdjentyu*, etc.) rather than an ordinary calendar-feast; hence it should not arbitrarily be so treated, and this imaginary lunar occurrence can be deleted, leaving us with the normal 945 date".

Contrary to Kitchen's assertion, there is evidence that the *wrš*-feast of the Dakhleh stela is lunar. Using Hellenistic sources, Chris Bennett has recently shown that the lunar temple service month was called *ȝbd* or *wrš*. It began on LD 2 in the Egyptian standard lunar month and ended after a full synodic period on the first day of lunar invisibility or LD 1 in the standard lunar month.[264] Egyptologists presumed for a long time that the lunar temple service month was identical with the standard lunar month beginning on LD 1 and ending on a last LD, be it LD 29 or LD 30. Two decades ago Ulrich Luft realized that the lunar temple service months which are attested in the MK archive of Illahun began on LD 2 and ended on LD 1.[265] Following the lead of Bennett and with reference to the Roman Period in Egypt, Sandra Lippert and Maren Schentuleit state that "der Phylenwechsel fand am ... zweiten Tag des Mondmonates (*ȝbdw*) statt, wie bereits aus den Illahun-Papyri hervorgeht".[266] This implies that the lunar temple service months for the intervening centuries, including the Third Intermediate Period, also began on LD 2.

The *wrš*-feast of the Dakhleh stela or rather its name implies that the related temple service is to be understood as the lunar temple service month called *wrš* and thus the feast was no "ordinary calendar-feast", i.e. a civil calendar feast. If so, the question arises on which day of the lunar temple service month the *wrš*-feast took place. It was decided on IV Peret 16 to let the oracle judge in the legal matter at hand; the *wrš*-feast took place nine days later on IV Peret 25. The interval of nine days does not help in determining the lunar day of IV Peret 25. It implies nevertheless that the *wrš*-feast was either a single feast day or the first day in a series of feast days.

In an earlier publication I deduced the lunar day of the *wrš*-feast on the basis of passages in the

[257] For NLR 13, cf. v. Beckerath 1966, 50, and Kitchen 1973, § 73.
[258] Gardiner 1933, 19–30.
[259] Kaper 2001, 77.
[260] Sagrillo 2005.
[261] Krauss 2005a, 43–44.
[262] Leahy 2010, 45–53.
[263] Kitchen 2009, 167.
[264] Bennett 2008b; Krauss 2012, 23–43.
[265] Luft 1992, 233f.
[266] Lippert 2006, 183.
[267] Krauss 2005a, 46.

Demotic Chronicle.[267] According to Heinz Felber, Chronicle II 9 provides the information that "das Asche(?)-Fest das Ende des (*ȝbd*-)Monats ist". Felber notes that Joachim Quack suggests emendation of the otherwise unknown *ꜥš* in *wrš*.[268] Chronicle II 10 informs us that "das *Nebti*-Fest der Anfang des (*ȝbd*-) Monats ist". Jürgen Osing found proof in the hieratic Tebtunis Papyrus I that the *nbty*-feast is identical with the feast of LD 2 or *ḥrw n ȝbdw*.[269] Citing examples in Erichsen's Glossar, he points out that the reading is *nbty*, not *ȝbty* as the name of LD 2 is usually written in Demotic; but Quack prefers the reading *ȝbty*.

The *ȝbd*-month of Chronicle II 10 is apparently not a 30-day month of the civil calendar. The latter is referred to in certain passages of the Chronicle by specific terms like *ꜥrqj* (last day = day 30 of a civil month) and *sw,* the word for 'calendar day' (e. g. Demotic Chronicle II, 1;2). Since the *ȝbd*-month of II 10 begins with new crescent day or *ȝbty/nbty*, it is rather a lunar month (for the designation of a lunar month by the name of a civil month see below). Since Demotic Chronicle II 9 and 10 are parallel assertions as set out below, I conclude that the *ȝbd*-month of II 9 which ends on *ꜥš*-feast > *wrš*-feast is also lunar.

| Demotic Chronicle II 9 | Demotic Chronicle II 10 |
|---|---|
| *ꜥš* occurs in Pe in month II peret | *ȝbty* occurs in Dep in month III peret |
| *ꜥš* is the end of the month | *ȝbty* is the beginning of the month |

The *ȝbd*–month to which Chronicle II 10 refers, begins on *ȝbty/nbty* and is thus shifted by one position relative to the enumeration of the days in the standard lunar month. Therefore the *ꜥš*-feast > *wrš*-feast as the end of the *ȝbd*–month in II 9 ought to be shifted accordingly; the end of an *ȝbd*-month that begins on LD 2 is in any case a LD 1. By contrast, Quack identifies the *ꜥš*-feast > *wrš*-feast and the end of the *ȝbd*-month in Chronicle II 9 as the last day of the standard lunar month which would be a LD 29 or 30.[270]

Since the Demotic Chronicle dates to the 3rd century BC,[271] I considered the possibility that the lunar month in question is the Macedonian lunar month.[272] But in the interim Bennett has argued that the Egyptian lunar temple service month began with LD 2. Now it can be asserted that the lunar interval of Demotic Chronicle II 9–10 which is called *ȝbd*-month beginning on LD 2 and ending on the *ꜥš*-feast > *wrš*-feast is formally identical with the interval of the lunar temple service month *wrš* or *ȝbd*. My former explanation of the *wrš*-feast as LD 1 hinges on the emendation *ꜥš*-feast > *wrš*-feast. The emendation is quite possible, but cannot be taken for granted. In what follows I shall try to deduce LD 1 as day of the *wrš*-feast on the basis of the relevant literature on *wrš* in general as it is known to me.

*Attestations for pȝ wrš = lunar month.*

1) The paleography of the magical papyrus London-Leiden dates it to the 3rd century AD or slightly later.[273] The citations below follow the translation of Janet H. Johnson with additions in parentheses.

VIII 17: "... [Say it] opposite Ursa Major (*ḫpš*) on the third day of the lunar month (*pȝ wrš*)."

IX 8: "... your (*ḥn*) is a lunar month". – Osing translates *pȝj.k ḥnw n wrš* as "dein (zeitlicher) Bereich ist ein Mondmonat".

X 22: "you do it from the fourth day of the lunar month (*pȝ wrš*) until the fifteenth day, which is the half-month (half-month day)[274] when the moon fills the sound-eye (*wḏȝt*)."

XII 3: "... one day before the beginning of the lunar month (*pȝ wrš*); when the lunar month (*pȝ w(rš)*) occurs, ...".

XXI 19: "you do it also on the third of the lunar month (*pȝ wrš*)".

It follows from the description of the lunar days cited in X 22 that *wrš* evidently means "standard lunar month"; the remaining cases can be interpreted accordingly. This was how Griffith und Thompson understood it in the *editio princeps* and the way Janet H. Johnson does now. Erichsen doubted the interpretation of *wrš* as lunar month, though without indicating a reason.[275]

2) Myth of the sun's eye.

The Demotic texts date to the 2nd century AD; the Greek translation dates a century later.[276] *wrš*

[268] Felber 2002, 76f; cf. Quack 2007, 185 n. a.
[269] Quack 2007, 185 n. b.
[270] Quack 2007, 354 n. a.
[271] Felber 2002, 68.
[272] Krauss 2005a, 46 n. 37.
[273] Griffith & Thompson 1904, 1–13; Johnson 1986, LVII.
[274] Hughes 1958, 148.
[275] Erichsen 1954, 95.
[276] Quack 2007, 195.

is cited in VIII 19–20: the Nubian cat addresses the cynocephalus in his capacity as moon god. Under the premise that *wrš* and *wš*/time are related,[277] Wilhelm Spiegelberg translated *wrš* in VIII 19–20 as "Zeit": "du trittst ein in das Udje-Auge, denn du bist Herr der Zeit."[278] He was followed by Françoise de Cenival who translated:[279] "Tu entres dans l'oeil-oudjat (ou: Puisse-tu entrer dans ...) de manière à devenir maître du temps (*wrš*)."

Quack considers *wš* and *wrš* etymologically unrelated and translates: "Du trittst in das Udjat-Auge ein, so dass du Herr des Mondmonats wirst."[280] Note that the Greek translation of the myth does not include VIII 20 and thus provides no translation of *wrš*.[281]

3) Tebtunis-Papyrus I; presumably 2nd century AD.[282]

Osing renders the assertion that LD 30 (*snḥm*) ends (?) on the morning of *psḏnt wrš*: "30. Tag: [er endet (?)] am Morgen des 1. Tages der Mondperiode". He presumes *wrš* has the same meaning in the expression *ȝbd n wrš*, explaining the latter as "Monat der Mondperiode im Gegensatz zu dem allein als *ȝbd* bezeichneten Monat des Wandeljahres".[283] In other words, in Tebtunis-Papyrus I *wrš* apparently designates the standard lunar month.

4a) Book of the Dead; Pleyte 162, 7–9, after Leyden M. 46–47; Late Period.[284]

"You appear (*ḫr*ˁ) as/like the moon (*jˁḥ*) at the time of the *weresh*" (*tr n wrš*; the latter written with sun-determinativ). The translation of *wrš* as "lunar month" conforms to the examples 1–3 above.

4b) Nesmin-Papyrus; Talfest-Ritual; pBM 10209, III, 24, same wording as in 4a.

Fayza Haikal translates: "thou risest as the moon at the time of the *weresh*-feast",[285] and comments on *weresh*: "here clearly the name of a feast (cf. Wb., I, 336, 3) which from the context seems to have been celebrated once a year."[286] Haikal gives no reason why *weresh* should be understood here as an annual feast. *Weresh* is written with *ḥb*- and sun-determinatives which cannot be taken as proof that "feast" is meant rather than "month". Bennett cites a possible case for a *wrš*-feast on a LD 1 in pOx. Griffith 41, following on information provided by Sandra Lippert.[287] In an email of October 8, 2012, she informed me that her supposition rests on the writing of *wrš* with the *ḥȝb*– determinative rather than with the sun-determinative. She takes this as an indication that the *wrš*-feast could be meant, rather than the lunar temple service month, but does not accept it as proof.[288]

5) Stela Vienna Nr. 147; Saite Period.[289]

The funerary wish *wḥm* ˁ*nḫ tp rnpt tp wrš* is rendered by Osing: "mögest du erneut leben jedes Jahr und jedes *wrš*".[290] The translation of *wrš* as 'lunar month' seems to be appropriate. Anthony Spalinger comments that the Vienna stela "provides the not very useful phrase *tp rnpt* followed by *tp wrš*. Should we translate them by 'each year and each periodic lunar-based interval' or, less satisfactorily, as 'the beginning of the year and the beginning of each periodic lunar-based interval'?"[291]

6) A Demotic papyrus in Vienna which is apparently a Roman copy of an older text reflects Babylonian omen literature of the sixth century BC.[292] As Parker showed, the text contains concordances between the twelve Babylonian lunar months I Nisan to XII Adar and Egyptian lunar months as follows (restorations are not indicated):[293]

| | |
|---|---|
| (I) Nisan = *pȝ wrš* IV Akhet | (VII) Tishri = *pȝ wrš* II Shemu |
| (II) Iyyar = *pȝ wrš* I Peret | (VIII) Marḥeshwan = *pȝ wrš* III Shemu |
| (III) Siwan = *pȝ wrš* II Peret | (IX) Kislev = *pȝ wrš* IV Shemu |

277 Erichsen 1954, 95.
278 Spiegelberg 1917, 27, 108.
279 Cenival 1988, 23.
280 Quack 2007, 210; cf. Quack 2004, 50–51.
281 West 1972.
282 Osing 1998, 17.
283 Osing 1998, 207–210.
284 Cited after DZA 22.540.650: Thesaurus Linguae Aegyptiae <http://aaew.bbaw.de/tla/>.
285 Haikal 1972, 20.
286 Haikal 1972, 41.
287 Bennett 2008b, 534f; Krauss 2012, 30.
288 Note that on the Dakhleh stela the determinatives in *ḥb nfr wrš* are *ḥb* and sun, whereas in the case of *ḥb wrš* in TT 390 the determinative is the sun only.
289 Wreszinski 1906, 83; WB I 336.
290 Osing 1998, 209 n. 1014.
291 Spalinger 1996, 5.
292 Parker 1959; Jones 1994, 47 n. 55.
293 Note that the source of concordance does not include one of the Babylonian intercalary lunar months, i.e. a second Elul or a second Adar.

| | |
|---|---|
| (IV) Tammuz = *p3 wrš* III Peret | (X) Tebeth = *p3 wrš* I Akhet |
| (V) Ab = *p3 wrš* IV Peret | (XI) Shebat = *p3 wrš* II Akhet |
| (VI) Elul = *p3 wrš* I Shemu | (XII) Adar = *p3 wrš* III Akhet |

The concordance was valid between 625 and 482 BC when IV Akhet fell between March 22 (IV A 1 in 482 v. Chr.) and April 26 (= IV Akhet 1 in 625 BC; IV Akhet 30 = May 25 in 625 BC) as the interval for the beginning of Nisan.[294] Bennett states that the term *wrš* in the concordance "is clearly explicable as referring to a month starting on *3bd*, lunar day 2, in the Babylonian style, rather than *psḏntyw*."[295] This explanation is possible, although it might be too specific. I understand, for example, the concordance between (III) Siwan and *p3 wrš II prt* to mean that Siwan corresponded to the Egyptian lunar month of 29 or 30 days that began on average on I Peret 29 at the earliest and on II Peret 28 at the latest. Since the interval amounts to about 60 days, it does not seem to matter whether the respective lunar month began on Egyptian LD 1 or 2.

Parker understood the concordances, for example, to mean that: "Nisan (is) the lunar month IV Akhet", thus accepting an ambiguity, since IV Akhet is known at least to Egyptologists as a month of the civil year, not as a designation of a lunar month. An apparently certain example for such an ambiguous designation is presented by a Demotic horoscope in the Ashmolean Museum from 14 Cleopatra VII: (civil) I [*šmw*] 4 coincided with LD 22 of (lunar) IV Peret, the first day of which was (civil) IV Peret 13.[296] pLouvre 7848, a document of Amasis year 12,[297] provides another example:[298] civil date II Shemu 13 is the equivalent of the 15th (day) of [lunar] I Shemu.[299]

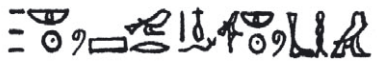
*p3 wrš = lunar temple service beginning on LD 2*

MH Graffito 43 (2 dates)[300]
MH Graffito 44[301]
MH Graffito 47[302]
stela Moscow 145[303]
Demotic papyrus CG Cairo 30801[304]

In these cases *wrš* designates the lunar temple service month, explicitly beginning on LD 2 and implicitly ending on LD 1. Parker paraphrased *wrš* of Demotic papyrus CG Cairo 30801 as "service in the temple, by lunar months, of the various phyles".[305] Presumably, the basic meaning of *wrš* is simply "lunar month"; depending on the context, it could also have been understood as the monthly lunar temple service of a full lunar period from LD 2 to LD 1.

*wrš*-FEAST AND *hrw wrš*

The *wrš*-feast of the Dakhleh stela is expressed as



Wilhelm Spiegelberg read and translated *m ḥb.f nfr wrš* as "an seinem schönen *wršw* Feste".[306] Gardiner initially interpreted nfr + stroke as "beauty", translating "in his feast Beauty-of-Daytime".[307] Subsequently, he translated "in his beautiful day-festival", interpreting nfr + stroke as in error for nfr+f+r.[308] Thus Gardiner introduced the question of whether *wrš* were to be rendered as "day"; he also doubted whether the event referred to a specific feast. Gardiner encountered another case of *wrš* in Chester Beatty Papyri VIII, Rt. 5, 4 which preserves the title of a book: "*mḏ3t nt hrw wrš*". Gardiner translated the title as' 'Book of the Daytime (?)', explaining that "*hrw wrš* probably means 'daytime' emphasizing the contrast between this and 'night' more emphatically than *hrw* alone would have done."[309] The contents of the book are more completely preserved in pChester Beatty IX vs. B 13. Gardiner translated B 13, 8–9: "and thou art purified on the day of the sixth-day festival, and protected in the daytime

294 PARKER 1959, 30.
295 BENNETT 2008b, 534 n. 39.
296 NEUGEBAUER 1968, 231–234; BOHLEKE 1996, 20f; KRAUSS 2012, 40.
297 DONKER VAN HEEL 1996, 93–99.
298 PARKER 1957a, 210–211.
299 KRAUSS 2012, 37.
300 BENNETT 2008b, 533; KRAUSS 2012, 29.
301 BENNETT 2008b, 534; KRAUSS 2012, 29.
302 BENNETT 2008b, 534; KRAUSS 2012, 29.
303 SPIEGELBERG 1931, 42–43; BORCHARDT 1935, 39; PARKER 1950, §§ 69–71; BENNETT 2008b, 534; KRAUSS 2012, 24, 29f.
304 PARKER 1950, § 89–98; cf. also PARKER 1959, 8–9; BENNETT 2008b, 535f; KRAUSS 2012, 30–31.
305 PARKER 1950, § 70.
306 SPIEGELBERG 1899, 16.
307 GARDINER 1933, 26.
308 GARDINER 1935, 68 Anm. 8.
309 GARDINER 1935, 68 Anm. 8.

(?)". He conceded that *hrw wrš*, translated 'daytime', might refer to a specific feast day.[310] Perhaps he intended simply to interpret *hrw wrš* as "daytime (?)", because *wrš* is determined with sun-sign and stroke. As far as I can see he did not point out that lunar day 6 ("sixth day festival") parallels *hrw wrš*.

In his commentary, Gardiner cites WB I 336 for a Saite example of *ḥb wrš* "as the name of a particular festival, but the evidence (kindly furnished by Prof. Grapow) hardly bears out this view". The source is an inscription in the tomb of Irtieru copied by Champollion. The tomb (TT 390; see PM II 441) was lost for some time,[311] because, as Erhart Graefe informs me, the Abd er Rassul compound covered the site. It is now part of the concession of the South Asasif Conservation Project. Gardiner understood the respective text as "a summing up of 59 festival days, described as *ḥb wrš hrw pr* 'festival(s) of daytime and house-day(s)', which does not at all suit the idea that *hrw wrš* refers to a single particular festival."[312]

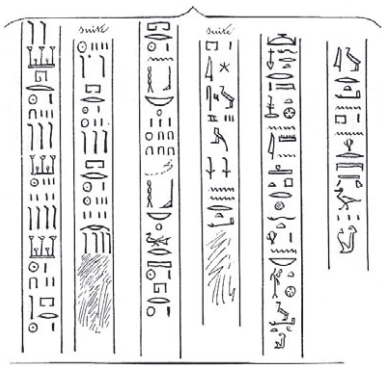


Fig. 2 list of feast days in TT 390; after Champollion, *Notices descriptives* I 512.

By contrast to Gardiner, the Wörterbuch-*Zettel* renders the text:[313] "Monat x.: y Tage usw., [macht zusammen]: Festtage 59(?). Fest der Tagfeier, Tag des Hauses (?). Der Lohn für dieses ist, ...", separating the "59 feast days" from *ḥb wrš* and *hrw pr* as singulars. This would allow the conclusion that *ḥb wrš* and also *hrw wrš* of Chester Beatty IX vs. B 13 were specific feasts, despite Gardiner's reservations.

Spalinger characterizes Gardiner's 'festival(s) of daytime and house-day(s)' as "an attempt that does not really hit the mark."[314] Nevertheless, he concludes that "*wrš* and *hrw* close to it [in TT 390 and pChester Beatty] may simply indicate a passage of time rather than, narrowly speaking, a lunar based interval." He does not take into account that in Chester Beatty IX vs. B 13 *hrw wrš* is cited in parallel to the sixth lunar day; it would be awkward to define the latter as "a passage of time". Finally, a line in the Demotic "Fragmente memphitischer Religion und Astronomie" shows that Gardiner's interpretation of *hrw wrš* as 'daytime' is inappropriate. Quack reads the line in question:

and translates: " [...] ihr Fest des Monatsendes ist exakt, ihr Fest des 6. Monatstages [...]".[315] He cites pChester Beatty IX vs. B 13, 9 as a parallel, presumably interpreting both – the *hrw wrš* and the *wrš*-feast – as feast days. Since *wrš*-feast and *hrw wrš* are cited parallel to the explicitly lunar *snwt*-feast or LD 6, the former also appear to be lunar days. Further to this effect is the assertion "their *wrš*-feast is exact". To be exact is a potential quality of certain lunar days. There are two lunar events which can be determined exactly by direct observation over a series of a few days, namely first visibility and the first day of invisibility. pSallier I 8,11 alludes to the situation in a general way, asserting that thanks to Merneptah's accession "the moon comes regularly" (*jʿḥ jw n mtj*).[316] In all probability, the correct interpretation is that first visibility occurs on LD 2 and not on LD 3.[317] By contrast, and, for example, the exact time when the moon is full is not easily determined by observation with the naked eye.[318] Along this line of reasoning the *wrš*-feast could have coincided with a LD 1 or LD 2.

Furthermore, the lunar component of the civil-lunar double date of the Battle of Megiddo on I

310 Schott 1955, 290 cites Gardiner and translates *hrw wrš* as ‚Tagesdienst', interpreting *wrš* as „Dienst".

311 Schott 1934, 89.

312 Gardiner 1935, 68 Anm. 8.

313 DZA 22.540. 720: Thesaurus Linguae Aegyptiae <http://aaew.bbaw.de/tla/>.

314 Spalinger 1996, 5.

315 Quack 2004, 471–473.

316 Caminos 1954, 323–325.

317 See Parker 1950, 13 (§ 46).

318 Esna 417 asserts that the moon shines "exactly" (*r mtr*) on LD 15. Could this imply that full moon and LD 15 coincided? Lieven 2000, 84–88 does not comment on this detail.

Shemu 21 in 23 Thutmoses III is qualified as *day of the feast of pesedjentyw exactly* (*hrw n ḥb n psḏntyw r-mtr*). The assertion implies that the feast of *pesedjentyw* could have been celebrated on a day other than *pesedjentyw* itself. It will indeed have happened that a crescent was missed on a LD 30 and *pesedjentyw* was declared and celebrated a day early. The qualification *r-mtr* implies that old crescent was observed on I Shemu 20, and that on the next day, the moon was not visible; under these premises the dating of *pesedjentyw* to I Shemu 21 was exact to the day. On the basis of this parallel, it is possible that the qualification of the *wrš*-feast as "exact" indicates that it fell on the first day of lunar invisibility or LD 1. There remains the alternative that the exactness of the *wrš*-feast refers to first visibility, although this is not confirmed by the position of the *ʿš*-feast in the Demotic Chronicle.

Given Gardiner's authority it might have been difficult to argue that "day" is an inappropriate interpretation of *wrš* on the Dakhleh stela, but the parallels with "Fragments" and Chester Beatty B 13, 8–9 should decide the question. Note that in 1931 Spiegelberg published a building inscription which asserts that day 6 of the *wrš* coincided with IV *prt* 23 (Alexandrian calendar) in 12 Nero; he cited Ludwig Borchardt's assumption that *wrš* meant "lunar month".[319] If Gardiner had known Spiegelberg's article he should have mentioned the possibility that *wrš* on the Dakhleh stela referred to the lunar month. Actually he proceeded as if the verb *wrš,*"to spend the day", was the only premise for the interpretation of *wrš* on the Dakhleh stela. Gardiner was in any case not interested in Egyptian lunar time-keeping. In Excursus C (The Divisions of Time and Method of Dating) of his *Grammar* he omits any mention of the moon and of Egyptian lunar time-keeping; he went so far as to deny the existence of any lunar calendar.[320]

Whether the *wrs.w*-feasts which Pieter W. Pestman published from the "archives privées d'Hôros, fils de Petosiris, prêtre des Enfants décédés d'Apis" refer to the *ḥb wrš* and *hrw wrš* as cited above is open to discussion.[321] These documents concern the distribution of revenues from a "sanctuaire, appelé <le lieu de repos du Veau> et situé dans le territoire du Sérapéum".[322] A portion of them derived from *wrs.w*-feasts which were celebrated in the Serapeum itself.

pBrooklyn 37.1781(6), dated to 181 BC, lists revenues and distribution as follows:

"... ta moitié des revenues-*jnj* du lieu de repos susnommé du Veau, (venant) des fêtes-*wrš* que l'on celèbre dans le Sérapeum – durant l'année; et ta moitié des revenus-*jnj*, (venant) des fêtes (*nꜣ ḥb.w*) et des processions (*nꜣ ḫ*ʿ*.w*) du lieu de repos susnommé du Veau."[323]

pBrooklyn 37.1839 (6), dated to 201 BC, lists revenues and distribution as follows:

"... et ta moitié des revenus-*jnj* du lieu de repos susnommé du Veau, (provenant) des fêtes-*wrš* qui ont lieu dans le Sérapéum, durant chaque année; et ta moitié des revenus-*jnj*, (provenant) des fêtes et des processions (*nꜣ* [*hb.w nꜣ*] *ḫ*ʿ*.w*) du lieu de repos susnommé du Veau; ..."[324]

pBrooklyn 37.1839 (6), includes a list of eight feasts on specific days of the civil year and five feast days at the end of the civil year. The text does not indicate which of the feasts are *ḥb.w* and which are *ḫ*ʿ*.w,* and it remains open whether the *wrš*-feasts in the Serapeum are included in the list. None of the feasts in the list could have been celebrated on a monthly basis, since there are so few feast dates altogether. Not all of these dates are necessarily fixed; some might have been moveable to be celebrated only in the year 201 BC on the civil dates that are listed.

Pestman comments about the *wrš.w*-feasts that "il est permis de conclure des données de notre texte qu'il s'agit de fêtes. Cela peut être déduit non seulement du déterminatif «fête», mais également du fait que les revenues provenant de ces *wrš.w* sont des revenues-*jnj* ... En outre, les *wrš.w* sont mentionnés au même niveau que les fêtes *ḥb* et *ḫ*ʿ citées dans ce qui suit."[325] Furthermore, he asserts that "il ne s'agit pas donc de services mensuels: *wrš* <the service in the temple, by lunar months, of the various phyles>," as it was known at the time from Parker's comments on Demotic papyrus CG Cairo 30801 (see above). Pestman was

[319] Spiegelberg 1931, 43.
[320] Gardiner 1955, 9–31.
[321] Pestman 1977, 3.
[322] Pestman 1977, 9.
[323] Pestman 1977, 11.
[324] Pestman 1977, 23.
[325] Pestman 1977, 15f.

Table 20 lunar day correspondences for the *wrš* feast in 5 [Shoshenq III]

| 1 Shoshenq III | IV Peret 25 | 5 Shoshenq III | LD of IV Peret 25 in 5 Shoshenq III |
|---|---|---|---|
| 841 BC | beginning of regnal year | 837 BC | 22 |
| 841 | end of regnal year | 836 | 3 |
| | | | |
| 830 | beginning of regnal year | 826 | 21 |
| 830 | end of regnal year | 825 | 2 |

Table 21 lunar day correspondences for the *wrš* feast in 5 [Shoshenq I]

| possibilities for first years and reign lengths | | | | Shoshenq I | | |
|---|---|---|---|---|---|---|
| 1 Shoshenq III | reign length Osorkon II | 1 Osorkon II | interval 1 Shoshenq I: 13 Takelot I | year 1 | year 5 | LD of IV Peret 25 |
| | | | | | 953 BC | 29 |
| | | | | | 952 | 10 |
| | | | | | 951 | 20 |
| 841 BC | ca. 40 y | ca. 880 BC | ca. 70 y | 954 BC | 950 | **1 or 2** |
| | | | | | 949 | 12 |
| | | | | | 948 | 23 |
| | | | | | 947 | 5 |
| | | | | | 946 | 15 |
| | | | | | 945 | 26 |
| | | | | | 944 | 6 |
| | | | | | 943 | 17 |
| | | | | | 942 | 28 |
| | | | | | 941 | 9 |
| | | | | | 940 | 20 |
| 830 | ca. 40 | ca. 870 | ca. 70 y | 943 | 939 | **1** |
| 841 | ca. 30 | ca. 870 | ca. 70 y | 943 | 939 | **1** |
| | | | | | 938 | 12 |
| | | | | | 937 | 22 |
| | | | | | 936 | 3 |
| | | | | | 935 | 14 |
| | | | | | 934 | 24 |
| | | | | | 933 | 5 |
| | | | | | 932 | 16 |
| | | | | | 931 | 27 |
| | | | | | 930 | 8 |
| | | | | | 929 | 18 |
| | | | | | 928 | 29 |
| | | | | | 927 | 10 |
| | | | | | 926 | 21 |
| 830 | ca. 30 | ca. 860 | ca. 70 y | 929 | 925 | **1** |

unaware of the possibility that *n3 wrš.w* could be feasts pertaining to the monthly *wrš*-service. Alternatively, the *n3 wrš.w* of the archive of Hôros could be related to the *wršy*, "dated / specific event(s) in the obsequies of certain cows" (mothers of the Apis), according to Harry S. Smith.[326]

To sum up: *p3 wrš* is amply attested as a designation for the standard lunar month and also as a designation for the monthly lunar temple service beginning on LD 2 and ending on LD 1. Presumably the context sufficed to make it clear which of the two meanings was intended. Since the the

[326] Smith 1992, 204–205; cf. Barbotin 2001, 32, 35.

*wrš*-feast of the Dakhleh stela occurred on the occasion of a procession and an oracle by Seth of the Oasis, the latter implying the shrine of Seth at Mut el-Kharab,[327] the feast refers to lunar temple service, less probably to the standard lunar month. *hrw wrš* and *wrš*-feast are cited in parallel to LD 6 and thus both appear to be lunar days like LD 6; *hrw wrš* and *wrš*-feast might be the same or not. The qualification of being "exact" indicates that the *wrš*-feast fell on LD 1 or LD 2. This conclusion complements my earlier determination of LD 1 as the day of the *wrš*-feast which depends on the emendation *ʿš* > *wrš* in the Demotic Chronicle.

In my earlier study, I computed the lunar days which could correspond to IV Peret 25 in 5 Shoshenq III, provided that 1 Shoshenq III fell in 841 BC; now the possibility 1 Shoshenq III = 830 BC must be considered. Since the regnal year change did not occur between I Schemu 26 and II Achet 1,[328] IV Peret 25 might be a date at the beginning or end of the regnal year which results in two possibilities for the lunar day of IV Peret 25 for each of the years 841 and 830 BC (Table 20). Of the four possibilities for the lunar day of IV Peret 25 in 5 Sheshonq III, one is a LD 2 which is in turn one of the possibilities for the day of the *weresh*-feast.

Table 21 contains my earlier and still valid computation of the years 925, 939 and 954 as those years when the *ḥb wrš* date of the Dakhleh stela coincided with LD 1 or possibly LD 2.[329] Tables 20 and 21 imply that the question of whether 'Shoshenq' of the Dakhleh stela is Shoshenq I or III cannot be decided on the basis of the astronomical possibilities for the date of the *wrš* feast, though the odds favor Shoshenq I.

### Excursus 4: Stela of Banishment (Maunier stela)

Jürgen von Beckerath renders the dates on the stela as follows:[330]

Datum A: "(*Zeile 1) Jahr 25, 3. Sommermonat, [Kalender-]Tag 29, zur Zeit des Festes des Amonrasonther in seinem [schönen] Fest [des (Mondmonats) Epiphi, indem der ... (Titel)] /// (2) Esheri unter ihnen (war). Da [erschien (o.ä.)] die Majestät dieses erhabenen Gottes, A[menre ... in] /// (3) Theben. Darauf nahm er (= der Gott) den Weg zu den Schreibern, den Aufsehern und den (übrigen) Leuten ///* "

Datum B: "*(Zeile 4) Jahr 25, 1. Überschwemmungsmonat, [Tag] 4 (oder 5). [An diesem Tage (?) Spruch (??)] der Majestät [dieses] erhabenen [Gottes], Amen[re] Herrn von Karnak*."

According to lines 5 to 8, Menkheperre, son of King Pinudjem I, arrives at Thebes, overcomes his enemy and is confirmed as HP by Amun, who appears in procession and pronounces oracles.

Datum C: "*(Zeile 8) Nun aber [danach, im Jahre {1, 2, 3, 4, 5, oder auch 10, [11], 20}]*

*(Zeile 9) 4. Sommermonat, Epagomenen, Geburt(stag) der Isis, zur Zeit des Festes des Amun im (Mondmonat) Wp-rnpt. Prozession der Majestät dieses erhabenen Gottes, des Herrn der Götter, Amonrasonther*."

The lines that follow cite oracles concerning the return of the *bꜣkw ṯtw* (quarrelling or quarrelsome servants/priests of Karnak temple) who had been banished to the oasis, a decree against future banishments, and the command to erect a stela with the decree. After some deliberation, Beckerath accepted the sequence of the dates as they appear on the stela, attributing both citations of year 25 to Smendes. Following this line of argument, Kitchen interprets date A as "activities in Thebes pending arrival of Menkheperre".[331]

In an earlier study, I modified Beckerath's idea that year 25 of date A refers to the "Errichtung der Stele und läge dann zeitlich später als die beiden anderen (Daten)...".[332] He himself had abandoned the idea, since the sequence of dates B, C, and A cannot be accommodated within a single year. Following the lead of Jansen-Winkeln,[333] I suggested that year 25 of date A could be a year 25 in a year count of Menkheperre's own. Now I suggest another possibility which I had overlooked, despite its obviousness. It is evident that date B (25 [Smendes] I Akhet 4 or 5) refers to the installation of Menkheperre as HP after he had overcome his

[327] Hope 2001, 49, 57.

[328] Jansen-Winkeln 2006b, 235; Krauss 2007a, 345.

[329] Note that these possibilities for 1 Shoshenq I follow without recourse to the Dakhleh *weresh*-date from the Tepi Shemu feast dates of 11 Psusennes II, 17 Siamun, 2 Osorkon the Elder and the premise of a 13 year reign of Psusennes II.

[330] Beckerath 1968, 9, 12.

[331] Kitchen 1973, § 384.

[332] Beckerath 1968, 33.

[333] Krauss 2008, 42f.

Table 22 lunar correspondences of dates B and A, referred to 3 Amenemope

| interval | Distance in civil years and days | distance in lunar months and days |
|---|---|---|
| 25 Smendes, I Akhet 4 (5) (date B) / 3 Amenemope, I Shemu 6 (= LD 1) | 53 y + 282 d + 325 (324) d = 54 y + 242 d | 675 LM + 18 to 19 d |
| | 55 y + 242 d | 688 LM |
| | 56 y + 242 d | 700 LM + 10 to 11 d |
| | 57 y + 242 d<br>58 y + 242 d | 712 LM + 21 to 22 d<br>725 LM + 2.3 d |
| | | |
| 25 Smendes, III Shemu 29 (date A) / 3 Amenemope, I Shemu 6 (= LD1) | 54 y + 282 d | 677 LM – 0.2 d |
| | 55 y + 282 d | 689 LM + 10 to 11 d |
| | 56 y + 282 d | 701 LM + 21 d |
| | 57 y + 282 d | 714 LM + 2.1 d |

anonymous enemy. On date C (year ///, Epagomene 4), HP Menkheperre received an oracle about the return of banished *bꜣkw ṯtw*. By contrast to my earlier attempt, I now presume that date A (25 [Smendes], III Shemu 29) refers to the banishing which occurred between dates B and C; the text might have pointed to [the official] Esheri as the one who received the oracle. According to Beckerath, the space available on the stela allows the restoration of date C only as a regnal year which would belong to a successor of Smendes. Under these premises, year 25 of date A can barely be other than the same regnal year 25 as that of date B; date A would be later than date B by 325 (or 324) days. The respective accession date would lie between III Shemu 29 and I Akhet 4.

If, according to Kitchen, 1 Smendes = 1069 BC,[334] then 25 Smendes = 1045/44 BC. In 1045 BC, a LD 1 coincided with I Akhet 4 of date B when Menkheperre was confirmed by Amun as HP; provided that date A is 325 days = 11 synodic months later than date B, then date A also coincided with a LD 1, though in 1044 BC. Thus Kitchen's chronology implies, if unintentionally, that two dates of the stela of banishment coincided with a LD 1, a day which is known for processions in temples on which latter occasions oracles might have been given. In my earlier study of the stela, I came to the same conclusion about the lunar correspondence of date B, though on the basis of more circumstantial arguments. In what follows I revise my earlier reconstruction along the lines of the main article above.

Dates A, B, and C are qualified as feast and/or procession days of Amun. Since A and B are 325 (or 324) days apart, i.e. 11.0 synodic months of 29.53 days (or 11 synodic months minus a day), A and B fell on the same lunar day. As the starting point for deducing the lunar days of A and B on the basis of relative chronology, I use the LD 1 which is implied by "year 3, I Shemu 10", the date of oracle 6 of the 'Inscription historique'. Oracle 6 can be attributed to Amenemope or Osorkon the Elder; here I exemplify the attribution to Amenemope. The latter and Psusennes I can be linked through Daressy's bandage epigraph, reconstructed as "[Psusennes I, year] 49; Amenemope [year x]" with × being not higher than 1 or 2. According to Manetho Amenemnisut ruled for 4 years and Smendes for 26 years. Under these premises the distance between date A and I Shemu 6 = LD 1 in 3 Amenemope amounts to approximately (1+4+48+2 = 55) years + 282 days; the corresponding distance between date B and oracle 6 is larger by 325 days. The distances might be larger than 55 or 56 years, but barely smaller, and therefore I reckon them as 54 to 58 years.

Table 22 shows that dates A and B coincided on average either with a LD 1 or with LDs 10/11, 18/19, 21/22 or 2/3, if 54 to 57/58 full years elapsed between dates B and A in 25 [Smendes] and I Shemu 6 in 3 Amenemope. Since B and A are qualified as feast days and/or procession days of Amun, I assume that both dates coincided with LDs 1 or 2, rather than with LDs 10/11, 18/19 or 21/22, implying 55 y + 242 d between date B (early in 25 Smendes) and 3 Amenemope, I Shemu 6 or 54 y + 282 d in the case of date A (late in 25 Smendes).

As argued in the main article, only the possibilities 3 Amenemope or 3 Osorkon the Elder = 989

[334] Kitchen 2009, 191.

Table 23 alternative solutions for dates A and B, depending on the alternatives for oracle 6 in absolute chronology

| Shoshenq I | oracle 6 | distance date A : oracle 6 | years of dates B/A | dates A and B |
|---|---|---|---|---|
| | | | | |
| 943 | 3 Amenemope = 989 BC | 54 y + 282 d | 1045/1044 | LD 1 (date A)<br>LD 1 (date B) |
| | | | | |
| 954 | 3 Osorkon = 989 BC | (54+11) y + 282 d | 1056/1055 | LD 3 (date B)<br>LD 2 (date A) |

BC are viable. Table 23 presents the results of Table 22 in absolute chronology; the corresponding accession years of Shoshenq I are added for orientation. The question whether oracle 6 ought to be attributed to Amenemope or Osorkon the Elder remains open and cannot be decided by preferring LD 1 over LD 2 or vice versa.

To sum up: I attribute date B of the stela of banishment, as the oracular approval of Menkheperre as HP, early in regnal year 25 of Smendes. I interpret date A, as the date when the *bꜣkw ṯtw* were banished, to the end of 25 Smendes. On the basis of relative chronology, dates A, B appear to be LDs 1 or LD 2. Neither lunar day can be preferred, since the procession or oracles of dates A and B might have occurred on the second or third day of a feast which began on LD 1 or LD 2. The return of the banished, according to date C, may have been under either Amenemnisut or Psusennes I.

### Excursus 5: Shoshenq I's campaign to Palestine

According to the Biblical Book of Kings 14, 25–28, Pharaoh Shishak ransomed Jerusalem in regnal year 5 of the Judaean king Rehobeam. Shishak is identifiable as Shoshenq I who appears to have campaigned in Palestine at an unknown time preceding his 21st regnal year. For example Jeremy Hughes points out that "most Egyptologists, including Hornung and Kitchen, have agreed with Breasted (1906:I:45) in dating Shoshenq's reign from 945 BC to 924 BC, which is in line with earlier reconstructions of Israelite and Judean history – beginning with Rühl 1894/95, and including Thiele [3]1983 and Anderson 1969 – in which the start of Rehoboam's reign is dated to 931 BC or thereabouts."[335] Hughes himself argues in favor of 1 Rehoboam = 937 BC.[336]

The Egyptological premises for dating the campaign are the relief of Shoshenq I on the Bubastite gate in Karnak and a stela in Silsile dated to year 21 describing the preparation for the building project in Karnak.[337] The text of the Silsile stela does not intimate that the Karnak monument should commemorate a campaign to Palestine nor indeed any other military action. Nevertheless it is regularly assumed that the Palestinian campaign was immediately followed by its monumental commemoration. Ursula Kaplony-Heckel accordingly states:[338] "Aus der Felsenstele erfahren wir folgendes: Wie stets nach der Heimkehr aus dem Krieg werden die Truppen zu friedlichen Aufgaben, vor allem beim Bau von Prachtbauten, eingesetzt. So eröffnet Scheschonq I. in seinem 21. Jahr einen neuen Steinbruchabschnitt in Gebel-el-Silsile. Dies kann nur nach der Rückkehr aus Palästina, und zwar unmittelbar danach, geschehen sein: Also haben wir in der Felseninschrift einen der seltenen historischen Belege, in dem Ägyptens Berührung mit den Völkern und Geschehnissen des Alten Testaments exakt zu erkennen und zu fixieren ist."

By contrast, Jansen-Winkeln argues that the supposed temporal connection of campaign and building project is "presumably supported by the wish [of modern-day specialists] for at least one fixed point ...There is no reason why it [the campaign] could not have taken place several years earlier. In that case, the beginning of Shoshenq's reign would have to be set slightly later, and thus the entire Dyn. 21".[339]

Focussing on the problems of Deuteronomistic history writing, Israel Finkelstein writes "... the vicious circle of dating the campaign according 1 Kgs 14, 25 and dating Solomon and Rehobeam according to the campaign must be eliminated. ... The biblical references to the length of reign of the

[335] Hughes 1990, 191.
[336] Hughes 1990, 189.
[337] Caminos 1952, 46–61.
[338] Kaplony-Heckel 1985, 53.
[339] Jansen-Winkeln 2006a, 232–233.

early Davidides are completely schematized. The fifth year of (the) Rehoboam datum may have been schematically arranged to fit the theology of the Deuteronomistic Historian ...".[340] Finkelstein's views of the history of Judah and the city of Jerusalem in the 10th century BC do not inspire confidence in the historical authenticity of the Biblical account of Shishak's campaign:[341] "In the time of the Shoshenq campaign Judah was a marginal dimorphic chiefdom in the southern highlands and was ruled from a small village." If so, why should Shoshenq I have bothered to deal with the chiefdom of Judah at all? For example, Frank Clancy evaluates the Biblical reference to Shishak's campaign as second-hand historiography:[342] "As I believe the reference [to Shishak] probably was written in the Hasmonean period, I have no problem believing the scribe gained his knowledge of 'Shishak's' campaign from Egyptian sources and not from 'royal' archives in Jerusalem."

Thus it is uncertain whether the Biblical dating of the campaign in 5 Rehoboam is authentic; furthermore there is an uncertainty in Rehoboam's chronology itself. The conventional conclusions (5 Rehoboam = 926/925 BC; Shoshenq's campaign took place in his year 20 and therefore his accession fell in 945 BC) would have been correct to the year by luck only. As argued above, the years 943 or 959 BC ought to be considered as possibilities for 1 Shoshenq I despite the howls of the Βοιωτοι, whereas the date of the campaign remains open.

It is also a mostly open question how and whether the list of toponyms in the Karnak inscription relates at all to the course of a campaign; the list may be nothing other than a description of contemporary Canaan by naming cities and also regions as, for example, partly Egyptianized *pꜣ-ʿemek* (the valley). Megiddo is the single case within the list which is archaeologically associated with Shoshenq I (thanks to a fragmentary stela with his name). Megiddo VIA which is thought to have been contemporaneous with Shoshenq I was destroyed like other Canaanite cities in the Jezreel Valley and further north like Kinnereth. Such devastation, together with Shoshenq I's stela, raises interpretational problems as made clear by the following deliberations of Finkelstein:[343]

"Had Shoshenq been interested in a long-lasting domination of the country and exploitation of its economic resources, why would he destroy its most elaborate cities, located in the most fertile region, along the international trade routes? And assuming that victory steles are erected in settled places, had Shoshenq destroyed Megiddo, where would he establish his stela? One possible answer to these questions is that Shoshenq took over Megiddo VIA and its contemporary cities in a looting spree, without planning a continuous domination. Another explanation could be that he took Megiddo VIA peacefully in order to stay, and erected his stela there. But the Egyptians did not manage to hold their territorial gains and upon their withdrawal destroyed the late-Canaanite system in the north."

In other words, it was probably not Shoshenq I who destroyed the northern cities. Alternatively, I suggest that the cities were destroyed by attackers who came from further north, perhaps as an initial wave of the Arameans. There is a passage in the Karnak text which might indicate such a historical situation. The text designates the Asiatics conventionally as *Fnḫw, ʿꜣmw*, *Jwntjw Śṯtjw* and *Mntjw Śṯtjw*. The mentioning of Mitanni in Amun's speech to the king is unexpected:[344] "I have trampled for thee them that rebelled against thee, overthrowing [for] thee the Asiatics, the army of Mitanni." The "army of Mitanni / *mšʿ n Mʿṯn*" could refer to a northern enemy, provided it is not rhetoric using an archaic or at least outdated expression. Mitanni disappeared from history when Shalmaneser made the Euphrates the border of Assyria in the 13th century BC. According to Donald Redford, Mitanni "degenerated into a loose designation of the Syrian enemy", as shown by the Karnak inscription.[345] By contrast, Manfred Görg presumed that there was a tradition in which the name Mitanni headed a group of geographical names and could be used alone in lieu of the complete group.[346] Furthermore, and with reference to the Karnak inscription, he pointed out that "der Ländername (ist) sonst weder in die gleiche syntagmatische Beziehung noch in eine übliche Phraseologie eingebunden." Görg's remarks imply that the mentioning of Mitanni in Amun's speech is indeed unconventional.

340 Finkelstein 2002, 110.
341 Finkelstein 2002, 112.
342 Clancy 2001, 14.
343 Finkelstein 2002, 123.
344 RIK III, Pl. III., 23; translated by Breasted 1906, IV, 357.
345 Redford 1982, 149.
346 Görg 2005, 5–6.

Attacks on northern Canaanite cities from outside might have prompted Shoshenq I to intervene with the intention of preventing a dangerous enemy to become Egypt's northern neighbor and changing radically the political situation in Canaan. If so, some time might have elapsed between the beginning of the attacks and an Egyptian reaction which could have consisted in more than one campaign. Thus Shoshenq's stela could have been erected in Megiddo in connection with the intervention, by a pharaoh who sought to protect the city in Egypt's interests, but failed to do so.

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# „... *WIDERSTAND IST ZWECKLOS – SIE WERDEN ASSIMILIERT ...*“ – ZUM ÜBERGANG BADARI – NAQADA

*Nicola Ch. Math*

## I. Einleitung

Seit der Entdeckung der Badarikultur am Beginn der 1920er Jahre durch Guy Brunton stellt sich die Frage nach dem kulturellen Zusammenhang zur Naqadakultur. Erste Vermutungen einer Überlappung des Badari und Naqada I stellte schon Caton-Thompson im Zusammenhang der Datierung des Rundbaus 268 in der Siedlung bei Hemamieh an.[1] Doch wurde diese Idee weitgehend negiert bzw. ignoriert.[2] Erst das etwa 60 Jahre später von Kaiser entwickelte Modell, welches das Badari in seiner frühen Phase als parallel zum Tasa und in seiner späten Phase zum Naqada I ansieht – wobei das Naqada I auf das Tasa folgt – wurde dies näher betrachtet und schließlich auch weitgehend angenommen. Als Argumente werden die Ähnlichkeiten bzw. Unähnlichkeiten zwischen Tasa und Naqada I im Gegensatz zum Badari im Bezug auf die keramischen Formen angeführt.[3] Als weiteres Argument gilt das Vorkommen von Badarikeramik in Kontexten des Naqada I bzw. ihr gleichzeitiges Auftreten vor allem in Siedlungszusammenhängen. Hier gelten vor allem die Siedlungen bei Hemamieh, bei der Caton-Thompson Schichten mit sowohl Badari – als auch Naqadakeramik sah,[4] und Armant[5] als Beispiel. Diese Gleichzeitigkeit ist heute weitgehend akzeptiert, wobei sie teilweise auch als Argument für die *Nicht*-Existenz der Badarikultur – das Badari als fühe Phase des Naqada – verwendet wird.[6]

In der Folge soll betrachtet werden, ob wirklich ein Übergang zwischen dem Badari und Naqada festgestellt werden kann, wie dieser aussieht und in welchem Zeitraum dieser stattfand. Die Herkunft der Badarikultur ist in diesem Zusammenhang nicht relevant und wird daher außer Acht gelassen. Hierzu werden vor allem die Siedlungen der Badarikultur, die sich im Bereich zwischen Qau und Matmar häufen, herangezogen, aber auch jene Siedlungen ausserhalb dieses Gebietes, die entweder Badarimaterial zeigen oder als sehr frühe Naqadasiedlungen gelten. Hierzu zählen Mah-


Abb. 1 Relevante Fundorte des Badari und Naqada I

[1] “*It suggests a considerable overlap of cultures at the end of the Badarian period extending possibly well on into the thirties*.” (Brunton/Caton-Thompson 1928, 87).

[2] Dass das Badari älter als das Naqada ist, wurde anhand der Siedlung bei Hemamieh eindeutig gezeigt (siehe Brunton/Caton-Thompson 1928, 73–78; Holmes/Friedman 1994, 117–137). Diese Tatsache wurde eigentlich auch nie angezweifelt, steht doch die materielle Kultur der Badarisequenz in ihren Formen und vor allem mit der gerippelten Ware in einem gewissen Gegensatz zu der aus dem Naqada I.

[3] Kaiser 1985.

[4] Mond/Myers 1937, 169–170.

[5] siehe Brunton/Caton–Thompson 1928, 79; Mond/Myers 1937, 169–170).

[6] vgl. Kemp 2006, 88.

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gar Dendera 2, Khattana/Naqada, Armant, el-Kab und Hierakonpolis [Abb. 1]. Ergänzend werden auch die Friedhöfe, die Gräber beider Kulturen beinhalten, betrachtet. Funde aus den Wüstengebieten werden nicht berücksichtig, da sie hierfür zu spärlich erscheinen.

## II. Definition/kulturelle Eigenheiten der Keramik

*Badari*

Die Keramik der Badarikultur wird anhand ihrer Funde aus der Badari-Region[7] definiert, die sich prinzipiell nach Oberflächenbehandlung, Feinheit der einzelnen Objekte und Formen richtet.[8] Der ursprüngliche Corpus von Brunton[9] basiert auf 666 Gefäßen und einigen einzelnen Scherben mit besonderen Merkmalen, die zum größeren Teil aus Friedhofszusammenhängen stammen,[10] und nach dem Vorbild des Corpus von Petrie[11] für die Naqadakultur erstellt wurde. Daneben gibt es aber auch die keramische Sammlung von Caton-Thompson aus der Grabung von Hemamieh,[12] die aus fast ausschließlich fragmentiertem Siedlungsmaterial besteht und von Friedman[13] neu bearbeitet und klassifiziert wurde, und jenes Material aus der Grabung von Mahgar Dendera 2[14] – ebenfalls Siedlungsmaterial. Daraus ergibt sich, dass es für die Badarikultur eigentlich drei verschiedene Klassifikationen gibt; zwar beziehen sich jene von Hemamieh und Mahgar Dendera 2 auf die ursprüngliche von Brunton, jedoch kann aufgrund der Fragmentiertheit des Materials nur schwer eine wirkliche Verbindung hergestellt werden.[15]

Allgemein wird die Badarikeramik durch offene Gefäße mit Rundböden, gerippelte Oberflächen, Knickwandgefäße und *milled rims* definiert. Jedoch erscheint dies bei näherer Betrachtung der Keramik relativ und kann auf die drei verschiedenen Sammlungen des keramischen Fundmaterials nur bedingt angewendet werden.[16]

Brunton[17] unterschied ausgehend von seinen 666 Gefäßen 451 Typen, die sich auf sieben Waren verteilen:[18] die BB-[19], BR-[20], PR-[21] und AB-Waren[22] für die Feinwaren, die SB-[23] und RB-Waren[24] für die Grobkeramik und die MS-Ware[25] für ungewöhnliche Formtypen.[26] Prinzipiell kann festgestellt werden, dass sowohl das Verhältnis zwischen Fein- und Grobware als auch zwischen offenen und geschlossenen Formen ausgeglichen erscheint.[27] Überwiegend finden sich einfache Formen mit direkter Mündung, ausladende und geformte Mündungen[28] erscheinen selten, ebenso Gefäße mit Hals, Flaschen, Gefäße mit nach innen gewölbtem Oberkörper und Miniaturgefäße.[29] Bei einer Neubetrachtung des Materials[30] konnte festgestellt werden, dass die allgemein für das Badari als typisch angesehenen Merkmale wie *rippled Ware* und Knickwandgefäße[31] nur eine bedingte Häufigkeit zeigen. Zwar ist die *rippled Ware* definitiv eine typologische Eigenheit dieser Kultur, da sie in keiner anderen Kultursequenz dieser Zeit im Bereich des Niltals nachgewiesen ist, jedoch beschränkt sie sich bis auf einzelne Ausnahmen[32] auf die Klassen BB und BR, in denen fast die Hälfte der jeweilig zugeordneten Gefäße[33] diese Oberflächengestaltung aufweisen. Im Bezug auf den gesamten Corpus wurde nur an rund einem

7 Gebiet von Qau im Süden bis Matmar im Norden.

8 vgl. Math 2014, 76.

9 Brunton/Caton-Thompson 1928, Pl. XII–XIX; Brunton 1937, Pl. XV–XXI; Brunton 1948, IV–V.

10 48 % aus Gräbern; 15 % aus Siedlungszusammenhängen; 20 % aus Siedlungsbereichen; 17 % sowohl aus Friedhofs- als auch Siedlungsbereichen (vgl. Math 2014, 140; Anhang 5.2).

11 Petrie 1921.

12 Brunton/Caton-Thompson 1928, 94–116, Pl. LXX–LXXX.

13 Friedman, 1994, 300–457.

14 Hendrickx/Midant-Reynes/Van Neer 2001, 59–86.

15 Auch muss angemerkt werden, dass bei Brunton Tonbestimmungen fast gänzlich fehlen und die beiden anderen Klassifizierungen auf Tongruppen basieren, die sich jedoch voneinander unterscheiden (vgl. Math 2014, Tab. 1).

16 vgl. Math 2014, 76–90.

17 Zu einer ausführlichen Analyse des Corpus von Brunton siehe Math 2014, 94–143.

18 Math 2014, 76–77.

19 *Black-topped Brown.*

20 *Black-topped Red.*

21 *Polished Red.*

22 *All black.*

23 *Smooth Brown.*

24 *Rough Brown.*

25 *Miscellaneous.*

26 Brunton/Caton-Thompson 1928, 21–24; vgl. Math 2014, 94–143.

27 Math 2014, 141–142.

28 nur bei 8 % aller hier inkludierten Gefäße.

29 Math 2014, 141.

30 Math 2014, 94–143.

31 "*almost unknown elsewhere in Egypt*" (Brunton/Caton-Thompson 1928, 21).

32 In der PR- und AB-Ware.

33 BB-Ware: 44 %; BR-Ware 48 %.

Viertel der Gefäße diese Oberfläche beobachtet. Ähnliches gilt für die Knickwandgefäße, die in allen Waren ausser der AB-Ware zu finden sind, aber bis auf die BB-Ware[34] nur zu eher kleinen Anteilen. Insgesamt zeigen nur 15 % aller Gefäße einen Wandungsknick. *Milled rims* werden von Brunton zwar kurz erwähnt, aber nicht explizit angegeben.[35] Nur die als typisch angesehene Rundbodigkeit[36] kann bestätigt werden. Die Keramik selbst erscheint zum größten Teil[37] undekoriert. Der häufigste Dekor ist eine Musterpolitur – *pattern polish*, die sich vor allem auf der Innenseite von Schalen der BR-Ware, ganz selten bei der BB- und AB-Ware findet. Daneben sind noch Ritzungen[38], Kammstrich[39], Applikationen[40] und Bemalung[41] belegt. Der größte Teil dieses keramischen Corpus besteht aus Einzelformen – nur 117 Typen wurde mehr als ein Gefäß zugeordnet. Diese zeigen zumeist einfache Gefäße ohne besondere Auffälligkeiten;[42] 22 zeigen Knickwandgefäße, drei sind ovale Formen und zwei haben einen flachen Boden. Gefäßtypen mit ausladender und geformter Mündung kommen zwar auch mehrfach vor, aber in äußerst geringer Anzahl, ebenso Gefäße mit nach innen gewölbtem Oberkörper und Vorratsgefäße.[43]

Im Gegensatz zu Brunton stand Caton-Thompson[44] und in der Folge Friedman[45] nur fragmentiertes Siedlungsmaterial zur Verfügung, welches von Caton-Thompson bereits während ihrer Grabung im Bereich der Siedlung von Hemamieh stark aussortiert wurde. Es wurden vor allem Scherben gesammelt und verzeichnet, die als chronologische Indikatoren verstanden wurden – dies umfasst primär gerippelte Fragmente und jene der feinen Ware.[46] Caton-Thompson trennte das Material nach Oberflächen und Fundhöhen[47], was eine nicht beabsichtigte Vermischung des Fundmaterials zur Folge hatte. Die durch die Neubearbeitung von Friedman entstandene Klassifikation basiert primär auf Tongruppen[48] und Formen.[49] An Tonen sind Ton 22[50] und 2[51] für die Feinware und 21[52], 26[53], 1[54] und 5[55] für die grobe Ware zu nennen. Die Formen werden prinzipiell zwischen offen und geschlossen unterteilt. An offenen Formen[56] sind die Typen 1a – Schalen mit nach außen gewölbter Wandung und direkter Mündung[57], 1b – Schalen mit geneigter Wandung und direkter Mündung[58], 1c – Becher und Schalen mit vertikaler bis steiler Wandung und einer direkten Mündung[59], 1d – Becher und Schalen mit vertikaler Wandung und ausladender Mündung[60] und 1g – Schalen mit

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34 42 %.

35 Brunton/Caton-Thompson 1928, 21.

36 86 %.

37 Nur etwa 34 Gefäße/Fragmente zeigen Dekor – *rippled Ware* wird nicht als Dekor definiert, da es sich um eine Oberflächenbehandlung bzw. um ein Nebenprodukt einer Herstellungsmethode (Ausdünnung des Tones) handelt.

38 bei 8 Gefäßen.

39 bei 1 Gefäß.

40 bei 4 Gefäßen.

41 bei 6 Gefäßen.

42 Friedman Typen 1a, 1b, 1c und 2a (Friedman 1994, 390–415; vgl. Math 2014, 143).

43 Math 2014, 143.

44 Brunton/Caton-Thompson 1928, 94–116; Pl. LXX–LXXX.

45 Friedman 1994, 300–457.

46 Zu einer ausführlichen Analyse des Corpus von Caton-Thompson und Friedman siehe Math 2014, 143–173.

47 Caton-Thompson ließ immer Schichten von 6 inches – ohne Rücksicht auf gegebene Deponierungen – abheben.

48 Die Tonbestimmung erfolgte nach dem *Hierakonpolis System* (Hoffman/Berger 1982, 66–85; Friedman 1994, 127–164).

49 Math 2014, 77–78.

50 Ein feiner ungemagerter Nilton, der ausschließlich in der Badarikultur zu finden ist (Friedman 1994, 141–142, 310).

51 Ein ungemagerter Nilton, der sowohl in den Waren BB, BR, PR und AB des Badari als auch in der B-, P- und C-Ware des Naqada zu finden ist (Friedman 1994, 138–142, 310).

52 Ein grobkörniger organisch gemagerter Nilton, der nur im Badari zu finden ist (Friedman 1994, 150–151, 310).

53 Ein feiner organisch gemagerter, möglicherweise unaufbereiteter Nilton, der sowohl im Badari (RB-Ware) als auch Naqada (R-Ware) zu finden ist (Friedman 1994, 149–150, 310).

54 Ein mit Stroh oder Häcksel gemagerter Nilton, der sowohl im Badari (RB-Ware) als auch im Naqada (R-Ware) zu finden ist (Friedman 1994, 142–146, 310).

55 Ein mit zerkleinertem Kalk bzw. Kalziumkarbonat gemagerter Nilton, der typisch für das Naqada (Waren L, D und W) scheint aber auch vereinzelt im Badari auftaucht (Friedman 1994, 157–158, 311).

56 Friedman 1994, 390–415.

57 Diese Form findet sich in Tongruppe 26 (Friedman 1994, 406).

58 Diese Keramikform findet sich in den Tongruppen 22, 2, 21 und 26 (Friedman 1994, 392; 396–397; 403; 406).

59 Dieser Typ findet sich in den Tonklassen 22, 2 und 21 (Friedman 1994, 392; 397; 403).

60 Dieser Typ findet sich in den Tongruppen 22 und 2 (Friedman 1994, 393; 397–398).

geformter Mündung[61] zu nennen, an geschlossenen Formen[62] 2a – *hole mouth jars*, Gefäße mit eingezogener Wandung und einer direkten Mündung[63], 2b – Gefäße mit geformter Mündung[64], 2c – Gefäße mit Hals[65] und 2n – große Vorratsgefäße. Aufgrund der wenigen Scherben, die aus dieser Sammlung eindeutig definierten Typen zugeordnet werden können – etwa 100 Stück – ist es schwer, eine quantitative Aussage zu treffen. Es scheint aber, dass die Typen 1a, 1b und 2a vorherrschen. *Rippled Ware*[66] scheint hier sehr oft vorzukommen (insgesamt 161 Stück), doch dies könnte auch auf die Natur der Sammlungsweise zurückzuführen sein. Im Bezug auf Knickwandschalen besteht die Schwierigkeit, diese in einem fragmentierten Zustand von Gefäßen mit flachen Böden zu unterscheiden.[67] Die identifizierten Beispiele stammen aus den feineren Tonklassen 22 und 2.[68] Im Fundmaterial von Hemamieh fanden sich insgesamt 29 *milled rims*.[69] Interessant erscheint auch, dass diese Mündungsverzierung nicht nur bei offenen und geraden Formen vorkommen, sondern auch bei *hole mouth jars*.[70] Eine Zuordnung und Identifizierung der 269 bekannten Fragmente anhand des Corpus von Brunton war ihr aufgrund der Kleinteiligkeit des Materials nicht möglich .

Aus der Grabung Mahgar Dendera 2 stammen etwa 4000 keramische Fragmente.[71] Aufgrund der starken Fragmentierung und Erosion wurden nur etwa 560 Stück[72] für die typologische Interpretation ausgesucht und herangezogen. Die Ausgräber klassifizierten die Keramik nach Tonarten und in jeder Tongruppe von offenen nach geschlossenen Formen. Wie bei der Klassifikation von Friedman für die Siedlung von Hemamieh handelt es sich auch hier um eine Mündungstypologie. Die Keramik aus Mahgar Dendera 2[73] besteht ausschließlich aus den Niltonen A[74], B1a[75], B1b[76], B1c[77] und B2[78]. Das Formenspektrum selbst ist sehr begrenzt. Es besteht in der Mehrzahl aus den einfachen offenen Formen USx – *unrestricted simple convex*[79], und USv – *unrestricted simple concave*[80], daneben gibt es noch die geschlossenen Formen RSx – *restricted simple convex*[81] und RN– – *restricted necked*[82]. An Gefäßformen aus Nilton A werden für die offenen Formen Näpfe und Töpfe, für die geschlossenen Formen Becher, hohe schlanke Gefäße und Näpfe genannt. Etwa die

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61 Diese Form findet sich in den Tongruppen 2, 21 und 26 (Friedman 1994, 398; 404; 406).

62 Friedman 1994, 390–415.

63 Dieser Formtyp findet sich in den Tongruppen 22, 2, 21 und 26 (Friedman 1994, 393; 399; 400; 404; 406).

64 Dieser Typ findet sich in den Tonklassen 2 und 5 (Friedman 1994, 399; 414).

65 Diese Form findet sich in Tongruppen 2 (Friedman 1994, 400).

66 *Rippled Ware* findet sich in Tongruppe 22 und 2 (Friedman 1994, 390).

67 Friedman 1994, 394.

68 Friedman 1994, 401.

69 Diese Mündungsverzierung findet sich in den Tongruppen 22 und 2 der feinen Ware (Friedman 1994, 392), aber auch in den Tongruppen 21 und 26 der groben Ware (Friedman 1994, 402).

70 Friedman 1994, 393.

71 Der Großteil waren Wandscherben.

72 394 Mündungen, 46 Böden, 1 Knopf, 9 dekorierte Scherben und 3 komplette Gefäße (Hendrickx/Midant–Reynes/Van Neer 2001, 59).

73 zum Code: U – *unrestricted*/offen, R – *restricted*/geschlossen; F – *flatbased*/flachbodig, R – *roundbased*/rundbodig; C – *cup*/Napf, B – *bowl*/Schalen, E – *beaker*/Becher, S – *simple jar*/ hohes schlankes Gefäß mit leit einziehender Mündung, L – *plate*/Teller (Hendrickx/Midant–Reynes/Van Neer 2001, 74–76).

74 Ungemagerter Nilton, beinhaltet aber natürlichen Sand; entspricht der Tonklasse 22 von Friedman, zu der die Waren BB, BR und PR zu zählen sind , wie auch eine Anzahl von SB–Gefäßen (Hendrickx/Midant–Reynes/Van Neer 2001, 60).

75 Nilton mit feinen organischen Partikeln (> 2 mm) gemagert (Hendrickx/Midant-Reynes/Van Neer 2001, 60–61).

76 Nilton mit reichlich feiner organischer (Partikel von 2–4 mm) Magerung; entspricht der Tonklasse 26 von Friedman, der auch eher die gröberen Beispiele der SB-Ware zuzurechnen sind (Hendrickx/Midant-Reynes/Van Neer 2001, 61).

77 Nilton mit feiner, jedoch begrenzter organischer Magerung; entspricht der Tonklasse 26 von Friedman (Hendrickx/Midant-Reynes/Van Neer 2001, 61).

78 Nilton mit feinen organischen Partikeln, Holzkohle und Asche (Hendrickx/Midant-Reynes/Van Neer 2001, 61–62).

79 einfache offene Form, deren Kontur aus einer nach außen gebogenen Linie ohne Übergangszone besteht (Hendrickx/Midant-Reynes/Van Neer 2001, 68).

80 einfache offene Gefäßform, deren Kontur aus einer nach außen gebogener Linie mit einer divergenten Zone besteht (Hendrickx/Midant-Reynes/Van Neer 2001, 68).

81 einfache geschlossene Gefäßform, deren Kontur eine nach außen gebogene Linie beschreibt, die keinen definitiven Übergangspunkt zeigt (Hendrickx/Midant-Reynes/Van Neer 2001, 68).

82 Gefäß mit Hals (Hendrickx/Midant-Reynes/Van Neer 2001, 70).

Hälfte der Scherben, die dieser Klasse zugeordnet wurden, zeigen eine *black–topped* Mündung.[83] Nilton B1a enthält nur Näpfe als offene Formen, aber wiederum Becher, hohe schlanke Gefäße und Näpfe als geschlossene Typen. Aus Nilton B1b wurden an offenen Formen Näpfe und Schalen und an geschlossenen Formen hohe schlanke Gefäße und Näpfe sowie ein geschlossenes Gefäß mit Schulterknick bzw. Halsansatz gefunden. Nilton B1c zeigt Becher, hohe leicht geschlossene Gefäße, Näpfe, Töpfe und Teller als offene Formtypen und hohe schlanke Gefäße sowie Näpfe als geschlossene. Der grobe Nilton B2 umfaßt offene Näpfe und geschlossene hohe leicht geschlossene Gefäße, sowie geschlossene Näpfe.[84] Gerippelte Oberflächen sind selten belegt. Sie wurden nur aus Nilton A und Nilton B1a gefertigt und oft mit einem schwarzen Mündungsrand kombiniert.[85] Das Material von Mahgar Dendera 2 weist nur direkte Mündungen und Mündungen mit einer horizontal abgeflachten Zone auf. Diese abgeflachte Zone kann auch mit Einkerbungen verziert sein – den sogenannten *milled rims*.[86] Dekorierte Scherben konnten kaum beobachtet werden. Dekorative Polituren – *pattern burnish* – wurden nicht beobachtet.[87] Hingegen zeigen sieben Scherben ein geometrisches Ritzdekor; diese Scherben sind wohl Tasabechern zu zuordnen.[88] Zu erwähnen ist ein weiteres geometrisches Ritzmuster, das kleine dreieckige Ritzungen, die mittels eines Strohhalmes oder Zweiges hergestellt wurden, zeigt.[89] Da in Mahgar Dendera 2 kaum ganze Gefäße vorhanden sind und nur wenige Fragmente zu vollständigen Formen rekonstruiert werden können, konnte nur eine begrenzte Anzahl von möglichen Formen aus dem Corpus von Brunton definiert werden.[90]

Insgesamt betrachtet erscheint es aufgrund des Fundmaterials schwierig, einen Vergleich der drei unterschiedlichen Keramikklassifikationen herzustellen. Sowohl Friedman[91] als auch Hendrickx[92] geben nur für einzelne Formen Parallen bei Brunton an.[93] Doch dieser Vergleich erscheint relativ komplex. Nicht nur, dass handgefertigte Keramik, die offenbar nicht in Massenware, sondern vielmehr als Einzelstücke[94] hergestellt wurde, im Allgemeinen schwer in Gruppen zu fassen ist, erschweren auch die einzelnen Klassifizierungen selbst mit ihren verschiedenen Schwerpunkten und Bezeichnungen dieses Vorhaben. Wenn man aber die komplexe Typologie von Brunton beiseite lässt und sich nach jener von Friedman richtet – jedoch unter Außerachtlassung der Tone – so kann man durchaus einen gewissen Vergleich der Formen der einzelnen Klassifikationen wagen. Es zeigt sich, dass in der Feinkeramik bei den offenen Formen Schalen mit geneigter Wandung und direkter Mündung[95] in allen drei Fundkontexten zu finden sind, ebenso Becher und Schalen mit vertikaler bis steiler Wandung und direkter Mündung[96]. Bei komplexeren Mündungsarten wie ausladenden[97] oder geformten Mündungen[98] finden sich in Mahgar Dendera 2 keine Parallelen. Bei den offenen Formen der gröberen Keramik kann man Gleiches beobachten: sowohl Schalen mit nach außen gewölbter Wandung und direkter Mündung[99] und Schalen mit geneigter Wandung

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83 Hendrickx/Midant-Reynes/Van Neer 2001, 71.

84 Hendrickx/Midant-Reynes/Van Neer 2001, 74–76,

85 Hendrickx/Midant-Reynes/Van Neer 2001, 71.

86 Hendrickx/Midant-Reynes/Van Neer 2001, 70.

87 Hendrickx/Midant-Reynes/Van Neer 2001, 63.

88 Interessant erscheint, dass diese sieben Scherben drei verschiedenen Tonen zugeordnet werden konnten, Nilton A – ein Mal, Nilton B1a – drei Mal, Nilton B1c – drei Mal (Hendrickx/Midant-Reynes/Van Neer 2001, 70).

89 Hendrickx/Midant-Reynes/Van Neer 2001, 70.

90 Hendrickx/Midant-Reynes/Van Neer 2001, Tab. IV.12.

91 Friedman 1994, Tab. 7.8–13; Tab. 7.8–9, 419–420; Tab. 7.12, 423; Tab. 7.13, 424; Tab. 7.8–9, 419–420; 328; Tab. 7.10–11, 421–422; Tab. 7.12, 423; Tab. 7.13, 424; Tab. 7.8–9, 419–420; Tab. 7.8–9, 419–420; Tab. 7.10–11, 421–422; Tab. 7.12, 423; Tab. 7.13, 424.

92 Hendrickx/Midant-Reynes/Van Neer 2001, 74–76.

93 Friedman 1994, Tab. 7.8–13; Hendrickx/Midant-Reynes/Van Neer 2001, 74–76; Math 2007; Math 2014, 142–143, Beilage 9.

94 Keramik scheint nur dann produziert worden zu sein, wenn sie benötigt wurde.

95 Typ 1b1: BB37 h, BB5 h, BB8e, BB30 m, BB30n, BR3 h, BR5p, BR7 h [Brunton] – 22–1b1 [Friedman] – U[F/R]C1 (109/2, 353/1) [Hendrickx].
Typ 1b2: BB3d [Brunton] – 22–1b2 [Friedman] – U[F/R]C1 (108/4) [Hendrickx].
Typ 1b: BR16n, BR16p [Brunton] – U[F/R]B (174/2, 350/1) [Hendrickx].

96 Typ 1c1: BR7 h, BR9 m, BR5t; BB31e, BB31 h, BB31k, BB31 m, BB31t, BB35k [Brunton] – 22–1c1, 2–1c1 [Friedman] – R[F/R]E1 (130/1, 120/1), R[F/R]C1 (380/26), U[F/R]C2 (161/2–174/7, 174/5, 380/8) [Hendrickx].

97 Typ 1d: BB52 m, MS3 [Brunton] – 22–1d, 2–1d [Friedman].

98 Typ 1g: BB52 m, MS3, SB15e, MS2, MS28 [Brunton] – 22–1c1, 2–1c1 [Friedman].

99 Typ 1a: SB3e, SB3k, SB5 h, SB5 m, SB3 h, SB5e, RB9 m [Brunton] – 26–1a [Friedman] – U[R/F]C2 (380/1, 154/1, 158/2) [Hendrickx].

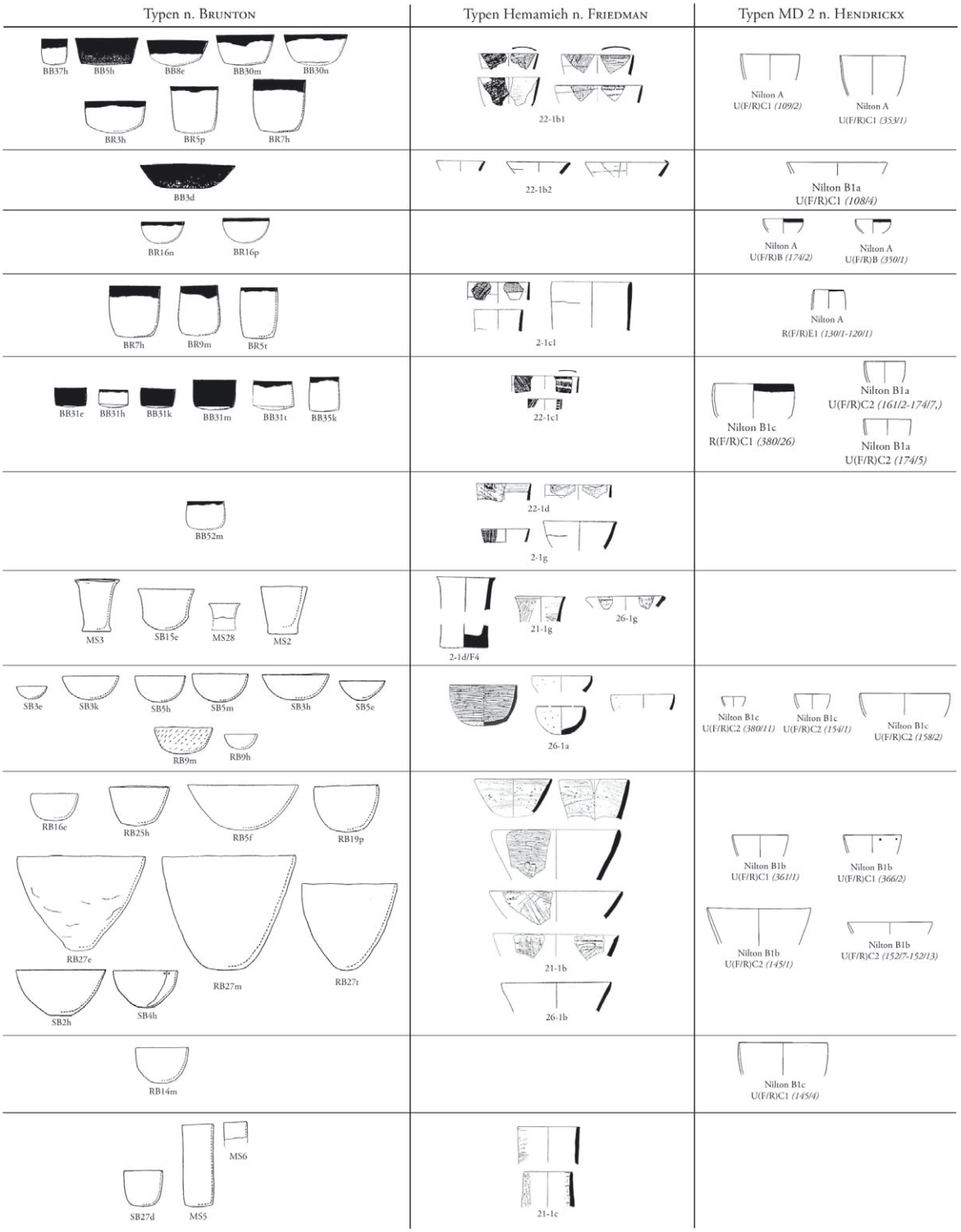


Abb. 2 offene Gefäßformen des Badari (nach Math 2014, Abb. 108–109)

und direkter Mündung[100] finden sich in allen drei Klassifikationen, jedoch scheinen Becher und Schalen mit vertikaler bis steiler Wandung und direkter Mündung[101] in Mahgar Dendera 2 zu fehlen. Für die komplexeren Mündungen – wie ausladende oder geformte Mündungen – konnten weder in Hemamieh noch in Mahgar Dendera 2 Vergleiche gefunden werden [Abb. 2]. Bei den geschlossenen Formen scheint der Vergleich auf den ersten Blick einfacher, da die meisten Gefäße den *hole mouth jars* zuzurechnen sind. Jedoch spezifiziert Friedman die einzelnen Untertypen nach dem Wandungsverlauf, die bei stark fragmentiertem Siedlungsmaterial meistens schwer zu erahnen ist. Für die feine Ware konnte der Untertyp 1 mit tiefliegender abfallender Schulter[102] für alle drei Fundplätze festgestellt werden, Untertyp 2 mit stark ausgeprägter Schulter[103] und Untertyp 6 mit hochliegender Schulter[104] nur für den Bereich von Badari. Eine geschlossene Form[105] aus Mahgar Dendera 2 findet sich zwar bei Brunton, aber nicht bei Friedman. Bei der groben Keramik finden sich Untergruppe 2 mit stark ausgeprägter Schulter[106], Untergruppe 4 mit tief sitzender Schulter[107] und Untergruppe 5 mit mittiger Schulter[108] in allen drei Typologien, die Untergruppe 1 mit tief liegender abfallender Schulter[109] und Untergruppe 6 mit hochliegender Schulter[110] nur im Bereich von Badari [Abb. 3–4].[111]

Die Keramik des Badari wurde ausnahmslos aus Nilton gefertigt; als Indikator können die Friedman Tone 22[112] und 21[113] angesehen werden. Die Formen zeigen primär einfachen Formen mit direkten Mündungen und vorwiegend Rundböden. Komplexere Formen wie modellierte Mündungen, Schultern und Halsbildungen können beobachtet werden, wenn auch nur bei ganz wenigen Stücken. *Rippled Ware*, *milled rims* und Knickwandschalen stellen weiter eine typische Charakteristik dar, wenn auch ihr Vorkommen beschränkt scheint.

### *Naqada*

Das frühe Naqada zu definieren, erscheint zwar auf den ersten Blick aufgrund der umfassenden Arbeiten von Petrie[114] und Kaiser[115] einfach, ist jedoch anhand des umfassenden Materials, der langen Laufzeit und der graduellen Entwicklung der gesamten Naqadakultur komplex. Die eigentlichen Anfänge der Naqadakultur sind – vergleichbar mit den Anfängen der Badarikultur – schwer zu fassen, doch gerade diese sehr frühen Phasen erscheinen wichtig, um ein besseres Verständnis für den Zusammenhang mit der Badarisequenz zu entwickeln.

Einen ersten Versuch einer inneren Strukturierung der Naqadakultur unternahm Petrie 1899.[116] Diese Einteilung basierte vor allem auf den Friedhofsfunden von Naqada und Ballas.[117] Er teilte die gesamten damals bekannten Überreste der Naqadakultur in 50 Sequenzen[118] ein, wobei er dem frühen Naqada die Sequenzen 30–38[119] zuteilte und es *Amratian* nach dem Fundort el-Amrah nannte. Als frühe keramische Gruppen definierte er die

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100 Typ 1b: RB16e, RB25 h, RB11 h, RB5f, RB19p, RB27e, RB27k, RB25e, RB27p, RB28 h, SB2 h, SB4 h, RB27 m, RB27t [Brunton] – 26–1b, 21–1b [Friedman] – U[R/F]C1 (361/1, 366/22, 145/4), U[R/F]C2 (145/1, 152/7–152/13) [Hendrickx].

101 Typ 1c: SB27d, MS5, MS6 [Brunton] – 21–1c [Friedman].

102 Typ 2a1: BB19b, BB19 h, BB19p, BR34b, BR34c, BR34e, BR34l, BR34q, BR34r [Brunton] – 22–2a1 [Friedman] – R[F/R]E3 (362/2), R[F/R]S1 (155/2), R[F/R]E1 (178/4) [Hendrickx].

103 Typ 2a2:BB70t, BB71b, BB71c, BB74f, BB77e, BB77p, BB77k [Brunton] – 22–2a2 [Friedman].

104 Typ 2a: BR34b, BR34c, BR34e, BR34q, BR34r, BR34 m [Brunton] – 2–2a [Friedman].
Typ 2a6: AB7 [Brunton] – 22–2a6 [Friedman].

105 PR15 h, SB31 h, SB31 m [Brunton] – R[F/R]S1 (380/21) [Hendrickx].

106 Typ 2a2: RB36f, RB36 m, RB36e [Brunton] – 21–2a2 [Friedman] – R[F/R]S2 (145/3) [Hendrickx].

107 Typ 2a4: RB31n, 31e, RB31k, RB33e, RB33 m, RB31l, RB33k, RB31 m, RB31p, RB37 h, RB31 h, RB31r, RB33 h [Brunton] – 21–2a4 [Friedman] – RRC1 (142/6), R[R/F]S1 (190/6), R[R/F]S2 (160/1), R[R/F]S3 (380/1) [Hendrickx].

108 Typ 2a5: RB46f, RB43 h, RB43 m, RB43q [Brunton] – 21–2a5 [Friedman] – R[F/R]S1 (177/9) [Hendrickx].

109 Typ 2a1: RB54 h [Brunton] – 21–2a1 [Friedman].

110 Typ 2a6: SB45 h, SB45p, SB37e [Brunton] – 26–2a6 [Friedman].

111 vgl. Math 2014, 183–191.

112 Friedman 1994, 310.

113 Friedman 1994, 310.

114 Petrie u. a. 1899, 1921.

115 Kaiser 1956.

116 Petrie 1899.

117 Petrie 1895.

118 Die *Sequence Dates* beschreiben keine absolute Zeitspanne; die einzelnen Sequenzen können einen unterschiedlich langen Zeitraum beschreiben.

119 Die Sequenzen 1–29 hielt Petrie vorsorglich für noch zu entdeckende frühere Kulturen des Niltals frei.

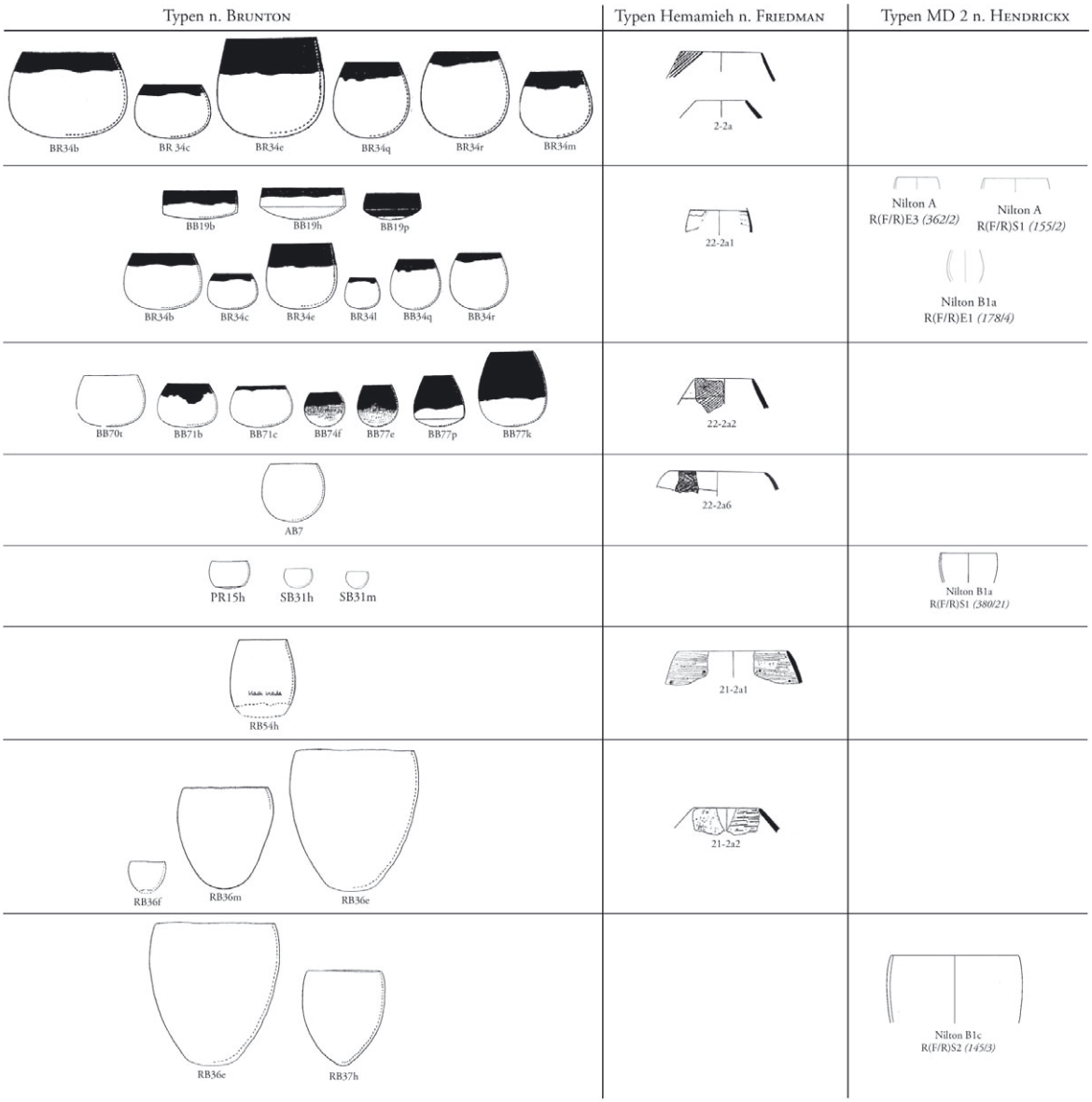


Abb. 3 geschlossene Gefäßformen des Badari (nach Math 2014, Abb. 110–111)

B-Ware[120] und die P-Ware[121]; die C-Ware[122] setzt etwas später ein – ab SD 31. Als frühe Formen werden für die B-Ware Schalen, niedrige bis hohe schlanke Becher, konische Becher aber auch Gefäße mit einer hohen Wandung und einer mehr oder minder geschlossenen Mündung[123], für die P-Ware Schalen, konische Becher hohe schlanke Becher und hohe leicht geschlossene Gefäße[124] und für die

120 *Black-topped Ware.*

121 *Polished Ware.*

122 *White Crossed-lined Ware.*

123 ab SD 30: B19a, B22b, B22f, B25b, B25f, B29a B84, B85; ab SD 31: B1a, B1f, B3b, B11b, B11d, B11f, B15, B17a, B18d, B21c, B22a, B22g, B22g, B23a, B25a, B25c, B25e, B25g, B26a, B26b, B26c, B27d, B38c, B42b, B57a, B57b, B68b, B72a, B74a, B75b, B79a, B92b; ab SD 32: B1c, B1d, B21b, B22c, B27a, B27e, B35a, B47, B74d, B89b, B86a; ab SD 33: B18b, B19b, B21a, B27b, B27c, B29d, B38b, B54a, B72c, B74b, B74c, B78b; (Petrie 1921, Pl. I-XIII).

124 ab SD 30: P17; ab SD 31: P1b, P2a, P11a, P11d, P56a, P56b, P63, P68a, P68b, P96b; ab SD 32: P1a, P2b, P5a, P5b, P7, P13a, P15a, P15b, P24a, P24b, P26b, P58b; ab SD 33: P16, P22, P25, P26a, P30, P34d, P65, P69b; (Petrie 1921, Pl. IX-XIV).

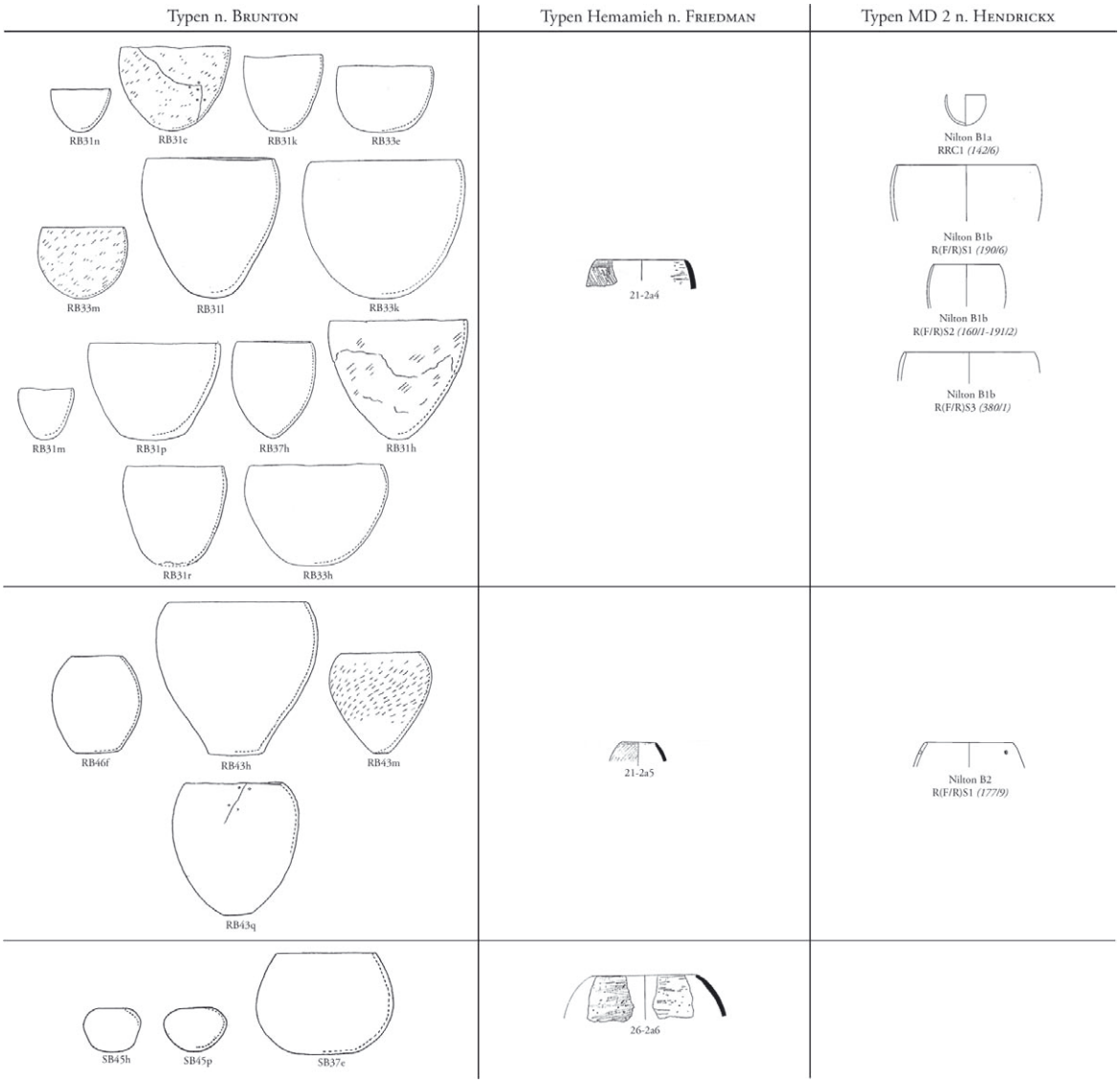


Abb. 4 geschlossene Gefäßformen des Badari (nach Math 2014, Abb. 111)

C-Ware vor allem Schalen und Becher, aber auch Doppelgefäße[125] angegeben. Weiters gibt er noch Typen der F-[126], D-[127], N-[128] und R-Ware[129] an; wobei F-[130] und D-Ware[131] ab SD 31, N-[132] und R-Ware[133] ab SD 33 belegt scheinen [Abb. 5].[134] Ausgehend von diesem System überarbeitete Werner Kaiser[135] in den 1950er Jahren die innere Chronologie der Naqadakultur anhand des Friedhofes

[125] ab SD 31: C1, C6, C7, C8, C11, C12, C16, C18, C22, C34, C36, C38, C40, C46, C61, C75b, C76, C78, C85b, C85d; ab SD 32: C2, C14, C27, C42, C48, C52, C54, C56, C60, C63, C64, C65, C75a, C77, C79a, C80, C85a, C85c, C86, C91, C93a, C95; ab SD 33: C21, C44, C67, C68, C69, C74, C81, C84, C96a; (Petrie 1921, Pl. XX–XXV).

[126] *Fancy Forms*.

[127] *Decorated Ware*.

[128] *Black incised Pottery (Nubian).*

[129] *Rough Ware*.

[130] ab SD 31: *F11a, F85a*; ab SD 32: – ; ab SD 33: *F68c, F91;* (Petrie 1921, Pl. XV–XVIII).

[131] ab SD 31: *D8b, D15*; ab SD 32: *D72, D81*; ab SD 33:*D7b;* (Petrie 1921, Pl. XXXI–XXXVII).

[132] ab SD 33: *N55;* (Petrie 1921, Pl. XXVI–XXVII).

[133] ab SD 33: *R3a, R51, R83b;* (Petrie 1921, Pl. XXXVIII–XLIV).

[134] Zu den Problematiken in Bezug auf die Sequenz Dates siehe Kaiser 1957, Hendrichxs 1996, Hartmann 2011b.

[135] Kaiser 1957.

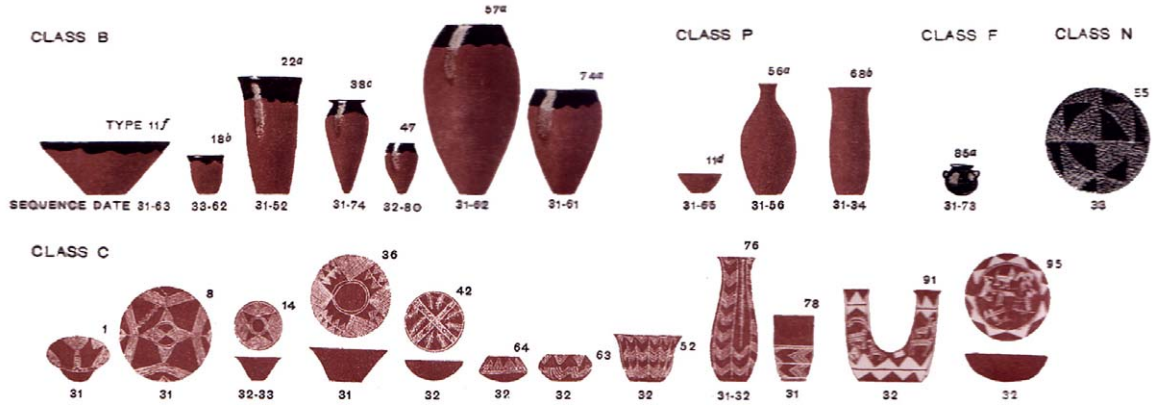


Abb. 5 typische Gefäßformen des Naqada I (nach Petrie 1902, *frontpiece*)

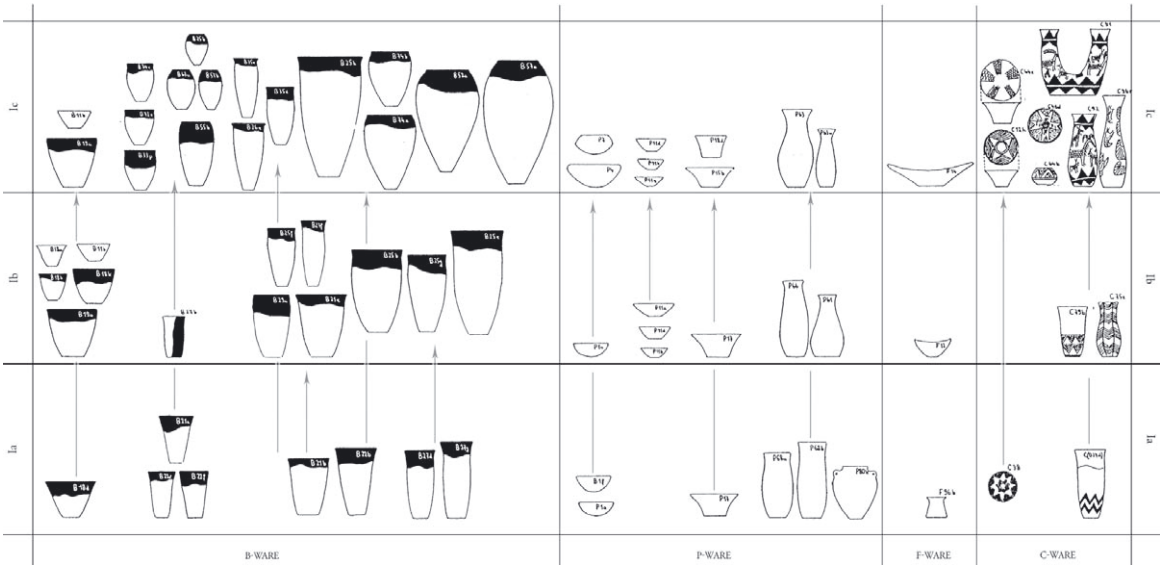


Abb. 6 typische Gefäßformen des Naqada I (nach Kaiser 1957, Taf. 21)

von Armant 1400/1500[136] und teilte diese vergleichbar mit Petrie in drei Phasen ein, die er *Stufen* nannte und wiederum in Unterphasen gliederte. Auch Kaiser definierte Gefäße der B-[137], P-[138] und C-Ware[139] als typische Waren des frühen Naqada (Naqada I) und einfache becherartige Formen[140], eher geschlossene Formen[141] und schalenartige Formen[142] und Schüsseln[143] als typische Formen; alle diese Formen zeigen flache Böden [Abb. 6].[144] Des weiteren werden einzelne Formen

136 Der Friedhof von Armant besteht aus etwa 170 Gräbern und wurde von Mond und Myers in den 1930er Jahren ausgegraben (Mond/Myers 1937).

137 ab Ia: B1f, B18d, B21a, B21b, B22b, B22e, B22f, B27d, B27g; ab Ib: B11b, B18a, B18b, B18k, B19a, B21c, B25b, B25c, B25f, B25g, B27b, B27f, B29a; ab Ic: B25 h, B26c, B33p, B35e, B55b, B57a, B57b, B58a, B63a, B72e, B74a, B74b, B74c, B75b (Kaiser 1957, Taf. 21).

138 ab Ia: P1a, P17, P68a, P68b; ab Ib: P11a, P11b, P11d, P61, P66; ab Ic: P4, P7, P11c, P15b, P18d, P63, P63 m (Kaiser 1957, Taf. 21).

139 ab Ia: C(B) 27d; ab Ib: C75e, C79b; ab Ic: C12 h, C44e, C46d, C64b, C91, C92, C96r (Kaiser 1957, Taf. 21).

140 B19f, B29b, B35a, B35e, B57b1, B57b3, B72b, B74a, B74b, B74c (Kaiser 1957, 70).

141 B57a, B57b, B57g, B58a, B58b, B71b, B75b (Kaiser 1957, 70).

142 P4, P7, P11b, P11c, P15b, P18c, P63 m, P96b (Kaiser 1957, 70–71).

143 C44b (Kaiser 1957, 71).

144 Zu den Problematiken im Bezug auf die Stufenchronologie siehe Hendrickx 1996, Hartmann 2011b.

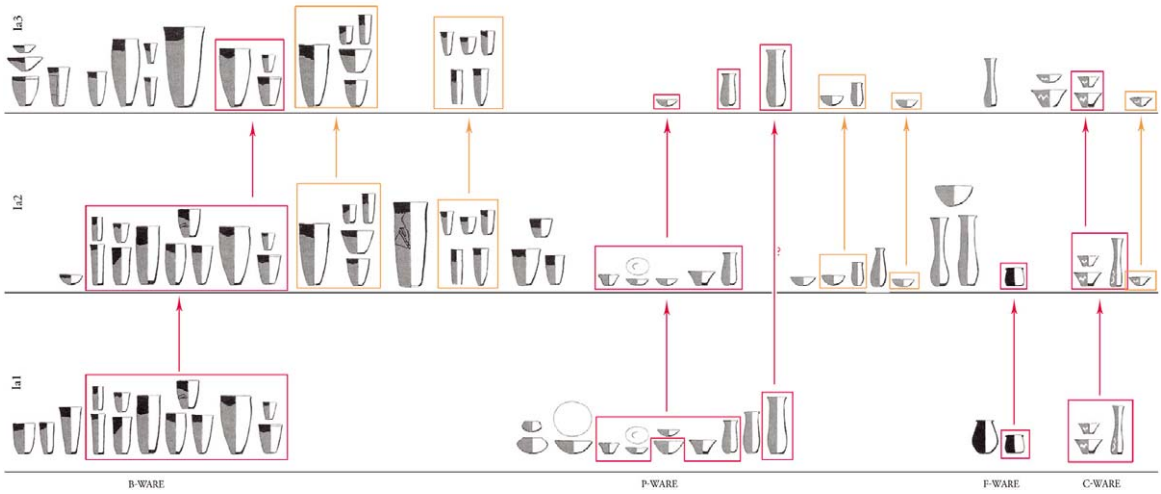


Abb. 7 typische Gefäßformen des Naqada I (nach Hartman 2010a, fig. 7)

der F-Ware[145] genannt. Eine weitere Überarbeitung des Systems führte Stan Hendrickx[146] in den 1990er Jahren durch. In dieser Studie wird die Frage nach der Grenzziehung zwischen den einzelnen Phasen der Naqadakultur erörtert; vor allem regt er an, die Unterscheidung zwischen Naqada Ia und Ib aufzugeben, da diese beiden Phasen in Friedhöfen schlecht belegt und stratigraphisch kaum fassbar sind. Eine Nachuntersuchung des Friedhofes U in Abydos und eine neue Analyse der Gräber des Naqada I und II durch Rita Hartmann ergab eine neue Definition des frühen Naqada für den Grossraum Abydos; Naqada IA scheint hier früher als bislang angenommen eingesetzt zu haben. Hartmann unterteilt Naqada IA in drei Subphasen.[147] An Formen sind für die Phase Ia1[148] hohe schmale Becher zylindrischer und konischer Form für die B-Ware und rundbodige ovale Gefäße, Knickwandschalen und konische Schalen der P-Ware, wie auch P71m der schwarz-polierten Ware und F96g[149] zu nennen. In einer jüngeren Formengruppe zeigen sich geschwungene Becher der B-Ware, rundbodige Schalen der P-Ware und mit geometrischen und figuralen Motiven verzierte tiefe Schalen und schlanke hohe Gefäße der C-Ware. In Phase Ia2[150] setzen sich die hohen schmalen Becher zylindrischer und konischer Form der B-Ware fort, hinzu kommen konische Becher mit gebogener Wandung, konische Becher und rundbodige *black-topped* Schalen als charakteristische Formen. Die P-Ware beinhaltet diverse Typen von rund- und flachbodigen Schalen und diverse Formen von hohen leicht geschlossenen Gefäßen. Die Anzahl der Formen der C-Ware werden reichhaltiger, figurale Motive treten in den Vordergrund, geometrische in den Hintergrund. In Phase Ia3[151] fehlen die ältesten Typen wie einfache konische und zylindrische Becher. Dafür treten Becher mit stärker *s*-förmig gebogener Wandung und konische Becher auf. Die Anzahl der flachbodigen Gefäße der B- und P-Ware überwiegen nun eindeutig gegenüber den rundbodigen Typen. Die Entwicklung von leicht kurvigen Gefäßen mit einer weiten Lippenmündung indiziert eine generelle Änderung der Typensammlung der B-Ware, deren Entwicklung zu den ovoiden Formen der Serie B72/74 führt [Abb. 7].[152]

Alle diese Sequenzierungen der frühen Naqadakeramik basieren auf Friedhofsmaterial. Die hier festgestellten Keramiktypen zeigen die B-, P-

[145] ab Ia: *F96b*; ab Ic: *F14* (Kaiser 1957, Taf. 21).

[146] Hendrickx 1996.

[147] Hartmann 2011a, 2011b.

[148] keine Entsprechung bei Kaiser und Hendrickx (Hartmann 2011b, 31).

[149] Imitation von Basaltgefäßen?

[150] entsprecht Kaiser Stufe Ia-b und Hendrickx IA-B (Hartmann 2011b, 31).

[151] entsprecht Kaiser Stufe Ib-c und Hendrickx IB-C (Hartmann 2011b, 31).

[152] Hartmann 2011b, 24–25.

und C-Ware[153] und wurden durchwegs aus einem ungemagerten Nilton[154] gefertigt. Die Formen variieren von einfachen rundbodigen Schalen, flachbodigen Schalen, flachbodigen becherartigen Formen, flachbodigen hohen leicht geschlossenen Gefäßen bis hohen geschlossenen Formen und Schüsseln,[155] wobei sich eine Entwicklung von einfachenen offenen Formen hin zu geschlossenen Formen mit modellierten Mündungen abzeichnet.[156] Flache Böden scheinen in jeder Phase des Naqada I gegenüber Rundböden in der Überzahl zu sein.[157] Dekoration ist auf die weiß bemalte C-Ware begrenzt. Eine grobe bzw. raue Ware scheint zu fehlen.[158]

Im Gegensatz zum einheitlichen und kompakt erscheinenden Friedhofsmaterial, zeigt das Siedlungsmaterial ein etwas anderes Bild – wie Friedman anhand ihrer Studie[159] der Siedlungskeramik von Hemamieh, Naqada und Hierakonpolis feststellte.[160] Die ungemagerte polierte Ware (fabric/temper class 2) mit *black-topped* (B-Ware) oder nur rotpolierten Oberflächen – mit oder ohne weisser Bemalung (P- und C-Ware) zeigt in den drei Fundplätzen – Hemamieh, Khattana und Hierakonpolis – Gemeinsamkeiten in Tonaufbereitung, Herstellung, Brennverfahren, Oberflächenbehandlung und dekorativen Elementen. Formen wie Becher mit direkten und leicht ausgestellten Mündungen, Gefäße mit modellierten und ausgestellten Mündungen, Schalen und Gefäße mit Kiel scheinen auf diese Ware beschränkt. Für alle Scherben dieser Tonware, die aus Siedlungsbereichen stammen, finden sich Parallelen in den B-, P-, C- und F-Waren aus Friedhofsbereichen, auch wenn diese sich in ihrer Oberflächenbehandlung unterscheiden können. Neben den allgemein zu beobachtenden Ähnlichkeiten in dieser Ware sind auch wenige morphologische Unterschiede zu beobachten, die von regionaler Signifikanz zu sein scheinen. Dies betrifft vor allem den Zusammenhang zwischen Oberflächenbehandlung und Form bei der B- und P-Ware, der im Bereich der Siedlungen nicht so eindeutig definiert ist wie in Friedhofsbereichen. Obwohl gewisse Formen mit gewissen Oberflächen[161] verbunden scheinen, sind andere nicht unbedingt zwingend auf eine bestimmte Ware festgelegt. Nur die C-Ware scheint fest an ein bestimmtes Formenrepertoire gebunden. Als Beispiel für kleine regionale Unterschiede werden hier rundbodige Schalen aus Naqada/Khattana und Hierakonpolis genannt. Diese zeigen im Bereich von Khattana eine gerade bis geneigte Wandung, in Hierakonpolis ein gewölbtes Profil. Ebenso lassen sich Unterschiede[162] bei der Politur feststellen. Es wird gefolgert, dass die Gefäße der Tongruppe 2 im Gegensatz zu jenen der Tongruppe 26, die etwas gröber scheinen und feine organische Magerung zeigen, von Fachkräften hergestellt wurden, da die Formen der Klasse 26 unregelmäßiger und gröber in ihrer Ausführung erscheinen.[163] Im Gegensatz zur feinen Ware konnte im Bereich der groben Ware drei verschiedene Traditionen[164] festgestellt werden. Im Bereich von Naqada – den Siedlungen von Khattana (KH1, KH3, KH4, KH6 und KH7) – ist der unverwechselbare Magerungszusatz zerriebene Keramik.[165] Diese wurde einem mehr oder minder gut aufbereitetem Nilton zugefügt, zusätzlich finden sich zeitweise auch grobe bis feine organische Substanzen wie Grashalme oder Blätter. Die beiden daraus resultierenden Keramikklassen unterscheiden sich durch die organischen Magerungsanteile (fabric/temper class 27) oder deren Fehlen (fabric/temper class 7). Abhängig von der Tonklasse scheint die Formgebung und Oberflächenbehandlung zu sein. Die Herstellungsmethode ist für

153 Hartmann 2011b, 24–25.

154 Erst in der *Stufe Ia3* kommen wenige Beispiele von Gefäßen mit mittel bis grober Strohmagerung, einer in späterer Zeit verbreiteten Tonart für Vorratsgefäße, hinzu (Hartmann 2011b, 24–25).

155 vgl. Kaiser 1957, Taf. 21; Hartmann 2011a, Fig. 2; Hartmann 2011b, Fig. 7–8.

156 vgl. Kaiser 1957, Taf. 21; Hartmann 2011a, Fig. 2; Hartmann 2011b, Fig. 7–8; Friedman 1994, 23.

157 vgl. Kaiser 1957, Taf. 21; Hartmann 2011a, Fig. 2; Hartmann 2011b, Fig. 7–8.

158 Die R-Ware scheint erst ab dem Naqada IIa in Gräbern auf (Kaiser 1957).

159 Friedman 1994; Friedman 2002.

160 Der Vergleich beruht auf Tonvergleichen (Ton/Magerung), Form, Oberflächenbehandlung und Dekoration, sowie der Kombination dieser Merkmale (Friedman 2002, 172).

161 *black-topped*: gewisse Becher und Gefäße mit ausladender Mündung; *red-polished*: ausladende Mündungen und Schalen mit Kiel.

162 Naqada/Khattana: Politur mittels Stoff oder Leder; Hierakonpolis: Politur mittels Kiesel (Friedman 2002, 182).

163 Friedman 2002, 178–182.

164 Die Unterscheidung erfolgte aufgrund von makroskopisch sichtbaren Magerungsteile, Herstellungsmethode und Formen (Friedman 2000, 175).

165 *ground potsherds oder grog.*

beide Tonklassen ähnlich: Böden aus Tonplatten – flachgedrückt oder mittels runder Formen modelliert – wurden an in Wulsttechnik geformte Gefäßkörper gefügt. Die Aussenseiten wurden mit den Händen nassgeglättet, teilweise auch mit Stoff, einem flachen Werkzeug oder einen Büschel aus Schilf. Die Oberflächen innerhalb von Tonklasse 7 variieren und umfassen *self-slip* oder Nassglättung, braune, rote und manchmal grau-schwarze Überzüge und *washes*. Polituren[166] finden sich an rund der Hälfte der bekannten Beispiele. Gefäße der Tonklasse 27 wurden mit einen *self-slip* und verschieden starken Polituren versehen.[167] In beiden Tonklassen waren die Mehrzahl der Oberflächen zumeist unbehandelt. Ritzungen im Bereich der Mündung (*milled rims*) sind an einer geringen Anzahl der Gefäße beider Tonklassen zu finden. Andere Dekorationen erscheinen sehr selten. An Formen finden sich tiefe und flache Schalen mit geneigter oder gewölbter Wandung, sowie kugelige oder sackförmige *hole-mouth jars* mit direkter Mündung. Die Mündungen zeigen mit seltenen Ausnahmen nur direkte Varianten und die Abflachung der Spitze der Mündung erscheint eine regional signifikante Eigenheit der Region von Khattana. Formen mit modellierten Mündungen und Gefäße mit einem konkaven Oberkörper[168] finden sich nur sehr selten und gehören fast ausschließlich zur Tongruppe 7. Es wurden sowohl Rund- als auch Flachböden gefunden.[169] In Hierakonpolis (HK14[170] und HK24A[171]) zeigt die grobe Ware eine Magerung mit *shale temper*[172] (Tonklasse 3). Die Oberflächen zeigen eine nasse Glättung, bisweilen mit einem roten ockerfarbigen *wash,* und sind nur selten poliert[173]. Es wird angenommen, dass die größeren Gefäße in Wulsttechnik gefertigt wurden, jedoch finden sich an der Oberfläche, die sehr sorgfältig nachbearbeitet wurden, keine Hinweise hierfür. Formen beschränken sich auf Töpfe und tiefe Schalen mit direkten Mündungen, gewölbte Wandungen und flache Böden; es wurden aber auch Rundböden gefunden. Die Eigenheiten der lokalen Variante der groben Ware des Naqada I im Bereich von Hemamieh sind aufgrund der stark aussortierten Funde und der nur teilweise rekonstruierbaren Stratigraphie der Grabung von Caton-Thompson schwer zu fassen. Die Anzahl der diagnostischen Scheben für das Naqada I sind gering, erscheinen aber den Beispielen aus der Badarizeit in Tonart, Oberflächenbehandlung und Einfachkeit der Form sehr ähnlich. An relevanten Tongruppen werden die Klassen 26[174] und 1[175] genannt. Vor allem die schon im Badari verwendente Tonklasse 26 zeigt im Naqada I eine Fortführung der Traditionen des Badari. Die Oberfläche zeigt zumeist einen braunen oder *self slip*, der entweder mit Kieseln im nassen oder locker im lederharten Zustand poliert[176] wurde. Keiner der hier gefundenen Scherben des Naqada I zeigt Dekoration. Die Funde der Testgrabungen (TP1/TP2) zeigen, dass Gefäße der Tongruppe 26 im Naqada I weiter präsent sind, wenn auch in rückläufiger Anzahl. Allmählich wird diese Klasse durch die strohgemagerte Klasse 1[177] verdrängt, die zumeist mit einem dicken schwarzen, roten oder braunen Überzug, der zeitweise Politur[178] zeigt, versehen ist. Alle drei Fundorte des Naqada I zeigen eine regional unterschiedliche grobe Ware, die jedoch in ihrer Nutzung den gleichen Zweck erfüllte: vor allem im Bereich der Essensbereitung.[179] Anzumerken ist auch, dass es außerdem im Bereich der *pot-marks* regionale Traditionen gab.[180] Diese regionalen Unterschiede verschwinden erst im Naqada IIc.[181]

Das Wissen über das keramische Inventar des frühen Naqada mutet lückenhaft an und regionale Traditionen in der Siedlungskeramik sind stark

166 *burnished* – Strichpolitur.

167 *burnished or lightly polished and buffed with a piece of leather or cloth.*

168 *s-shaped profiles.*

169 "*It is assumed that the majority of similar bowls had flat bases, while jars had flat or rounded bases*." (Friedman 2000, 177).

170 Siedlungsareal – spätes Naqada I (vgl. Friedman 2000, Fig. 1).

171 Brauerei – frühes Naqada II (vgl. Friedman 2000, Fig. 1).

172 *shale temper* beschreibt eine Magerung mit Tonsteinen.

173 *burnished.*

174 Ein feiner organisch gemagerter, möglicherweise unaufbereiteter Nilton, der sowohl im Badari (RB-Ware) als auch Naqada (R-Ware) zu finden ist (Friedman 1994, 149–150, 310).

175 Ein mit Stroh oder Häcksel gemagerter Nilton, der sowohl im Badari (RB-Ware) als auch im Naqada (R-Ware) zu finden ist (Friedman 1994, 142–146, 310).

176 *burnished.*

177 Diese Tongruppe findet sich schon im Badari (Schicht C) ist in der Übergangsphase (Schicht D) und im Naqada I (Schicht E) rückläufig, um im Naqada II (Schicht F) in großer Anzahl wieder aufzutreten (vgl. Abb. 13).

178 *burnished.*

179 Friedman 2000, 176–178.

180 Friedman 2000, 174.

181 Friedman 2000, 174.

ausgeprägt. Die als *Leitformen* angegebenen Typen stammen durchwegs aus Friedhofszusammenhängen und jene des frühen Naqada I stellen in weiten Teilen ein theoretisches Konstrukt dar.[182] Daher ist es schwierig eindeutige *Leitformen* zu identifizieren und jene von Petrie und Kaiser zeigen zum überwiegenden Teil lange Laufzeiten.

## III. Suche nach Übergangsschichten

### IIIA. Siedlungen

#### *Badari-Region [Abb. 8]*

*Hemamieh 1900/2000*

Dieses Areal wurde sowohl in der Zeit des Badari als auch Naqada I-IIB[183] als Siedlungsbereich genutzt. Etwas südlich davon fanden sich außerdem zwei Gräber der Badarizeit. Aufgrund der starken Zerstörung des gesamten Bereiches durch Gräber aus dynastischer Zeit, konnten keinerlei stratigraphische Angaben gemacht werden. Prinzipiell wird die Siedlung der Badarizeit als eine Schicht mit Holzkohle, Scherben und Abschlägen, die verstreut gefunden wurden, beschrieben und die Datierung erfolgte aufgrund des Vorhandenseins der Keramiktypen BR41e, BR51f, PR6e, PR16f und AB7.[184] Die Siedlung der Naqadakultur scheint aus diversen Gruben zu bestehen.[185] Diese Siedlung dürfte in das frühe Naqada datieren; darauf scheinen die Typen B21b[186], B27d[187] und P1a[188] zu weisen.

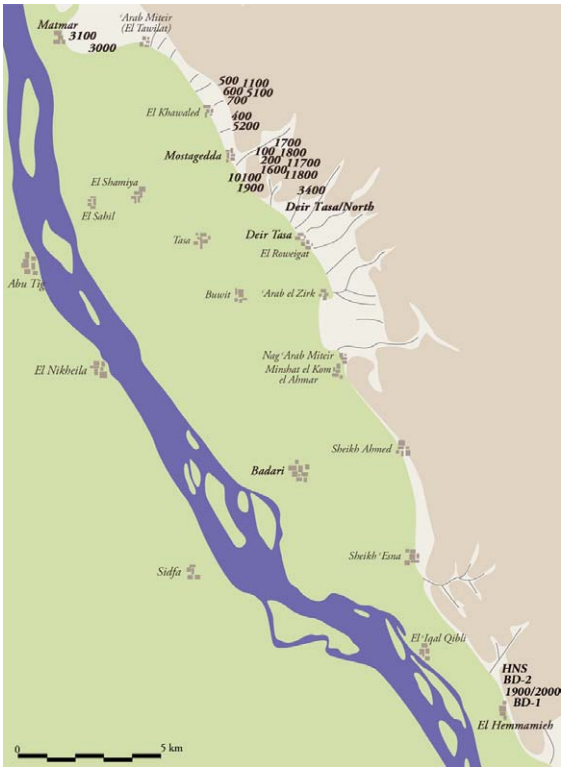


Abb. 8 relevante Fundorte in der Badari Region

*BD-1/BD-2*

Diese beiden Siedlungsbereiche wurden von Holmes und Friedman im Rahmen ihres in der Region von Badari durchgeführten Surveys festgestellt.[189] BD-1 befindet sich südlich der Siedlung Hemamieh 1900/2000, BD-2 nördlich davon. In beiden Bereichen fand nur ein Survey statt.[190] Nähere Details wurden nicht angegeben. Interessant erscheint, dass beide Areale Fundmaterial vom Badari bis Naqada II zeigen.[191]

*Hemamieh – North Spur*

In den Jahren 1924 und 1925 untersuchte Caton-Thompson im südlichen Bereich der Region um Badari – nahe des Dorfes Hemamieh – einen Bereich der Niederwüste, die hier im Gegensatz zur Umgebung breiter ist.[192] Das Areal – *North Spur Hemamieh* genannt – zeigt einen leichten Anstieg gegen Nord–West von ungefähr 2 m und ist ein gegen Wettereinwirkungen eher ungeschützter Platz. Die Grabung brachte eine Siedlung[193] zu Tage, die in ihrer untersten Schicht dem Badari zugeschrieben wird und in ihrem oberen Bereich dem Ende des Naqada II. Es wurde eine Schichtdicke von bis zu 2 m und mehr festgestellt.[194] Leider ist die Schichtunterscheidung

182 Der Friedhof von Armant beginnt erst mit der Stufe Ic; diese Stufe wurde von Kaiser anhand anderer Friedhöfe rekonstruiert (vgl. Kaiser 1957).

183 Holmes/Friedman 1994, Tab. 1; Hendrickx/van den Brink 2002, 376/Tab. 23.2.

184 Brunton/Caton-Thompson 1928, 4, 43.

185 Brunton/Caton-Thompson 1928, 43–44.

186 ab Stufe Ia (Kaiser 1957).

187 ab Stufe Ia (Kaiser 1957).

188 ab Stufe Ia/b (Kaiser 1957).

189 Holmes/Friedman 1994.

190 Holmes/Friedman 1994, Tab. 1; Hendrickx/van den Brink 2002, 376/Tab. 23.2.

191 Holmes/Friedman 1994, Tab. 1.

192 Brunton/Caton-Thompson 1928, 69–116; vgl. auch Math 2014, 23–39.

193 in den Arealen Grabungsareale A1–6/D–H.

194 Brunton/Caton–Thompson 1928, 69.

anhand der vorhandenen Dokumentation nicht sehr deutlich zu erkennen. Zwischen einer oberflächlichen und unteren Geröllschicht[195] befindet sich eine mehr oder minder homogene gräuliche Schicht, die von Asche- und Holzkohleschichten sowie Dungschichten und teilweise auch Kalksteingeröll durchzogen ist.[196] Die einzelnen Schichten werden nicht näher definiert. Prinzipiell können für die Prädynastik fünf Besiedlungsschichten unterschieden werden. Das Badaristratum unter der Gerölleinschwemmung und jenes darüber, das Naqada I/frühe Naqada II Stratum,[197] das Naqada II Stratum und das späte Naqada II Stratum. In das jüngste Stratum schneiden Gräber ein, die vom Naqada III bis ins Alten Reich datieren. Diese werden wiederum durch zeremonielle Tierknochengruben späterer Zeit überlagert. Die keramische Fundsammlung ist stark aussortiert: Zwar wurden während der Grabung alle Funde gesammelt, die Keramik wurde jedoch in weiterer Folge aussortiert und nur eine Sammlung von für jede Schicht typischen Randscherben behalten.[198] In allen Schichten zählten die überwiegende Zahl der keramischen Fragmente zur groben, mit Stroh gemagerten braun–roten Ware;[199] weitere Angaben zu Anzahl oder schichtspezifischen Merkmalen wurden nicht gemacht.[200]

Die ältere Schicht/Schicht A[201] – 7 ft. 4 ins.[202] bis 6 ft.[203] unter der rezenten Oberfläche – liegt unter der unteren Geröllschicht/Breccia und weist eine Stärke von etwa 30 cm auf.[204] Dieses Stratum,[205] das zweifelsfrei der Badarikultur zuzuordnen ist, zeigt keinerlei architektonische Überreste. Aus dieser Schicht stammen insgesamt 38 keramische Fragmente, von denen rund 25 % eine geripppelte Oberfläche zeigen.[206] Hierbei handelt es sich primär um Fragmente der BB- und BR-Ware; PR-, SB(?)- und RB-Ware erscheint seltener. An Tonen sind die Gruppen 22 und 2 für die Feinware und 21 und 26 für die grobe Ware zu nennen. Die Verteilung dieser Tonklassen im Material erscheint relativ ausgeglichen.[207] Typen bzw. Formen können aufgrund des Fragmentierungsgrades kaum identifiziert werden. Jedoch scheint es sich vor allem um Schalen und Schüsseln zu handeln; manche offen, manche mit gerader Mündung und manche geschlossen. Erwähnenswert erscheinen zwei Fragmente mit Wandknick und ein röhrenförmiges Gefäß mit einem x–förmigen Töpferzeichen, dass mit MS5 vergleichbar scheint.[208] Ein weiteres Fragment zeigt ein gitterartiges Ritzmuster. Drei der gefundenen Scherben werden der B- und P-Ware des Naqada[209] zugeordnet. Diese stammen aus Areal H.[210] Auch hier werden keine Typen angegeben. Diese Scherben müssen aber nicht zwangsweise dem Naqada zugeordnet werden, sondern können durchaus – und dies erscheint plausibler – auch dem Badari entstammen.[211] Über der fundleeren Geröllschicht zeigt sich vor allem im südöstlichen Bereich über kieseligen Ablagerungen eine markante Aschenschicht/Schicht B[212] – 7 ft.[213] bis 4 ft. 6 ins.[214] (unter der Aschenschicht) bzw. 4 ft. 6 ins.[215] bis 3 ft. 6 ins.[216] (Aschenschicht) unter der rezenten Oberfläche.[217] Ihre genaue Aus-

[195] Diese Schichten wurden bei Caton–Thompson mit *Breccia* bezeichnet; gemeint ist damit eingeschwemmtes Geröllmaterial (siehe Brunton/Caton–Thompson 1928, 72).

[196] Brunton/Caton-Thompson 1928, 73.

[197] Deren Datierung scheint unsicher und wird später noch erörtert.

[198] “*Each man threw out the rough sherds, too abundant to be more than collectively dealt with, into a basket, the contents of these when full being emptied into heaps marked with their respective level. From these, a selection of typical rims from each level was finally kept only.*” (Brunton/Caton-Thompson 1928, 71).

[199] “*The vast majority of sherds at all levels were of coarse brown–red ware, containing much straw, a characteristic of Predynastic rough wares. Professor Peet estimated that at the Abydos Predynastic settlement 99 per cent of the sherds were of this character. I can support this estimate.*” (Brunton/Caton–Thompson 1928, 71).

[200] Brunton/Caton-Thompson 1928, 71.

[201] vgl. Math 2014, 29–30.

[202] in Areal F (vgl. Friedman 1994, 433–434).

[203] in den Arealen E, F, I und H (vgl. Friedman 1994, 433–434).

[204] Friedman 1994, 315.

[205] Nur die Flächen E, F, G und H wurden abgetieft.

[206] Friedman 1994, 322.

[207] Ton 22: 10 Stück; Ton 2: 7 (mglw. 8) Stück; Ton 21: 10 Stück; Ton 26: 9 Stück (Friedman 1994, 433–434).

[208] Friedman 1994, 324.

[209] Brunton/Caton-Thompson 1928, 79, 95–116.

[210] Brunton/Caton-Thompson 1928, 116.

[211] Friedman 1994, 323.

[212] vgl. Math 2014, 31–33.

[213] in Areal E (vgl. Friedman 1994, 434–435).

[214] in Areal A2 (vgl. Friedman 1994, 434–435).

[215] in Areal A3 (vgl. Friedman 1994, 435).

[216] in Areal A3 (vgl. Friedman 1994, 435).

[217] Sie ist im Bereich von A1–4 zu beobachten, läuft nach Nord–Osten hin aus, jedoch kann sie noch teilweise in den Bereichen E und F festgestellt werden (Friedman 1994, 326).

dehnung und Verlauf ist nicht mehr feststellbar, da sie nur anhand der Profile rekonstruierbar ist. Unter und in dieser etwa 60 cm[218] starken Schicht[219] zeigt sich eine Konzentration an Badarikeramik.[220] Es werden insgesamt 40 Badarischerben angegeben, jedoch scheint die Sammlung stark aussortiert, da es sich primär um gerippelte BB-, BR- und PR-Ware handelt, wobei RB-Ware eher rar erscheint; jedoch kommen auch ungerippelte Scherben der BR- und PR-Ware vor.[221] An Tonen kommt zu den bereits in Schicht A vorhandenen Typen 22, 2, 21 und 26 Typ 1 hinzu.[222] Ton 22 scheint in dieser Schicht gegenüber Ton 2 zu dominieren, die Tone 21, 26 und 1 sind nur vereinzelt zu finden.[223] Auch in dieser Schicht ist eine Typenzuordnung aufgrund des Fragmentierungsgrades schwierig. Bei zwei Mündungsfragmenten könnte es sich um die Typen BR5t/p und BR16m handeln, weitere Fragmente könnten die Typen MS1–4, PR4z und AB15 zeigen.[224] Erwähnenswert sind aber kleine steilwandige Gefäße, die eine gerippelte BR–Oberfläche zeigen. Sie bleiben ohne weitere Entsprechung in der Typologie von Brunton.[225] Im Gegensatz zur klar definierbaren Abgrenzung zwischen den Schichten Badari A und B durch die untere Gerölleinschwemmung sind die oberen Schichten schwer zu differenzieren. Zwar kann man durch die beschriebenen Ascheablagerungen im südöstlichen Teil der Grabungsfläche eine Grenze ziehen, aber es bleibt offen, ob und wieviel von Schicht C[226] – 6 ft. 4 ins.[227] bis 4 ft.[228] unter der rezenten Oberfläche – noch hinzuzurechnen ist. Weiters – und dies ist generell nicht außer Acht zu lassen – zeigt sowohl Schicht B als auch C durch spätere Bautätigkeit eine von der Ausgräberin nicht dokumentierte Zerstörung, wodurch Scherben der Badarikultur in höhere und Material späterer Kultureinheiten in tiefere Schichten gelangt sind. Auf und etwa 30 cm über der Geröllschicht beschreibt Caton–Thompson weiße und feinkörnige Ablagerungen, die sie aufgrund des hohen der Badarikultur zuzuordnenden Scherbenaufkommens als Überreste der wahren Badariokkupation interpretierte.[229] In nahezu allen Bereichen kann dies ab einer Tiefe von etwa 152 cm[230] unter der Oberfläche gleichgesetzt werden, nur im nordwestlichen Bereich (Areal H), wo sich die Ablagerungen stark ausdünnen, werden nur die Funde, die direkt auf der Geröllschicht[231] liegen, berücksichtigt.[232] Friedman zieht in ihrer Neubetrachtung des Fundplatzes und des Materials für diese Schicht nur Scherben bis in eine Höhe von 167 cm[233] unter der Oberfläche heran.[234] Auffallend ist auch hier das Fehlen jeglicher Besiedlungsspuren.[235] Allein keramische und lithische Gegenstände, die fast auf das gesamte Areal verstreut gefunden wurden, weisen auf eine Okkupation durch die Badarikultur hin. Die Sammlung der keramischen Überreste – insgesamt 193 Stück – dieses Stratums wurde wiederum stark aussortiert. An Tongruppen setzten sich die Klassen 22, 2, 21, 26 und 1 aus Schicht B fort, neu hinzu kommt eine Scherbe der Klasse 5.[236] Auch hier scheinen die reinen Badaritone 22 und 2 gegenüber den Tonen 2, 26, 1 und 5 zu dominieren.[237] Es fanden sich fast 100 gerippelte Scherben, weitere 22 der BB-, BR- und B-Ware zeigten keine Rippelung. Hiervon werden vier aufgrund ihres Tones dem Badari zugewiesen, die 13 anderen Scherben eher dem Naqada. Für alle aus dieser Schicht

218 2 ft.

219 Im Bezug auf diese Schicht stellt sich die Frage, inwieweit man Funde unter und in der Aschenschicht trennen müsste. Prinzipiell sind sie wohl zu trennen, da sich beide Ablagerungen nicht gleichzeitig gebildet haben. Da sich aber alle wie auch immer gearteten Versuche auf Erstellung einer vernünftigen Stratigraphie des Fundortes auf die Dokumentation von Caton–Thompson stützen – die für ihre Zeit ohne Zweifel fortschrittlich, wenn nicht sogar revolutionär waren, sind hier klare Grenzen gesetzt und eine weitere Unterteilung des ohnehin wenigen Material erscheint nicht unbedingt sinnvoll.

220 Friedman 1994, 327–328.

221 Brunton/Caton-Thompson 1928, 79, 95–116; Friedman 1994, 326–327.

222 Friedman 1994, 434–435.

223 Ton 22: 28 Stück; Ton 2: 7 Stück; Ton 21: 1 Stück; Ton 26: 2 Stück; Ton 1: 1 Stück.

224 Friedman 1994, 326.

225 Friedman 1994, 327.

226 vgl. Math 2014, 33–35.

227 in Areal A5 (vgl. Friedman 1994, 435–441).

228 in den Arealen A5, E, H und I (vgl. Friedman 1994, 435–441).

229 Brunton/Caton-Thompson 1928, 74.

230 5 ft.

231 etwa 137 cm unter der Oberfläche; 4 ft 6 ins.

232 Friedman 1994, 328.

233 5 ft 6 ins.

234 Friedman 1994, 329.

235 Vor allem das Fehlen von Herd- bzw. Feuerstellen ist auffallend.

236 Friedman 1994, 435–441.

237 Ton 22: 86 (mglw. 87) Stück; Ton 2: 53 (mglw. 58) Stück; Ton 21: 20 Stück; Ton 26: 11 Stück; Ton 1: 11 Stück; Ton 5: 1 Stück.

stammenden Keramikfragmente können Parallelen in den Schichten A und B gefunden werden.[238] Wiederum handelt es sich auch hier primär um gerippelte BB- und BR-Ware, PR-Ware und RB-Ware.[239] Erwähnenswert sind zwei ungerippelte Scherben, die rund um die Mündung Einkerbungen zeigen.[240] Zwar kann dies auch bei dem Fragment 228g aus Schicht A beobachtet werden, doch scheint dies eher ein Nebeneffekt der Rippelung zu sein. Im Fall von den beiden Fragmenten 96 handelt es sich mehr um eine Verzierung, die vom Sudan-Neolithikum, der ihr verwandten Khartoum Variante und der Abkan Kultur, aber auch aus dem frühen und mittleren Neolithikum der Westwüste bekannt ist.[241] Die darüberliegenden Schichten D[242] und E,[243] die ebenfalls in ihrer Begrenzung nach unten und oben nicht eindeutig zu fassen sind, werden aufgrund ihrer Lage und Funde zwischen dem Badari und Naqada II dem Naqada I zugeschrieben.[244] Diese beiden Straten können über die gesamte Grabungsfläche teilweise nur schwer verfolgt werden und es scheint zwei Hauptbereiche zu geben: einerseits in den Arealen A1-4 über der Aschenschicht von Schicht B, der sich bis in das Areal D erstreckt und andererseits in den Arealen G und H. Beide Areale sind durch eine massive Störung in Areal F von einander getrennt. Kleinere Ansammlungen finden sich noch in den Arealen A5 und E.[245] Die Keramiksammlung dieser Schichten beschränkt sich fast ausschließlich auf Randfragmente und dekorierte Scherben. Schicht D wird für die Areale A4, F und G als Übergangsschicht zwischen dem Badari und Naqada I angegeben. Ihre Tiefe beträgt zwischen 5 ft.[246] und 4 ft.[247] unter der Oberfläche.[248] Dieser Schicht werden lediglich 44 Scherben zugeordnet und es kann erstmals ein deutlicher Anstieg der B-Ware[249] gegenüber der BB-Ware[250] beobachtet werden, aber auch der P-Ware. Des Weiteren finden sich diagnostische Fragmente der C-Ware und Scherben einer groben strohgemagerten Ware,[251] davon zwei mit inkrustierter Verzierung.[252] Im Gegensatz dazu geht die *rippled Ware*[253] deutlich zurück. An Tonen für Schicht D sind die Gruppen 22, 2, 26, 1, 5 und 8[254] zu nennen.[255] In dieser Schicht geht der Badariton 22 deutlich zurück und Ton 21 ist in der vorhandenen Sammlung nicht mehr vertreten; hingegen gewinnen die Tone 2, 26, und 1 an Dominanz, die Tone 5 und 8 sind selten.[256] In Schicht E – 4 ft.[257] bis 3 ft. 6 ins.[258] unter der rezenten Oberfläche – finden sich die Badaritone 22 und 21 nur noch in je einem Beispiel, die Tone 2, 26 und 1 dominieren wiederum; die Tone 5 und 8 fehlen.[259] Auch die Formen zeigen ab Schicht D ein anderes Bild als in den darunterliegenden Badaristraten. Nur die steilwandigen Becher mit ausladenden Mündungen und ein *hole mouth* Gefäß haben Parallelen in den Badarischichten. Schalen mit geneigter Wandung, die eine gerade Biegung im Profil ungefähr an der vermuteten Mitte der Gesamthöhe des Gefäßes zeigen und direkter Mündung,[260] Schalen mit stark ausladender Mündung und weißer Bemalung an der Innenseite (C-Ware),[261] *hole mouth jars* mit einem gewölbten oberen Gefäßkörper, einer tief sitzenden Schulter und einem spitzen Boden,[262] Gefäße mit geformter Mündung[263] und Gefäße mit nach innen gewölbtem Oberkörper und direkter Mündung[264] stellen neue Formen dar, die

238 Friedman 1994, 333.
239 Brunton/Caton–Thompson 1928, 95–116.
240 *milled rim.*
241 Friedman 1994, 331.
242 4 ft 6 ins.
243 4 ft und 3 ft .
244 Friedman 1994, 335.
245 Friedman 1994, 336.
246 in Areal F (vgl. Friedman 1994, 441–442).
247 in den Arealen F und G (vgl. Friedman 1994, 441–442).
248 Friedman 1994, 441–442.
249 23 Fragmente der Tonklasse 2.
250 8 Fragmente.
251 Tonklasse 1.
252 Zwei Fragmente mit Fischgrätmuster wurden in Areal A6 in einer Tiefe von 3 ft 6 ins gefunden; eine weitere innerhalb des Rundbaus 248. Paralleln finden sich am ehesten in der A-Gruppe (vgl. Petrie 1921, P33d). (Friedman 1994, 337–338).
253 2 Fragmente.
254 Ton 8: sandgemagerter Mergelton; er findet sich in der D-, W- und L-Ware des Naqada und korrespondiert mit Mergel A4 des *Vienna Systems (*Friedman 1994, 160).
255 Friedman 1994, 441–442.
256 Ton 22: 7 Stück; Ton 2: 22 (mglw. 23) Stück; Ton 26: 4 Stück; Ton 1: 9 Stück; Ton 5: 1 Stück; Ton 8: 1 Stück.
257 in Areal D (vgl. Friedman 1994, 442–443).
258 in den Arealen A1, A3-5, E, G und H (vgl. Friedman 1994, 442–443).
259 Ton 22: 1 Stück; Ton 2: 30 Stück; Ton 21: 1 Stück; Ton 26: 1 Stück; Ton 1: 6 Stück (Friedman 1994, 442–443).
260 vgl. Friedman Typ 1b3 (Friedman 1994, 392, 396).
261 vgl. Friedman Typ 1f (Friedman 1994, 398).
262 vgl. Friedman Typ 2a4 (Friedman 1994, 393).
263 vgl. Friedman Typ 2b (Friedman 1994, 399).
264 vgl. Friedman Typ 2g (Friedman 1994, 400).

untypisch für das Badari erscheinen. Weitere Naqada I Formen finden sich noch bis in eine Höhe von 3 ft. unter der Oberfläche aber kaum höher;[265] hingegen können strohgemagerte Gefäße auch darüber beobachtet werden, jedoch mit anderen Formen.[266] Die Schichten F und G – 3 ft. 4 ins.[267] bis 2 ft. 6 ins.[268] (Schicht F) und 2 ft. bis zur rezenten Oberfläche (Schicht G) – spiegeln das Naqada II wieder; dies kann aufgrund des Aufkommens von Mergelton und des Vorkommens von D-Ware eindeutig fixiert werden.

Eine Übergangsphase zum Naqada I ist zwar anzunehmen, wenn sie auch anhand der Keramiksammlung nicht eindeutig festgelegt werden kann. Die Naqada II-Schichten zeigen mit Sicherheit mehrere Phasen in sich, wobei die meisten Funde aber in das Naqada IIc-d zu weisen scheinen – möglicherweise ist dies aber nur auf die Natur der keramischen Sammlung zurückzuführen.[269] An Tonen finden sich bis auf zwei Fragmente der Klasse 22, die aber mit ziemlicher Sicherheit als verworfen angesehen werden können, nur noch Naqadatone, mit einem deutlichen Anteil der Tone 5 und 8.[270] In Schicht F finden sich noch zwei Scherben des Tones 12.[271]

In den oberen Schichten D bis F konnten architektonische Überreste festgestellt werden. Dominierend erscheinen neun Rundbauten aus Lehm,[272] deren genaue Funktion und Datierung unklar ist. Nach oben hin scheinen sie relativ gut datierbar, da sie eindeutig älter als die Schicht mit den dekorierten Scherben, die im Naqada IIb beginnen und im Naqada IIc–d gehäuft auftreten,[273] sind. Auch die Funde der Füllung, die nicht zwingend aus ihrer Benutzungsphase stammen müssen, zeigen Funde aus Naqada I bis Naqada IIb–c. Jedoch scheint ihre Schichtung gegenüber dem jüngsten Badari Stratum (Schicht C) eher unklar. Es konnte weder ein Begehungshorizont festgestellt werden, noch ein Hinweis darauf, ob und falls ja ab welcher Höhe die Rundbauten möglicherweise in die darunterliegende Schicht einschneiden.[274] Fest steht nur, dass sie zumeist direkt auf der unteren Geröllschicht aufsitzen und offensichtlich die jüngere Badarischicht – die nach obenhin ebenfalls nicht eindeutig zu begrenzen ist – überlagern. Nur im Falle des Rundbaus 252 kann definitiv gesagt werden, dass er über dem möglichen Badarigrab 256 liegt. Caton-Thompson datiert die Rundbauten in eine frühe Phase des Naqada I[275], sie könnten aber auch in eine späte Badariphase datieren und möglicherweise im Naqada I weiterverwendet worden sein.[276] An weiteren Strukturen ist ein kleines Loch (Struktur 236) mit einem Durchmesser von 33 cm an seiner oberen Kante, die mit Lehm befestigt war[277] und eine kleine mit Lehm ausgekleidete Vorratsgrube (Struktur 261a), deren Boden durch einer Kalksteinplatte definiert wurde, zu nennen.[278] In Areal G fand sich eine von Norden nach Süden verlaufende Lehmmauer (Struktur 261b), die im Norden abrupt abbricht und den Eindruck vermittelt, nicht fertig gestellt worden zu sein; ihr südliches Ende schneidet in Rundbau 242 ein. Die diesen Rundbau überlagernde Feuerstelle erstreckt sich bis zur Basis der Mauer und scheint zeitgleich mit dieser zu sein. Die Konstruktionsweise der Mauer unterscheidet sich nur wenig von jener der Rundbauten. Ihre östliche Seite war mit vertikalen Holzpfosten befestigt, die sich in regelmäßigen Abständen von 30 cm befanden. In der Umgebung fanden sich weitere zwölf Pfostenlöcher, die relativ eng und unregelmäßig in einer Reihe gesetzt scheinen.[279] Diese Struktur datiert jünger als die Rundbauten.[280]

Neuere Erkenntnisse zur stratigraphischen Abfolge im Bereich der Siedlung von Hemamieh

[265] vor allem die Friedman Typen 1b3 und 1c1 (Friedman 1994, 338).

[266] Friedman 1994, 336–338.

[267] in Areal F (vgl. Friedman 1994, 443–446).

[268] in den Arealen A2-3, G, H und I (vgl. Friedman 1994, 443–446).

[269] Friedman 1994, 338–342.

[270] Friedman 1994, 443–448.

[271] Ton 12: homogenes Mergel- und Niltongemisch; der Ton findet sich in den Waren D, W und teilweise L des Naqada (Friedman 1994, 158–159).

[272] Brunton/Caton-Thompson 1928, 83.

[273] Kaiser 1957.

[274] Die Schicht, die den Rundbau umgab, unterschied sich kaum von der Schicht, in die er theoretisch einschnitt bzw. auf die er aufgesetzt wurde (Brunton/Caton-Thompson 1928, 83).

[275] Die Ausgräber datieren ihre Entstehungsphase zwischen *SD35* und *SD45*, dies würde Naqada Ib entsprechen (Brunton/Caton–Thompson 1928, 88; Caton-Thompson/Whittle 1975, 94).

[276] siehe Holmes/Friedman 1994, 124.

[277] Brunton/Caton-Thompson 1928, 87.

[278] Brunton/Caton-Thompson 1928, 87.

[279] Alle untersuchten Holzproben wurden als Tamariske identifiziert.

[280] Brunton/Caton-Thompson 1928, 87–88.

| HNS | | | TP1 | | | TP2 | | |
|---|---|---|---|---|---|---|---|---|
| *Level* | *Dating* | *$^{14}C$* | *Level* | *Dating* | *$^{14}C$* | *Level* | *Dating* | *$^{14}C$* |
| G | spätes Naqada II<br>*late Gerzean* | | 3 | spätes Naqada II<br>*late Gerzean* | | | | |
| F | frühes Naqada II<br>*early Gerzean* | | 4 | frühes Naqada II<br>*early Gerzean* | *3700-3370BC* | 3 | frühes Naqada II?<br>*early Gerzean?* | |
| | | | 5 | Naqada I - Naqada II<br>*Transitional Amratian - Gerzean* | | | | |
| E | Naqada I (c?)<br>*Amratian* | | 6 | Naqada I (c?)<br>*Amratian* | *3960-3620BC* | 4 | Naqada I (c?)<br>*Amratian* | |
| D | Badari - Naqada I<br>*Transitional Badarian - Amratian* | | 7 | Badari - Naqada I<br>*Transitional Badarian - Amratian* | | 5 | Badari - Naqada I<br>*Transitional Badarian - Amratian* | |
| | | | 8 | Badari - Naqada I od. Badari<br>*Transitional Badarian - Amratian or Badarian* | | | | |
| C | Badari | | | | | 6 | Badari | *4260-3980BC* |
| B | Badari | | | | | 7 | Badari | *4400-4140BC* |
| | B R E C C I A | | | B R E C C I A | | 8 | B R E C C I A | |
| A | Badari | | | | | 9 | Badari | |
| | | | | | | 10 | *unklar/paläolithisch?* | |

Abb. 9 Kulturelle Zuordnung der Schichten von *Hemamieh North Spur*

zeigen die Grabungen von Friedman und Holmes, die 1989 im Rahmen eines größeren Surveys des Bereichs zwischen Qau und Matmar durchgeführt wurde.[281] Es handelt sich um zwei kleine Testschnitte (TP1 und TP2), die im Bereich der alten Grabung von Caton-Thompson angelegt wurden, um die Stratigraphie von Caton-Thompson besser abzuklären und zu verifzieren [Abb. 9].

Testschnitt 1 (TP1) wurde etwa 0,4 m nord-östlich parallel zur Grabungskante von Caton-Thompson's Reihe H angelegt.[282] Er zeigte eine Größe von 1 × 3 m (eingeteilt in die 1 m breiten Bereiche A, B und C). Insgesamt wurden 8 Schichten und ein Rundbau[283] aus Schlamm ergraben.[284] Schicht 1 besteht aus Ablagerungen von Kalksteingeröll und beinhaltete keine Funde. Schicht 2 zeigte braune Ablagerungen mit etwas Asche, Holzkohle, Dung von Schaf/Ziege und etwas kleinem Geröll;[285] zeitweise besteht sie auch aus schottrigen braunen Ablagerungen.[286] In dieser Schicht fand sich eine kleine Anzahl von Funden. Die braunen Ablagerungen von Schicht 2 setzten sich auch in Schicht 3 fort, bis sie im Bereich A in verfestigtes Kalksteingeröll mit vereinzelten Holzkohlestücken übergeht; darunter fand sich reines lockeres Geröll. Die Ablagerungen im Bereich B scheinen etwas weniger schottrig mit wenig Dung von Schaf/Ziege, Holzkohle und einigen verfestigten Schlammklumpen versetzt. Funde scheinen eher rar. Auch in Schicht 4 herrscht schottriges Material vor, jedoch mit mehr Holzkohle, braunschwarzen aschigen Flecken und gebranntem Kalkstein, sowie einigen Schlammklumpen. In dieser Schicht fanden sich im Bezug auf die vorangegangenen Schichten mehr Funde. Am Boden dieser Schicht zeigte sich die Oberkante eines Rundbaus aus Schlamm, daher wurden die folgenden Schichten in die Kategorien innerhalb und außerhalb unterteilt. Außerhalb des Rundbaus zeigt Schicht 5/außen ziemlich das gleiche Material wie Schicht 4: braun, schottrig, aschig, mit etwas Dung von Schaf/Ziege, gebranntem Kalkstein, viel Holzkohle und wenige Schlammklumpen. Diese Ablagerungen finden sich auch in Schicht 6/außen. Am Boden von Schicht 6/außen beginnend und sich in Schicht 7 außen fortsetzend zeigen sich im Bereich B schottrige Ablagerungen mit reinem Sand und einigen Breccie ähnlichen Flecken vermischt, während sich im Bereich C die braunen Ablagerungen fortsetzen. Schicht 8/außen

[281] vgl. Holmes/Friedman 1994, 105–142; Holmes 1993, 19–25; Friedman 1994, 312–318; Holmes 1996, 181–191.

[282] Auch wenn es im Plan so aussieht, als ob TP1 innerhalb von Caton-Thompson's Grabung liegt, scheint es, dass dieser Bereich von Caton-Thompson nicht ergraben wurde (vgl. Holmes/Friedman 1994, 123).

[283] Bei Caton-Thompson als Rundbau 268 verzeichnet.

[284] Holmes/Friedman 1994, 118.

[285] in Abschnitt A.

[286] in Abschnitt B.

zeigt eine sehr dünne Schicht aus dünnem losem Schotter und Schlammfragmenten vom Rundbau über einer Schicht aus hartem, verfestigtem Kalksteingeröll, den Caton-Thompson als *Breccia*[287] bezeichnete. Nur in der westlichen Ecke des Bereiches C konnte eine Unterbrechung in dieser harten Kalksteingeröllschicht festgestellt werden, die mit feiner Asche, Holzkohle, Knochen, Dung von Schaf/Ziege und einigen Holzfragmenten verfüllt war. Der Rundbau selbst war im obersten Bereich mit sehr schottrigem braunen Material mit viel Holzkohle und wenig Funden (Schicht 5/innen) verfüllt, das zum Boden des Baus hin weniger Schotter und mehr organisches Material – unter anderem Häcksel – zeigt (Schicht 6–8/innen). Unter der Schicht aus hartem Kalksteingeröll wurde aufgrund von Platzmangel – der Rundbau wurde nicht entfernt – nicht gegraben. Die Ausgrabung endete in einer Tiefe von 70–75 cm unter der Oberfläche, nur im westlichen Eck bei 88 cm.[288] An keramischen Funden werden für TP1 127 Scherben angegeben, von denen 125 zur Datierung der einzelnen Schichten herangezogen wurden.[289] Sie indizieren eine kontinuierliche Sequenz vom Badari bis ins spätere Naqada II. Schicht 8/außen beinhaltete zwei Fragmente einer *Brown Polished rippled Ware*, von denen eines teilweise in den Rundbau eingebettet war und das einzige keramische Fragment innerhalb des Rundbaus in dieser Schicht darstellt. Die andere Scherbe stammt aus der Grube im westlichen Eck des Schnittes, die auch noch eine Scherbe eines *Rough Brown* Gefäßes mit organischer Magerung beinhaltete. Die restlichen Scherben dieser Schicht waren sehr klein und abgewittert – eine sichere Datierung war aufgrund des Erhaltungszustandes nicht möglich. Die keramischen Überreste der Schichten 5 – 7, sowohl innerhalb als auch außerhalb des Rundbaues scheinen schwierig zu datieren zu sein. Die Tonanalysen zeigen eine klare Entwicklung vom Badari ins Naqada II, aber ein eindeutiger Hinweis auf eine dazwischen liegende Periode oder auf das Naqada I fehlt, da charakteristische Elemente in der Keramik nicht festgestellt werden konnten. Schicht 7 beinhaltete einen großen Anteil an organisch gemagerter Keramik; spezielle Merkmale scheinen nicht auf. In Schicht 6/außen fand sich ein Gefäßfragment mit rotem Überzug und beidseitiger Politur; ein ähnliches Fragment fand sich in Schicht 5/außen, wobei hier die Politur nur innen erhalten war, da die Außenseite verwittert war.[290] Diese Fragmente mit farbigem Überzug und Politur im Zusammenhang mit Strohmagerung könnten möglicherweise auf eine Präsenz des Naqada I verweisen; und der Übergangsaspekt dieses Vorkommens zeigt sich in der stetigen Abnahme der Elemente der Badarikultur im Laufe der Zeit – unter anderem die organisch gemagerte *Rough Brown Ware*. Schicht 7 wird aufgrund des großen Anteils an organisch gemagerter Keramik gemeinsam mit Schicht 8 als Übergangsschicht zwischen dem Badari und Naqada I angesehen. Daraus folgernd wäre Schicht 6 ins Naqada I zu datieren und Schicht 5 eine Übergangsschicht zwischen dem Naqada I und dem Naqada II. Schicht 4 wird dem Naqada II – jedoch zeitlich früher als Schicht 3 – zugeordnet. Diese Zuordnung stützt sich auf strohgemagerte Mündungen, einer Mündung mit Vorsprung (vgl. R26c) und einem Fragment eines großen Vorratsgefäßes. Die Schichten 2 und 3 weisen auf Keramik des späteren Naqada II; diese Datierung basiert auf dem hier vorkommenden Mergelton und einem Fragment eines Gefäßes mit Hals. Die beiden Scherben aus Schicht 1 konnten nicht datiert werden.[291]

Testschnitt 2 (TP2) wurde etwa 5,7 m nördlich von TP1 und ungefähr 4 m entfernt von der nordöstlichen Ecke von Caton-Thompson's Reihe H angelegt. Hier beginnt das Areal zu einer Wasserrinne an der Nord-West Seite des Areals hin abzufallen. Der Schnitt hat eine Größe von 1 × 1 m.[292] Hier wurden insgesamt 9 Schichten ergraben, Strukturen fehlen gänzlich. Schicht 1[293] besteht aus Oberflächen Geröll, das von einigen hell bis mittel gräulich-braunen Ablagerungen überdeckt wird. Diese Schicht beinhaltete einige Funde. Schicht 2[294] zeigt anfangs schottriges Geröll, das in ziemlich kompakten gelben Sand mit Kalkstein-

[287] vgl. Brunton/Caton-Thompson 1928, 72.

[288] Holmes/Friedman 1994, 118–120.

[289] Holmes/Friedman 1994, 127.

[290] "*While the distinction between fully slipped and polished bowls and "half-polished" bowls can be used to distinguish the Naqada I-IIa phase from the later Naqada II phases in cemeteries (Friedman 1981, 45–50), this variation in surface treatment has proved to be less useful in settlement contexts"* (vgl. Holmes/Friedman 1994, 121).

[291] Holmes/Friedman 1994, 120–123.

[292] Holmes/Friedman 1994, 124–125.

[293] Schichtdicke: 7–10 cm.

[294] Schichtdicke: etwa 5 cm.

schotter übergeht und fundleer ist. Schicht 3[295] besteht aus schwarzen, aschigen, feinkörnigen Ablagerungen mit viel Holzkohle und Kalksteinschotter und wenigen Funden. In Schicht 4[296] setzen sich die Ablagerungen von Schicht 3 fort, jedoch mit verfestigten aschigen Klumpen und weniger Schotter. Schicht 5[297] setzt Schicht 4 fort und geht in eine grau-braune Schicht mit viel Häcksel und Dung von Schaf/Ziege über. In Schicht 6 werden die Ablagerungen bräunlicher und der Häckselanteil wird höher; des weiteren kommt wieder mehr Schotter vor. Hartes Kalksteingeröll (*Breccia*) konnte in der Mitte des Schnittes in einer Tiefe von 63 cm unter der Oberfläche festgestellt werden. Die Schichten 4–6 zeigen den größten Anteil an Fundmaterial. Die Ablagerungen von Schicht 7 bestehen aus der Reinigung der unebenen Oberfläche des harten Kalksteingerölls und bestehen aus Stellen mit gelbem Sand und aschig braun-grauen Ablagerungen. Die Unterkante dieser Schicht liegt durchschnittlich 70 cm unter der Oberfläche. Schicht 8 zeigt das harte Kalksteingeröll oder *Breccia* und ist fundleer. Nur ein Teil des Schnittes wurde weiter abgetieft. Schicht 9 – unter dem Kalksteingeröll – zeigt reinen gelben leicht schottrigen Sand ohne Asche oder Holzkohle. Die einzigen Funde in dieser Schicht stellen lithische Artefakte[298] dar, von denen eines auch paläolithisch sein könnte. An einer Seite des Schnittes konnte direkt unter dem Kalksteingeröll eine 1–2 cm starke braune Ablagerung über dem schottrigen Sand beobachtet werden.[299] TP2 beinhaltete 184 keramische Fragmente, von denen 146 relevant für die Datierung der einzelnen Schichten waren.[300] Wie in TP1 zeigt das Material eine kontinuierliche Keramiksequenz, die jedoch früher als in TP1 zu beginnen scheint. Schicht 9 zeigt keine keramischen Überreste. Schicht 8 war fundleer. Die Schichten 7 und 6 zeigen reines Badari-Material. Zu erwähnen sind vor allem zwei *rippled Black-topped Brown* Fragmente, *Smooth Brown* und zahlreiche *Rough Brown* Scherben. Schicht 5 beinhaltet einige Typen des Badari – unter anderem ein rotpoliertes *rippled* Fragment. Vergleichbar mit den Schichten 6 und 7 von TP1 indiziert der hohe Anteil an strohgemagerter Keramik einen Übergang zwischen dem Badari und Naqada I. Schicht 4 beinhaltet keine wirklich datierbaren Scherben. Die mit Stroh gemagerte Scherbe mit Eindrücken zeigt keine Parallelen in anderen Fundkontexten, obwohl Caton-Thompson eine Anzahl von Fragmenten mit Eindrücken und Inkrustierung in ihrem Naqada I Horizont angibt.[301] Neben dem Verschwinden die Badari-Merkmale aus Schicht 5 ist der hohe Anteil an überzogenen und polierten strohgemagerten Scherben auffällig; dies könnte eventuell auf das spätere Naqada I – frühe Naqada II hinweisen. Die sieben Fragmente aus Schicht 3 sind in ihrer Charakteristik nicht aussagekräftig genug, um eine definitive zeitliche Zuordnung zu treffen. Schicht 2 zeigt keine keramischen Funde. Das Material aus Schicht 1 erscheint zu vermischt um eine genaue zeitliche Zuordnung zu erlauben, es kann aber ein vorherrschender Naqada II-Charakter festgestellt werden.[302]

### *Mostagedda/Deir Tasa 400 und 5200*

In den Arealen Mostagedda 400[303] und 5200[304] werden Badari und Naqada I Siedlungen angegeben, wobei die Angaben vor allem für das Badari äußerst spärlich sind.[305]

### *Mostagedda/Deir Tasa 500/600/700/1100/5100*

Für diesen Bereich – nördlich der Areale 400 und 5200 gelegen – werden ebenfalls Siedlungen des Badari und Naqada I angegeben.[306]

Die Badarisiedlung in Areal 500/1100 befindet sich inmitten eines Badarifriedhofes – jedoch wird angemerkt, dass die Siedlung sich auf einem höherem Niveau befand. Für diesen Bereich werden weder Strukturen noch keramischen Funde genannt.[307] Die Areale 500/600/700/5100 werden in zwei Bereiche getrennt. Bereich A zeigt keine

295 Schichtdicke: 10 cm.

296 Schichtdicke: 4–10 cm.

297 Schichtdicke: 5–10 cm.

298 in einer Tiefe von 91 cm unter der Oberfläche.

299 Holmes/Friedman 1994, 125.

300 Holmes/Friedman 1994, 127.

301 vgl. Brunton/Caton-Thompson 1928, Pl. LXXII-120/121, PLXXIII-147/148, LXXIV-220, Pl. LXXV-249, LXXXV-211.

302 Holmes/Friedman 1994, 125–127.

303 Brunton 1937, 22–23, 79–81; Hendrickx/van den Brink 2002, 374/Tab. 23.2.

304 Brunton 1937, 4.

305 vgl. Brunton 1937, 4, 22–23, 79–81; Hendrickx/van den Brink 2002, 374/Tab. 23.2.

306 Brunton 1937, 23–24, 81–82; Hendrickx/van den Brink 2002, 374/Tab. 23.2.

307 Brunton 1937, 23.

Struckturen, nur eine Keramikansammlung. An Funden werden neben BB-, BR- und RB-Scherben zwei Kochtöpfe ohne Typenangaben und die Typen PR4z und RB17h angegeben.[308] Im etwas östlich gelegenen Bereich B konnten einige kleine Gruben – möglicherweise Vorratsgruben – festgestellt werden. Im südlichen Bereich dieses Areals konnten Ascheschichten lokalisiert werden. Ansammlung 580 – etwa 35 cm unter der rezenten Oberfläche – beinhaltet Gefäße der Typen BB69h, BB71h, RB27k, RB27p und RB19f; daneben werden noch diverse Scherben ohne nähere Angaben erwähnt.[309] Ansammlung 581 besteht aus einem Kochtopf, der Basis eines Gefäßes vom Typ RB31h, Fragmenten von großen Kochtöpfen, und einer PR-Scherbe. Das Vorratsgefäß Tasatyp 25 befand sich inmitten einer runden Senke, das Gefäß selbst war durch eine Aschenschicht bedeckt.[310]

Im Zentrum und westlich des Bereichs 600/5100 wurden Siedlungen der Naqadakultur lokalisiert. Hier fanden sich ein großes Gefäß[311] mit weiter Mündung, ein kleiner Kochtopf, ein großes Gefäß der B-Ware[312] mit Töpferzeichen und eine Mündung des Typs B21m[2] ebenfalls mit Töpferzeichen[313].

*Mostagedda/Deir Tasa 100/200/1600/1700/1800/11700/11800*

Dieses Gebiet wurde zwar in verschiedene Bereiche unterteilt, es handelt sich jedoch um ein Areal ohne spezifische Grenzen. Neben zahlreichen Gräbern, die vom Badari bis in römische Zeit datieren, konnte hier auch eine Siedlung der Badarikultur und des Naqada I festgestellt werden.[314]

Die Siedlung der Badarikultur dürfte sich über den gesamten Bereich der Areale 100, 200, 1600, 1700, 1800, 11700 und 11800 ertreckt haben. Ob es sich hierbei um eine große oder mehrere kleine Siedlungen gehandelt hat, ist unklar. Es werden keine Siedlungsstrukturen beschrieben.[315] Im Bereich von Areal 100 befand sich die Schicht des Badari 40 cm unter der Oberfläche und war 40 cm stark, westlich davon nur noch 12 cm. Die Schicht selbst wird als pulvrige organische Substanz[316] beschrieben. An keramischen Funden wurden neben untypisierten Kochtöpfen und Gefäßen der BB-, RB- und PR- Ware, die Typen SB49z, RB40 und MS26 gefunden. Zu erwähnen wäre auch noch ein Fragment eines Tasabechers.[317] Die Siedlung aus Areal 100 dürfte sich in Areal 200 fortgesetzt haben. An keramischen Funden werden der Gefäßtyp RB9k, sowie BB- und RB-Scherben genannt.[318] Die Areale 1600/1700/11700/11800 werden als Erweiterung der Siedlung 100/200 angesehen. Hier wurden die Gefäße BR10z, MS39 und weitere Scherben der BB- und BR-Ware gefunden.[319] In Areal 1800 war die fundführende Schicht etwa 65 cm unter der Oberfläche und 30 cm stark. Sie bestand aus organischem Material – vornehmlich Schaf/Ziegendung und einer Aschenschicht an ihrem oberen Ende. Hier wurden die Typen RB26e, MS33, AB14 und BR59z, sowie Fragmente von zwei PR–Gefäßen gefunden.[320] Alle Bereiche dieses Gebietes haben durch spätere Wiederbenutzung stark gelitten.

Zwar gibt Brunton für diese Areale eine Siedlung des Naqada I an, doch der einzige von ihm angegebene Fund besteht einer rotpolierten Scherbe mit einem eingeritzen Tier. In den Bereichen 200, 1600, 1700, 1800 und 11700 befindet sich ein ausgedehnter Friedhof des Naqada mit ca. 200 Gräbern, die in Naqada IB beginnen (in Areal 1800[321]) und die gesamte Naqadazeit umfassen.[322]

*Mostagedda/Deir Tasa 1900/10100*

Dieses Gebiet befindet sich nordwestlich der Areale 100–200/1600–1800/11700/11800. Hier wurden ebenfalls Siedlungsrelikte des Badari und Naqada I festgestellt.[323]

Für die Badarikultur werden lediglich Objekte, die eine Siedlung der Badarikultur andeuten,

[308] Brunton 1937, 23.
[309] Brunton 1937, 24.
[310] Brunton 1937, 24.
[311] Brunton 1937, Pl. XXXVI-24.
[312] Brunton 1937, Pl. XXXIII-16, XXXVIII-8.
[313] Brunton 1937, 81; Pl. XXXVIII-31.
[314] Brunton 1937, 18; Hendrickx/van den Brink 2002, 374, Tab. 23.2.
[315] Brunton 1937, 18–21.
[316] "*powdery brown organic matter*" (Brunton 1937, 19).
[317] Brunton 1937, 19.
[318] Brunton 1937, 2.
[319] Brunton 1937, 20.
[320] Brunton 1937, 21.
[321] Brunton 1937, 21.
[322] Brunton 1937, 76; Hendrickx/van den Brink 2002, 354, Tab, 23.1.
[323] Brunton 1937, 22, 76–77; Hendrickx/van den Brink 2002, 374/Tab. 23.2.

genannt. Es handelt sich hierbei um drei Kochtöpfe ohne nähere Typenangaben. Details werden nicht ausgeführt.[324]

In der Zeit des Naqada I scheint diese Siedlung eine relativ große Ausdehnung aufgewiesen zu haben. Als Strukturen (*Group* 1910) werden zwei runde Gruben beschrieben, die neben einander in den Untergrund eingetieft wurden. In der westlichen Grube – 165 cm tief – wurden zwei verkehrt aufgestellte Gefäße der B-Ware gefunden, die wiederum ein bzw. zwei Gefäße bedeckten. In der östlichen Grube – 155 cm tief – wurde eine Art Regal (55 cm über dem Grubenboden) festgestellt auf dem drei Gefäße der B-Ware verkehr aufgestellt wurden. Unmittelbar südlich hiervon erstreckte sich eine braune organische Schicht mit Holzkohle etwa 90 cm unter der rezenten Oberfläche, unter der sich drei Holzpfosten befanden; 90 cm von den Gruben entfernt und in einem Abstand von 20 bzw. 35 cm voneinander. Es wird vermutet, dass es sich um einen Teil der Abdeckung der Gruben handelt. Neben den Holzpfosten fand sich eine Gruppe von verkehrt aufgestellten Gefäßen und einem Korb.[325] An Keramik wird vor allem B-Ware angegeben.[326] Diese Gruppe befindet sich ebenfalls an der Sohle der braunen Schicht. Weiters wird ein möglicher Rundbau mit 115 cm Durchmesser und einer Tiefe von 130 cm beschrieben, an dessen Oberkante sich ein Korb befand. Als verstreute Keramik wird ein Gefäß der D-Ware[327] aufgeführt.[328] Eine Erweiterung dieser Siedlung könnte Areal 10100 darstellen. Es wird nur eine Keramikgruppe mit den Typen B21b2, B21d2, B21o, 25e2, B62m[2], B76b3 und einem weiteren geflickten Gefäß der B-Ware[329] erwähnt.[330]

*Deir Tasa/North*

Dieser Fundort befindet sich östlich von Deir Tasa. Hier wurde im nördlichen Bereich ein Friedhof und eine Siedlung des Badari festgestellt, im mittleren Bereich eine Siedlung der Naqadazeit und für den südlichen Bereich wird ein protodynastischer Friedhof und vereinzelte Gräber der 18. Dynastie angegeben. Die Datierung der Naqadasiedlung bleibt unklar; sie scheint auch in keinem Zusammenhang mit der nördlich gelegenen Badarisiedlung zu stehen.[331]

***Mahgar Dendera 2***

Mahgar Dendera 2 ist etwa 150 km südlich von der Region von Badari gelegen und etwa 500 m vom heutigen Nilufer befand sich eine Siedlung der Badarikultur. Im Rahmen einer Notgrabung[332] wurde eine Fläche von 250 m$^2$ – in Quadranten von je 1 m$^2$ – ergraben.[333] Die archäologische Schichtdicke beträgt zwischen 15 und 20 cm und beinhaltet keinerlei sichtbare Stratigraphie. Sie wurde in drei Schichten unterteilt: Die oberste Schicht (Schicht a) beschreibt die obersten 5 cm und besteht aus Sand mit gerundeten Kieseln, die mittlere Schicht (Schicht b) den darunter liegenden Bereich bis zum Kieselgrund. Sie besteht aus rötlichem Sand mit gerundeten Kieseln. In dieser Schicht nahm die Dichte des lithischen und keramischen Materials im Bezug auf Schicht a deutlich ab, während organisches Material[334] zunahm. In die untere Kieselschicht (Schicht c) schneiden von oben Strukturen ein; sonst erscheint sie bis auf einzelne paläolithische Werkzeuge fundleer.[335] Die Besiedlungsspuren wurden direkt unter der heutigen Oberfläche in äolischem Sand gefunden und im Gegensatz zu den zuvor besprochenen Siedlungen wurde keine weitere bzw. spätere Benutzung festgestellt.[336]

***Naqada Region*** [Abb. 10]

In der Region von Naqada werden für das Naqada I die Siedlungen KH1, KH3, KH4, KH6 und KH7 angegeben. Diese finden sich am erhöhten Rand

[324] Brunton 1937, 22.

[325] Brunton 1937, Pl. LXXIB.

[326] B1c, B21b, B21b2,B21b4, B21b6, B21d2, B21d4, B21q, B25c, B25o, B27g, B29d, B29w2, B29e3, B62m5, B64a und R85c3; sowie Brunton 1937, Pl. XXXIII-5,6,10,11,12 (Brunton 1937, 76).

[327] D10k.

[328] Brunton 1937, 76.

[329] Brunton 1937, Pl. XXXIII, Pl. 14.

[330] Brunton 1937, 77.

[331] Gabra 1930; Hendrickx/van den Brink 2002, 375/Tab. 23.2.

[332] Die Nordseite des Areals war bereits vor Grabungsbeginn von einem Steinbruch, ein weiterer Teil von Bulldozern, zerstört, die bereits mit Bauarbeiten begonnen hatten. Der erhaltene Teil stellt mindestens 30 % der ursprünglichen Stätte dar (vgl. Hendrickx/Midant–Reynes/Van Neer 2001, 9).

[333] Hendrickx/Midant-Reynes/Van Neer 2001, 9.

[334] sehr kleine Knochen und Holzkohlenstücke.

[335] Hendrickx/Midant-Reynes/Van Neer 2001, 10.

[336] Hendrickx/Midant-Reynes/Van Neer 2001, 9.

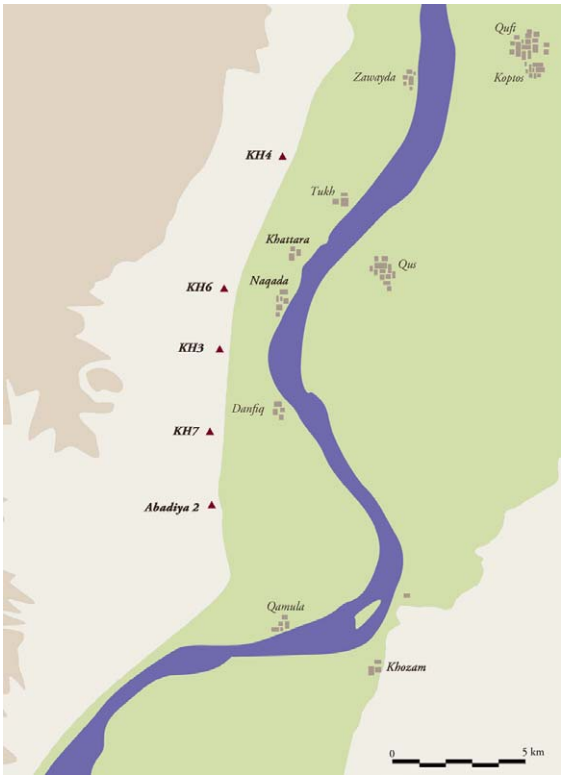


Abb. 10 relevante Fundorte in der Naqada Region

der Niederwüste zum Fruchtland im Abstand von etwa 2 km zueinander und variieren in ihrer Größe und Überreste. Chronologisch gesehen erscheinen die Siedlungen KH3, KH4 und KH7 zu den älteren Ansiedlungen zu gehören.[337] In keiner dieser Siedlungen konnten Überreste der Badarikultur nachgewiesen werden.

Etwas südlich von KH7 befindet sich die Fundstelle Abadiya 2. Das Gebiet wurde nicht zur Gänze ergraben, sondern es wurden zwei Sondagen zu je 12 m² (*Southern Sector/Northern Sector*) angelegt.[338] In beiden Bereichen konnte eine Schichtdicke von etwa 50 cm festgestellt werden, die jeweils gänzlich in die prädynastische Zeit zu datieren ist. Die einzelnen Schichten bestehen aus verschiedenen Ablagerungen, die aus Asche, Holzkohle, Tierdung, Tierknochen und Scherbenmaterial zusammensetzen. An strukturellen Überresten konnten Feuerstellen und teilweise im Boden versenkte Gefäße festgestellt werden; Hinweise auf Behausungen liegen nicht vor.[339] $^{14}$C-Daten deuten auf einen Zeitraum von 3800–3700 v. Chr. hin und vermutlich stellt diese Siedlung eine Fortsetzung der Khattana-Siedlungen (KH1/KH3/KH4/KH6/KH7) nach Süden hin dar.[340] Hinweise auf eine Besiedlung durch die Badarikultur scheint es nicht zu geben. Hendrickx schließt dies anhand einer Keramikanalyse aus, da im Gegensatz zum Material von Mahgar Dendera 2 hier der für das Badari typische Formenschatz wie *rippled Ware*, Becher und Schalen mit einer gekrümmten Kontur[341] komplett fehlen. Andererseits wird auf die Ähnlichkeiten dieser beiden Fundkomplexe hingewiesen, vor allem auf große Kochtöpfe mit direkter Mündung. Dies verweist ebenfalls auf eine Ansiedlung am Beginn des Naqada I.[342]

### ***Armant*** [Abb. 11]

Als ein weiterer Fundort der Badarikultur wird allgemein Armant angegeben.[343] Mond und Myers stellten in vier seperaten Arealen Überreste der

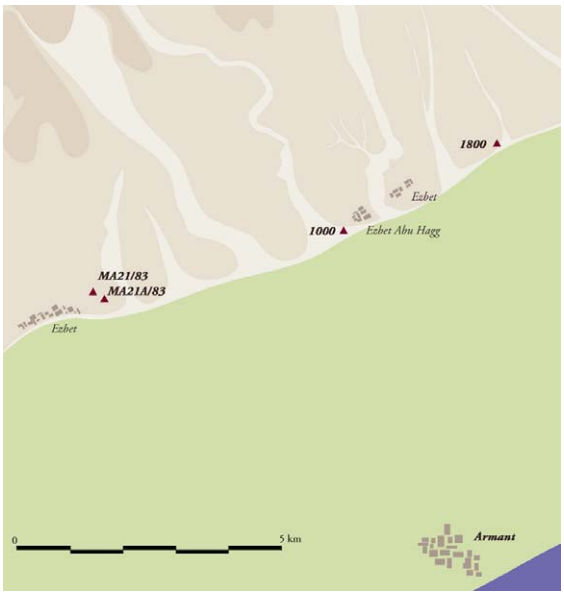


Abb. 11 relevante Fundorte in Armant

[337] Friedman 1994, 464–466.

[338] Vermeersch/van Neer/Hendrickx 2004.

[339] Vermeersch/van Neer/Hendrickx 2004, 217–227.

[340] Vermeersch/van Neer/Hendrickx 2004, 227–228.

[341] "*beakers and cups with an inflected contour*" (Vermeersch/van Neer/Hendrickx 2004, 261).

[342] Vermeersch/van Neer/Hendrickx 2004, 261.

[343] Dieser Fundort wurde Anfang der 1930ger Jahre von Mond und Myers erforscht (Mond/Myers 1937). Es wurden sowohl Friedhöfe als auch eine Siedlung entdeckt. Neben Badariartefakten konnten auch Tasaobjekte festgestellt werden (vgl. Math 2014, 66–69).

Badariperiode (*EP III*[344]) fest.[345] Des Weiteren werden an Oberflächenfunden noch Fragmente von Tasabechern und *Badarian brown sherds* angegeben.[346] Vor allem die beiden Siedlungsbereiche 1000[347] und 1800 erscheinen interessant, da sie eine Kontinuität zwischen dem Badari und Naqada zeigen könnten.

*Siedlung 1000*

Dieser Siedlungsbereich befindet sich am äußersten Rand des Kulturlandes und scheint von seiner allgemeinen Charakteristik vergleichbar mit der Siedlung von Hemamieh; jedoch im Gegensatz zu dieser konnten hier keine *reinen* Badarischichten festgestellt werden.[348] Prinzipiell beschreiben die Ausgräber insgesamt drei von ihnen festgestellte Schichten, zu je 10 cm Dicke.[349] Für alle drei Schichten werden Badari- und Naqadascherben angegeben.[350] Für die unterste Schicht – *Level III* – werden 12 keramische Fragmente der Badarikultur verzeichnet: zwei PB[351]-, fünf SB- und fünf Kielfragmente;[352] 10 % aller Scherben dieser Schicht zeigen *pattern burnish*.[353] Diese 12 Scherben stellen 29 % des gesamten Fundmaterials dieser Schicht dar.[354] In *Level II* fanden sich 19 der Badarikultur zugeordnete Reste: die Typen BR43f und BR36h (beide ohne Rippelung), ein PB-, sechs SB-, ein gerippeltes und neun Kielfragmente;[355] 10,5 % aller Scherben dieser Schicht zeigen *pattern burnish*.[356] Der Anteil der Badarirelikte beträgt hier 20 %.[357] Für *Level I* werden 14 Scherben dem Badari zugeordnet: ein PB-, fünf SB-, ein gerippeltes SB-, ein gerippeltes und sechs ungerippelte Kielfragmente;[358] 10 % aller Scherben dieser Schicht zeigen *pattern burnish*.[359] Dies stellt 11 % der gesamten keramischen Funde dar.[360] Datiert werden die drei Schichten – anhand der Naqadakeramik, wobei *Levell III* das Naqada I (*Amratian*), *Level II* den Übergang zwischen Naqada I und Naqada II (*late Amratian/Gerzean*) und *Level I* das Naqada II (*Gerzean*) vertritt.[361] Insgesamt kann hier wohl eine kontinuierliche Siedlung gesehen werden, die im Naqada I beginnt und bis ins Naqada II belegt ist.

Die Interpretation dieser Siedlung ist problematisch. Einerseits erscheint die Art der Keramikdeponierungen völlig unklar – nur wenige stratigraphische Elemente werden angegeben und das Grabungsareal wird durch römische Gräber gestört. Zum Anderen stellt sich die Frage, was einen Naqada I-Kontext darstellt.[362] Die Identifizierung der Badarikeramik ist nicht unbedingt nachvollziehbar. Generell scheinen Formen mit Kielen und eine *point burnished* oder *pattern burnished* Dekoration dem Badari zugeschrieben zu werden. Vor allem gekielte Formen sind nicht zwingend auf das Badari begrenzt. Friedman, die Scherben aus dieser Siedlung im Manchester Museum nachuntersuchen konnte, stellte in diesem Fundmaterial nur zwei Exemplare mit braunpolierter Oberfläche, die der Tonklasse 22 angehörten,[363] fest.[364] Ebenso scheint *pattern burnished* als Dekoration auch im Naqada I zu existieren. Alle Scherben dieser Grabung im Manchester Museum mit *pattern burnished* Oberfläche gehören der Tongruppe 2 an, die ebenso in der Naqada-Zeit produziert wurde.[365] Ähnliches gilt auch für die SB- und RB-

344 Bezeichnung nach Mond/Myers 1937.

345 *Settlement* 1000, *Settlement* 1800, einige Gruben in *Cemetery* 700–900, Grab 1209A und *Hole* 1209B, sowie einen Wadi-Fundort (vgl. Myers/Fairman 1931; Mond/Myers 1937, 6–8, 169–175; Holmes/Friedman 1994, 136).

346 in den Arealen Baq. R, Ar. X, Buch. X, 1300 und Saharian site 10 (vgl. Mond/Myers 1937, 61, Pl. LVI, 3; Holmes/Friedman 1994, 136).

347 Mond/Myers 1937, 169–175.

348 Ob es diese in diesem Bereich nicht gab, sie nicht ergraben wurden oder sie nicht erkannt wurden, kann aufgrund der vorliegenden Dokumentation nicht festgestellt werden.

349 Die Gesamtschichtdicke beträgt nur 30 cm.

350 Insgesamt 201 Scherben (Friedman 1994, 358).

351 Die genaue Bedeutung der Abkürzung „PB" konnte nicht verifiziert werden. Es ist wohl anzunehmen, dass es sich hierbei um eine polierte Ware handelt – mglw. PR-Ware, Friedman (1994, 158) vermutet RB-Ware.

352 "*2 Keels, 3 Keels, 2 PB, 3 SB, 2 SB*" (Mond/Myers 1937, 169–170).

353 Friedman 1994, 358.

354 Mond/Myers 1937, 169–170.

355 "*1 Ripple, 9 Keels, 1 BR43f (not rippled), 1 BR36 h (not rippled), 1 PB, 5 SB, 1 SB point burnished*" (Mond/Myers 1937, 170–171).

356 Friedman 1994, 358.

357 Mond/Myers 1937, 170.

358 "*1 Ripple, 1 Ripple SB, 5 SB, 1 PB, 1 Keel (PR 9d?), 1 Keel (PR9?), 1 Keel, 3 Keels*" (Mond/Myers 1937, 171–172).

359 Friedman 1994, 358.

360 Mond/Myers 1937, 170–171.

361 Mond/Myers 1937, 172; Holmes/Friedman 1994, 136.

362 Friedman 1994, 359.

363 Man10410/Level II – square G8 und Man10424/Level III – square N12 (vgl. Friedman 1994, 359).

364 Friedman 1994, 359.

365 Friedman 1994, 359.

Ware. Ihr Ton hat viel mit den Tongruppen 21 und 26 im Bereich von Hemamieh gemeinsam, aber auch mit den Tonen 7 und 27 von Khattana, die ebenfalls eine gewisse Anzahl von gerippelten Scherben beinhalten.[366] Von den 78 für das Badari angegebene Fragmenten zeigen nur drei eine gerippelte Oberfläche. Weiters muss angemerkt werden, dass die Badarischerben aus dieser Siedlung gröber und dicker als jene der Badari Region sind.[367]

*Siedlung 1800*

Etwa 3 km östlich von Siedlung 1000 befindet sich eine weitere Siedlung am Ende eines Felsvorsprunges, die wohl die größte Konzentration von Badari Überresten in dieser Region zeigt.[368] Hier wurden 30 fast runde Gruben – 50–250 cm im Durchmesser und 20–100 cm tief – festgestellt, von denen einige von einer Anzahl von Pfostenlöchern eingesäumt wurden. Die Keramik umfaßt diverse Waren der Badarikultur, darunter die Formen BB61h, BB61, PR9x und RB31, Fragmente der AB- und SB-Ware, *pattern burnished* und *rippled Ware*.[369] Des Weiteren fanden sich auch Fragmente von *black-topped* Ware des Naqada I – unter anderem wird der Typ B21e genannt. Aufgrund des Vorkommens von B-Ware datierte Myers diese Siedlung in den Übergang vom Badari ins Naqada I.[370]

*MA21/83 – MA21a/83*

1983 wurden unter der Leitung von Ginter und Kozlowski im Rahmen von Surveyarbeiten mögliche weitere Fundstätten der Badrikultur im Bereich von Armant festgestellt. Zwischen 1984 und 1988 wurden die Areale MA21/83 und MA21a/83 näher untersucht.[371] Es wurden drei Phasen der Besiedlung unterschieden, wobei die früheste Phase nur in MA 21/83 feststellbar war. An Strukturen fanden sich Steinsetzungen,[372] Feuerstellen, mit Hüttenlehm ausgekleidete Gruben bzw. eingesunkene Körbe und Vorratsgruben bzw. Abfallgruben.[373] Die Strukturen scheinen vergleichbar mit jenen aus Mahgar Dendera 2. Von den Ausgräbern wird aber keine definitive kulturelle Zuordnung getroffen, da weder eine der angegebenen Phasen größere Mengen an eindeutig identifizierbaren Badariartefakten beinhaltete[374] noch die Stratigraphie mit jener von Hemamieh vergleichbar ist.[375] Anzumerken wäre, dass in Schnitt MA21a/83 Tasakeramik gefunden wurde, die mit jener aus Friedhof 2800/Deir Tasa zu vergleichen ist.[376]

Abschließend kann zum Fundort Armant festgestellt werden, dass eine Besiedlung dieses Fundortes durch die Badarikultur anzunehmen, diese jedoch aufgrund der vorliegenden Grabungsergebnisse – sowohl jenen von Mond und Myers als auch jenen von Ginter und Kozlowski – weder örtlich[377] noch zeitlich genau einzugrenzen ist. Die gefundene Badarikeramik unterscheidet sich von jener des Hauptfundgebietes,[378] da sie dicker und gröber erscheint.[379] Es fällt auf, dass der Anteil an gerippelter Ware in der angenommenen Badarikeramik relativ rar erscheint; dies konnte auch im Fundmaterial von Mahgar Dendera 2 festgestellt werden.

***el-Kab*** [Abb. 12]

Eine weitere Siedlung der Badarikultur befindet sich in el-Kab. Bereits aus älteren Grabungen sind unstratigrafizierte Fragmente von *rippled* BB-Ware bekannt,[380] außerdem fanden sich auch immer wieder Hinweise auf Naqada I/frühe Naqada II Besiedlungen.[381] Alle diese Funde stammen

366 Friedman 1994, 359–360.

367 Holmes/Friedman 1994, 136.

368 Leider wurde weder der Grabungsbefund noch die Funde publiziert und kann nur durch sekundären Quellen wiedergegeben werden (unveröffentliches Manuskript/EES- vgl. Friedman 1994, 357–358; Holmes/Friedman 1994, 136).

369 Friedman 1994, 357.

370 Friedman 1994, 357–358.

371 Ginter/Kozlowski 1994, 1.

372 Es handelt sich hierbei um vier Steinblöcke, die sich in einer Reihe befanden. Die Ausgräber vermuten darin eine Mauerfundamentierung.

373 Ginter/Kozlowski 1994, 25–27.

374 Die meiste Badarikeramik stammt aus der jüngsten Phase, auch wenn sich hier nur um nur wenige Stücke handelt (Ginter/Kozlowski 1994, 97).

375 Ginter/Kozlowski 1994, 97.

376 Ginter/Kozlowski 1994, 98.

377 Ginter/Kozlowski vermuten diese im Fruchtland (Ginter/Kozlowski 1994, 134).

378 Entweder wurde sie lokal hergestellt, wofür es keinerlei Hinweise gibt, oder für Transportzwecke extra robuster hergestellt.

379 Mond/Myers 1937, 3.

380 Vermeersch 1978, Pl. VI.

381 organisch gemagerter Nilton der R-Ware (vgl. Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 75).


Abb. 12 relevante Fundorte in el-Kab und Hierakonpolis

aus Grabungen im Bereich von Depots aus dem frühen Alten Reich,[382] teilweise wurden auch *black-topped* Scherben im Tempelbereich beobachtet.[383]

Seit 2009 werden neue Grabungen in el-Kab durchgeführt. Unter anderem wurde ein Testschnitt (TP1) etwas südlich der Depots des Alten Reichs angelegt. Der Schnitt mißt 2 × 2 m und zeigt eine etwa 3 m hohe Stratigraphie, die im frühen Alten Reich beginnt und bis in die Badarizeit oder das frühe Naqada I zurückreicht. In der obersten prädynastischen Schicht – Schicht 1 – wurde eine große Feuerstelle festgestellt und wird durch Nilton C[384]-Vorratsgefäße mit sehr weiten Mündungen, die den Typen R81-R842[385] zugeordnet werden, charakterisiert; diese Formen sind vor allem für das Naqada IIC-D typisch. Daneben fanden sich noch Mergelton A1 Scherben der L-Ware, die ebenfalls typisch für diese Zeitstellung sind.[386] In der Schicht darunter – Schicht 2 – wurden ebenfalls Fragmente von Nilton C-Vorratsgefäßen gefunden, die denen der darüberliegenden Schichte ähneln. In dieser Schicht fehlen aber Mergelton A1 Scherben, dafür gehören hier feine Niltonwaren und einige wenige Fragmente der *shale tempered*[387] *Ware* zum Fundmaterial. Die Fragmente konnten keinen spezifischen Typen zugeordnet werden, jedoch kann diese Schicht wohl in das frühe Naqada II gesetzt werden.[388] Schicht 3 zeigt eine Dominanz an *shale fabric* Scherben – insgesamt 30 Fragmente; daneben fand sich nur noch eine Nil C-Scherbe. Die *shale fabric* ist nicht unbedingt konsistent; teils weist die Verteilung auf eine Magerung des Tones, teilweise auf ein zufälliges Vorkommen im Ton. Auch in dieser Schicht konnten keine eindeutigen Formen identifiziert werden, es dürfte sich hierbei aber um große Kochtöpfe handeln. Weitere Scherben dieser Schicht sind der B- und P-Ware zuzuordnen. Als Datierung dieser Schicht wird das Naqada I vorgeschlagen.[389] Schicht 4 – etwa 2,7 m unter der rezenten Oberfläche – beinhaltete nur wenig Scherbenmaterial. Es kann jedoch festgestellt werden, dass die *shale tempered* Keramik im Bezug auf die darüberliegende Schicht in ihrer Häufigkeit zurückgeht; dafür konnte hier ein Fragment der *rippled Ware* gefunden werden. Dies würde diese Schicht in das Badari oder frühe Naqada I datieren. Aufgrund des signifikanten Höhenunterschieds zur vorangegangenen Schicht erscheint das Badari eine sehr wahrscheinliche Option. Im untersten Bereich dieser Schicht aus äolischem Sand über einem lehmigen Bereich fand sich eine einzige *shale tempered* Scherbe gemeinsam mit einer Ansammlung von Steinen , kleinen Staubflecken, Abschlägen und einem Hammerstein. Dies könnte auf Steinbearbeitung hinweisen.[390]

In einem weiteren Testschnitt (TP3) etwa 15 m östlich von TP1[391] konnte in seinem untersten Bereich[392] (ca. 3 m unter der Oberfläche) ebenfalls

[382] Gilbert 1978; Demuynck/Vermeersch 1978; Vermeersch 1978, Pl. VI; Hendrickx/Eyckerman 2009, 15, 24; Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 75.

[383] Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 75.

[384] Tondefinition siehe Nordström/Bourriau 1993, 173–174.

[385] vgl. Petrie 1921, Pl. XLI–XLIII.

[386] Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 75–76.

[387] *shale temper* beschreibt eine Magerung mit Tonsteinen.

[388] Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 76.

[389] Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 76–77.

[390] Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 77.

[391] vgl. Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, Fig. 2.

[392] Lc 13–14.

eine Belegung durch das Badari/frühes Naqada I festgestellt werden. Hier fanden sich eine Anzahl von keramischen Fragmenten, die sich eindeutig von jenen der darüberliegenden Schichten unterscheiden lassen. Die meisten Scherben sind der *shale tempered* Ware zuzuordnen, Form und Oberflächenbehandlung können aufgrund von einigen großen Fragmenten ermittelt werden. Zwei große, tiefe, geschlossene Gefäße zeigen an der Oberfläche grobe Glättung und Schmauchspuren, daher werden sie als Kochtöpfe identifiziert. Die Art der Oberflächenglättung – mittels Fingern und einer Anzahl an kurzen und langen Polierstrichen[393] – ist für die Naqadakeramik untypisch, kann aber oft im Zusammenhang mit Badarikeramik festgestellt werden. Auch ein $^{14}$C-Datum um 4300 v. Chr.[394] aus dieser Schicht scheint die Identifikation mit der Badarikultur zu bestätigen und weist in eine eher frühere Phase dieser Kultur.[395]

***Hierakonpolis*** [Abb. 12]

Direkt gegenüber von el-Kab am westlichen Nilufer gelegen befindet sich eines der wichtigsten Zentren der ägyptischen Prädynastik.[396] Auch hier gibt es immer wieder Hinweise auf ein Vorhandensein der Badarikultur.

Im Bereich von Locality 11A und des Wadi Abul Suffian wurde im Zuge von Surveyarbeiten *rippled Ware* gefunden.[397] Im Fruchtlandbereich wurde 1984 ein Testschnitt (10N5W) angelegt, der bis zum Grundwasserniveau reichte, um eine genauere Vorstellung der stratigraphischen Sequenz von Hierakonpolis zu erhalten. Das Ergebnis zeigt eine 4 m starke ungestörte stratigraphische Schichtung, die im Naqada I beginnt und bis in protodynastische Zeit reicht. In der Folge wurden in diesem Bereich Testbohrungen[398] vorgenommen, die eine noch weiter zurückreichende Schichtung offenbarte – badarizeitliche und neolithische Schichten.[399] Details zu den Inhalten der Bohrkerne und die Gründe der Zuordnung wurden leider nie veröffentlicht.[400] Der früheste in Hierakonpolis festgestellte Siedlungsbereich ist HK14.[401] Er befindet sich im östlichen Bereich des Wadi Abul Suffian, etwa 2 km vom heutigen Fruchtlandrand entfernt.[402] Nach der Entdeckung dieses Fundplatzes bei Surveyarbeiten[403] wurde ein Testschnitt von 2 × 2 m angelegt.[404] Aufgrund der Keramik wird dieser Fundplatz an das Ende des Naqada I (vermutlich Naqada Ic) datiert.[405] Schichten für das Badari wurden hier nicht festgestellt.

## IIIB. Friedhöfe

Eine Übergangsphase in Friedhofsbereichen kann – wenn überhaupt – nur im Gebiet von Qau bis Matmar festgegtellt werden, da außerhalb dieses Gebietes nur einzelne Gräber aber keine Friedhöfe für die Badarikultur bekannt sind. Friedhofsareale, die sowohl Gräber der Badarikultur als auch des frühen Naqada beinhalten, finden sich nur in Mostagedda/Deir Tasa und Matmar; zwar sind auch aus Qau und Badari Gräber des späteren Naqada I bekannt, jedoch wurden diese in eigenen Arealen gefunden.

In Mostagedda/Deir Tasa werden für das Areal Deir Tasa/North 47 Badarigräber und eine unbekannte Anzahl von Gräbern des Naqada I-II angegeben.[406] Die beiden Friedhofsbereiche dürften in keinem Zusammenhang zueinander stehen.[407] Areal Mostagedda 1600/1800/1700 zeigt fünf Gräber des Badari und etwa 176 des Naqada die im Zeitraum von Stufe IB bis IIIC2 datiert werden.[408] Es werden keine näheren Details zu diesem Areal gemacht, nur das Vorhandensein von Siedlungen

393 *burnished.*

394 5446±31 BP (Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 84, Fig. 1).

395 Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 83–84.

396 Quibell und Green 1897–99; Garstang und Jones 1905–06; de Moragn 1907–08; Brunton 1927 (nur Surveyarbeiten); Lansing 1934–5; Kaiser und Butzer 1958 (nur Surveyarbeiten); seit 1967 Hoffman und Fairservis – nach deren Tod Adams und Friedman.

397 Fairservice 1972, 7–27, 67–99; Adams 1995, 27.

398 Es handelt sich hierbei um Tiefbohrungen, die aus insgesamt 22 Bohrungen und jeweils einer Bohrung in jeder Ecke der Fläche bestanden. (Hoffmann 1989, 318).

399 Hoffmann/Hamroush/Allen 1986, 175–187; Hoffman 1989, 320.

400 vgl. Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 87; Math 2014, 70–71.

401 Friedman 1994, 628–635.

402 Friedman 1994, 628–629.

403 vgl. Fairservis 1972, 12.

404 vgl. Hoffman 1972; Hoffman 1979, 157–160.

405 Friedman 2000, Fig. 1.

406 Gabra 1930; Hendrickx/van den Brink 2002, 355/Tab. 23.1.

407 Gabra 1930.

408 Brunton 1937, 3–4, 39, 69–75, 93–94, Pl. VIII, IX, XXIX; Hendrickx/van den Brink 2002, 354/Tab. 23.1.

der Tasa-, Badari- und Naqadakultur wird erwähnt.[409] Es scheint wahrscheinlich, dass die Gräber jeweils mit den Siedlungen der jeweiligen Zeitstufe zusammenhängen, ihre Lage und ihr Verhältnis zueinande erscheint unklar. Mostagedda 5200 beinhaltet ein Grab der Badarikultur und zwei Gräber des Naqada I–II.[410] Auch in diesem Bereich werden Siedlungen des Badari und Naqada angegeben[411] und wiederum liegt die Vermutung nahe, dass diese mit den Gräbern im Zusammenhang stehen. Nähere Details fehlen wiederum. Im Bereich von Matmar zeigt nur der Friedhof Matmar 3000/3100[412] eine Belegung beider Kulturen. Die Badarigräber befanden sich im Süd-Osten des Areals die Naqadagräber im Nord-Westen.[413] Auch hier gibt es weit mehr Naqada- als Badarigräber und der Belegungszeitraum durch die Naqadakultur erscheint lang.[414] Brunton vermutet eine ursprünglich größere Ausdehnung des Badarifriedhofes Richtung Norden, die aber Aufgrund der Wiederbenutzung während der Naqadazeit nicht mehr feststellbar war;[415] leider wird nicht angegeben, wann dieser Bereich wiederbenutzt wurde.

In keinem Fall konnte aufgrund von fehlenden Friedhofsplänen ein Belegungsplan erstellt werden. Daher kann auch keine Aussage über die Lage der Gräber zueinander getroffen werden.

## IV. Analyse

Aufgrund der Fundlage stützt sich die folgende Analyse vor allem auf die Siedlungsbereiche, da im Bereich der Friedhöfe keine kontinuierliche Belegung von der Badari- bis in die Naqadazeit festgestellt werden konnte – vielmehr scheinen sich die beiden Kultursequenzen in diesem Bereich gegenseitig auszuschliessen. Aber auch bei den Siedlungen konnten nur wenige Übergangsschichten festgestellt werden. Dies liegt nicht zuletzt am Charakter der Niederlassungen dieser Zeit; vor allem in der Badarizeit scheinen viele dieser Ansiedlungen nur saisonalen Charakter zu haben, deren Nutzungsdauer nicht eindeutig feststellbar ist.[416] Ein weiteres Problem stellt die Dokumentation und Fundbearbeitung von älteren Grabungen dar. Die kulturelle Zuordnung von Ansiedlungen dieser Zeit erfolgt primär über keramische Funde. Die Identifizierung von Badarisiedlungen erfolgte zumeist aufgrund von *rippled Ware*, gekielten Formen und brauner Ware[417] und spezifischer Kleinfunde wie Ohrstöpsel;[418] diese Funde sind zwar ein Charakteristikum dieser Kultur, stellen aber vom gesamten Inventar nur einen kleinen Teil dar. Die Datierung und Beschreibung von frühen Naqadasiedlungen ist ebenso oftmals problematisch, da viele von ihnen eine Belegung bis ins Naqada II zeigen. Die Mehrzahl dieser Siedlungen wurden schon in der ersten Hälfte des 20. Jahrhunderts ausgegraben und die kulturelle Zuordnung erfolgte anhand des Vorhandenseins von C-Ware, scheibenförmigen Keulenköpfen und Fischschwanzmessern – alles eher seltene Funde. Der Hauptanteil des keramischen Fundmaterials besteht jedoch aus grober Gebrauchskeramik, die aufgrund ihres Fehlens in den Grabkontexten nicht datierbar erschien. Des Weiteren ist die Datierung der Scherben der B-Ware auf Basis der Friedhofsfunde ebenfalls problematisch, da die einfachen offenen Formen des frühen Naqada I in Siedlungen länger in Gebrauch waren.[419] Daher stützt sich die Analyse vor allem auf die Siedlung von Hemamieh und wird durch Beobachtungen in den Siedlungen von Armant und neuere Grabungsergebnisse von el-Kab ergänzt.

### *Der Übergang im Bereich der Siedlung von Hemamieh*

Die stratigraphische Abfolge in der Siedlung von Hemamieh zeigt einen kontinuierlichen Übergang zwischen dem Badari und Naqada; eine Siedlungsunterbrechung innerhalb der Besiedlung über der *Breccia* konnte nicht festgestellt werden. Zwar können die einzelnen Schichten im Bereich der Grabung von Caton-Thompson nicht eindeutig von einander getrennt werden, dennoch zeigen die bei-

[409] Brunton 1937, 4.

[410] Brunton 1937, Pl. X, XXI; Hendrickx/van den Brink 2002, 354/Tab. 23.1.

[411] Brunton 1937, 4.

[412] Brunton 1948 3, 8–9, 14–16, Pl. III, IX-X; Hendrickx/van den Brink 2002, 353/Tab. 23.1.

[413] Brunton 1948, 3.

[414] 14 Badari/74 Naqada IB-IID2 (Hendrickx/van den Brink 2002, 353/Tab. 23.1).

[415] Brunton 1948, 8.

[416] vgl. Hendrickx/Midant–Reynes/Van Neer 2001, 103–104; Math 2014, 245–246.

[417] vgl. Armant.

[418] vgl. Mahgar Dendera 2.

[419] Brunton/Caton-Thompson 1928, 53, 55; Friedman 1994, 25–26.

| Tonart/Fabric | total | 22 | 2 | 21 | 26 | 1 | 5 | 8 | 5/8 | 12 | ? |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A – Beneath Breccia | 38 | 10 | 7(1) | 10 | 9 | | | | | | 1 |
| B – Beneath/In Hearth | 40 | 28 | 7 | 1 | 2 | 1 | | | | | |
| *beneath Hearth* | *33* | *24* | *5* | *1* | *2* | *1* | | | | | |
| *in Hearth* | *7* | *4* | *2* | | | | | | | | *1* |
| C - Unsealed | 193 | 86 (1) | 53 (5) | 20 | 11 | 11 | 1 | | | | 8 |
| D - Transition | 44 | 7 | 22(1) | | 4 | 9 | 1 | 1 | | | |
| E - Amratian | 41 | 1 | 30 | 1 | 1 | 6 | | | | | 2 |
| F - EarlyGerzean | 72 | 2 | 17(1) | | 6 | 22 | 11 | 10 | 1 | 2 | |
| G - 2'0" to surface | 78 | | 6 | | 8 | 10 | 22 | 26 | 4 | | |

Abb. 13 Keramikverteilung von *Hemamieh North Spur* - Tonarten

den Testschnitte von Holmes und Friedman, dass eine Übergangsschicht durchaus vorhanden ist. Der Übergang selbst kann vor allem aufgrund der Tonarten und der diagnostischen BB-, BR- und BT[420]-Ware, der *rippled Ware* und *milled rims* festgemacht werden. Daneben kann auch eine Entwicklung bzw. Änderung im Formenrepertoire beobachtet werden.

Die stratigraphische Entwicklung der einzelnen Tongruppen zeigt, dass in den Badarischichten A, B und C die auf die Badarikultur beschränkten Tone 22 und 21 gegenüber den auch in der Naqadakultur vorkommenden adäquaten Tonen 2 und 26 vorherrschend sind. Diese Dominanz zeigt sich vor allem in den feinen Tonenklassen 22 und 2, jedoch kann dies auch mit dem selektiven Charakter der Sammlung über der Geröllschicht erklärt werden. Erst in der Übergangsschicht D gewinnen die Tone 2 und 26 die Oberhand und Ton 8 kann in einem Fragment festgestellt werden. Bei den Tongruppen 1 und 5 ist das Ergebnis weniger eindeutig. Ton 1, der sowohl für das Badari- als auch Naqada typisch ist, kommt in allen Badaristraten – bis auf Stratum A (unter der *Breccia*) vor und nimmt bis in Schicht F (frühes Naqada II) an Häufigkeit[421] zu. Ton 5 – ein reiner Naqadaton – findet sich mit einem Fragment in Schicht C und D, nicht in Schicht E (mittleres bis spätes Naqada I) und kommt erst in Schicht F in einer relativ großen Anzahl vor [Abb. 13]. Im Bezug auf die diagnostischen Waren BB, BR und BT/B, der *rippled Ware* und den *milled rims* erscheint der Übergang nur für die *rippled Ware* und die *milled rims* eindeutig – beide Gruppen können in großer Anzahl bis in Schicht C verfolgt werden, zeigen noch eine gewisse Präsenz in Schicht D, in Schicht E sind noch in drei Exemplaren[422] vertreten und verschwinden dann gänzlich. Die Verteilung der BB-Ware verhält sich ähnlich, außer, dass noch drei Fragmente für Schicht F angegeben werden. Für die Waren BR und BT ist der Übergang schwerer zu fassen, da die Unterscheidung zwischen der Badariware BR und der Naqadaware B ohne weitere Definition (Tonart) schwierig ist [Abb. 14]. Die Kombination von diagnostischen Formen und Tonarten – es wurden die Charakteristika BB- und BR/BT-Ware, *rippled Ware* und die Tone 22 und 2 kombiniert – zeigt den Übergang in Schicht D recht deutlich. *Rippled Ware* in Kombination mit Ton 22 läuft – bis auf eine Ausnahme – mit der

[420] BT – *black topped*; es wird hier bewußt nicht *B-Ware* verwendet, da hier die Unterscheidung zwischen BR- und B-Ware aufgrund der Fragmentierung des Scherbenmaterials schwierig ist, aber eine definitive und möglicherweise falsche Zuordnung große Auswirkungen auf die Stratigraphie des Fundortes hat.

[421] Die Häufigkeit bezieht sich auf die Gesamtanzahl der untersuchten Scherben.

[422] zwei *rippled*/ein *milled rim*.

Übergangsschicht D aus, ebenso in Kombination mit Ton 2. BR/BT-Ware in Kombination mit Ton 22 ohne gerippelte Oberfläche endet bereits mit Schicht C, wobei sie in Kombination mit Ton 2 bis zur rezenten Oberfläche verfolgt werden kann und spätestens ab Schicht E als B-Ware angesprochen werden muss [Abb. 15]. Das Formenrepartoire zeigt sowohl in den offenen als auch in den geschlossenen Formen ab der Übergangsschicht D eine Veränderung. Zeigen die offenen Formen in den Badarischichten A, B und C vor allem Schalen mit nach außen gewölbter Wandung und direkter Mündung (Typ 1a), Schalen mit geneigter Wandung und direkter Mündung (Typ 1b) und Becher und Schalen mit vertikaler bis steiler Wandung und einer direkten Mündung (Typ 1c) – in Schicht C kommen noch Becher und Schalen mit vertikaler Wandung und ausladender Mündung (1d) und Schalen mit geformter Mündung (Typ 1g) hinzu, so fehlt in Schicht D der Typ 1a und Schalen mit ausladender Mündung (Typ 1f) und Schalen mit abgesetzter Mündung (Typ 1h) kommen neu hin-

| ***diagnostische Waren*** | ***total*** | ***BB*** | ***BR/BT*** | ***BS*** | ***vmtl BR/BT*** | ***rippled*** | ***milled rim*** |
|---|---|---|---|---|---|---|---|
| **A – Beneath Breccia** | **38** | **9** | **12** | **-** | | **10** | **2** |
| **B – Beneath/In Hearth** | **40** | **17** | **17** | **2** | | **27** | **7** |
| *beneath Hearth* | *33* | *13* | *15* | *2* | | *21* | *6* |
| *in Hearth* | *7* | *4* | *2* | *-* | | *6* | *1* |
| **C - Unsealed** | **193** | **66** | **40** | **12** | **1** | **97** | **13** |
| **D - Transition** | **44** | **5** | **16** | **5** | | **13** | **1** |
| **E - Amratian** | **41** | **3** | **13** | **5** | | **2** | **1** |
| **F - EarlyGerzean** | **72** | **3** | **5** | **2** | | | |
| **G - 2'0" to surface** | **78** | | **1** | | | | |

Abb. 14 Keramikverteilung von *Hemamieh North Spur* – diagnostische Waren

| ***diagnostische Waren*** / ***Tonart*** | ***total*** | ***BB*** | | | | ***BR/BT*** | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | *22** | *2** | *22* | *2* | *22** | *2** | *22* | *2* |
| **A – Beneath Breccia** | **38** | **6** | **-** | **2** | **-** | | **6** | **2** | **3** |
| **B – Beneath/In Hearth** | **40** | **13** | **1** | **2** | **-** | **8** | **3** | **2** | **4** |
| *beneath Hearth* | *33* | *10* | *1* | *1* | *-* | *8* | *1* | *2* | *4* |
| *in Hearth* | *7* | *4* | *-* | *-* | *-* | *-* | *2* | *-* | *-* |
| **C - Unsealed** | **193** | **48** | **3** | **6** | **4** | **13** | **21** | **4** | **16** |
| **D - Transition** | **44** | **4** | **1** | **-** | **-** | **2** | **6** | **-** | **9** |
| **E - Amratian** | **41** | **1** | **-** | **-** | **2** | **-** | **-** | **-** | **25** |
| **F - EarlyGerzean** | **72** | **-** | **-** | **1** | **2** | **-** | **-** | **-** | **13** |
| **G - 2'0" to surface** | **78** | **-** | **-** | **-** | **2** | **-** | **-** | **-** | **4** |

* *rippled*

Abb. 15 Keramikverteilung von *Hemamieh North Spur* – Tonarten/diagnostische Waren

| Formen offen | total | 1a | 1b | 1c | 1d | 1e | 1f | 1g | 1h | 1i | 1j | 1k | 1l | 1m | 1n | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A - BeneathBreccia | 38 | 1 | 3 | | | | | | | | | | | | | |
| B – Beneath/In Hearth | 40 | 9 | 1 | 2 | | | | | | | | | | | | |
| *Beneath Hearth* | *33* | *7* | *1* | *2* | | | | | | | | | | | | |
| *In Hearth* | *7* | *2* | | | | | | | | | | | | | | |
| C - Unsealed | 193 | 3 | 22 | 10 | 1 | | | 4 | | | | | | | | +2 |
| D - Transition | 44 | | 5 | 2 | | | 1 | | 1 | | | | | | | |
| E - Amratian | 41 | | 3 | 3 | 2 | | 2 | 2 | | | | | | | | |
| F - EarlyGerzean | 72 | 1 | 3 | 2 | | 3 | | | 3 | | | | | 3 | | |
| G - 2'0" to surface | 78 | 1 | 3 | | | 1 | | 1 | | | | | | 7 | | |

Abb. 16 Keramikverteilung von *Hemamieh North Spur* – offene Formen

| Formen geschlossen | total | 2a | 2b | 2c | 2d | 2e | 2f | 2g | 2h | 2i | 2j | 2k | 2l | 2m | 2n | 2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A - BeneathBreccia | 38 | 7 | | | | | | | | | | | | | | |
| B – Beneath/In Hearth | 40 | 5 | | | | | | | | | | | | | | |
| *Beneath Hearth* | *33* | *4* | | | | | | | | | | | | | | |
| *In Hearth* | *7* | *1* | | | | | | | | | | | | | | |
| C - Unsealed | 193 | 23 | 6 | 1 | | | | | | | | | | | 1 | |
| D - Transition | 44 | 6 | 6 | | 1 | 1 | | | | | 1 | | | 1 | | |
| E - Amratian | 41 | 3 | 8 | | | | | *3* | | | | | | | | *+3* |
| F - EarlyGerzean | 72 | 2 | 15 | 10 | 3 | | | | | | | | | *1* | | *+2* |
| G - 2'0" to surface | 78 | | 6 | 13 | 2 | | | | | | | | | | | *+20* |

Abb. 17 Keramikverteilung von *Hemamieh North Spur* – geschlossene Formen

zu. In Schicht E wiederum sind die Typen 1b, 1c, 1d, 1f und 1g zu finden [Abb. 16]. Bei den geschlossenen Formen finden sich in den Schichten A und B ausschließlich *hole mouth jars* – Gefäße mit eingezogener Wandung und einer direkten Mündung (Typ 2a), erst in Schicht C kommen Gefäße mit geformter Mündung (Typ 2b), Gefäße mit Hals (Typ 2c) und große Vorratsgefäße (Typ 2n) hinzu. In Schicht D wird das Formenrepartoire um kleine Gefäße (Typ 2d), Flaschen (Typ 2e), kleine Gefäße mit ausladender Mündung (Typ 2j) und Miniaturgefäße (Typ 2 m) erweitert, die aber in Schicht E wieder verschwinden und nur Gefäße mit nach innen gewölbtem Oberkörper und direkter Mündung (Typ 2g) kommen neu hinzu [Abb. 17].

Auch wenn die Stratigraphie des Fundplatzes rekonstruiert werden musste und die Zuordnung der keramischen Funde zu den einzelnen Schichten einen Fehlerfaktor beinhaltet, so konnte weder ein Verlassen des Siedlungsareals zwischen der Badari- und Naqadabesiedlung in den Schichten noch in den keramischen Überresten festgestellt werden.[423] Obwohl die Anzahl der diagnostischen Scherben für das Naqada I gering ist, sind sie den Beispielen aus der Badarizeit in Tonart, Oberflächenbehandlung und Einfachkeit der Form sehr ähnlich.[424] Der Übergang selbst scheint graduell verlaufen zu sein und nicht abrupt. Formen, Tone und Eigenheiten, die nur für das Badari charakteristisch sind, laufen in Schicht D aus, neue Eigenheiten, die dem Naqada zugeschrieben werden

[423] Dies wird auch durch die zwei Testgrabungen von Holmes und Friedman unterstützt.

[424] Friedman 2000, 177–178.

tauchen auf. Aufgrund der Analyse der keramischen Funde der Nachgrabungen von Holmes und Friedman in Hemamieh wird hier eine Weiterführung und Entwicklung der Waren des Badari angenommen.

*Der Übergang in den Siedlungen von Naqada, Armant, el-Kab und Hierakonpolis*

In den bereits beschriebenen Siedlungen von Naqada, Armant, el-Kab und Hierakonpolis ist ein Übergang zwischen dem Badari und Naqada nur schwer und bedingt feststellbar. Im Bereich von Naqada werden keine Badarifunde angegeben. Dennoch scheint das Fundmaterial aus Naqada eine Weiterführung von Badaritypen zu zeigen – einfache offene und geschlossene kugelige Formen mit organischer Magerung.[425] In Armant scheint es zwar in mehreren Bereichen Badarifunde zu geben, diese sind aber schwer zu deuten. Einerseits sind sie aufgrund verschiedener Faktoren nicht eindeutig zuordnungsbar (Siedlung 1000, MA21/83) oder die Grabung wurde nie publiziert (Siedlung 1800). In Hierakonpolis wurden Siedlungsschichten des Badari und somit auch mögliche Übergangsschichten zum Naqada nur in Tiefbohrungen festgestellt. Die neuesten Grabungsergebnisse aus el-Kab wurden bis jetzt nur in Vorberichten veröffentlicht. Aber auch in diesen Siedlungen – mit Ausnahme vom Bereich von Naqada – ist wohl ein gradueller Übergang zwischen diesen beiden Kulturen anzudenken.

Ein Vergleich der Keramik des frühen Naqada I in den in Siedlungen von Hemamieh, Naqada und Hierakonpolis, sofern diese Zeitstufe festgestellt werden konnte, zeigt, dass die fühesten Formen von einer gewissen Einfachkeit geprägt sind.[426] Die ungemagerte polierte Keramik scheint in allen untersuchten Bereichen ähnlich, während die grobe Ware große regionale Unerschiede bei Magerungszusätzen, Herstellungsmethoden und Oberflächenbehandlungen zeigt. Diese grobe Ware des Naqada I machte zwischen 54 % (Naqada) und 23 % (Hierakonpolis Locality HK14) des gesamten Fundmaterials aus. Die Zuordnung der Siedlungskeramik erfolgte aufgrund eines morphologischen Vergleichs von ungemagerter Friedhofskeramik (fabric/temper class 2) – mit *black-topped red slip* oder nur *red polished slip*, mit oder ohne Dekoration und wurde mittels $^{14}$C-Datierungen bestätigt.[427]

*Zum Übergang in den Friedhöfen von Badari*

Der in den Siedlungen von Hemamieh nachgewiesene und für jene von el-Kab und möglicherweise auch Armant anzunehmende Übergang zwischen dem Badari und Naqada ist im Bezug auf die Friedhöfe kaum nachzuvollziehen.

Wie bereits erwähnt, scheinen sich die Friedhöfe der beiden Kulturen gegenseitig auszuschliessen. Nur vier Gefäße der Naqadakultur wurden in Badarigräbern gefunden. In Friedhof Badari 5300/5300 mit insgesamt 110 Gräbern wurden in drei Gräber Naqadagefäße angegeben. Grab 5317 beinhaltete nur ein Gefäß einer groben Ware, das als Naqadatyp R3f bezeichnet wurde.[428] Rein vom Aussehen her könnte es sich aber auch um einen Badarityp handeln. In Grab 5421 fand sich nur der Naqadatyp R69c[429].[430] Das Inventar des beraubten Grabes 5436 bestand neben den Badaritypen BB10 h, RB5f und RB16f auch aus den Naqadatyp B25b. Alle Gefäße fanden sich relativ hoch in der Grabfüllung.[431] In Friedhof Badari 6000 befand sich in Grab 6005 Naqadatyp B77b[432]. Der Friedhof selbst beinhaltet nur neun Gräber bzw. Gruben.[433] Außerdem wurden in zwei Naqadagräbern Objekte der Badarikultur gefunden. In dem isolierten und beraubten Grab 3507 wurde nur ein Steingerät gefunden, das auch dem Badari zu gerechnet werden könnte.[434] In Grab 3920 fanden sich zwei Gefäße des Types $R3f_6$ und eines vom Badarityp RB11h, das als dem Naqadatyp sehr ähnlich beschrieben wird.[435] Diese raren Beispiele liefern nicht zwingend mögliche Hinweise für eine Weiterführung der Friedhöfe des Badari im Naqada. Die Gräber 3507, 3920, 5317 und 5421 könnten reine Badari- oder Naqadagräber zu sein, die Gefäße in Grab 5436 sind verworfen und ob 6005 ein Grab ist, erscheint unklar.

Das Fehlen eines Überganges zwischen dem Badari und dem frühen Naqada im Bereich der Friedhöfe kann mehrere Gründe haben. Wie

[425] Holmes/Friedman 1994, 136–137.
[426] Friedman 2000, 177–178.
[427] Friedman 2000, 174.
[428] Brunton/Caton-Thompson 1928, 10.
[429] SD 36–68.
[430] Brunton/Caton-Thompson 1928, 12;
[431] Brunton/Caton-Thompson 1928, 12, Pl. VII.
[432] SD 34–56.
[433] Brunton/Caton-Thompson 1928, 18, Pl. VIII.
[434] Brunton/Caton-Thompson 1928, 50.
[435] Brunton/Caton-Thompson 1928, 52.

bereits mehrfach erwähnt, ist die frühe Phase des Naqada schwer zu fassen; dies gilt nicht nur für Siedlungen sondern auch für Friedhöfe. Einerseits stellt sich die Frage, inwieweit die Identifikation und kulturelle Zuordnung von Brunton immer zutreffend ist. Brunton selbst nennt hierfür als Beispiele die Typen BR57d, PR51m, AB18 und RB55h,[436] alles Formen mit flachen Böden und teilweise modellierten Mündungen. Andererseits kann man auch den Charakter der Friedhöfe selbst hinterfragen. Die bekannten Friedhöfe der Naqadakultur zeigen – wie auch ihre Siedlungen – lange Lauf- und Belegungszeiten. Dies muss nicht zwingend auf die Badarikultur zutreffen. Die meisten – wenn nicht alle – Siedlungen der Badarizeit zeigen nur eine saisonale Nutzung. Möglicherweise handelt es sich bei den Friedhöfen auch nur um kurzzeitlich genutzte Begräbnisstätten oder solche, die nur solange in Gebrauch waren, wie auch die Siedlungen belegt wurden. Eine weitere Möglichkeit wäre, dass im Totenkult mehr Wert auf Traditionen gelegt wurde, und sich dies auch in der Tatsache äußert, dass sich der Übergang im funerären Bereich schneller vollzieht.

### *Chronologische Fixierung des Überganges*

Die chronologische Fixierung dieses Übergangs ist schwierig, da das frühe Naqada schwer fassbar erscheint und die Definition der frühen Naqadakeramik vor allem im Bereich von Siedlungen noch großteils ungeklärt sowie – durch die bereits erwähnte Einfachheit in ihren Formen – teilweise schwer zu identifizieren ist.[437] Dazu kommt, dass die Identifizierung der in Siedlungsbereichen gefundenen keramischen Fragmente mit den Gefäßen aus Grabzusammenhängen schwierig ist[438] und die Laufzeiten der von Petrie und Kaiser angegebenen *Leitformen* teilweise relativ lang sind.[439]

Nachdem eine Datierung des Überganges aufgrund der Grabungsergebnisse alleine kaum möglich erscheint, könnten $^{14}$C-Daten aus den besprochenen Siedlungen hier eine entscheidende Hilfestellung liefern. Aus der Siedlung von Hemamieh stehen vier gut zuordnungsbare Daten aus der Grabung von Holmes und Friedman zur Verfügung[440] – drei davon erscheinen in diesem Zusammenhang relevant. Für die Badarischichten aus TP2 – *Level* 7/direkt über der *Breccia* und *Level* 6 – wird ein Zeitraum zwischen 4370 und 3980[441] v. Chr. angegeben.[442] Die späte Naqada I – Schicht in TP1 – *Level* 6 zeigt ein Datum zwischen 3830 und 3625[443] v. Chr. [vgl. Abb. 9].[444] Für die Siedlungen von Khattana im Bereich von Naqada werden etwa 10 Daten, die zwischen 3850 und 3650[445] v. Chr. datieren, angegeben. Aus neueren Grabungen in Abadiya 2 stammen zwei weitere Daten die zwischen 3970 und 3630[446] v. Chr. festzusetzten sind. Insgesamt gesehen zeigen diese Daten eine Häufung zwischen 3800 und 3700 v. Chr..[447] Die Daten für die Siedlungen im Bereich von Armant stammen aus den Grabungen von Ginter und Kozlowski.[448] Die frühesten Daten für den Bereich MA 21/83 (*P/Naqada -)* umspannen einen Zeitraum zwischen 4400 und 3700[449] v. Chr., die darauffolgende Phase (*Phase A/Naqada IA-B*) zwi-

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436 Brunton 1938, 84.

437 Friedman 2000, 177–178.

438 Hendrickx versuchte das keramische Material von Mahgar Dendera 2 dem Corpus von Brunton zuzuordnen, suchte aber auch Vergleiche im Corpus von Petrie. Es zeigte sich, dass die Mündungsformen in keinem Fall weder einem bestimmten Typ noch einer bestimmten Zeitstufe zugeordnet werden konnten (vgl. Hendrickx/Midant-Reynes/Van Neer 2001, 83; Math 2014, Abb. 201–203).

439 vgl. Petrie 1921; Kaiser 1957.

440 Holmes/Friedman 1994.

441 Level 7: Beta-35825: 5440±60 BP, Level 6: Beta-35824: 5300±60 BP (Holmes/Friedman 1994, Tab. 6; Hendrickx 1999, 63).

442 Holmes/Friedman 1994, 134.

443 Beta-35823: 4940±80 BP (Hendrickx 1999, 73; auch Holmes/Friedman 1994, Tab. 10; Friedman 2000, 175).

444 Holmes/Friedman 1994, 134.

445 *weighted average*: 5015±80–4780±70 BP (Friedman 2000, 175). WSU-2255: 4960±100 BP, SMU-360: 5030±100 BP, SMU-351: 4930±70 BP, SMU-303: 5005±69 BP, TX-2340: 4970±70 BP, Beta-1371: 5000±85 BP, Beta-1370: 5015±80 BP, SMU-496: 4992±70 BP, Beta-1356: 5010±75 BP (Vermeersch/van Neer/Hendrickx 2004, Fig. 18); SMU-493: 5214±54 BP (Hendrickx 1999, 70).

446 Abadiya 2/*South*: GrA-20142: 5080±45 BP (Vermeersch/van Neer/Hendrickx 2004, 227), Abadiya 2/*North*: GrA-20144: 4910±45 BP (Vermeersch/van Neer/Hendrickx 2004, 228).

447 Vermeersch/van Neer/Hendrickx 2004, 228, Tab. 18.

448 Ginter/Kozlowski 1994.

449 Gd-5461: 5500±50 BP, Gd-2980: 5320±110 BP, Gd-4378:5220±90 BP, Gd-2979: 5190±90 BP, Gd-1856: 5190±50 BP, Gd-5460: 5180±60 BP, Gd-2977: 5140±90BP, Gd-2981: 5090±90 BP, Gd-2978: 5060±90 BP (Hendrickx 1999, 65–66).

schen 4300 und 3350[450] v. Chr.. Im Bereich von MA 21A/83 zeigen die Daten für Phase A ein Datum zwischen 4000 und 3700[451] v. Chr.. Ein weiteres – besonders frühes Datum – stammt aus MA 6/83 und datiert zwischen 4570–4230[452] v. Chr.. Aus den neueren Grabungen aus el-Kab stammen nur zwei Daten: eines aus TP3/80.18 m, das einen Zeitraum zwischen 4350–4240[453] v. Chr. beschreibt und mit hoher Wahrscheinlichkeit dem Badari zugerechnet werden kann, und eines aus TP1/81.47 m, das mit einem Wert zwischen 3530 und 3360[454] v. Chr. eine Naqada IIC-D Schicht[455] repräsentiert. Aus dem Siedlungsbereich aus Hierakonpolis stammen zwei Daten, die zwischen 3950 und 3300[456] v. Chr. datieren. Eine neuere Studie[457] der bekannten $^{14}$C-Daten scheint dies zu untermauern. Hier wird der Beginn des Badari mit 4407–4308 bzw. 4489–4266 angesetzt, dessen Ende mit 3800–3667 bzw. 3896–3616 und der Beginn des Naqada IB/IC mit 3690–3605 bzw. 3731–3550;[458] allgemeiner betrachtet dauerte hiernach das Badari von 4400 bis 3750 v. Chr. und das Naqada IB/IC von 3750 bis 3650 v. Chr..[459] Der Beginn des Naqada (IA) wird nur für die Bereiche Naqada mit 3952–3712 bzw. 4213–3640 v. Chr. und Abydos mit 3757–3565 bzw. 3886–3391 v. Chr.[460] angegeben.[461]

Insgesamt scheinen diese Daten eine Zeitspanne zwischen 4400 und 3800 v. Chr. für das Badari und einen Beginn des Naqada I mit 4000/3900 v. Chr. zu implizieren. Hieraus könnte man eine Zeitspanne von etwa 100 Jahren für eine Koexistenz vom Badari und dem Naqada folgern, wobei diese Gleichzeitigkeit der beiden Kultursequenzen nicht in den gleichen Siedlungsbereichen stattgefunden haben muss; vielmehr ist eine räumliche Trennung zu vermuten. Der Übergang selbst wäre nach diesem Gedankenmodell im Naqada IB – etwa um 3800[462] v. Chr. – anzusetzen; die Zeitspanne des Überganges kann jedoch nicht festgestellt werden.

## V. Erkenntnis

Neben allen Problemen – im Bezug auf Fundbestand und Definition des Badari und frühen Naqada – kann festgestellt werden, dass es zwischen den beiden Kulturen zu einem graduellen Übergang kam. Dies zeigt sich in der Weiterführung und Weiterentwicklung von Formen der Badarikultur innerhalb der Naqadakultur. Viele Elemente sind in beiden Sequenzen zu beobachten, werden aber im Naqada I verfeinert.[463] Dies kann vor allem in der Siedlung von Hemamieh beobachtet werden, aber mit hoher Wahrscheinlichkeit auch für die Siedlungen el-Kab und möglicherweise Armant angenommen werden. Die Situation in Naqada erscheint unklar, da es hier keinerlei Hinweise auf das Badari gibt.

Dieser kontinuierliche Übergang von der Badari- zur Naqadakultur im Bereich der Siedlungen könnte auch als Indiz dafür gewertet werden, dass die Badarikultur eine frühe Phase der Naqadakultur zeigt.[464] Wäre dem so, müsste sich dieser Befund auch in den Friedhöfen widerspiegeln. Doch hier konnte kein wie auch immer gearteter Übergang festgestellt werden; ganz im Gegensatz zu den genannten Siedlungen scheinen sich Badari- und Naqadafriedhöfe gegenseitig auszuschliessen. Wäre nun das Badari eine frühe Phase des Naqada, würden dann Friedhöfe nicht weiter-

[450] Gd-3385: 5310±50 BP, Gd-1926: 5150±60 BP, Gd-3140: 5140±40 BP, Gd-1862: 5100±60 BP, Gd-2529: 4910±100 BP (Hendrickx 1999, 65–66, 68).

[451] Gd-5416: 5160±50 BP, Gd-3428: 5050±70 BP (Hendrickx 1999, 69).

[452] Gd-1754: 5560±80 BP (Hendrickx 1999, 65).

[453] RICH-20414: 5446±31 BP (Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 84, Fig. 1).

[454] KIA-44326: 4685±35 BP (Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 84, Fig. 1).

[455] Claes/Hendrickx/Kindermann/de Dapper/Hart/Ikram/Storms/Swerts/Huyge 2014, 76.

[456] WSU-1729: 4280±129 BP (Friedman 2000, 175), WSU-1729: 4830±120 BP (Hendrickx 1999, 72).

[457] Dee/Wengrow/Shortland/Stevenson/Brock/Girland Flink/Brock Ramsey 2013.

[458] Dee/Wengrow/Shortland/Stevenson/Brock/Girland Flink/Brock Ramsey 2013, Tab. 1.

[459] Dee/Wengrow/Shortland/Stevenson/Brock/Girland Flink/Brock Ramsey 2013, Tab. 4.

[460] Es kann wohl davon ausgegangen werden, dass die Naqadasequenz im Bereich von Abydos früher begonnen hat, da das früheste bekannte Datum (Bln-4679: 4837±87) aus Grab U-503a, das ins Naqada IB datiert, stammt (Görsdorf/Dreyer/Hartung 1998, 644; Dee/Wengrow/Shortland/Stevenson/Brock/Girland Flink/Brock Ramsey 2013, ESM, Tab. S1).

[461] Dee/Wengrow/Shortland/Stevenson/Brock/Girland Flink/Brock Ramsey 2013, ESM, Tab. S3.

[462] Die einzigen eindeutig definierten Übergangsschichten in Hemamieh – TP1/*Level* 7 und 8 und TP2/*Level* 5 – wurden nicht beprobt.

[463] Friedman 1994, 23.

[464] vgl. u. a. Kemp 2006, 88.

geführt werden wie im Naqada, wo man eine Belegung über einen langen Zeitraum beobachten kann oder zumindest hätte man mit Sicherheit mehr Friedhöfe des frühen Naqada I in der Region von Badari feststellen müssen. Des Weiteren muss auch angemerkt werden, dass es im Grabbrauch beider Kulturen einige Unterschiede gibt. Es wird hier auf die fehlende grobe Ware in Gräbern des Naqada I wie auch auf Gefäße zur Essensbereitung hingewiesen. An lithischem Material im Badari finden sich fast ausschließlich feine bifaciale Messer.[465] Im Badari kann man keinen entscheidenden Unterschied zwischen Grab- und Siedlungskeramik feststellen;[466] neben den lithischen Geräten wird auch deren Rohmaterial in Gräbern deponiert.[467] Außerdem scheint im Bereich von Badari das früheste Naqada zu fehlen. Die frühesten Gräber der Naqadakultur werden ins Naqada IB datiert, dies scheint auch der Zeitpunkt zu sein, zu dem sich das Naqada bis in diesen Raum ausbreitete.[468]

Die Friedhöfe scheinen zwar wenig aussagekräftig im Bezug auf den Übergang zwischen diesen beiden Kulturen selbst zu sein, doch zur Datierung des Naqada im Raum von Badari hilfreich. Denn aufgrund der Datierung der frühesten Naqadagräber in diesem Raum kann angenommen werden, dass die Übergangsphase im Laufe des Naqada IB stattgefunden hat. Dies kann durch $^{14}$C-Daten gestützt werden, die auf eine Zeitspanne um etwa 3800 v. Chr. deuten; weder der genaue Beginn noch die exakte Dauer dieser Phase kann fixiert werden, jedoch sollte sie spätestens um 3750 v. Chr. abgeschlossen gewesen sein.[469]

Ausgehend von den Befunden kann folgendes Szenario zur Diskussion gestellt werden: Die Badarikultur umfaßte bis ± 3900/3800 v. Chr. nachweislich den Bereich zwischen Matmar im Norden und el-Kab/Hierakonpolis im Süden, wobei die genaue Nord- bzw. Südgrenze aufgrund von Fundgegebenheiten offenbleiben muss.[470] Um diesen Zeitpunkt erscheinen die ersten – derzeit frühesten – Gräber der Naqadakultur im Bereich

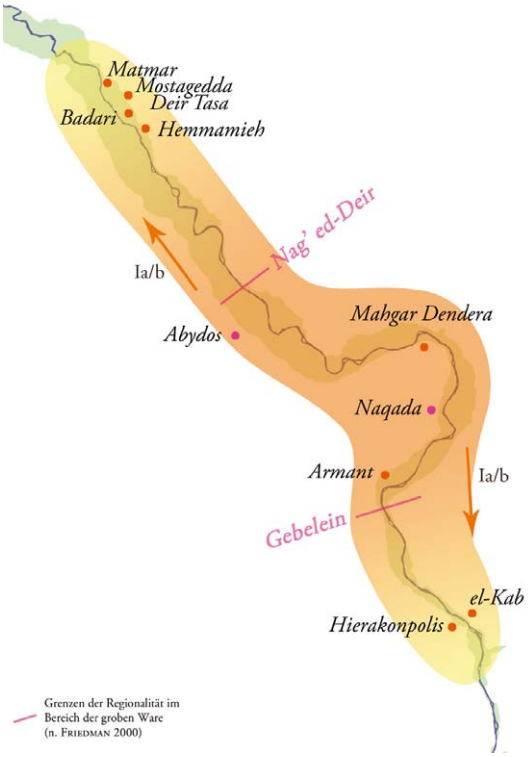


Abb. 18 vermutete Ausbreitung des frühen Naqada

von Abydos,[471] Naqada scheint in seinem Beginn etwas später anzusetzen zu sein. In der Folge kommt es zu einer Ausbreitung des Naqada gegen Norden und Süden. Diese Ausbreitung kann wohl als langsame Wanderbewegung angesehen werden, in Folge derer sich die Kulturträger des Naqada entlang des Nils ansiedelten und nicht in Form einer kriegerisch-agressiven Expansion. Durch diese friedliche Erweiterung des Siedlungsgebietes kommt es zu einer Assimilation der Badarikultur die im Laufe der Zeit in der Naqadakultur aufgeht. Formen und gewisse typische Merkmale der Badarikeramik werden weitergeführt, in den Naqadacorpus integriert, bis sie in diesem aufgehen und das Badari endgültig nicht mehr nach-

[465] Firedman 1994, 355.

[466] Math 2014, 140, Beilage 1–6.

[467] Friedman 1994 355.

[468] Kaiser 1957, 74, Taf. 26; Hendrickx/van den Brink 2002, Tab. 23.1 (353–357), Tab. 23.2 (374–376).

[469] Dies kann aufgrund des $^{14}$C-Wertes von Hemamieh TP1/*Level* 6 zwischen 3830 und 3625 v. Chr. – Beta-35823: 4940±80 BP (vgl. Hendrickx 1999, 73; auch Holmes/Friedman 1994, Tab. 10; Friedman 2000, 175) – und der Datierung des Übergangs zwischen den Phasen IB und IC auf etwa 3750 v. Chr. durch Dee/Wengrow/Shortland/Stevenson/Brock/Girland Flink/Brock Ramsey 2013, Tab. 4, geschlossen werden.

[470] Der Bereich nördlich von Matmar erscheint fundleer für diese Zeit (vgl. Kaiser 1961; Math 2014, 361); südlich von el-Kab/Hierakonpolis fehlen entsprechende der Badarikultur zurechenbare Funde.

[471] Hartman 2010a; Hartman 2010b.

weisbar ist. Zeitlich gesehen scheint diese Übergangsphase spätestens mit dem Naqada IB zu beginnen und spätestens mit deren Ende abgeschlossen zu sein. Warum diese stetige Übernahme der materiellen Kultur des Naqada – in der Folge auch mit Sicherheit Traditionen und Gebräuche – durch die Kulturträger des Badari stattfindet, kann verschiedene Gründe haben, die aber nicht mehr nachvollziehbar sind. In den Fundsammlungen des Naqada IC ist das Badari nicht mehr feststellbar. Der angedachte Übergang zwischen Naqada und Badari bzw. das Aufgehen des Badari im Naqada I muss nicht zwingend überall zur gleichen Zeit stattgefunden haben; viel mehr ist wohl zu vermuten, dass dieser in dem Kerngebiet um Abydos und Naqada näher gelegenen Gebieten früher und in entfernteren Gebieten etwas später erfolgte [Abb. 18].[472]

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[472] Inwiefern ein zeitlicher Unterschied der Übergangsschicht in Hemamieh und el-Kab festzustellen ist, ist unklar.

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# NEUTRON ACTIVATION ANALYSIS OF AEGEAN-STYLE IIIC POTTERY FROM 11 CYPRIOT AND VARIOUS NEAR EASTERN SITES

*P.A. Mountjoy*[1] *and H. Mommsen*[2]

## Introduction[3]

A programme of Neutron Activation Analysis (NAA) has been carried out in Bonn to try to establish the chemical profile of the twelfth century Aegean-style pottery at the different Cypriot sites in order to monitor exchange of pottery between sites and, most importantly, to pin down exports found in Turkey and the Levant to a particular Cypriot site. The twelfth century Aegean-style pottery on Cyprus dates to LH IIIC Early and Middle in Greek mainland terms. Work on Sinda has already been carried out and the Sinda profile isolated.[4] Since not much work has been done so far on other twelfth century Aegean-style pottery on Cyprus, a large number of samples was needed to make a viable data bank; our aim was a minimum of 30 Aegean-style samples per site, concentrating on decorated pottery, which is more easily datable than coarse and unpainted wares. Where possible, we tried to sample meaningful pieces rather than linear body sherds; the latter can give information as to the chemistry, but offer nothing to the identification of workshops, the consumption of high quality pottery and the trade of the different pottery shapes for their contents. Pottery was sampled from nine of the 14 sites with Aegean-style IIIC pottery (see Fig. 1). Samples were also taken from Kalavasos which was abandoned in late LCIIC. No pottery was sampled from Pyla: Kokkinokremos, Maa: Palaiokastro, Myrtou: Pigadhes and Toumba tou Skourou.

## PART I

### Neutron Activation Analysis of 256 samples from different Cypriot sites and 8 samples from Palestine

### Neutron Activation Analysis (NAA) and statistical data evaluation

NAA is very well suited to determine the provenance of pottery.[5] It is generally accepted today that the elemental concentration pattern measura-

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[4] Mommsen and Sjöberg 2007, 359–71.

[5] Sayre 1957; Perlman and Asaro 1969; Harbottle 1976; Mommsen 2007; Mommsen 2011.

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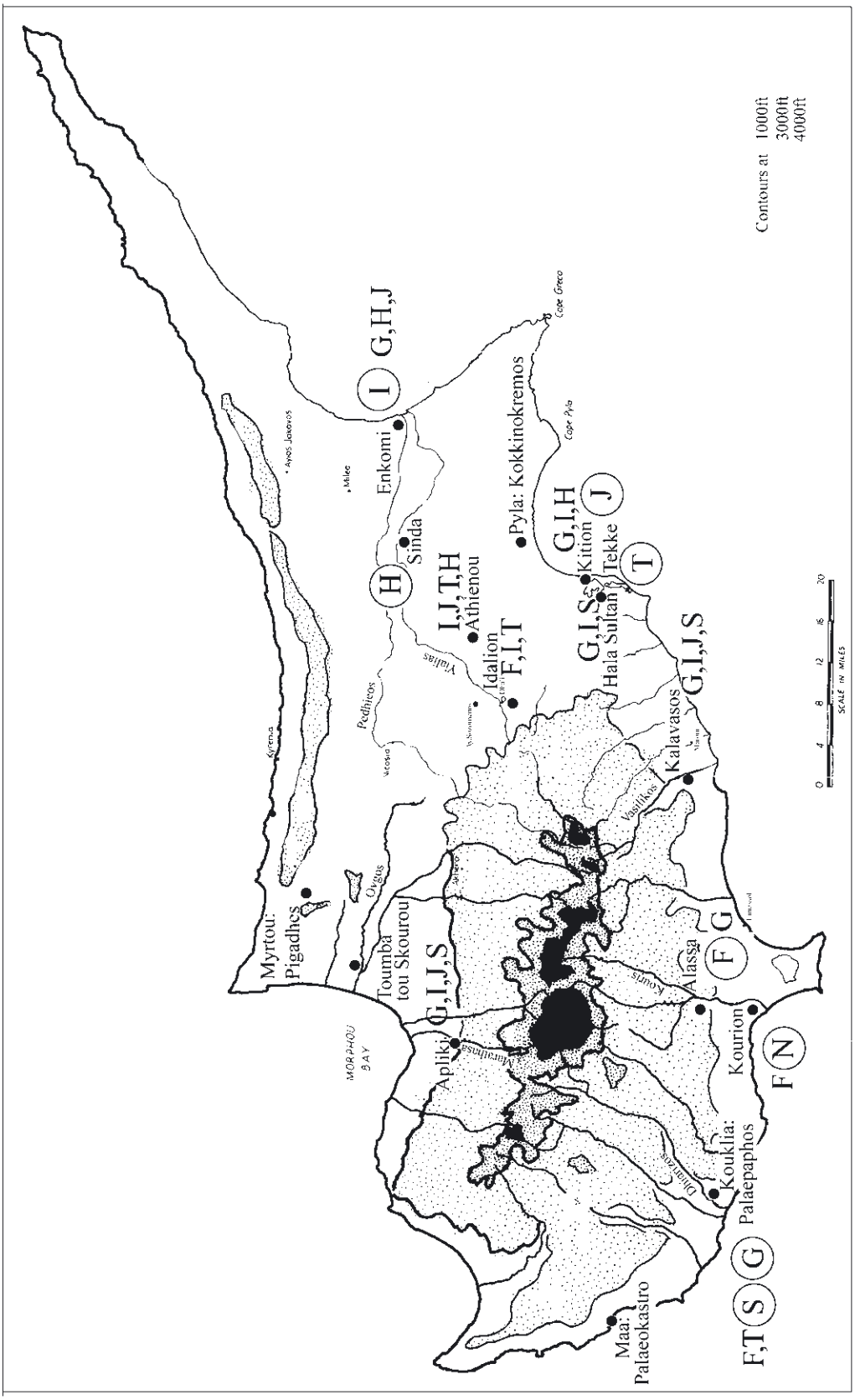


Fig.1 Cyprus. To show the location of the sites and the chemical profiles obtained by NAA. The encircled letter by a site is the chemical profile of the site; the letters not encircled denote imports from other sites.

ble in pottery indicates the production centre used by the ancient potters. If more than 20 elements (the more the better) are measured with low experimental uncertainties, the probability of finding the same elemental pattern for a claybed somewhere else is very low. Therefore the elemental pattern can be considered as being probably unique and as pointing to the location of the pottery workshop exploiting this claybed. Provenance of single pottery pieces is established by pattern comparison with so-called reference pieces of known origin. The method is therefore also called chemical fingerprinting.

There are a large number of publications describing archaeometric analyses of Cypriot pottery. In addition to the summary of earlier work by Richard Jones in 1986,[6] the NAA laboratories at Berkeley,[7] Manchester,[8] and Missouri[9] have applied NAA to investigate different ware types and different sites of pottery production on the island. Only samples from the Myc IIIC period will be discussed here.

NAA has been used in Bonn for about 30 years; the measurement procedure is described at length in Mommsen *et al*.[10] Most of the Late Bronze Age pottery vessels and sherds from the different Cypriot sites have been sampled by an electric drilling machine with a corundum pointed drill bit with a diameter of 10 mm to obtain the c. 80 mg of pottery powder needed for the analysis. A shallow depression of this size on the sherd indicates the sampling. Pieces from Museum exhibitions or vessels or sherds planned to be exhibited have been carefully scraped with the edge of a korundum piece over a wider area at the break or at a position indicated by the Museum personnel. In these cases traces of the sampling are not easily seen. In order to have a fixed measurement geometry the pottery powder of each sample is pressed to a pill of 10 mm diameter and a thickness of about 1 mm using pure cellulose as a binder. A set of such sample pills together with six pills of the Bonn pottery standard material of known composition[11] to correct for flux inhomogeneities is sent to a research reactor and irradiated there with neutrons. Since 2010 the reactor of the Reactor Institute Delft, The Netherlands, has been used. Irradiations take place for 10 h at a thermal flux of $5 \cdot 10^{12}$ neutrons/($cm^2$ s). The six Bonn standard pills are placed at different positions between the sample pills to monitor local neutron flux inhomogeneities. Since our standard was calibrated with the well known Berkeley pottery standard, concentration data measured in Berkeley (and later in Jerusalem) can be compared directly with our data. After the transport of the radioactive samples to the Bonn laboratory the samples are measured during the following four weeks twice with a Ge-detector in the energy range up to 1.7 MeV and in between a third time with a second Ge-detector with higher energy resolution in the energy range up to 450 keV. The intensities of the gamma-rays emitted by the activated elements are determined and quantitative weight concentration raw values are obtained by comparing corresponding intensities in the samples to those in the standards. Before averaging the corresponding concentration values of the 6 standards a best relative fit of the data of each standard is performed with respect to a standard in a central position to correct for neutron flux inhomogeneities. This turned out to be necessary, since a non-revolving irradiation position is used and the neutron flux decreases from its maximum value at the central position in vertical directions.

The first aim of the following raw data evaluation is to find vessels that have the same composition and hence the same origin. In Bonn a special statistical, computer-based method has been developed to work like a filter sorting out of a large data bank all the samples close in composition to a given one. Starting with the pattern of e. g. one sample the similarity of further samples is obtained by calculating a modified Mahalanobis distance in the multidimensional concentration space considering a) the experimental measurement uncertainties and b) a possible variation of all concentration values due to a constant factor often called dilution factor.[12] Whereas b) can be taken into account by other statistical group forming procedures if concentration ratios are used, a) cannot be considered by the often used Principal Component Analyses (PCA) or common Cluster Analyses (CA) that calculate dendrograms. Furthermore the modified

[6] Jones 1986.

[7] Artzy *et al*. 1976, 1981and references therein.

[8] Bryan *et al*. 1997; French *et al*. 2004.

[9] Rautman *et al*. 1993; Gomez *et al*. 1995.

[10] Mommsen *et al.* 1991.

[11] The composition of the Bonn pottery standard is given in Mommsen and Sjöberg 2007.

[12] Mommsen *et al*.1988; Beier and Mommsen 1994a, b; Mommsen *et al.* 2002.

distance value is constructed in such a way that it describes the probability of group membership. Generally speaking, its value allows a test of the hypothesis, 'data point belongs to that group', and this hypothesis is by statistical means either accepted or rejected. The filter method, either uni- or multivariate, is advantageous and is always applied in Bonn. Very large databanks can be handled easily and the grouping results do not depend on the total variance of the dataset under investigation.

## Results of statistical group formation and the Cypriot compositional patterns

With the help of this filter method the concentration data from 256 pottery sherds excavated at different sites in Cyprus have been assembled into groups which have similar elemental concentrations. In order not to bias the evaluation only the concentration raw data of the samples is considered. A summary of the grouping results is shown in Table 1. The result of a discriminant analysis depicting the eight groups assigned to an origin from different Cypriot sites or their surroundings is shown in Fig. 2.

The total Bonn databank now holds nearly 11,000 samples mainly from eastern Mediterranean sites (Aegean, Levant, Egypt, some from Cyprus). It includes many reference pieces that have concentration patterns already assigned to definite production sites or regions. In the new dataset from Cyprus 18 samples have been found to match one of these known non-Cypriot patterns. These pieces are therefore imports to Cyprus and they are given in Table 1 in the line named 'other'. Ten samples with the well known pattern MYBE come from the Argolid or from another area in the north-eastern Peloponnese.[13] Other imports stem from Attica,[14] Crete,[15] Boeotia,[16] Miletus,[17] and Troy.[18]

The remaining 238 samples can be divided into twelve groups of samples that have more than two members. Fourteen patterns belong to chemical sample pairs leaving 35 samples corresponding to about 15 % of the dataset ungrouped as chemical loners. This share is normally encountered in provenance studies of pottery. Nothing can be concluded about these chemical singles. They may have been contaminated during production in antiquity or during our laboratory work or they may represent a first member of a clay paste not yet analysed in Bonn.

The assignment of the groups to a specific production site in Cyprus is suggested mainly by the distribution of the samples from different sites into the NAA groups as shown in Table 1 and also by archaeological judgement of fabric, forms, and decorations of the wares, since kiln wasters or clay samples as reference material were not available. The names of the groups are chosen arbitrarily beginning with the letters Cyp~ indicating that these samples have with high probability a Cypriot origin. However, since we do not have good reference material from the different Cypriot sites apart from Enkomi, the proposed assignments of the chemical patterns need to be tested and verified by future analyses, if and when appropriate material becomes available.

The result of a comparison of these group patterns with our databank of patterns was that six of these patterns were already known to us. But most of them have only been assigned until now to a general Cypriot origin and not yet to definite Cypriot sites or geographical regions, since the number of samples from Cyprus in our bank was not very high. Now with the new large set of data different Cypriot production areas can be distinguished. Table 2 gives the average concentration patterns of the groups and Table 3 lists the individual group members together with the individual best relative fit (dilution or enhancement) factors with respect to the average concentration values of the group.

A consequence of the large amount of new data from Cyprus was that small groups formed tentatively and already published in older projects turned out to be just subgroups of the larger groups presented here. A second reason for merging different small groups, which do not have a very different composition and which deviate in only 2 or 3 elements, was that no archaeological motivation for a separation was apparent. For example, a deviation of the elements K, Rb, or Cs

[13] Recently Mommsen 2012 and references therein.

[14] Mommsen 2003, group KroP.

[15] Unpublished, groups KnoK and KnoL.

[16] Recently Mommsen mit Schöne-Denkinger 2009, group Theb.

[17] Akurgal *et al*. 2002, group D (Miletus D).

[18] Mountjoy and Mommsen 2006, group TroB, there called B-Troy.

is often seen and such samples have been published as separate groups, such as CypH and ChKR[19] or MYBE and MBKR.[20] The large variances of these elements shown in Table 2 reflect the merging of these different subgroups. We will point to such group re-allocations and merging below.

**Pattern CypI – Enkomi**

The largest group is assigned to a workshop at or close to Enkomi and has the pattern CypI. The assignment to Enkomi is supported by data of a clay sample from Enkomi measured in Berkeley[21] which is similar in composition, if multiplied by a best relative fit factor of 0.89. Except for Lu which is known to be generally about 20% higher in Bonn, all the elements measured in both laboratories agree.[22] Artzy *et al*.[23] distinguished three patterns assigned to Enkomi; they comprise ENK alpha: 30 mixed local Late Bronze (LB: date given 1400 – 1200 BC) sherds; ENK beta: 18 other mixed local LB sherds, and ENK gamma: 14 Proto White Painted sherds, all from the Enkomi excavations. The group ENK gamma is described as similar to ENK beta, comprising a well defined ware type of a later period (date given: 1100 – 1050 BC). Both patterns ENK alpha and ENK beta are very similar to the pattern CypI. ENK alpha matches CypI, if a best relative fit factor of 1.02 is applied; ENK beta has to be multiplied with a factor 0.91 for a good fit to CypI (except again for Lu).

The LB pottery workshop(s) at Enkomi exported vessels mainly to nearby sites in eastern Cyprus, such as Idalion or Kition; no sample in our data set with the pattern CypI is found at the more distant sites of Alassa, Kourion, and Kouklia (Palaepaphos). But one of the non-Cypriot sherds included here, Ashkelon 7, has the pattern CypI and is considered to be an export from Enkomi to Ashkelon.[24] Many more samples in our databank belong to this newly formed large group with the pattern CypI; it includes different subgroups arising from other already published projects, such as EnkA[25] or EmeA.[26] These can now be assigned to workshops in the area of Enkomi, which produced pottery over a long time-span using the locally available clays.

**Pattern CypJ – Kition, Hala Sultan Tekke**

The second largest group has the pattern CypJ and was made from clay(s) in the vicinity of Kition or nearby Hala Sultan Tekke. Twenty-one vessels from these two sites belong to CypJ. CypJ differs from CypI mainly in Fe, Co, and Sc. Again similar data from Berkeley support the assignment to the area of Kition: a pattern of six samples of MycIIIC1 vases from Kition[27] and also a pattern of 15 pieces from Kition[28] match CypJ statistically except for Lu, although it is not stated explicitly that any of these samples from Kition were locally made there. Many of the Simple Style vessels from Qantir and the Levant analysed earlier (see below part CypH) belong to the group CypJ, as also the five additional vessels found outside Cyprus included here (Dothan 1–3, Megi 3, Afula 1).

**Pattern CypT – Hala Sultan Tekke?**

This pattern is assigned at the moment to Hala Sultan Tekke (HST) or its surroundings. It is not very close to the other Cypriot patterns, but it has a general Cypriot composition well separated from other non-Cypriot Mediterranean patterns. The argument of its distribution pointing to HST is weak because of the small number of samples in this group; however six, that is more than half of the eleven sherds sampled, were found at HST. An additional supporting archaeological argument exists in the form of a piriform jar FS 47 found at HST, with characteristic reversed curved-stemmed spirals, which also belongs to the CypT group.[29]

**Pattern CypH – Sinda**

As a result of the many new samples from Cyprus the Cypriot concentration patterns are now better

[19] Mommsen and Sjöberg 2007; Mommsen *et al.* 2009.

[20] Mountjoy and Mommsen 2001, 125; Buxeda *et al.* 2002; Ben-Shlomo *et al.* 2008. MBKR 959.

[21] Gunneweg *et al.* 1983, Grey clay sample ENK 278, Table 2, column 5.

[22] Besides Lu the largest, but small deviations occur for Cr and Rb.

[23] Artzy *et al.* 1976, Table 1.

[24] Master *et al*. 2015, 238–41.

[25] Zuckerman *et al.* 2010, 412, Table 5.

[26] Mommsen *et al.* 2006, 200, Tables 3,4; Ben-Shlomo *et al.* 2008, 962, Table 3, fig. 5.

[27] Asaro *et al.* 1971, Table 2, column 5 (Kition).

[28] Artzy *et al.* 1976, Table 4.

[29] Mommsen *et al.* 2003, 6, Sample HST 7, published there as single.

defined; in particular the pattern CypH is now well separated from the pattern CypJ. CypH was defined earlier from many pieces of a set of Cypriot LB sherds from Sinda and, therefore, assigned to this site.[30] When compared with the not very different pattern CypJ, CypH has about 10 % higher elemental abundances (factor 0.89 to match best CypJ). After application of the factor it is still higher in Th and Cs, both elements measured with low uncertainty. Only eight sherds in the sample set of the present project have the pattern CypH and so very probably come from Sinda. The good separation of the patterns CypH and CypJ made a re-evaluation of the assignment of samples to CypH in former projects necessary. A number of Simple Style sherds from Qantir in Egypt[31] and all samples from sites in the western Negev and northern Sinai[32] assigned to the pattern CypH have now been reassigned to the pattern CypJ. But the samples from Bethshean, published first as members of new groups named SEAN and SEKR, [33] and later as members of the renamed groups CyHH and ChKR[34] now all join the group CypH.[35]

**Pattern CypF – Alassa**

The composition of this group has unusually large spreads (root mean square deviations) for many elements. The reason is that five subgroups a) – e) deviating in several elements are put together to form one joint group CypF. All 19 members of this group come from Alassa, apart from one sample from Idalion and one from Kourion. The average concentration values of the group CypF are shown in Table 2–1 and the elemental compositions of the five subgroups are presented in Table 2–2. These show the large differences of the elemental concentrations in the wares from Alassa; this ambiguity needs further studies, such as petrography. Either different local clay beds and/or various clay mixtures may have been used. These differences are also apparent in Fig. 3, which presents the result of a discriminant analysis for the five subgroups of CypF. Since archaeologically the sherds from Alassa are a good group, all these five concentration groups have been assigned tentatively to an origin from Alassa or its close neighbourhood. The four samples from Alassa of the group X075 are so different, that they have been not included in the joint group CypF; in particular the Sc value in X075 measured very precisely with NAA is unusually high with 35 ppm (see below).

**Pattern CypN – Kourion**

All the samples from sherds excavated at Kourion belong to this group. No piece exported from there to another site is present in our data set. Therefore this pattern is assigned with high probability to workshop(s) at or close to Kourion. The composition is not similar to other Cypriot patterns and also not to any other pattern in our databank. The unusually high Sc value of this Cypriot group is remarkable (see below).

**Pattern CypG, CypS, and X080 – Kouklia/ Palaepaphos**

The composition of the samples with these three patterns is not very different from each other. All three groups presumably belong to one or more pottery workshops at or close to Kouklia. This is also suggested by the distribution of the samples, which are well separated from all other groups. CypS with best relative fit factor of 1.03 with respect to CypG has higher Sc and Fe and lower Ta values; X080 with factor 0.99 is higher in Ta and Cr and lower in Th compared to CypG. Here again the Berkeley data supports the assignment of these groups to Kouklia/Palaepaphos. Asaro *et al.*[36] present a pattern of 13 pieces of the MycIIIC1 period from Palaepaphos which is statistically similar to CypG, if multiplied with a best relative fit factor of 0.93 (again except for Lu). Karageorghis *et al.*[37] give the same pattern with an increased sample number of 19, but they also present a second pattern for Palaepaphos of six pieces, which turns out to be similar to our second

30 Mommsen and Sjöberg 2007, 365, Table 3.

31 Mountjoy and Mommsen 2001, 146–48, Cat.nos. 38, 39, 42, 45.

32 Mommsen *et al.* 2005, 153.

33 D'Agata *et al.* 2005, 375. We no longer name new groups after the site from which the samples were taken, since this is often not the site of origin and misinterpretations can result.

34 Mommsen *et al.* 2009, 512.

35 With the exception of samples BS 11 and 16, now both better CypJ, but also with lower probability CypH.

36 Asaro *et al.* 1971, Table 2, column 4 Kouklia.

37 Karageorghis *et al.* 1972, Table 1, column 3 (CypG), Table 2, column 2 (CypS).

group for Palaepaphos CypS, if a best relative fit factor of 1.07 is applied (exception Lu). Export pieces from Palaepaphos with these patterns occur at several other Cypriot sites, and also outside Cyprus at Tarsus[38] and at other sites in the Levant (eg. Acco 4, 7, 10: CypG, and Megiddo: Megi 1[39]). The sample from Ashkelon included in this project (Ashk 8) also has the pattern CypS or, with lower probability, CypG.

### X075 – X079, Cypriot sample pairs, and non-Cypriot vessels Ajjul 1 and Fara 1 of unknown origin

An archaeological interpretation of these five groups is difficult because they comprise only a small number of samples. They are all well separated from other groups in our data bank. There are no special characteristic features in the data groups X076, X078 and X079. Group X075 of 4 samples from Alassa was formed because the pattern of the average values is well separable from all other groups despite the unusually high variances of some elements, which indicate possible subgroups or singles. As already mentioned for the joint Alassa group CypF, the large variation of elemental concentrations in vessels from that site is unusual and needs further studies. The high Sc value of group X075 points to a different clay source of unknown location for these 4 Alassa samples. The Sc value is also quite high for the groups CypN from Kourion, Group X077 of 4 samples from Idalion, the sub-group CypFd (Alassa 16 and 17), the pair Alassa 189 (1 and 10), and also pairs 151 and 200 from Apliki. Artzy *et al.*[40] describing a group of White Slip ware from Enkomi with high Sc values mentioned that the clays used have a profile which is 'apparently basaltic, since the distinctive composition pattern resembles that of some common basaltic rocks'. High Sc values have also been found in a compositionally different group of White Slip II ware from Ayios Jakovos.[41] The clay source or sources of this special clay have not yet been located. Gomez *et al.*[42] present NAA data with high Sc values of alluvial clay samples from the lower reaches of the Vasilikos valley and 'clay samples derived from the outcrop of highly weathered leucocratic grabbo at Sanida' close to this valley. Other sites with basaltic clays deposited by water courses draining the southern flanks of the Troodos near Limassol have also been proposed as the possible origin of the White Slip ware.[43]

The sample Ajjul 1 from Ajjul has the composition called PalJ. Its definite provenance is not yet determined, but it is assigned probably to the area somewhere in the coastal plain of southern Israel.[44,] The vessel Fara 1 from Tel Fara is a chemical loner, but has a composition associated to a group from the north-eastern Negev called NegE.[45]

## Archaeological Discussion

### The sampling results (Fig. 1)

We were able to get the chemical profile of six sites to add to the already known profile of Sinda, CypH (Fig. 1). We established the chemical profile of CypI for Enkomi. We obtained two profiles for Kouklia, CypG and CypS. CypS is differentiated by higher scandium and iron, but otherwise is the same as CypG. We have a profile CypT for Hala Sultan Tekke, but CypJ applies equally to Kition and Hala Sultan Tekke. We could not separate them, probably because the geology of both sites is similar. CypJ is certainly Kition, as some Proto-White Painted (PWP) pieces analysed from the site have the CypJ profile; at the time PWP was produced, that is LHIIIC Late to Submycenaean in Greek mainland terms, Hala Sultan Tekke had already been abandoned. We obtained no chemical profile for Apliki. There was an unusually large number of Singles and also several unattributed Pairs. It is a mining site which possibly imported all its fine decorated wares. Imports from Enkomi, Kition/Hala Sultan Tekke and Kouklia are attested; the imports from Kouklia would presumably have gone by sea. At Athienou, where the copper was processed, we also obtained no chemical profile, but this may be due to the limited sample numbers. It may be that these two mining sites produced their own coarse and unpainted wares,

[38] Mommsen *et al.* 2011.

[39] D'Agata *et al.* (2005), 375. CypG is called there AKKO, sample Megi 1 is published as single and BS 18 as probable import from Cyprus.

[40] Artzy *et al.* 1981, p. 44 and Table 4(WS).

[41] Perlman *et al.* 1971, Table II.

[42] Gomez *et al.* 1995, 114.

[43] Bryan *et al.* 1997, 38.

[44] Ben-Shlomo *et al.* 2008, PalJ: 961; Barkan *et al.* 2013, 133.

[45] Gunneweg and Mommsen 1990. NegE is called there Qitmit group, p. 11:Tab. 2, column 1.

Table 1: Distribution of the 256 samples from different Cypriot sites into the formed compositional groups measured by NAA (No-: associated to the group, re: repetition measurement). The samples in the groups are identified in Tab. 2. Cyp-groups are assigned to a local Cypriot production. X-groups, pairs of samples (=No) and singles are of unknown provenance. Other pieces (imports, sample No and group name given) are from A: Attic(KroP), B: Boeotia(Theb), D: Miletus(D), K: Crete (KnoK), L: central Crete(KnoL), MB: northeastern Peloponnese (MYBE), T: Troy(TroB). The total number of samples of the groups in the Bonn databank belonging to other projects is also shown.

| NAA group/ finding site | Enkomi | Kition | Hala Sultan Tekke | (Sinda) | Alassa | Kouri-on | Kouklia | Kalava-sos | Idalion | Athie-nou | Apliki | totals in data bank | totals this project |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CypI | **17+3-** +1 re | 6+1- | 3 | (2) | | | | 2 | 7 | 1 | 1 | 139 | 37+4- +1 re |
| CypJ | 3 | **13+3-** | **8** | | | | | 9 | | 1+1- | 1 | 89 | 35+4- |
| CypT | 1 | | **6** | | | | 1 | | 2 | 1 | | 17 | 11 |
| CypH | 5 | 1 | 1 | (**24+1-**) | | | | | | 1 | | 49 | 8 |
| CypF | | | | | **17** +1 re | 1 | 1- | | 1 | | | 19 +1 re | 19+1- +1 re |
| CypN | | | | | | 8 | | | | | | 8 | 8 |
| CypG | 1 | 1 | 1 | | 3 | | **14** | 1+1- | | | 3 | 40 | 24+1- |
| CypS | 1 | | 3 | | | | **9** | 4 | | | 1 | 25 | 18 |
| X075 | | | | | 4 | | | | | | | 4 | 4 |
| X076 | 5 | | 1 | | | | | | | | | 6 | 6 |
| X077 | | | | | | | | | 4 | | | 5 | 4 |
| X078 | | | | | | | | | 1 | 2 | | 5 | 3 |
| X079 | | 2 | | | | | | | | | | 3 | 2 |
| X080 | | | | | | | 2 | | | | | 3 | 2 |
| pairs | | | =120 =195 | | =189 | | | =91 | | | =151 =200 | | 12 |
| other | | 7,35:D 9:MB 16,22:L 19:A sum: 6 | 22:Troy sum: 1 | (3) | | | 16:MB 21:K sum: 2 | 1:B 2,5,7,8: MB sum: 5 | 12:MB sum: 1 | 7,8:MB sum: 2 | 7:MB sum: 1 | | 18 |
| singles | | 5 | 5 | | 4 | 3 | 1 | 6 | | 1 | 10 | | 35 |
| totals | 36 +1 re | 38 | 33 | (30) | 30 +1 re | 12 | 30 | 30 | 16 | 10 | 21 | | 246+10- +2 re |

Table 2-1: Average concentrations M of elements in µg/g (ppm), if not indicated otherwise, and variances σ in % of M of pottery groups assigned to a Cypriot origin. The individual samples have been multiplied by their best relative fit factors given in Tab. 3 with respect to the grouping value M.

| | CypI Enkomi | | CypJ Kition/Hala Sultan Tekke | | CypT Hala Sultan Tekke? | | CypH Sinda | | CypF Alassa | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 139 samples | | 89 samples | | 17 samples | | 49 samples | | 19+1 re samples | |
| | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) |
| As | 11.5 | 44. | 11.9 | 67. | 9.51 | 26. | 7.29 | 43. | 9.35 | 48. |
| Ba | 418. | 36. | 530. | 67. | 406. | 37. | 424. | 39. | 765. | 25. |
| Ca% | 9.51 | 24. | 12.3 | 33. | 11.3 | 21. | 11.8 | 21. | 10.3 | 36. |
| Ce | 37.4 | 5.0 | 38.2 | 3.9 | 35.4 | 3.2 | 42.7 | 3.6 | 45.4 | 7.8 |
| Co | 28.3 | 6.2 | 19.6 | 9.4 | 22.3 | 9.4 | 22.3 | 11. | 27.9 | 12. |
| Cr | 312. | 26. | 294. | 10. | 321. | 51. | 309. | 14. | 207. | 31. |
| Cs | 3.76 | 13. | 2.97 | 14. | 2.36 | 11. | 4.60 | 13. | 1.33 | 48. |
| Eu | 0.94 | 3.5 | 0.96 | 4.0 | 0.97 | 3.8 | 1.01 | 3.4 | 1.05 | 4.9 |
| Fe % | 5.34 | 4.9 | 4.05 | 5.9 | 4.71 | 4.7 | 4.74 | 2.9 | 5.29 | 11. |
| Ga | 14.9 | 23. | 11.9 | 31. | 12.8 | 19. | 15.4 | 13. | 11.9 | 17. |
| Hf | 2.93 | 6.3 | 3.02 | 5.2 | 2.78 | 5.3 | 3.16 | 4.5 | 3.57 | 9.7 |
| K % | 1.79 | 17. | 1.80 | 19. | 1.49 | 10. | 1.85 | 33. | 0.78 | 20. |
| La | 18.0 | 5.5 | 19.1 | 5.3 | 17.9 | 4.3 | 22.1 | 2.8 | 20.8 | 7.5 |

| | CypI Enkomi 139 samples | | CypJ Kition/Hala Sultan Tekke 89 samples | | CypT Hala Sultan Tekke? 17 samples | | CypH Sinda 49 samples | | CypF Alassa 19+1 re samples | |
|---|---|---|---|---|---|---|---|---|---|---|
| | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) |
| Lu | 0.37 | 6.0 | 0.34 | 5.1 | 0.37 | 6.1 | 0.36 | 5.1 | 0.41 | 6.4 |
| Na % | 1.00 | 19. | 1.19 | 17. | 1.23 | 20. | 1.11 | 26. | 0.58 | 39. |
| Nd | 16.3 | 9.2 | 17.0 | 7.8 | 16.6 | 5.9 | 20.1 | 9.1 | 18.2 | 7.4 |
| Ni | 235. | 22. | 185. | 19. | 166. | 27. | 266. | 25. | 190. | 38. |
| Rb | 62.8 | 12. | 58.1 | 13. | 46.5 | 12. | 65.8 | 33. | 28.9 | 31. |
| Sb | 0.80 | 22. | 0.70 | 28. | 0.58 | 24. | 0.69 | 20. | 0.59 | 30. |
| Sc | 22.6 | 6.4 | 17.8 | 5.6 | 21.9 | 8.0 | 20.2 | 4.0 | 21.8 | 11. |
| Sm | 3.33 | 7.0 | 3.44 | 7.2 | 3.34 | 4.2 | 3.91 | 6.1 | 3.70 | 6.7 |
| Ta | 0.56 | 8.7 | 0.56 | 7.1 | 0.51 | 9.6 | 0.65 | 4.5 | 0.76 | 15. |
| Tb | 0.55 | 9.8 | 0.57 | 8.7 | 0.57 | 11. | 0.61 | 8.0 | 0.66 | 11. |
| Th | 5.95 | 6.9 | 5.72 | 4.2 | 5.02 | 5.8 | 7.28 | 3.7 | 6.16 | 8.0 |
| U | 1.82 | 20. | 2.26 | 20. | 1.79 | 17. | 3.22 | 17. | 1.20 | 22. |
| W | 1.61 | 22. | 1.44 | 18. | 1.53 | 20. | 1.48 | 19. | 1.53 | 26. |
| Yb | 2.19 | 4.8 | 2.15 | 4.2 | 2.24 | 4.3 | 2.26 | 3.3 | 2.47 | 4.4 |
| Zn | 99.7 | 13. | 101. | 26. | 91.2 | 13. | 99.5 | 25. | 88.6 | 23. |
| Zr | 111. | 31. | 125. | 23. | 108. | 29. | 86.9 | 50. | 129. | 24. |

Table 2-2: The concentration values as in Tab. 2-1 of the five subgroups of the joint group CypF (Alassa). The factor is the best relative fit factor with respect to the subgroup CyFa.

| | CyFa 5+1 re samples factor 1.00 | | CyFb 4 samples factor 1.09 | | CyFc 3 samples factor 1.02 | | CyFd 2 samples factor 1.17 | | CyFe 5 samples factor 0.96 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) |
| As | 7.87 | (9.9) | 9.25 | (18.) | 9.52 | (23.) | 19.8 | (66.) | 8.81 | (70.) |
| Ba | 811. | (15.) | 733. | (19.) | 836. | (14.) | 1030. | (4.8) | 687. | (44.) |
| Br | 14.0 | (64.) | -- | | 9.49 | (12.) | 9.69 | (12.) | 8.81 | (82.) |
| Ca % | 16.5 | (46.) | 9.93 | (17.) | 8.67 | (14.) | 7.20 | (14.) | 10.1 | (35.) |
| Ce | 46.9 | (2.6) | 55.8 | (5.1) | 42.3 | (2.9) | 55.7 | (1.0) | 39.8 | (10.) |
| Co | 26.9 | (3.9) | 29.8 | (6.2) | 27.5 | (2.4) | 49.1 | (4.8) | 24.5 | (5.6) |
| Cr | 170. | (7.5) | 237. | (29.) | 219. | (7.4) | 402. | (18.) | 187. | (50.) |
| Cs | 0.97 | (24.) | 1.96 | (23.) | 0.75 | (31.) | 2.91 | (61.) | 1.33 | (39.) |
| Eu | 1.04 | (9.1) | 1.21 | (2.7) | 1.08 | (3.4) | 1.31 | (2.0) | 0.96 | (3.3) |
| Fe % | 4.83 | (6.5) | 5.79 | (8.9) | 6.11 | (3.1) | 7.10 | (3.0) | 4.99 | (12.) |
| Ga | 11.6 | (26.) | 16.0 | (19.) | 11.3 | (16.) | 15.3 | (12.) | 10.5 | (14.) |
| Hf | 3.78 | (8.9) | 3.96 | (8.6) | 3.63 | (6.9) | 4.87 | (2.5) | 2.99 | (4.4) |
| K % | 0.64 | (11.) | 1.11 | (5.8) | 0.61 | (16.) | 1.07 | (23.) | 0.81 | (9.1) |
| La | 20.9 | (11.) | 25.0 | (3.9) | 20.2 | (0.9) | 26.7 | (1.6) | 18.7 | (11.) |
| Lu | 0.39 | (7.4) | 0.46 | (10.) | 0.43 | (4.0) | 0.58 | (3.6) | 0.38 | (5.5) |
| Na % | 0.41 | (20.) | 0.73 | (37.) | 0.50 | (34.) | 0.64 | (13.) | 0.75 | (28.) |
| Nd | 17.8 | (12.) | 21.8 | (9.0) | 18.7 | (7.8) | 23.1 | (6.8) | 16.4 | (6.5) |
| Ni | 177. | (25.) | 175. | (25.) | 157. | (23.) | 473. | (9.9) | 169. | (32.) |
| Rb | 24.6 | (11.) | 44.7 | (19.) | 19.3 | (25.) | 37.6 | (50.) | 29.0 | (28.) |
| Sb | 0.57 | (18.) | 0.76 | (41.) | 0.67 | (35.) | 0.67 | (21.) | 0.47 | (33.) |
| Sc | 19.7 | (6.9) | 23.0 | (3.9) | 24.6 | (3.5) | 31.9 | (0.2) | 21.0 | (13.) |
| Sm | 3.68 | (13.) | 4.30 | (9.6) | 3.68 | (1.8) | 4.86 | (1.0) | 3.36 | (5.3) |
| Ta | 0.81 | (8.1) | 0.96 | (8.5) | 0.77 | (6.3) | 0.94 | (6.2) | 0.58 | (16.) |
| Tb | 0.68 | (13.) | 0.76 | (11.) | 0.65 | (16.) | 0.91 | (9.7) | 0.58 | (11.) |
| Th | 6.20 | (3.7) | 7.10 | (4.3) | 6.39 | (3.9) | 7.67 | (2.6) | 5.51 | (15.) |
| U | 1.26 | (24.) | 1.22 | (26.) | 1.24 | (15.) | 1.33 | (33.) | 1.19 | (18.) |
| W | 1.65 | (21.) | 1.71 | (23.) | 1.32 | (12.) | 1.57 | (12.) | 1.54 | (36.) |
| Yb | 2.46 | (3.8) | 2.76 | (6.5) | 2.51 | (2.2) | 3.45 | (3.2) | 2.21 | (2.9) |
| Zn | 77.9 | (15.) | 97.1 | (26.) | 92.2 | (5.8) | 87.7 | (7.3) | 101. | (18.) |
| Zr | 148. | (21.) | 127. | (21.) | 136. | (20.) | 189. | (24.) | 101. | (27.) |

Table 2-3: see Tab. 2-1

| | CypN Kourion 8 samples | | CypG Kouklia 40 samples | | CypS Kouklia 25 samples | | X075 Alassa? 4 samples | | X076 6 samples | |
|---|---|---|---|---|---|---|---|---|---|---|
| | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) |
| As | 8.62 | 69. | 8.30 | 62. | 10.1 | 60. | 4.31 | 32. | 10.8 | 21. |
| Ba | 472. | 19. | 532. | 34. | 516. | 45. | 700. | 28. | 423. | 13. |
| Ca % | 11.7 | 15. | 8.19 | 18. | 8.53 | 27. | 7.39 | 17. | 8.17 | 11. |
| Ce | 26.6 | 12. | 59.8 | 3.8 | 51.6 | 6.6 | 28.3 | 6.6 | 48.8 | 1.6 |
| Co | 34.6 | 8.1 | 21.7 | 5.6 | 22.3 | 8.0 | 47.1 | 14. | 26.9 | 8.0 |
| Cr | 350. | 15. | 92.2 | 13. | 130. | 27. | 525. | 27. | 632. | 9.8 |
| Cs | 1.70 | 25. | 3.71 | 11. | 3.20 | 12. | 1.19 | 32. | 4.07 | 11. |
| Eu | 0.83 | 8.1 | 1.11 | 4.8 | 1.09 | 5.2 | 0.92 | 5.3 | 1.17 | 3.0 |
| Fe % | 5.45 | 5.1 | 4.05 | 4.7 | 4.37 | 5.0 | 7.06 | 4.9 | 5.57 | 5.7 |
| Ga | 14.1 | 21. | 15.7 | 19. | 14.8 | 27. | 11.6 | 16. | 20.5 | 13. |
| Hf | 2.14 | 9.5 | 3.43 | 3.1 | 3.24 | 6.4 | 2.43 | 5.0 | 4.07 | 8.6 |
| K % | 0.82 | 17. | 1.58 | 15. | 1.56 | 14. | 0.52 | 20. | 2.04 | 8.5 |
| La | 13.4 | 11. | 28.1 | 4.2 | 24.7 | 5.8 | 13.0 | 1.9 | 24.1 | 2.6 |
| Lu | 0.41 | 7.3 | 0.35 | 4.9 | 0.37 | 7.2 | 0.47 | 3.8 | 0.42 | 4.6 |
| Na % | 0.89 | 11. | 0.39 | 24. | 0.66 | 28. | 0.92 | 7.4 | 1.28 | 13. |
| Nd | 13.2 | 14. | 21.7 | 8.0 | 20.8 | 8.2 | 13.8 | 17. | 22.0 | 7.5 |
| Ni | 230. | 35. | 127. | 37. | 137. | 43. | 415. | 26. | 216. | 23. |
| Rb | 27.7 | 16. | 68.0 | 8.2 | 62.0 | 9.5 | 19.7 | 26. | 67.0 | 17. |
| Sb | 0.36 | 21. | 0.51 | 17. | 0.50 | 18. | 0.28 | 13. | 0.85 | 13. |
| Sc | 27.9 | 7.7 | 14.5 | 6.9 | 17.7 | 7.9 | 35.5 | 4.5 | 23.2 | 3.4 |
| Sm | 2.65 | 9.0 | 4.05 | 8.1 | 4.01 | 6.2 | 3.16 | 1.5 | 4.24 | 5.1 |
| Ta | 0.39 | 15. | 1.01 | 6.5 | 0.81 | 9.6 | 0.37 | 14. | 0.70 | 6.7 |
| Tb | 0.58 | 13. | 0.66 | 7.2 | 0.66 | 8.0 | 0.62 | 13. | 0.65 | 10. |
| Th | 3.26 | 15. | 7.58 | 5.2 | 6.70 | 7.5 | 3.45 | 6.5 | 7.69 | 2.4 |
| U | 0.63 | 50. | 1.62 | 27. | 1.59 | 20. | 0.45 | 49. | 2.12 | 28. |
| W | 1.90 | 15. | 1.59 | 20. | 1.67 | 20. | 1.14 | 15. | 1.84 | 11. |
| Yb | 2.25 | 5.6 | 2.31 | 3.9 | 2.38 | 6.3 | 2.38 | 3.5 | 2.61 | 2.7 |
| Zn | 65.2 | 5.0 | 84.4 | 18. | 93.6 | 12. | 177. | 60. | 93.5 | 2.3 |
| Zr | 75.1 | 37. | 128. | 17. | 126. | 19. | 95.5 | 32. | 139. | 18. |

Table 2-4: see Tab. 2-1

| | X077 5 samples | | X078 5 samples | | X079 3 samples | | X080 Kouklia? 3 samples | | =91 2 samples | |
|---|---|---|---|---|---|---|---|---|---|---|
| | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) |
| As | 7.96 | 18. | 8.81 | 16. | 7.18 | 38. | 6.70 | 23. | 9.53 | 97. |
| Ba | 252. | 23. | 347. | 51. | 391. | 56. | 820. | 30. | 1076. | 68. |
| Ca % | 7.84 | 28. | 10.4 | 41. | 12.4 | 2.5 | 9.74 | 20. | 14.8 | 6.9 |
| Ce | 22.5 | 7.9 | 27.5 | 4.2 | 41.5 | 1.9 | 58.9 | 1.0 | 38.7 | 1.3 |
| Co | 26.2 | 5.4 | 23.1 | 4.5 | 26.1 | 1.9 | 23.4 | 9.5 | 13.3 | 2.7 |
| Cr | 189. | 24. | 187. | 14. | 329. | 7.5 | 130. | 9.4 | 84.6 | 1.4 |
| Cs | 2.12 | 14. | 2.42 | 11. | 3.01 | 29. | 3.10 | 4.3 | 2.70 | 12. |
| Eu | 0.78 | 3.7 | 0.87 | 2.9 | 1.02 | 4.8 | 1.18 | 3.4 | 0.89 | 4.3 |
| Fe % | 6.16 | 6.2 | 5.21 | 9.8 | 5.30 | 4.7 | 3.98 | 2.8 | 3.33 | 15. |
| Ga | 13.0 | 24. | 10.9 | 18. | 11.1 | 23. | 14.7 | 14. | 11.7 | 35. |
| Hf | 2.21 | 4.3 | 2.37 | 7.4 | 3.30 | 4.0 | 3.51 | 3.0 | 2.72 | 6.0 |
| K % | 1.35 | 16. | 1.44 | 11. | 1.12 | 7.2 | 1.59 | 4.6 | 1.26 | 14. |
| La | 10.4 | 9.4 | 13.7 | 6.7 | 20.0 | 5.1 | 29.7 | 2.3 | 20.1 | 3.0 |
| Lu | 0.40 | 6.9 | 0.37 | 12. | 0.35 | 7.6 | 0.35 | 5.9 | 0.29 | 3.9 |

| | X077 | | X078 | | X079 | | X080 Kouklia? | | =91 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5 samples | | 5 samples | | 3 samples | | 3 samples | | 2 samples | |
| | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) |
| Na % | 1.61 | 18. | 1.52 | 14. | 1.39 | 34. | 0.38 | 14. | 0.46 | 33. |
| Nd | 13.0 | 14. | 13.5 | 10. | 19.3 | 6.4 | 21.9 | 11. | 16.5 | 6.2 |
| Ni | 131. | 35. | 152. | 23. | 234. | 13. | 220. | 43. | 92.8 | 30. |
| Rb | 40.8 | 9.2 | 46.8 | 7.0 | 34.9 | 18. | 59.3 | 7.1 | 54.4 | 6.0 |
| Sb | 0.84 | 16. | 0.55 | 30. | 0.71 | 41. | 0.38 | 21. | 0.41 | 14. |
| Sc | 29.7 | 5.6 | 22.9 | 9.6 | 22.1 | 8.8 | 13.3 | 3.8 | 12.3 | 1.9 |
| Sm | 2.69 | 3.0 | 3.15 | 4.6 | 4.00 | 4.0 | 4.19 | 12. | 3.12 | 1.0 |
| Ta | 0.26 | 17. | 0.42 | 14. | 0.62 | 14. | 1.33 | 8.9 | 0.61 | 6.5 |
| Tb | 0.51 | 14. | 0.53 | 9.0 | 0.58 | 17. | 0.67 | 7.1 | 0.59 | 13. |
| Th | 3.06 | 4.5 | 3.84 | 4.3 | 6.26 | 6.3 | 6.86 | 1.7 | 5.38 | 1.7 |
| U | 4.22 | 50. | 1.93 | 30. | 2.36 | 35. | 1.48 | 7.7 | 1.94 | 8.6 |
| W | 1.25 | 26. | 1.86 | 72. | 1.45 | 13. | 1.48 | 29. | 1.28 | 16. |
| Yb | 2.18 | 5.9 | 2.25 | 6.6 | 2.14 | 10. | 2.33 | 2.6 | 1.85 | 2.4 |
| Zn | 116. | 18. | 99.6 | 8.0 | 86.7 | 8.6 | 86.3 | 27. | 255. | 79. |
| Zr | 95.2 | 29. | 102. | 25. | 129. | 18. | 148. | 14. | 111. | 18. |

Table 2-5: see Tab. 2-1

| | =120 | | =151 | | =189 | | =195 | | =200 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2 samples | | 2 samples | | 2 samples | | 2 samples | | 2 samples | |
| | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) | M | σ(%) |
| As | 14.1 | 63. | 3.72 | 47. | 4.48 | 39. | 6.66 | 12. | 9.75 | 50. |
| Ba | 683. | 76. | 127. | 27. | 535. | 22. | 283. | 25. | 114. | 30. |
| Ca % | 13.4 | 30. | 5.79 | 6.9 | 7.96 | 3.2 | 12.0 | 1.9 | 3.87 | 3.8 |
| Ce | 30.8 | 2.1 | 12.7 | 3.0 | 41.0 | 1.1 | 32.3 | 1.0 | 10.0 | 3.7 |
| Co | 14.6 | 4.3 | 32.1 | 5.4 | 47.4 | 3.2 | 22.2 | 14. | 76.5 | 47. |
| Cr | 209. | 2.9 | 65.9 | 1.1 | 556. | 68. | 152. | 0.7 | 68.5 | 6.0 |
| Cs | 1.89 | 4.9 | 1.57 | 7.1 | 1.27 | 28. | 2.56 | 30. | 0.80 | 36. |
| Eu | 0.88 | 2.6 | 0.82 | 5.4 | 1.11 | 3.5 | 0.71 | 2.6 | 0.81 | 6.1 |
| Fe % | 3.47 | 8.6 | 7.39 | 1.5 | 7.37 | 0.3 | 3.44 | 0.4 | 7.63 | 3.4 |
| Ga | 13.2 | 27. | 16.6 | 44. | 12.7 | 13. | 8.66 | 16. | 21.6 | 25. |
| Hf | 2.70 | 2.0 | 1.89 | 3.3 | 3.53 | 5.6 | 2.18 | 2.2 | 1.89 | 3.4 |
| K % | 1.48 | 3.6 | 1.19 | 12. | 0.68 | 7.4 | 1.13 | 4.0 | 0.86 | 4.6 |
| La | 16.0 | 1.2 | 6.77 | 14. | 19.3 | 3.0 | 15.5 | 5.5 | 4.79 | 1.4 |
| Lu | 0.31 | 3.6 | 0.50 | 3.9 | 0.51 | 3.3 | 0.25 | 4.0 | 0.59 | 8.5 |
| Na % | 1.38 | 5.7 | 1.50 | 14. | 0.83 | 9.8 | 0.95 | 11. | 1.21 | 1.5 |
| Nd | 13.6 | 7.6 | 9.02 | 12. | 19.3 | 7.1 | 13.3 | 7.3 | 7.17 | 16. |
| Ni | 140. | 25. | 64.7 | 54. | 383. | 23. | 200. | 24. | 68.5 | 53. |
| Rb | 40.5 | 4.9 | 36.4 | 7.0 | 27.9 | 11. | 44.3 | 16. | 26.2 | 12. |
| Sb | 0.45 | 19. | 0.30 | 16. | 0.46 | 25. | 0.48 | 11. | 0.42 | 7.3 |
| Sc | 17.1 | 9.5 | 32.8 | 2.9 | 35.0 | 4.0 | 14.2 | 1.4 | 31.4 | 1.2 |
| Sm | 3.03 | 14. | 2.20 | 16. | 4.20 | 2.0 | 2.53 | 0.5 | 2.01 | 7.7 |
| Ta | 0.43 | 9.2 | 0.14 | 52. | 0.58 | 9.2 | 0.52 | 8.0 | 0.19 | 25. |
| Tb | 0.57 | 9.5 | 0.49 | 14. | 0.75 | 20. | 0.37 | 14. | 0.49 | 41. |
| Th | 4.37 | 1.3 | 1.55 | 11. | 5.30 | 8.3 | 5.21 | 1.1 | 1.67 | 4.2 |
| U | 2.10 | 21. | 0.73 | 30. | 0.70 | 33. | 1.28 | 19. | 0.49 | 64. |
| W | 1.11 | 42. | 2.51 | 20. | 1.10 | 19. | 1.45 | 9.8 | 2.64 | 27. |
| Yb | 1.99 | 3.0 | 2.35 | 7.8 | 2.81 | 5.1 | 1.57 | 3.5 | 2.90 | 11. |
| Zn | 78.4 | 16. | 139. | 12. | 399. | 7.1 | 105. | 7.4 | 246. | 2.1 |
| Zr | 104. | 21. | 79.7 | 35. | 122. | 25. | 102. | 22. | 43.4 | 64. |

Table 2-6: NAA concentration data C in µg/g (ppm), if not indicated otherwise, of samples that are not grouped (chemical singles). Average measurement uncertainties (errors) are given below, also in % of C.

| Sample | As | Ba | Ca % | Ce | Co | Cr | Cs | Eu | Fe % | Ga |
|---|---|---|---|---|---|---|---|---|---|---|
| Alas 3 | 2.56 | 489. | 8.85 | 48.6 | 27.2 | 149. | 2.93 | 0.97 | 5.58 | 16.0 |
| Alas 22 | 5.34 | 746. | 5.37 | 61.1 | 27.8 | 106. | 2.03 | 1.07 | 5.61 | 13.8 |
| Alas 28 | 5.69 | 944. | 15.8 | 42.1 | 34.4 | 639. | 1.02 | 1.05 | 6.02 | 18.6 |
| Alas 29 | 5.35 | 1132. | 5.15 | 62.4 | 23.8 | 119. | 1.65 | 1.15 | 4.98 | 12.0 |
| Apli 1 | 5.67 | 272. | 9.69 | 77.1 | 25.7 | 217. | 6.46 | 1.41 | 4.82 | 19.3 |
| Apli 6 | 4.62 | 176. | 5.64 | 45.6 | 18.7 | 58.7 | 2.14 | 0.82 | 3.48 | 17.2 |
| Apli 7 | 8.98 | 130. | 6.36 | 18.0 | 43.2 | 73.2 | 1.47 | 0.94 | 6.44 | 21.1 |
| Apli 15 | 13.7 | 110. | 2.40 | 7.45 | 20.2 | 68.9 | 0.20 | 0.55 | 8.53 | 11.4 |
| Apli 16 | 35.4 | 267. | 2.64 | 36.5 | 26.6 | 336. | 2.77 | 1.13 | 7.58 | 16.9 |
| Apli 17 | 22.5 | 189. | 4.60 | 36.2 | 23.8 | 332. | 1.17 | 1.05 | 6.80 | 18.5 |
| Apli 18 | 17.9 | 240. | 4.61 | 39.7 | 26.0 | 306. | 4.69 | 1.19 | 6.56 | 33.9 |
| Apli 19 | 10.4 | 282. | 9.85 | 44.9 | 28.1 | 352. | 5.27 | 1.04 | 4.08 | 10.4 |
| Apli 20 | 12.4 | 280. | 8.01 | 41.3 | 42.6 | 326. | 4.51 | 1.12 | 6.72 | 21.2 |
| Apli 21 | 21.8 | 192. | 8.49 | 40.0 | 32.7 | 281. | 4.85 | 0.94 | 7.38 | 20.0 |
| Athi 2 | 8.02 | 233. | 6.17 | 38.8 | 34.3 | 346. | 2.21 | 0.88 | 5.94 | 13.3 |
| HSTp 1 | 17.3 | 510. | 8.60 | 28.3 | 25.5 | 765. | 2.04 | 0.96 | 5.63 | 10.7 |
| HSTp 4 | 10.9 | 210. | 8.30 | 29.0 | 19.0 | 230. | 2.33 | 0.82 | 4.71 | 9.51 |
| HSTp 8 | 12.7 | 202. | 7.77 | 23.3 | 22.0 | 447. | 1.39 | 0.73 | 4.67 | 7.59 |
| HSTp 16 | 8.78 | 653. | 10.2 | 35.9 | 34.4 | 345. | 2.07 | 1.05 | 5.53 | 16.2 |
| HSTp 33 | 12.8 | 301. | 10.5 | 48.1 | 15.8 | 107. | 1.21 | 1.04 | 4.55 | 12.6 |
| Kalv 3 | 15.2 | 1143. | 18.5 | 21.9 | 18.8 | 234. | 0.87 | 0.62 | 3.78 | 12.2 |
| Kalv 6 | 4.57 | 416. | 9.22 | 49.1 | 23.4 | 168. | 5.90 | 0.95 | 4.37 | 18.8 |
| Kalv 14 | 21.6 | 504. | 7.35 | 54.4 | 16.4 | 66.8 | 2.17 | 1.10 | 3.10 | 13.5 |
| Kalv 21 | 3.49 | 1215. | 10.8 | 54.6 | 19.2 | 118. | 4.43 | 1.03 | 3.78 | 15.0 |
| Kalv 28 | 2.40 | 2336. | 7.54 | 52.8 | 27.1 | 117. | 3.52 | 0.94 | 4.14 | 16.5 |
| Kiti 2 | 8.46 | 295. | 9.49 | 34.1 | 18.3 | 296. | 3.05 | 0.78 | 3.82 | 12.9 |
| Kiti 3 | 7.49 | 253. | 13.2 | 59.8 | 24.0 | 233. | 5.05 | 1.09 | 4.39 | 12.2 |
| Kiti 14 | 45.3 | 304. | 14.0 | 43.7 | 22.9 | 291. | 2.47 | 1.16 | 5.40 | 9.42 |
| Kiti 17 | 9.87 | 319. | 11.3 | 43.5 | 21.7 | 651. | 1.11 | 1.19 | 5.29 | 12.9 |
| Kiti 29 | 9.56 | 251. | 3.86 | 48.9 | 21.8 | 248. | 5.01 | 0.98 | 4.40 | 16.9 |
| Kouk 20 | 11.9 | 220. | 6.83 | 83.2 | 16.2 | 75.7 | 6.94 | 1.33 | 3.96 | 22.4 |
| Kour 4 | 7.19 | 478. | 18.6 | 43.7 | 19.3 | 77.2 | 2.53 | 0.96 | 2.98 | 7.36 |
| Kour 5 | 2.82 | 1017. | 12.3 | 46.2 | 27.8 | 197. | 2.93 | 1.04 | 4.55 | 15.2 |
| Kour 7 | 7.36 | 348. | 8.26 | 20.2 | 43.3 | 399. | 1.13 | 0.80 | 7.18 | 11.5 |
| ave. error | 0.15 | 36. | 0.26 | 0.40 | 0.13 | 1.1 | 0.10 | 0.021 | 0.016 | 2.6 |
| in % | 1.2 | 7.4 | 3.0 | 0.9 | 0.5 | 0.4 | 3.5 | 2.1 | 0.3 | 18. |

| Sample | Hf | K % | La | Lu | Na % | Nd | Ni | Rb | Sb | Sc |
|---|---|---|---|---|---|---|---|---|---|---|
| Alas 3 | 3.55 | 1.21 | 22.2 | 0.37 | 0.65 | 19.2 | 172. | 56.1 | 0.35 | 21.5 |
| Alas 22 | 4.09 | 0.96 | 28.3 | 0.44 | 0.54 | 23.9 | 233. | 41.6 | 0.38 | 21.5 |
| Alas 28 | 3.75 | 0.52 | 19.3 | 0.46 | 0.43 | 17.6 | 338. | 21.3 | 0.60 | 25.5 |
| Alas 29 | 3.87 | 0.86 | 28.1 | 0.39 | 0.26 | 19.3 | 194. | 35.0 | 0.44 | 14.5 |
| Apli 1 | 4.72 | 1.95 | 38.8 | 0.47 | 0.62 | 28.0 | 201. | 118. | 0.62 | 17.9 |
| Apli 6 | 2.96 | 0.97 | 17.3 | 0.28 | 0.21 | 12.4 | 56.2 | 46.8 | 0.45 | 11.4 |
| Apli 7 | 2.16 | 1.14 | 8.86 | 0.56 | 0.98 | 11.2 | 140. | 28.9 | 0.53 | 28.0 |
| Apli 15 | 2.53 | 0.82 | 4.10 | 0.40 | 1.13 | 3.27 | 50.0 | 13.4 | 0.49 | 27.6 |
| Apli 16 | 4.53 | 2.29 | 17.0 | 0.64 | 0.79 | 17.2 | 269. | 70.6 | 1.20 | 29.4 |
| Apli 17 | 4.16 | 1.39 | 16.0 | 0.54 | 0.51 | 14.7 | 322. | 36.3 | 1.21 | 26.0 |
| Apli 18 | 3.66 | 1.91 | 18.9 | 0.62 | 0.97 | 19.2 | 188. | 81.8 | 0.88 | 27.2 |
| Apli 19 | 3.35 | 2.43 | 20.8 | 0.36 | 1.15 | 19.9 | 155. | 84.6 | 1.09 | 20.5 |
| Apli 20 | 3.61 | 2.04 | 19.1 | 0.51 | 0.94 | 19.7 | 384. | 80.6 | 1.49 | 26.8 |
| Apli 21 | 3.51 | 1.88 | 17.2 | 0.38 | 1.05 | 17.7 | 241. | 80.1 | 1.12 | 26.6 |
| Athi 2 | 3.26 | 2.00 | 17.7 | 0.33 | 1.14 | 16.2 | 362. | 45.3 | 1.18 | 22.4 |
| HSTp 1 | 2.54 | 1.22 | 14.3 | 0.39 | 1.53 | 14.0 | 221. | 41.5 | 0.62 | 33.6 |
| HSTp 4 | 2.75 | 1.74 | 13.7 | 0.33 | 1.45 | 15.8 | 149. | 47.1 | 0.47 | 20.1 |
| HSTp 8 | 2.20 | 1.27 | 10.8 | 0.28 | 1.46 | 14.0 | 110. | 30.4 | 0.44 | 22.5 |
| HSTp 16 | 2.84 | 1.33 | 17.6 | 0.42 | 1.53 | 16.2 | 210. | 42.1 | 0.72 | 25.9 |

| Sample | Hf | K % | La | Lu | Na % | Nd | Ni | Rb | Sb | Sc |
|---|---|---|---|---|---|---|---|---|---|---|
| HSTp 33 | 7.20 | 0.83 | 22.4 | 0.33 | 0.47 | 19.3 | 94.3 | 24.9 | 0.95 | 12.3 |
| Kalv 3 | 1.38 | 0.95 | 11.6 | 0.25 | 0.48 | 8.21 | 93.6 | 26.1 | 0.36 | 14.1 |
| Kalv 6 | 3.59 | 2.06 | 20.5 | 0.41 | 0.71 | 17.6 | 153. | 110. | 0.38 | 16.8 |
| Kalv 14 | 3.08 | 1.18 | 21.9 | 0.31 | 0.38 | 18.5 | 86.8 | 44.0 | 0.54 | 12.1 |
| Kalv 21 | 3.46 | 1.76 | 26.7 | 0.35 | 0.72 | 22.9 | 99.9 | 80.3 | 0.45 | 14.6 |
| Kalv 28 | 3.60 | 1.35 | 25.6 | 0.32 | 0.31 | 20.3 | 176. | 63.7 | 0.42 | 14.4 |
| Kiti 2 | 3.31 | 2.37 | 16.1 | 0.31 | 1.21 | 11.9 | 115. | 63.1 | 0.53 | 16.8 |
| Kiti 3 | 3.89 | 1.96 | 29.3 | 0.36 | 0.58 | 23.7 | 202. | 88.8 | 0.54 | 15.9 |
| Kiti 14 | 3.42 | 1.19 | 21.7 | 0.40 | 1.81 | 24.8 | 163. | 24.7 | 1.20 | 22.1 |
| Kiti 17 | 3.68 | 1.64 | 21.1 | 0.43 | 1.70 | 21.8 | 142. | 32.1 | 0.68 | 26.0 |
| Kiti 29 | 3.71 | 2.65 | 21.8 | 0.35 | 1.45 | 20.4 | 135. | 86.9 | 0.69 | 18.4 |
| Kouk 20 | 5.47 | 2.75 | 40.6 | 0.48 | 0.47 | 29.0 | 61.6 | 141. | 0.51 | 15.1 |
| Kour 4 | 2.61 | 1.24 | 22.1 | 0.34 | 0.44 | 16.9 | 146. | 48.8 | 0.56 | 11.9 |
| Kour 5 | 3.14 | 1.17 | 23.5 | 0.34 | 0.51 | 18.0 | 368. | 46.2 | 0.54 | 17.7 |
| Kour 7 | 2.26 | 0.86 | 9.87 | 0.51 | 1.27 | 13.5 | 188. | 26.2 | 0.40 | 36.3 |
| ave. error | 0.059 | 0.028 | 0.072 | 0.015 | 0.005 | 1.2 | 32. | 2.3 | 0.032 | 0.023 |
| in % | 1.7 | 1.8 | 0.4 | 3.8 | 0.5 | 6.6 | 18. | 4.2 | 4.7 | 0.1 |

| Sample | Sm | Ta | Tb | Th | U | W | Yb | Zn | Zr |
|---|---|---|---|---|---|---|---|---|---|
| Alas 3 | 3.57 | 0.93 | 0.55 | 7.41 | 0.98 | 1.08 | 2.09 | 114. | 114. |
| Alas 22 | 4.27 | 1.06 | 0.83 | 8.99 | 1.24 | 1.85 | 2.73 | 84.7 | 176. |
| Alas 28 | 3.72 | 0.73 | 0.73 | 6.33 | 1.19 | 2.04 | 2.68 | 69.4 | 191. |
| Alas 29 | 3.80 | 1.12 | 0.64 | 8.76 | 1.33 | 2.41 | 2.48 | 94.7 | 171. |
| Apli 1 | 5.49 | 1.25 | 0.82 | 11.9 | 2.13 | 2.31 | 3.17 | 89.8 | 185. |
| Apli 6 | 2.45 | 0.90 | 0.57 | 6.37 | 1.06 | 1.59 | 1.88 | 79.5 | 130. |
| Apli 7 | 2.69 | 0.22 | 0.60 | 2.84 | 1.24 | 2.22 | 2.86 | 130. | 155. |
| Apli 15 | 1.22 | 0.43 | 0.29 | 1.94 | 0.88 | 3.74 | 1.71 | 243. | 36.0 |
| Apli 16 | 3.78 | 0.82 | 0.87 | 8.91 | 2.20 | 3.38 | 4.04 | 123. | 163. |
| Apli 17 | 3.86 | 0.91 | 0.67 | 8.64 | 2.01 | 2.62 | 3.28 | 94.6 | 150. |
| Apli 18 | 4.17 | 0.68 | 0.80 | 8.28 | 2.00 | 5.12 | 3.67 | 146. | 110. |
| Apli 19 | 3.77 | 0.66 | 0.68 | 7.28 | 2.17 | 1.40 | 2.37 | 139. | 128. |
| Apli 20 | 4.07 | 0.76 | 0.65 | 7.47 | 1.99 | 1.85 | 3.01 | 86.8 | 162. |
| Apli 21 | 3.22 | 0.55 | 0.55 | 6.97 | 1.61 | 2.38 | 2.39 | 114. | 108. |
| Athi 2 | 3.61 | 0.64 | 0.43 | 6.42 | 1.44 | 1.58 | 2.13 | 107. | 118. |
| HSTp 1 | 3.59 | 0.41 | 0.69 | 3.76 | 0.61 | 1.43 | 2.24 | 95.1 | 65.2 |
| HSTp 4 | 3.00 | 0.45 | 0.51 | 4.65 | 0.96 | 1.07 | 2.05 | 126. | 142. |
| HSTp 8 | 2.48 | 0.36 | 0.44 | 3.28 | 0.88 | 0.89 | 1.56 | 102. | 140. |
| HSTp 16 | 3.69 | 0.51 | 0.64 | 4.78 | 1.28 | 1.15 | 2.36 | 92.1 | 121. |
| HSTp 33 | 3.58 | 0.99 | 0.72 | 5.92 | 3.24 | 1.00 | 2.13 | 63.8 | 291. |
| Kalv 3 | 1.92 | 0.29 | 0.36 | 2.75 | 1.21 | 1.21 | 1.43 | 129. | 37.4 |
| Kalv 6 | 3.54 | 0.72 | 0.62 | 9.26 | 1.96 | 2.26 | 2.32 | 150. | 155. |
| Kalv 14 | 4.02 | 0.82 | 0.61 | 7.53 | 1.33 | 1.24 | 2.06 | 84.0 | 152. |
| Kalv 21 | 4.15 | 0.88 | 0.64 | 8.35 | 2.05 | 1.69 | 2.36 | 79.8 | 174. |
| Kalv 28 | 3.43 | 1.26 | 0.56 | 6.85 | 0.96 | 1.53 | 1.99 | 113. | 133. |
| Kiti 2 | 2.40 | 0.64 | 0.51 | 5.54 | 2.35 | 2.00 | 1.80 | 73.6 | 149. |
| Kiti 3 | 3.97 | 0.96 | 0.68 | 9.41 | 2.05 | 2.26 | 2.46 | 68.2 | 129. |
| Kiti 14 | 4.87 | 0.60 | 0.64 | 5.98 | 4.71 | 1.35 | 2.34 | 113. | 139. |
| Kiti 17 | 4.63 | 0.70 | 0.61 | 6.29 | 1.96 | 0.96 | 2.67 | 92.4 | 144. |
| Kiti 29 | 3.84 | 0.86 | 0.62 | 8.49 | 2.03 | 1.98 | 2.13 | 103. | 182. |
| Kouk 20 | 5.79 | 1.54 | 0.91 | 13.4 | 2.62 | 2.31 | 3.12 | 109. | 208. |
| Kour 4 | 3.04 | 0.63 | 0.64 | 5.16 | 2.19 | 1.30 | 2.24 | 67.3 | 132. |
| Kour 5 | 3.35 | 1.05 | 0.68 | 5.71 | 1.24 | 1.59 | 2.17 | 73.7 | 130. |
| Kour 7 | 2.45 | 0.29 | 0.57 | 2.44 | 1.04 | 1.92 | 2.38 | 79.6 | 54.8 |
| ave. error | 0.019 | 0.046 | 0.062 | 0.066 | 0.21 | 0.21 | 0.059 | 2.1 | 24. |
| in % | 0.5 | 6.1 | 9.9 | 1.0 | 12. | 11. | 2.4 | 2.0 | 17. |

Table 3: List of group members and associated members [indicated by -] of the formed NAA groups. The best relative fit factors of the individual samples with respect to the group values are given in ( ). Sample labels point to finding/excavation sites: Alas = Alassa, Apli = Apliki, Athi =Athienou, Enkp = Enkomi, HSTp = Hala Sultan Tekke, Idal = Idalion, Kalv = Kalavasos, Kiti = Kition, Kouk = Kouklia/Palaepaphos, Kour = Kourion, and to the Non-Cypriot sites: Aful = Afula, Ashk = Ashkelon, Doth = Tell Dothan, Megi = Megiddo. The best relative fit factors are calculated with respect to the average group values of the total groups in the data bank.

1. Group **CypI** of 37 + 4 associated Cypriot and 1 Non-Cypriot samples:
Apli 10 (0.98), Athi 10 (1.00), Enkp 2 (0.92), 3 (0.98), 4 (0.92), 6 (0.85), 7 (0.86), 11 (1.11), 12- (1.09), 13 (0.94), 18 (0.92), 19 (0.94), 20 (0.85), 21 (0.86), 22 (1.03), 23- (1.13), 26 (0.98), 28 (0.98), 29 (0.94), 32 (1.09), 32re (1.13), 33- (0.95), 35 (1.00), HSTp 9 (1.17), 28 (0.93), 30 (0.93), Idal 1 (1.13), 4 (0.95), 5 (0.98), 6 (1.00), 7 (0.95), 8 (1.05), 9 (1.01), Kalv 26 (1.22), 30 (0.87), Kiti 4 (1.08), 6- (1.14) 8 (0.96), 12 (0.85), 18 (0.96), 31 (0.90), 36 (0.94), Ashk 7 (0.88)

2. Group **CypJ** of 35 + 4 associated Cypriot and 5 Non-Cypriot samples:
Apli 5 (0.71), Athi 6- (1.03), 9 (0.92), Enkp 14 (0.86), 25 (1.00), 34 (0.96), HSTp 3 (1.09), 6 (1.07), 7 (1.09), 13 (1.11), 17 (0.88), 18 (0.91), 19 (0.89), 27 (1.17), Kalv 9 (0.99), 11 (1.13), 13 (1.21), 15 (0.99), 16 (1.33), 23 (0.93), 24 (0.95), 25 (1.09), 27 (0.98), Kiti 1 (0.98), 10- (0.96) 11 (0.81), 15 (0.82), 20 (0.90), 24 (0.89), 25 (0.98), 26 (0.99), 27- (0.81) 28 (1.16), 30 (1.18), 32 (1.10), 33 (0.97), 34 (0.87), 37- (0.83) 38 (0.79), Aful 1 (1.07), Doth 1 (0.84), 2 (0.91), 3 (0.90), Megi 3 (1.06)

3. Group **CypT** of 11 and 2 already published (HST 7a,b)* Cypriot samples:
Athi 1 (0.96), Enkp 16 (0.95), HSTp 12 (1.02), 14 (1.07), 20 (1.08), 25 (1.00), 26 (1.31), 29 (1.01), Idal 15 (0.93), 16 (0.91), Kouk 19 (1.13), HST 7a (0.91), 7b (0.91)

4. Group **CypH** of 8 samples:
Athi 4 (0.99), Enkp 9 (0.95), 15 (1.07), 17 (0.98), 24 (0.91), 31 (0.85), HSTp 32 (1.03), Kiti 23 (0.97)

5. Group **CypF** of 19 + 1 associated samples:
Alas 2 (1.01), 4 (0.82), 5 (0.94), 7 (0.90), 9 (1.10), 9a (1.09), 12 (0.95), 13 (1.22), 15 (1.05), 16 (0.88), 17 (0.88), 20 (0.99), 21 (1.01), 23 (1.04), 24 (1.17), 25 (0.82), 27 (1.28), 30 (0.94), Idal 2 (0.95), Kouk 27- (0.97), Kour 8 (1.02)
(breakdown of joint group CypF into subgroups: a) Alas 5, 9, 9a, 12, 25, 27; b) Alas 4, 7, 23, Kour 8; c) Alas 15, 20, 21; d) Alas 16, 17; e) Alas 2, 13, 24, 30, Idal 2, Kouk 27 -)

6. Group **CypN** of 8 samples:
Kour 1 (0.93), 2 (0.96), 3 (1.02), 6 (0.88), 9 (1.02), 10 (1.04), 11 (1.06), 12 (1.05)

7. Group **CypG** of 24 + 1 associated Cypriot samples:
Alas 11 (0.97), 19 (0.93), 26 (0.93), Apli 2 (1.10), 8 (1.11), 9 (1.02), Enkp 36 (0.97), HSTp 21 (1.03), Kalv 18- (0.98), 20 (1.16), Kiti 5 (1.14), Kouk 1 (1.00), 2 (0.92), 3 (0.93), 5 (0.90), 6 (0.95), 7 (0.94), 8 (0.89), 9 (0.93), 11 (0.94), 12 (1.01), 23 (1.05), 24 (1.02), 25 (1.03), 26 (1.07)

8. Group **CypS** of 18 Cypriot and 1 Non-Cypriot samples:
Apli 3 (1.16), Enkp 10 (0.91), HSTp 2 (1.08), 15 (1.10), 23 (1.01), Kalv 10 (0.87), 12 (1.10), 22 (1.01), 29 (0.96), Kouk 10 (0.92), 13 (1.04), 14 (0.96), 15 (1.09), 17 (0.99), 18 (1.01), 22 (1.00), 28 (0.90), 29 (1.13), Ashk 8 (1.10)

9. Group **X075** of 4 samples:
Alas 6 (1.07), 8 (1.00), 14 (0.95), 18 (0.97)

10. Group **X076** of 6 samples:
Enkp 1 (1.02), 5 (0.96), 8 (0.99), 27 (1.01), 30 (0.92), HSTp 24 (1.09)

11. Group **X077** of 4 samples:
Idal 3 (0.99), 10 (0.99), 13 (0.98), 14 (0.95)

12. Group **X078** of 3 samples:
Athi 3 (1.09), 5 (1.04), Idal 11 (0.94)

13. Group **X079** of 2 samples: Kiti 13 (1.01), 21 (0.94)

14. Group **X080** of 2 samples: Kouk 4 (0.96), 30 (1.06)

1. Pair = 91: Kalv 4 (0.95), 17 (1.08)
2. Pair =120: HSTp 5 (0.94), 31 (1.06)
3. Pair =151: Apli 13 (1.00), 14 (1.00)
4. Pair =189: Alas 1 (1.02), 10 (0.98)
5. Pair =195: HSTp 10 (0.99), 11 (1.01)
6. Pair =200: Apli 11 (0.98), 12 (1.02)

* Mommsen et al. 2003

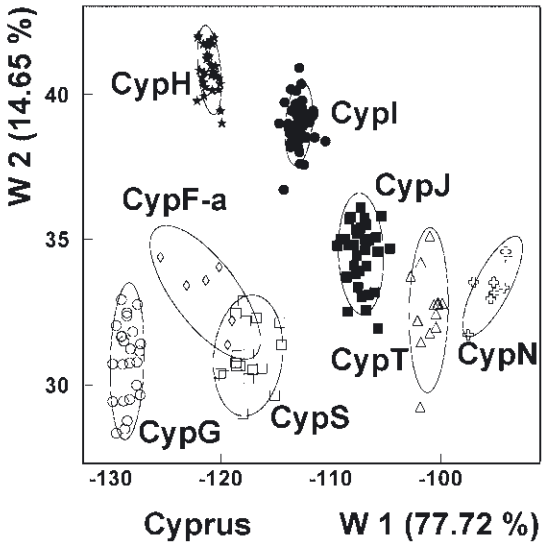


Fig.2 Result of a discriminant analysis of 162 samples, corrected for dilution, assuming a distribution into the 8 pottery clusters assigned to Cypriot workshops. Plotted are the discriminant functions W1 and W2, which cover 77.7% and 14.7% of the between-group variance. The ellipses drawn are the 2 sigma boundaries of the groups. The different groups are well separated. Overlapping groups are resolved in different projections.

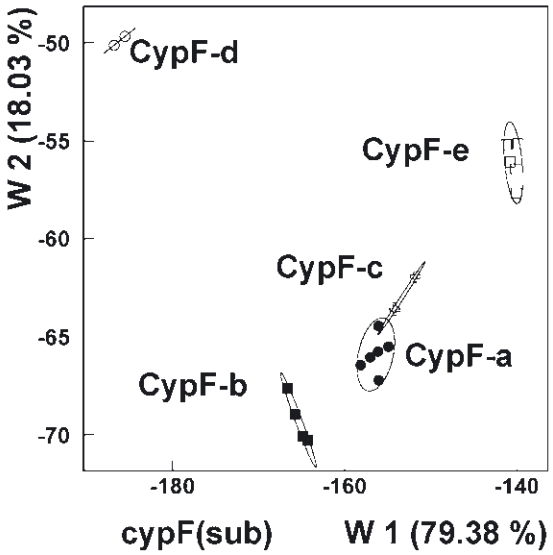


Fig.3 Result of a discriminant analysis of 19 samples, corrected for dilution, assuming the 5 pottery clusters assigned to the subgroups of Alassa. Plotted are the discriminant functions W1 and W2, which cover 79.4% and 18.0% of the between-group variance. The ellipses drawn are the 2 sigma boundaries of the groups. The different groups are well separated.

but not the fine decorated pottery. This would account for our lack of a local profile. For Idalion we also got no local profile, partly because sampling was limited and partly because the pieces available for sampling are late LCIIC not LCIIIA. In spite of a large number of samples, we obtained no local profile for Kalavasos. Alassa is CypF with exports to nearby Kourion and Kouklia, but also to Idalion. For Kourion we only had 12 pieces available for sampling, but 8 of them came out as CypN; stylistically they are all the slightly idiosyncratic local group, so we felt justified in assigning them as a Kourion group; the other Kourion samples comprise three Singles and an export from Alassa.

## The Pottery

A number of pottery types included in the analysis may be unfamiliar to the reader; for discussion of these types, that is the Levanto-Helladic shapes, the Simple Style, the Rude/Pastoral Style, the Bowl Types 1–14, the Near Eastern Group and Proto-White Painted (PWP) pottery, see Part II below. The pottery catalogue, Part III, can be found in the last part of the article; it is organised by site.

### Enkomi (Figs. 4–7)

The local chemical profile for Enkomi is CypI. Samples from Enkomi itself (Figs. 4–5) include a Levanto-Helladic piriform jar S35[46] with scale pattern, a favoured motif on this shape. S29 is a rare surviving example of a collar-necked jar with belly decoration. The carinated krater S32 is of interest for its rosette motif; a trace of double stems rising towards the left from the belly band suggest the rosettes are the centres of stemmed spirals running left; there is a good parallel on a krater from Bademgediği Tepe,[47] which NAA has assigned as local to that site.[48] S11,28 are examples of deep bowls with joining semi-circles pendent from the rim band, the most popular deep bowl motif at Enkomi; the deep bowl S33 depicts running spirals with long curving links typical of Cypriot

[46] S = sample number.

[47] Mountjoy 2009a, 68 fig. 4.1.

[48] Publication pending.

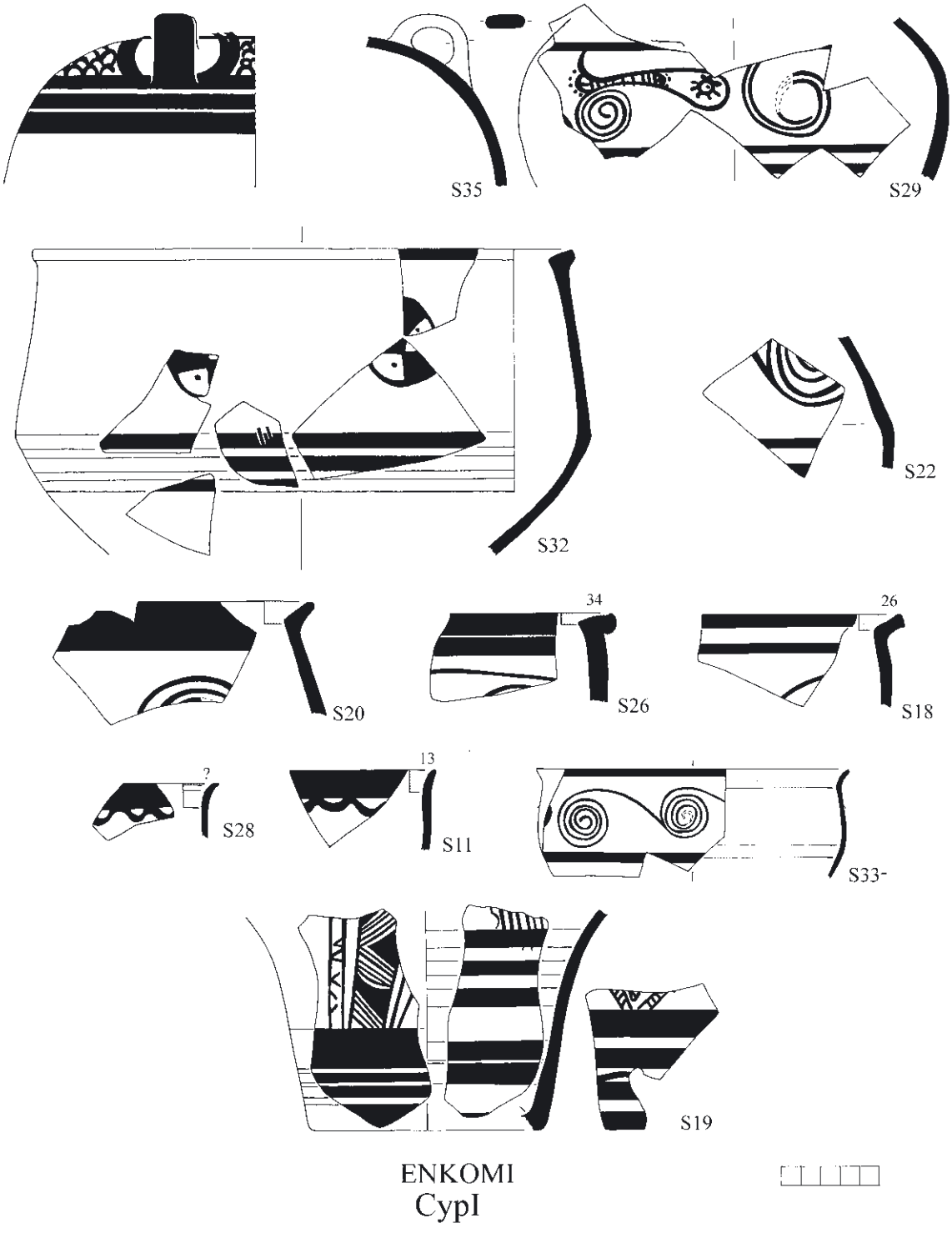


Fig.4 The CypI chemical profile. Scale 1:3.

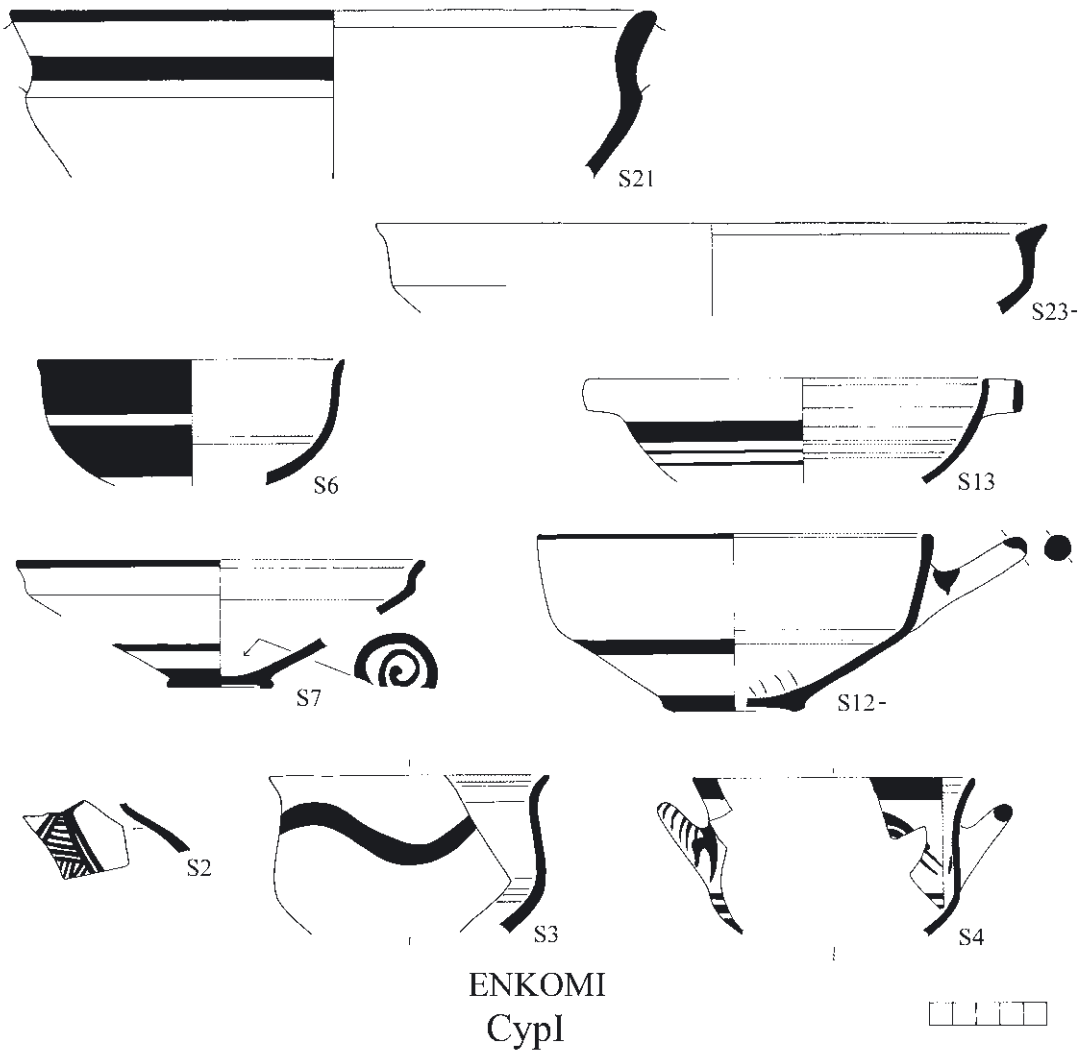


Fig.5 The CypI chemical profile. Scale 1:3.

IIIC pottery. S19 is a rare example of a late kalathos; it is from Enkomi Area I Floor II, which dates to Level IIIB Late; there is a parallel from the Sanctuary of the Ingot God Sol III.[49] S21 belongs to a large carinated basin. S6, S13, S7 and S12 are Bowl Types 5, 6, 8 and 13 respectively. PWP is represented by an amphoriskos sherd S2, and a deep bowl S4.

The exports from Enkomi to other island sites (Figs. 6–7) include a number of Bowl Types: Types 2, 5, 6 , 8, 13 and 13 Variant are all present at different sites, such as Kition, Kalavasos, Idalion Kafkallia and Apliki. Levanto-Helladic types are also present: **Idalion: Kafkallia S4**, a carinated version of the one-handled bowl FS 244, and **Kalavasos S30** and **Kition S8,S12**, the linear bowl FS 296. There is also a Simple Style stirrup jar **Kition S31** and a Rude/Pastoral Style krater **Idalion: Kafkallia S1** with running spiral. Other pieces include a pictorial krater **Kition S36** depicting birds above palm trees growing up from the bellybands. Similar palm leaves with dot fill are depicted on the deep bowl **Hala Sultan Tekke S30** (Fig. 6). This motif comes from Crete.[50] The

[49] Courtois 1971, fig. 99F 1220; see also Mountjoy, in press a.

[50] See Hallager and Hallager 2000, 77-P0147.

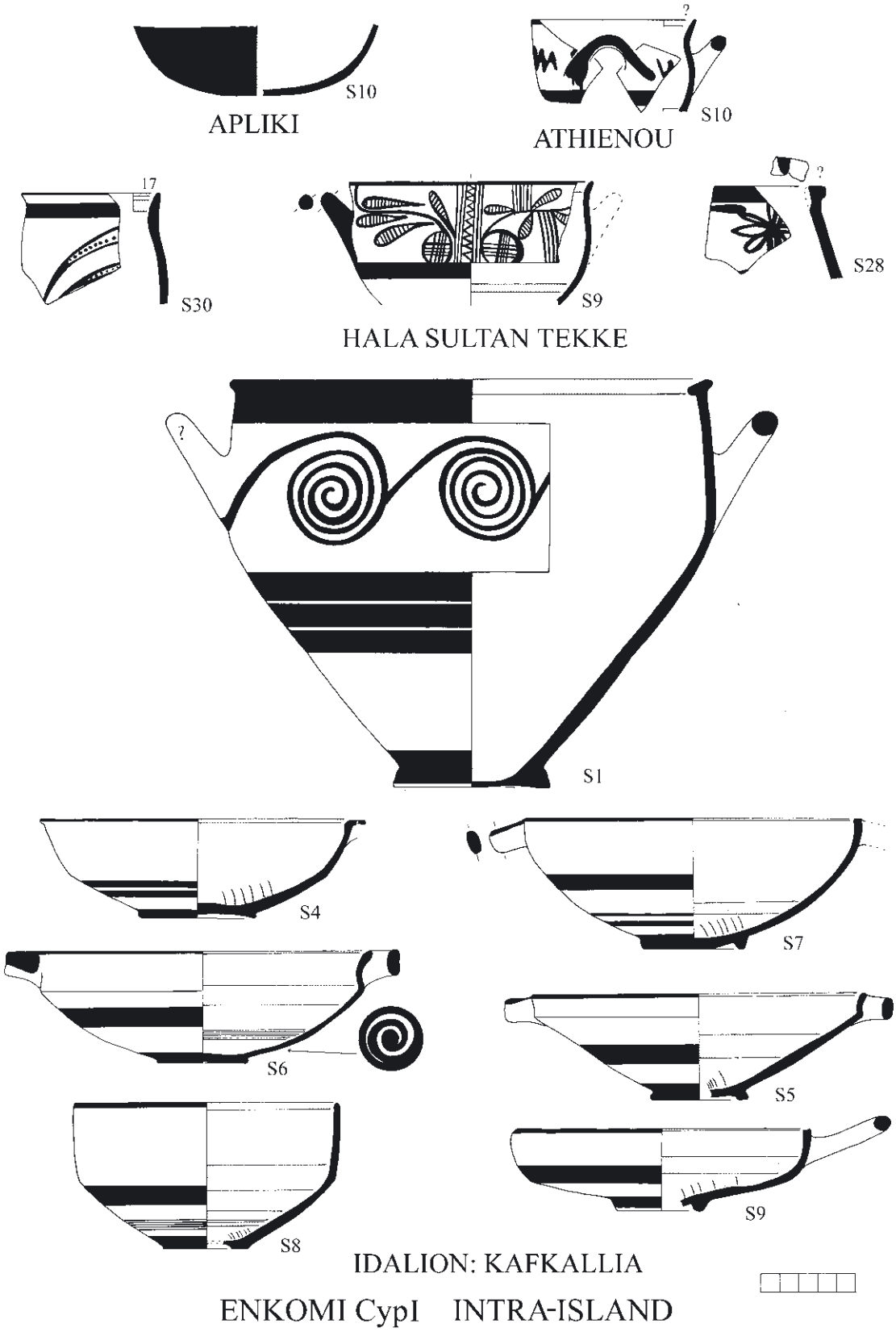


Fig.6 The CypI chemical profile. Exports from Enkomi. Scale 1:3.

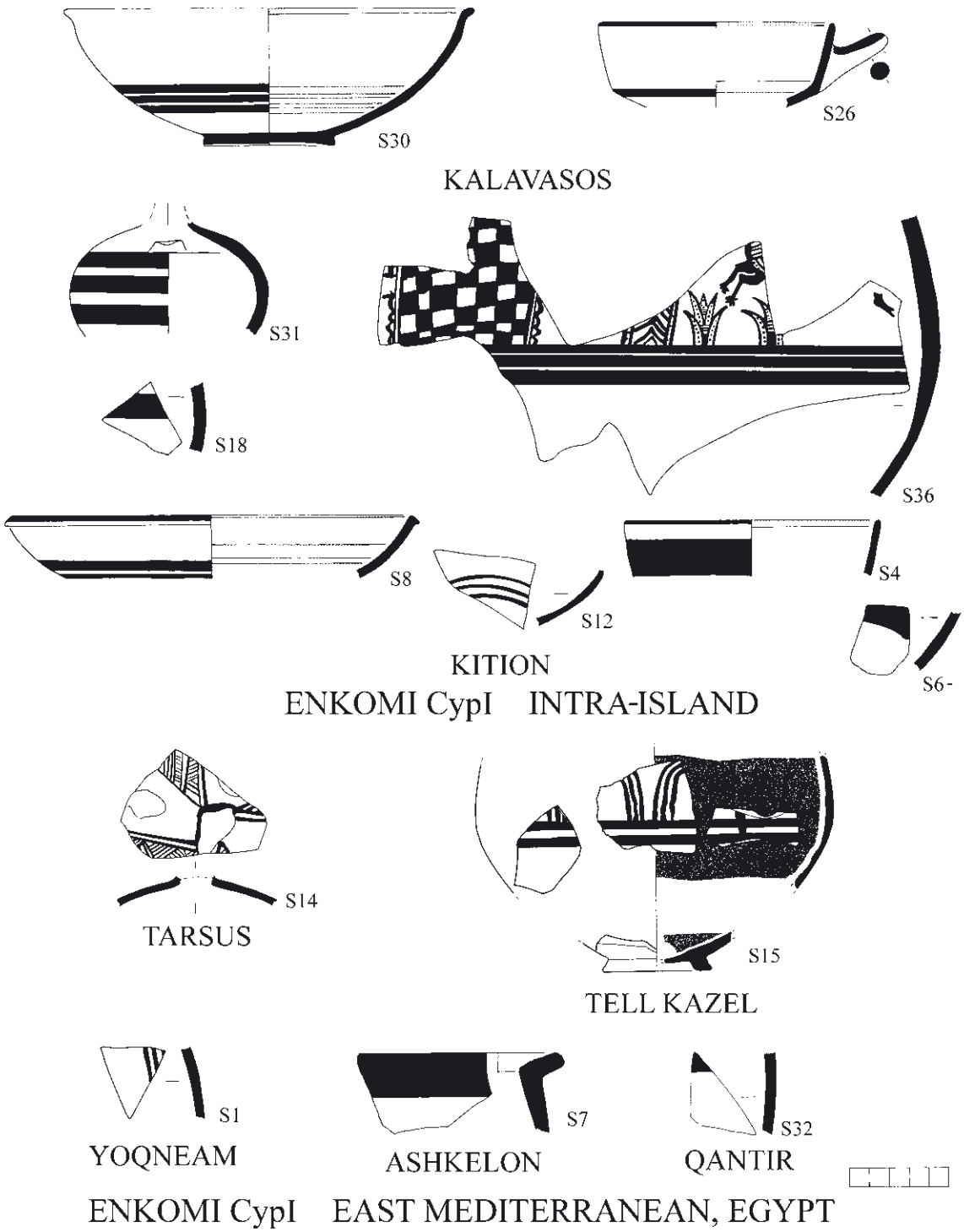


Fig.7 The CypI chemical profile. Exports from Enkomi. Tarsus, Mountjoy 2005b, 95 fig. 4.56, Tell Kazel, after Jung 2006, 188 fig. 13.52, Yoqneam, Zuckerman *et al*. in prep., Ashkelon, Master *et al*. 2015, 238 fig. 2.S7, Qantir, Mountjoy and Mommsen 2001, 140 fig. 1.5 S32. Scale 1:3.

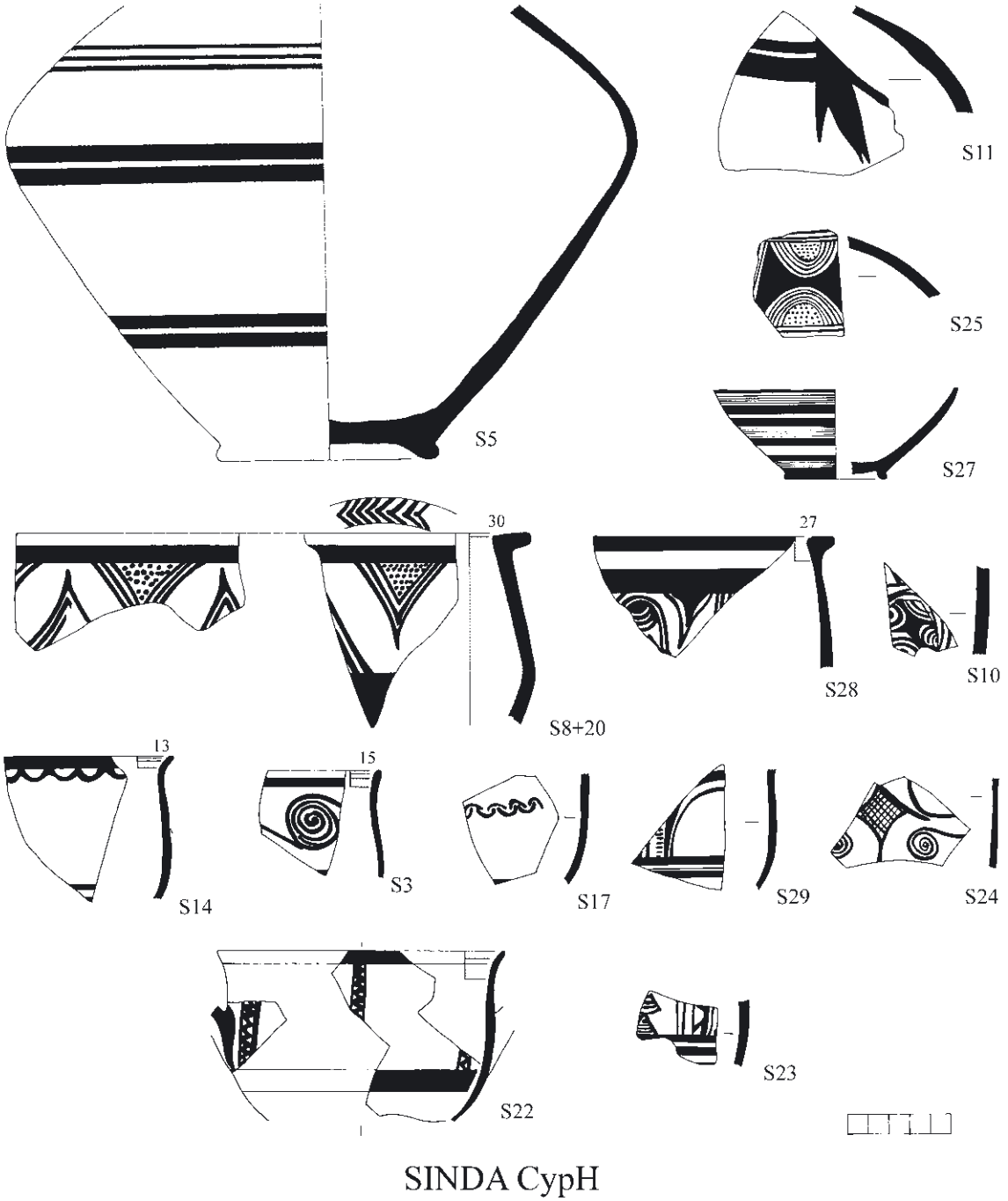


Fig.8 The CypH chemical profile. Scale 1:3.

deep bowl **Hala Sultan Tekke S9** also has Minoan filling motifs of barred almonds[51] set amid antithetic spirals, which have the centres filled with two groups of crossing lines. **Hala Sultan Tekke S28** has a Minoan petaloid flower;[52] **Athienou S10** comprises a small deep bowl with zigzag. Further

[51] See Andreadaki-Vlazaki and Papadopoulou 2005, 383 fig. 47 top right.

[52] See Andreadaki-Vlazaki and Papadopoulou 2005, 367 fig. 21 top right.

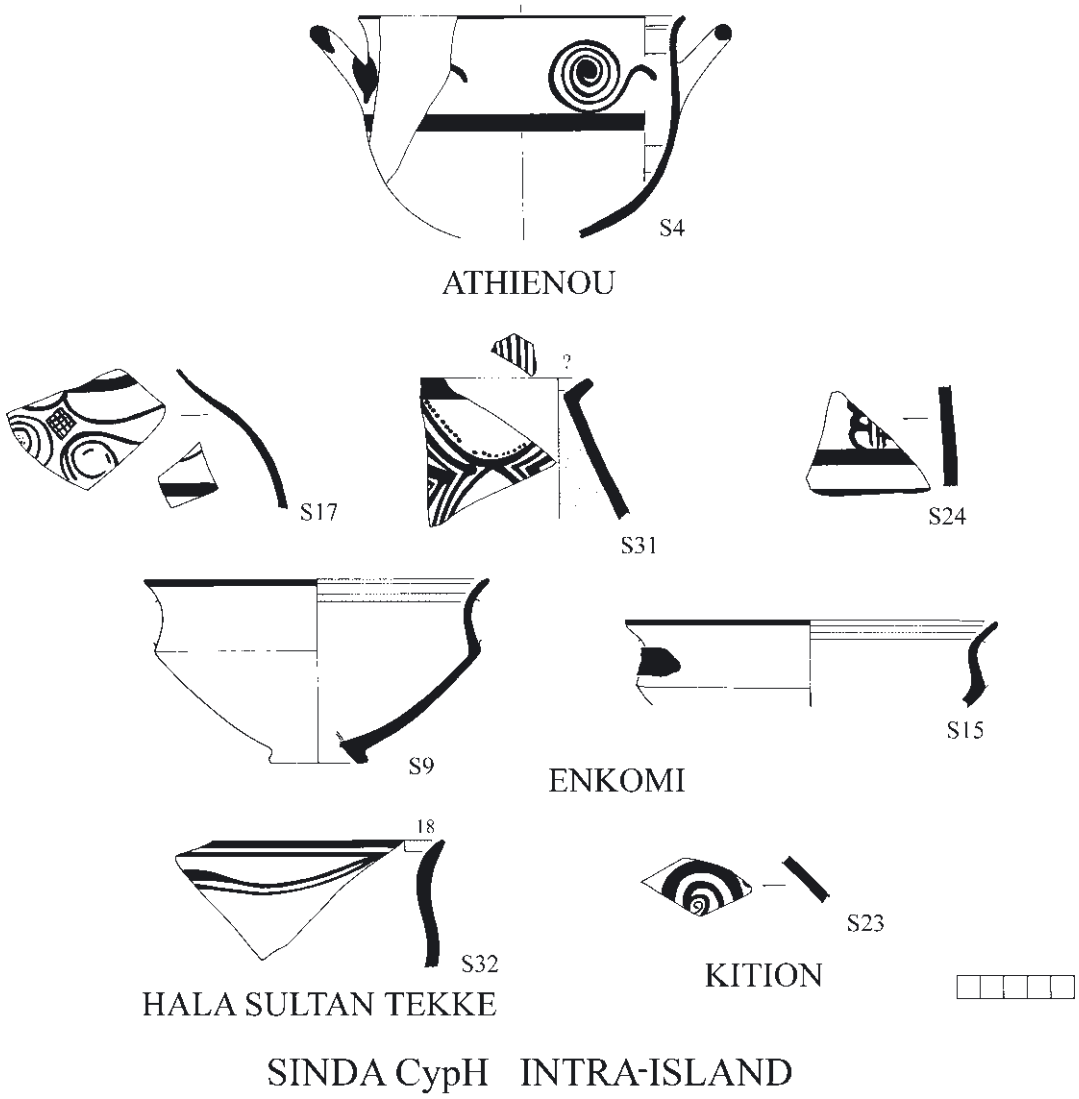


Fig.9 The CypH chemical profile. Exports from Sinda. Scale 1:3.

afield CypI pottery is found at a range of sites with single examples at Tarsus, Tell Kazel, Yoqneam, Ashkelon and Qantir (Fig. 7). A PWP stirrup jar was exported to Tarsus, **Tarsus S14**, and a closed shape, possibly a piriform jar FS 36, to Qantir in the Nile delta, **Qantir S32**. In the Levant a krater reached Ashkelon, **Ashkelon S7**,[53] a large deep bowl was exported to Tell Kazel (S15) and a closed vessel to Yoqneam (S1).

**Sinda (Figs. 8–10)**

The Sinda CypH chemical profile isolated by Mommsen and Sjöberg[54] has changed. The large number of analyses carried out by our sampling programme has allowed pieces designated as ChKR and CyHH to be amalgamated with CypH and has also moved a large number of CypH pieces from Sinda to the newly isolated CypJ profile of

[53] Master *et al*. 2015.

[54] Mommsen and Sjöberg 2007, 88.

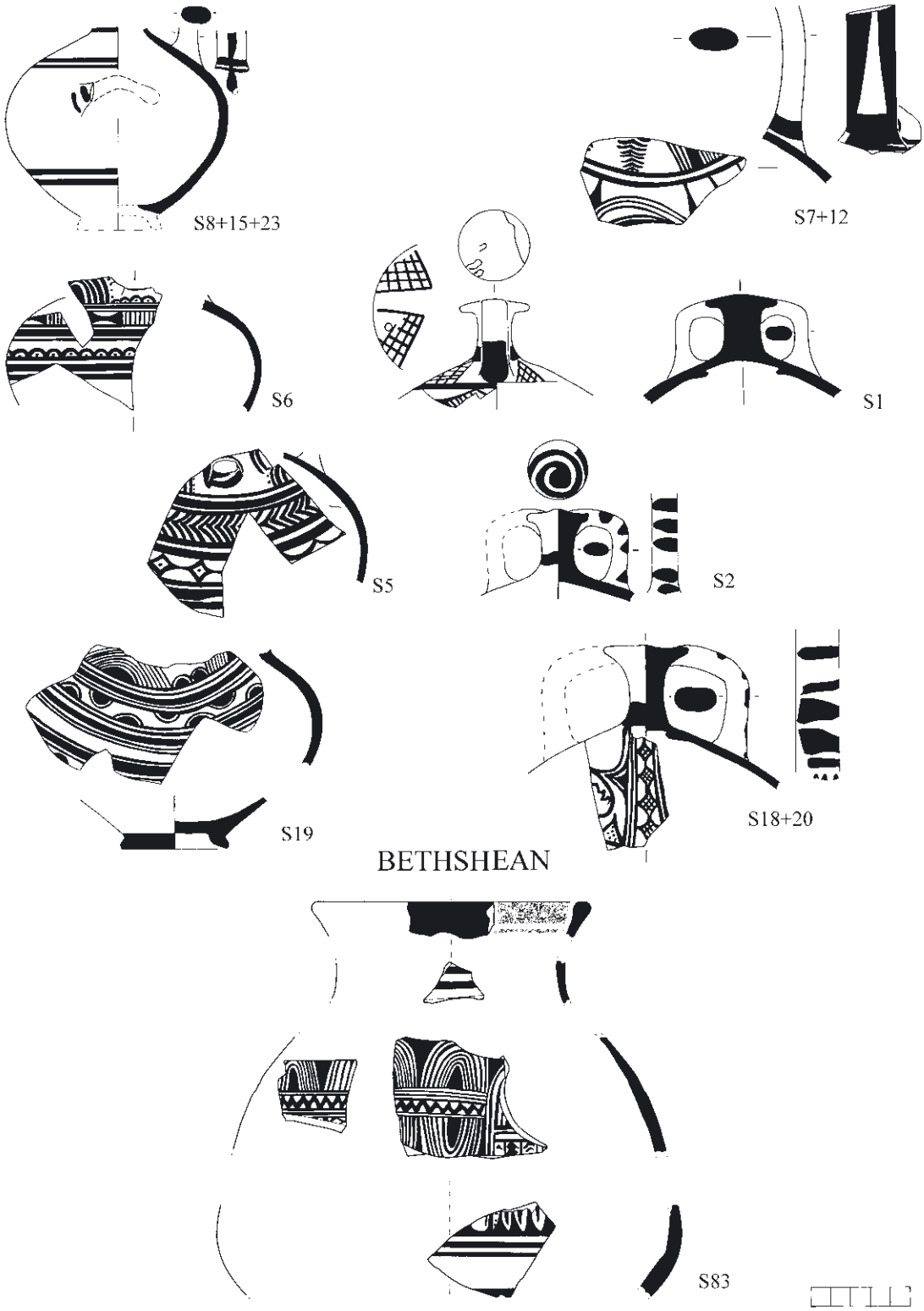


Fig.10 The CypH chemical profile. Exports from Sinda. Bethshean (drawings PAM), Mommsen *et al*. 2009, 510–11 Table 7.4, BS 8+15+23, BS7+12, BS6, BS1, BS5, BS2, BS19, BS20+18, Tell Kazel, after Jung 2006, 202 fig. 19.18. Scale 1:3.

Kition/Hala Sultan Tekke. The sherds (Fig. 8) are some of those analysed by Mommsen and Sjöberg. They include S14, a deep bowl with the popular Enkomi motif of joining semi-circles attached to the rim band. The motif was much less popular at Sinda, but NAA demonstrates that this type was produced at Sinda and not necessarily imported from Enkomi. The deep bowl S29 is an example of the streamer motif, which is as characetristic of deep bowls at Sinda as joining semi-circles are on deep bowls at Enkomi. The pleonastic style was especially used on kraters at Sinda, S10, S25, S28. The carinated krater S8+S20 has an uncommon motif of dot-filled triple-outlined triangles. It may have come from Crete, where it appears at Karphi, particularly on mugs,[55] but there are also instances in the Levant, such as at Megiddo and Tell Kazel.[56]

CypH vessels seem not to have moved much around the island (Fig. 9). They appear at nearby Enkomi, at Athienou on the way to the south coast and at the south coastal port of Kition/Hala Sultan Tekke. The deep bowl with button-hook spiral, **Athienou S4**, is a local version of a Minoan motif otherwise produced at Hala Sultan Tekke (see below), where there is much Minoan influence on the decoration of the pottery. The strainer jug **Enkomi S17** has antithetic spiral flanking a lozenge, a popular motif on deep bowls at Sinda. **Enkomi S31** is a pleonastic carinated krater with a chain of stacked lozenges. **Enkomi S9,15** are the Bowl Type 10, a popular type at Sinda. **Hala Sultan Tekke S32** is an example of the characteristic Sinda streamers. **Kition S23** with spiral belongs to a closed shape. CypH has been isolated so far at only two places outside Cyprus (Fig. 10). A number of small elaborately decorated stirrup jars was exported to Bethshean together with a small hydria **Bethshean S8+15+23**[57] and a strainer jug **Bethshean S7+12**. These vessels are published as ChKR or CyHH,[58] but are now all CypH. The pleonastic **Tell Kazel S83** is published as CypH assoc.[59] and as PWP.[60] However, Sinda was abandoned before PWP appeared. Also, the decorative syntax with zones of zigzags dividing the metopes is a feature of pleonastic decoration not of PWP; there are parallels from Enkomi, such as an alabastron FS 99,[61] Sinda[62] and Hala Sultan Tekke, such as **Hala Sultan Tekke S25** (Fig. 15).

### Kition/Hala Sultan Tekke (Figs. 11–14)

Both sites have a number of sherds which can be assigned to the chemical profile CypJ. The profile cannot be assigned to one or the other site; they may well have used different ends of the same clay bed.[63] The CypJ group certainly belongs to Kition as a PWP sherd Kition S15 can be assigned to CypJ, whereas Hala Sultan Tekke was abandoned in Cypriot IIIC Middle before PWP appeared. The Kition samples (Fig. 11) include two Rude/Pastoral Style sherds S11, 28, two examples of Bowl Type 3, S34,38, the former in bichrome technique, one Bowl Type 10 S30 and two Simple Style pieces S32–33.

The Hala Sultan Tekke CypJ material (Fig. 11) comprises a Levanto-Helladic piriform jar FS 36 S3 and a large jug sherd S13 with decoration of bivalves in triglyphs, which is a twin to a vessel at Tarsus[64] assigned by NAA to that site;[65] there are also examples of the pleonastic style on the strainer jug S19 and the deep bowl S18, the latter a rare example, as pleonastic decoration is not often used on deep bowls on Cyprus. The deep bowl S7 is an example of the button-hook deep bowl. Two other Minoan derived motifs appear on the deep bowls S6, 27. S6 has a flower with the long fringe used on Crete[66] and S27 has the thread chevrons also found on Crete.[67] The pictorial krater S17 depicts a bird with a Cypriot basin with two vertical handles floating behind its head; the raquet motif on the right is too worn to ascertain what was represented.

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55 Day 2011, 89 fig. 4.4 K23.8, 119 fig. 4.21 K28.2, 244 fig. 8 K17.

56 Guy and Engberg 1938, pl. 64 T.73B P200; Badre *et al.* 2005, 30 fig. 5.1 TK32.

57 The samples of this vessel were muddled before they reached Bonn; the sample BS 15 published as a chemical loner, that is a Single, is a sample from another vessel. The original sample BS 15 from the hydria has now been identified and an extra sherd from the hydria, BS 23, has been analysed as a control.

58 Mommsen *et al.* 2009, 510 Table 7.4.

59 Badre *et al.* 2005, 40 Table TK 83.

60 Jung 2006, 200.

61 Dikaios 1969, pl.82.27, cited by Jung 2006, 200 as PWP.

62 Furumark and Adelman 2003, pl. 48 P336.

63 For the topography, see Nicolaou 1976, 43 fig. 10.

64 Mountjoy 2005b, 90 fig. 2.20.

65 Mommsen *et al.* 2011, 903 Table 1 Sample 4.

66 Knossos, Popham 1965, 328 fig. 5.42.

67 Hallager and Hallager 2000, pl. 37 70-P0253/0238.


Fig.11 The CypJ chemical profile. Scale 1:3.

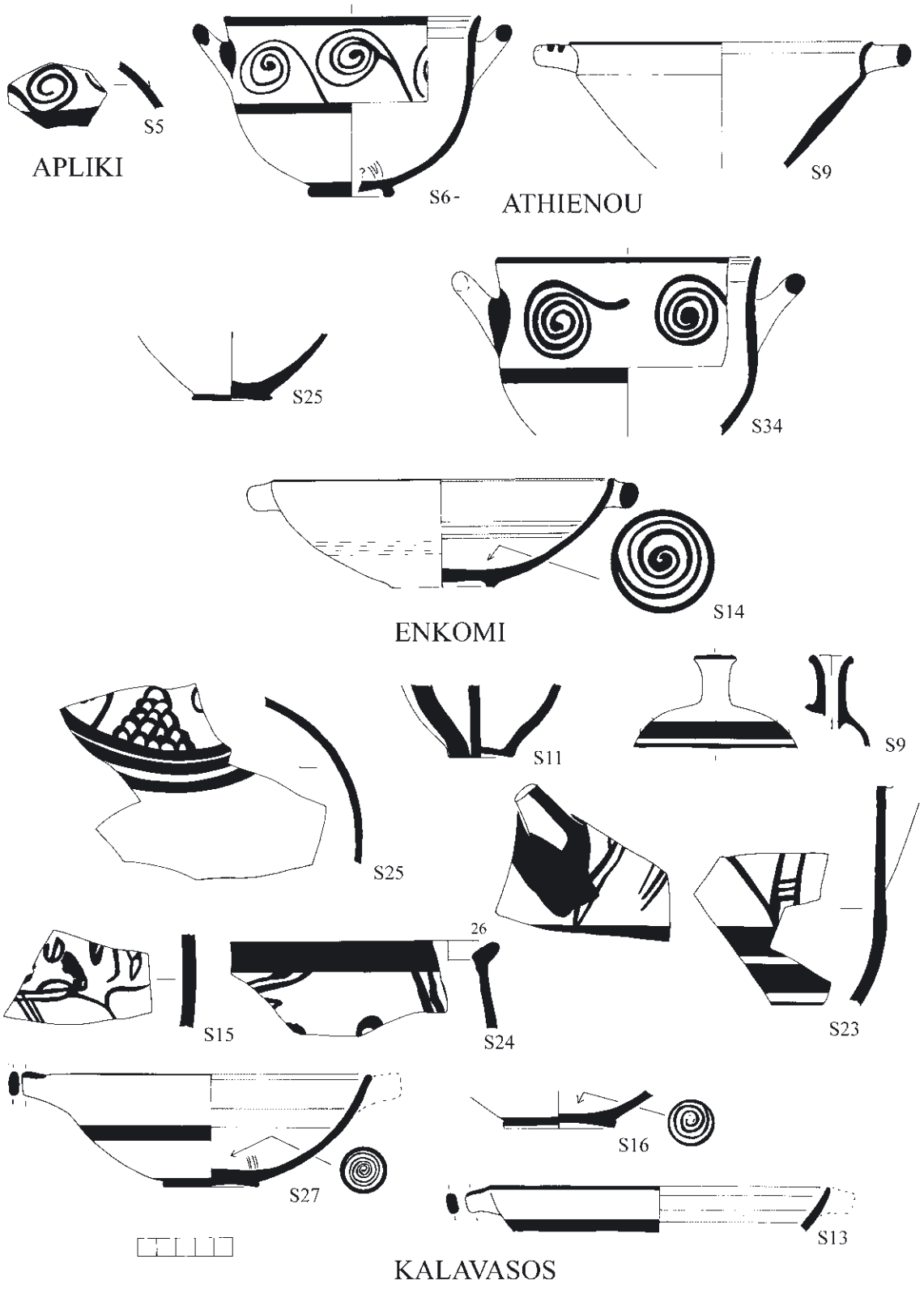



Fig.12 The CypJ chemical profile. Exports from Kition/Hala Sultan Tekke. Scale 1:3.

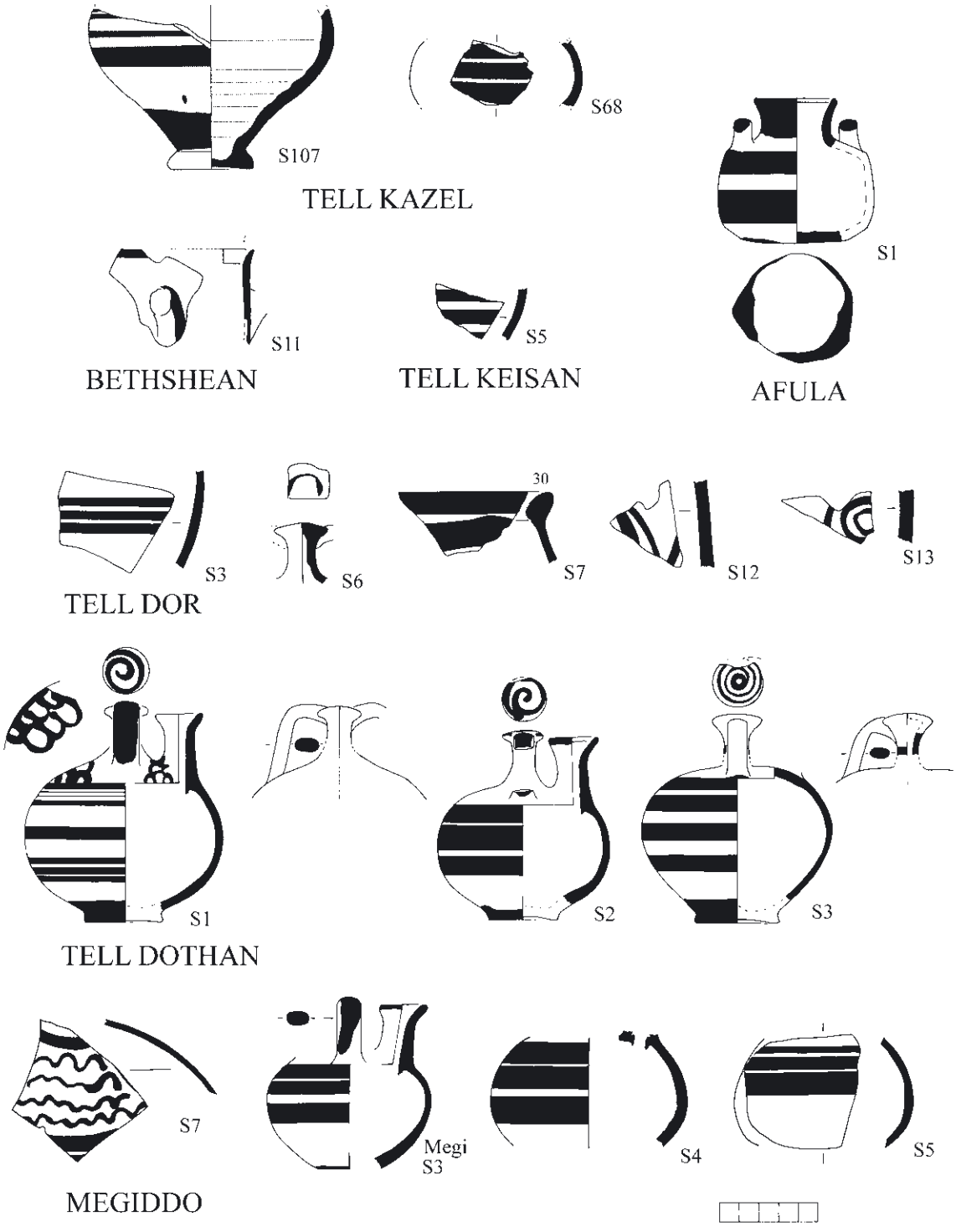



Fig.13 The CypJ chemical profile. Exports from Kition/Hala Sultan Tekke. Tell Kazel, after Badre *et al*. 2005, 33 fig. 8.4, 8.2, Bethshean (drawing PAM) Mommsen *et al*. 2009, 510–11 Table 7.4, BS 11, Tell Keisan and Tell Dor, Zuckerman *et al*. in prep., Megiddo (drawings PAM), Yasur-Landau 2013, fig. 11.5.1, 11.4.2, 4. Scale 1:3.

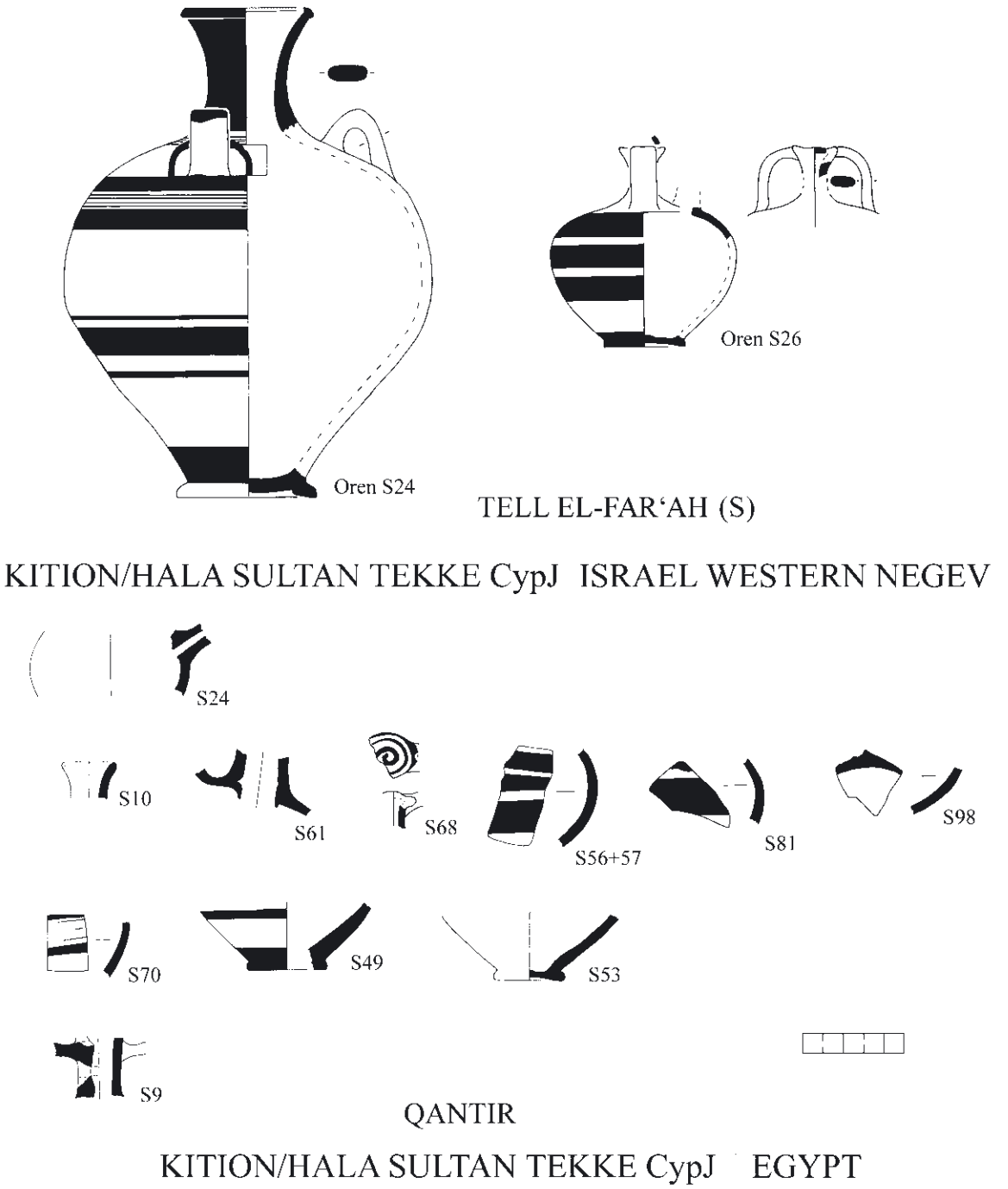



Fig.14 The CypJ chemical profile. Exports from Kition/Hala Sultan Tekke. Tell el-Fa'rah (S), Mommsen *et al* 2005, Table 1 Sample 24, 26, Qantir, Mountjoy and Mommsen 2001, 144 fig. 2.38 S24, 39 S10, 153 fig. 4.76 S61, 78 S56+57, 79 S81, 80 S98, 81 S70, fig. 2.42 S49, fig. 4.82 S53, fig. 2.45 S9. Scale 1:3.

CypJ pottery appears at four other Cypriot sites (Fig. 12). Nearby **Kalavasos** has a number of examples. They include the Simple Style stirrup jar (S9) and three Rude/Pastoral Style krater fragments (S15, 23–24). The piriform jar S25 has the popular triangular patch found island-wide in late LCIIC, often with dot fill; it seems to be set between small stemmed spirals. S11 is an example of the local feeding jug with the typical vertical stripes from neck to base, S16, 27 are the Levanto-Helladic bowl FS 296 and S13 is an early example of Bowl Type 6. **Enkomi S34** is another example of the button-hook deep bowl and **Enkomi S14** of Bowl Type 6; **Enkomi S25** is a strainer jug base. The deep bowl **Athienou S6** has a row of stemmed spirals, a relatively popular Cypriot IIIC motif on the island. **Athienou S9** is a Bowl Type 10, while **Apliki S5** may belong to a jug FS 110, 116.

There are a large number of CypJ exports to the East Mediterranean (Figs. 13–14), particularly Simple Style vases, such as **Dothan S2-3**, **Megiddo S3-5**, **Afula S1**, **Tell Kazel S68, 107**, **Tell el-Fa'rah Oren 26**; they are usually stirrup jars, but **Afula S1** and **Tell Kazel 107** are examples of the straight-sided alabastron and the piriform jar respectively. Simple Style vessels were also exported to Qantir in Egypt. **Megiddo S7**, which probably belongs to the large Levanto-Helladic piriform jar FS 36, is of interest as it has lustrous paint; this is also the case with **Megiddo S4–5**. The Simple Style vases usually have matt paint, as does the Cypriot IIIC pottery, but there are vessels with lustrous or semi-lustrous paint, particularly those of the Near Eastern group of stirrup jars (see below). It seems that this type of finish was produced on Cyprus in Cypriot IIIC Early 1–2. The deep bowl **Bethshean S11** was originally published as CypHH.[68] **Tell Dor S3** is a closed linear body sherd. The stirrup jar **Tell Dor S6** is very worn, but it has a trace of a spiral on the false mouth; it may be a Simple Style stirrup jar. **Tell Dor S12–13** belong to Rude/Pastoral Style kraters. The heavy rounded thickened rim of **Tell Dor S7** is unusual on Cyprus; indeed the best parallel is the Bademgediği Tepe ship krater.[69] The large Levanto-Helladic piriform jar FS 36, **Tell el-Fa'rah Oren S24**, is not Simple Style, as thought by Furumark[70] (see below). The Tell el-Fa'rah and Qantir vessels have been published as HCyp,[71] but the information from our new analyses has reassigned them to CypJ.

### Hala Sultan Tekke (Fig. 15)

The chemical profile CypT appears at Hala Sultan Tekke, but not at Kition. It may be local to Hala Sultan Tekke; it is possible that further NAA at other sites might assign it elsewhere, but the pottery is certainly at home in the Hala Sultan Tekke assemblage. Six of the 12 samples have pleonastic decoration, while S14 with fish belongs to the Near Eastern group of stirrup jars (see below). Two Minoan-type carinated kylikes, S26, 29, part of a small corpus at Hala Sultan Tekke exhibiting Minoan influence, are also assigned to this chemical profile. The kraters S12, 25 have pleonastic decoration, S12 being a carinated krater. The krater S20 has an unusually shaped rim with external ledge; the central triglyph, composed of very small chequers similar to those on Levantine style kraters,[72] seems to be flanked by elaborated antithetic spirals. One of the earliest locally made imitations of Mycenaean types on Cyprus is assigned to CypT (see below).

Other CypT pieces, a bowl Type 6–9 and a deep bowl, have been found at Athienou, **Athienou S1**, and Enkomi, **Enkomi S16**. The two Type 12 bowls, **Idalion S15–16**, are examples of a shape usually found at Enkomi and rare elsewhere. The CypT production is thus of interest. **Kouklia S19** has a ridge at the base of the neck, which suggests it may belong to the narrow-necked jug FS 121. The krater **Tarsus S23** is a typical example of pleonastic decoration and compares well to the Hala Sultan Tekke hippocamp krater.[73]

### Alassa: Pano Mandilaris (Fig. 16)

The chemical profile CypF belongs to this site. Apart from the chemical information they give, most of the sherds are not very informative. A strainer jug rim S20 can be identified; S27 has a

[68] Mommsen *et al*. 2009, 510 Table 7.4.

[69] Mountjoy 2011a, 486 fig. 3.

[70] Furumark 1941b, 116.

[71] Mommsen *et al*. 2005, 153 Table 1; Mountjoy and Mommsen 2001, 144 fig. 2.38–39, 42, 45, 153 fig. 4. 76, 78–82.

[72] See Dikaios 1969, pl. 71.31 765/4, pl. 101.16 5705/5.

[73] Åström 1988, 173–76; see Mountjoy 2007, 239 fig. 11 for a drawing.

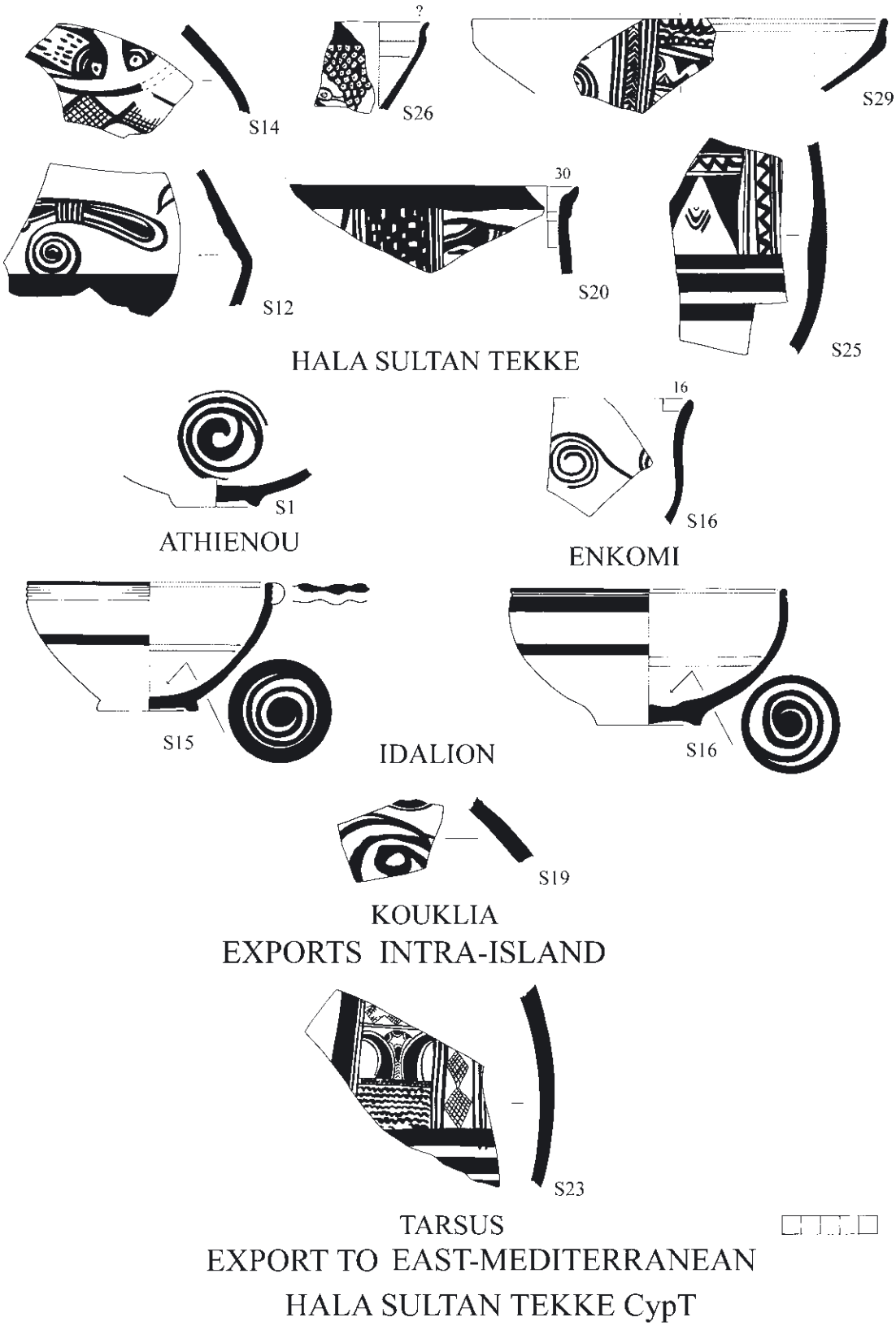



Fig.15 The CypT chemical profile. Tarsus, Mountjoy 2005b, 113 fig. 8.152. Scale 1:3.

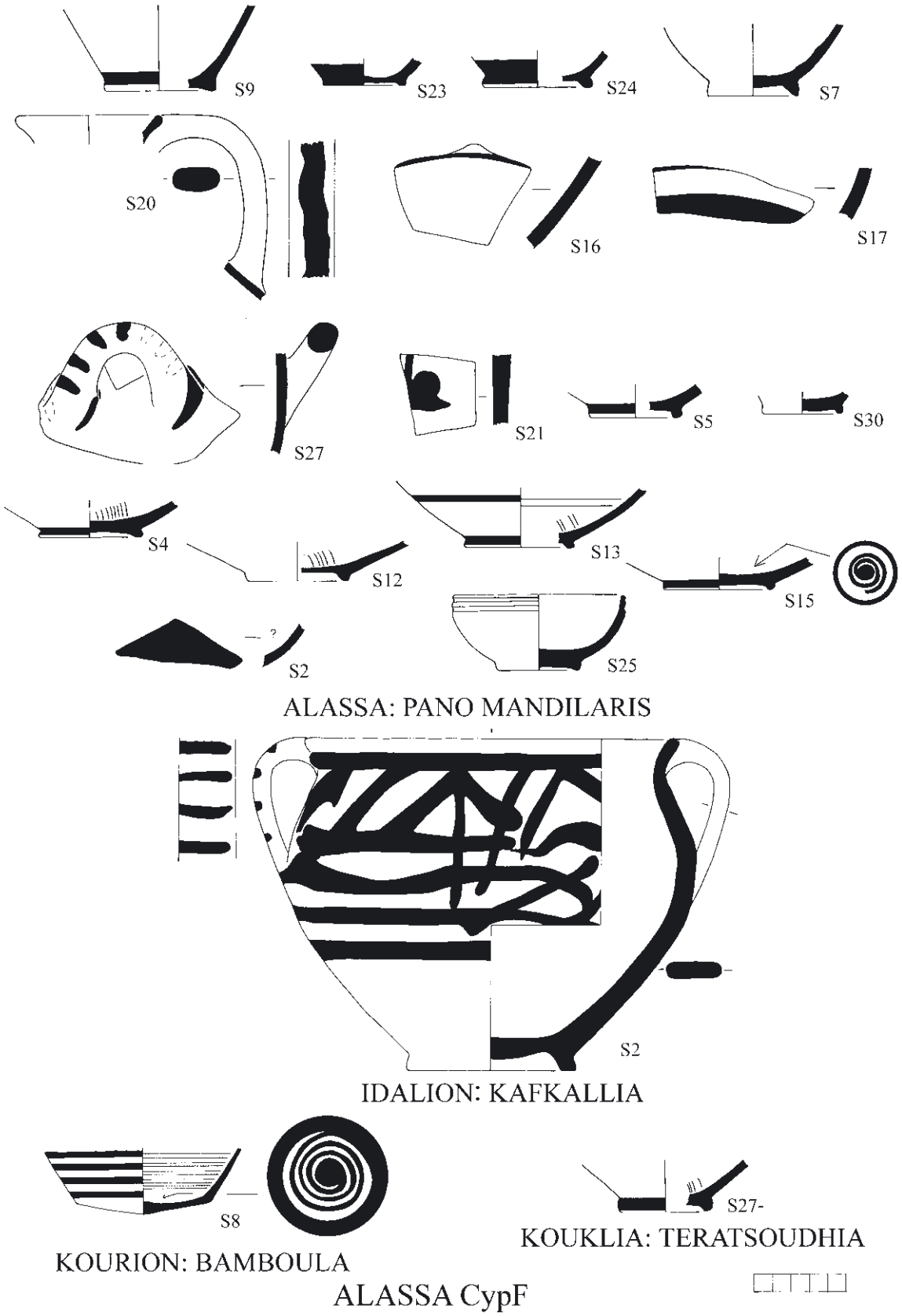



Fig.16 The CypF chemical profile, with exports to Idalion, Kourion and Kouklia. Scale 1:3.

rough interior, so could belong to a hydria or a krater, since the interiors of Cypriot IIIC kraters are often left unfinished. Jug bases are present (Fig. 16 top row) and deep bowl bases S5, 30. The bases (Fig. 16 4th row from bottom) belong to the bowl Types 6–9; not enough is extant to assign them more closely. Other bowl types present comprise a small example of Type 12 S25 and an example of Type 3, which was exported to Kourion, **Kourion S8**. A krater exported to Idalion, **Idalion S2**, is of interest. The bulging upper body and flaring lip is not that of the Aegean-style krater, but rather suggests a derivation from the Plain Wheelmade tradition. A deep bowl exported to Kouklia, **Kouklia: Teratsoudhia S27**, is assigned as associated to Alassa.

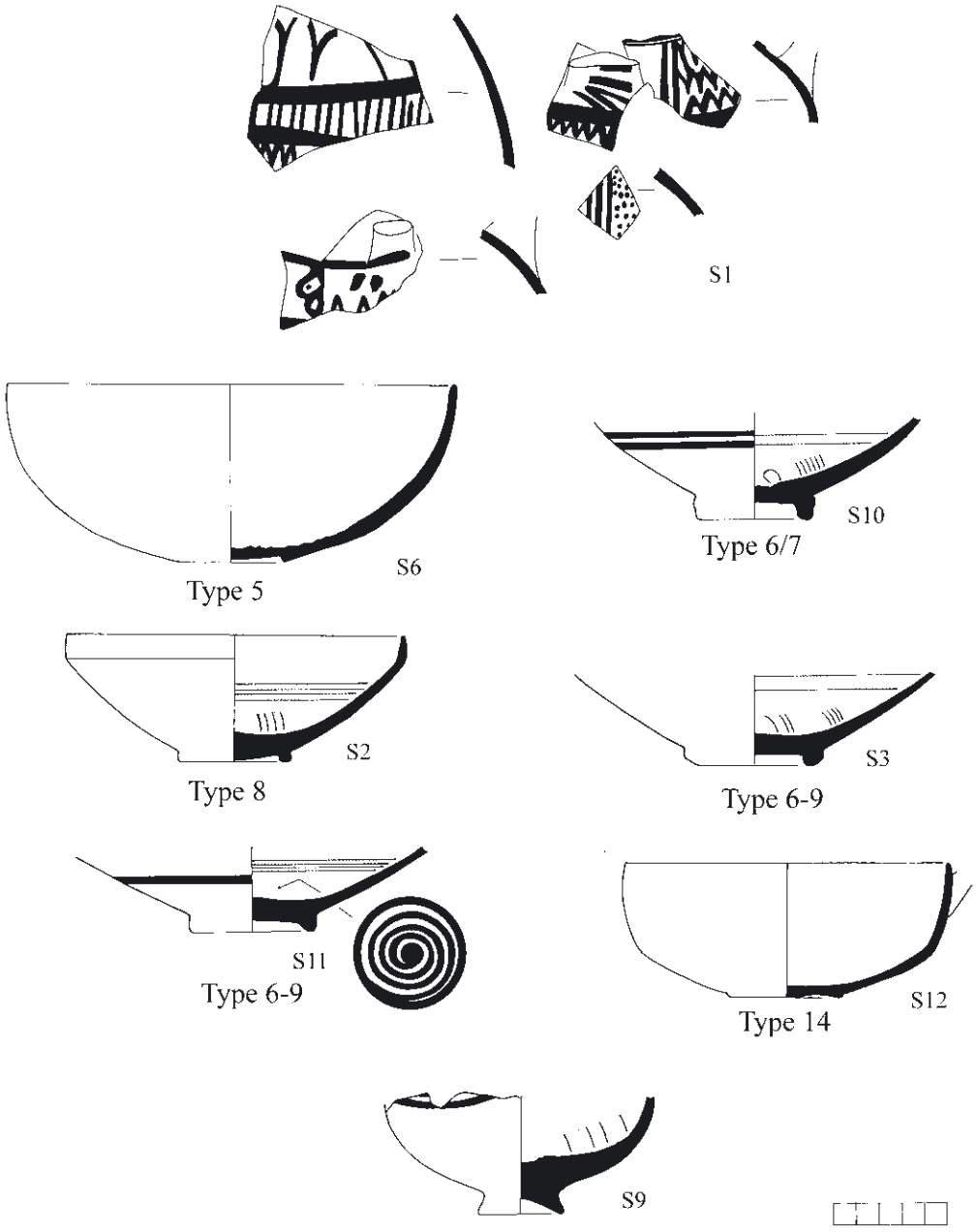


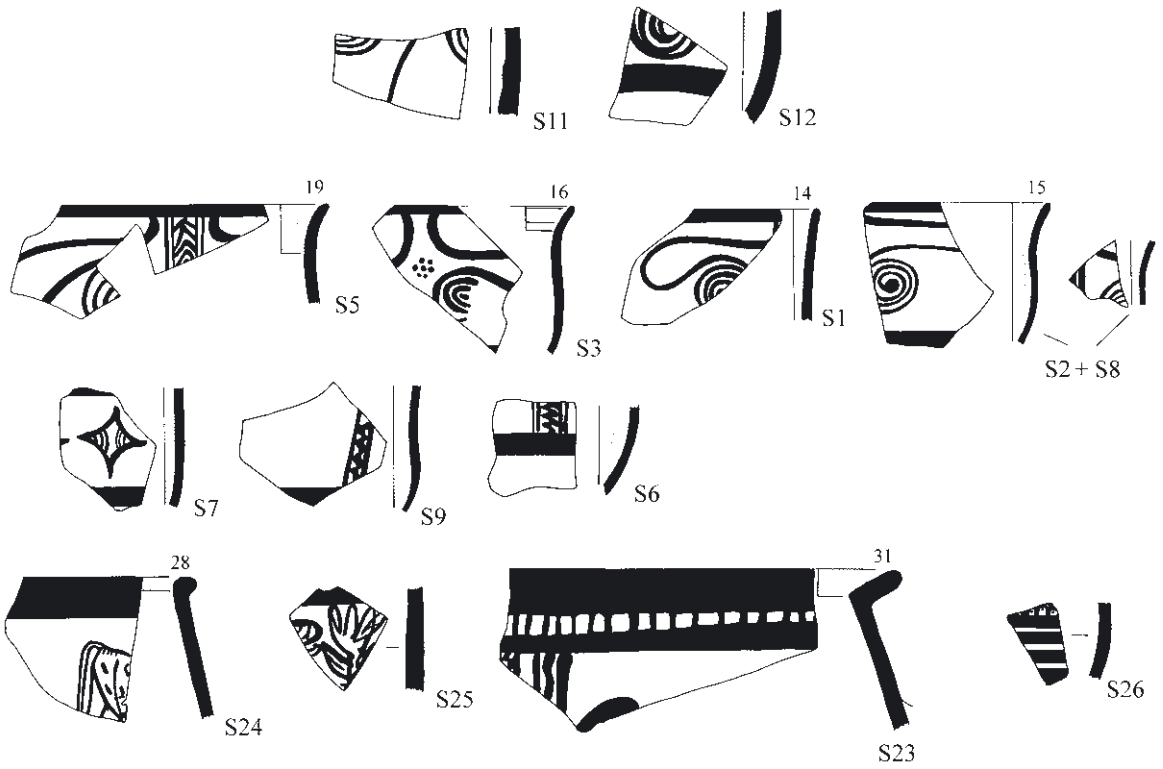

Fig.17 The CypN chemical profile. Scale 1:3.

**Kourion: Bamboula (Fig. 17)**

The CypN chemical profile is assigned to this site. Only 12 pieces could be analysed, but almost all had this profile, which suggests that it is indeed local to the site. The sherds S1 may belong to an amphoroid krater. The analysis demonstrates that the bowl Types were manufactured locally here and not imported from the Kouklia workshops. The same applies to the PWP/CGI cup S9.

**Kouklia: Palaepaphos (Figs. 18–22)**

Two chemical profiles could be isolated, GypG and CypS. Group X80 may also belong to this site.



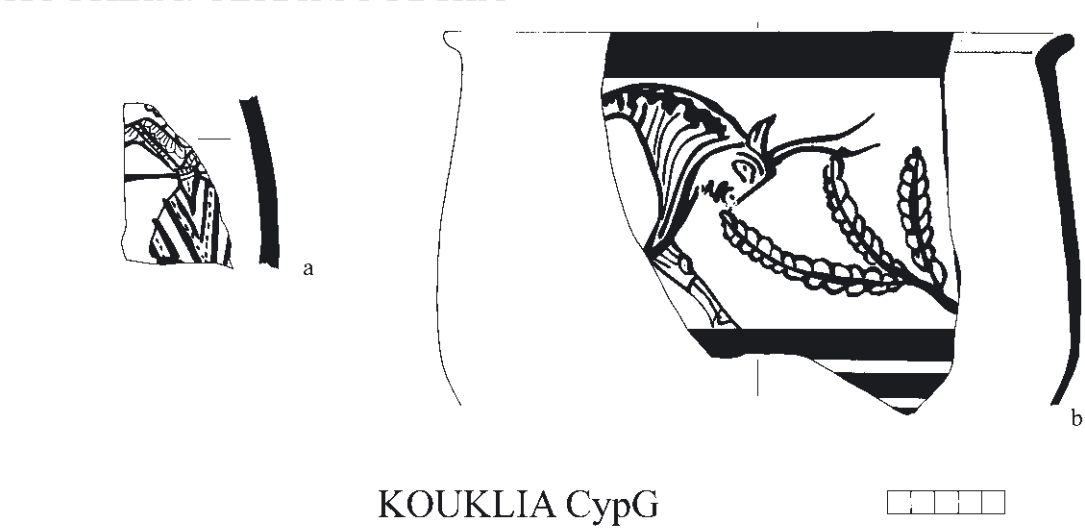




Fig.18 The CypG chemical profile. a,b, Karageorghis *et al*. 1972, 189 fig.1, 191 fig.2 (drawings PAM). Scale 1:3.

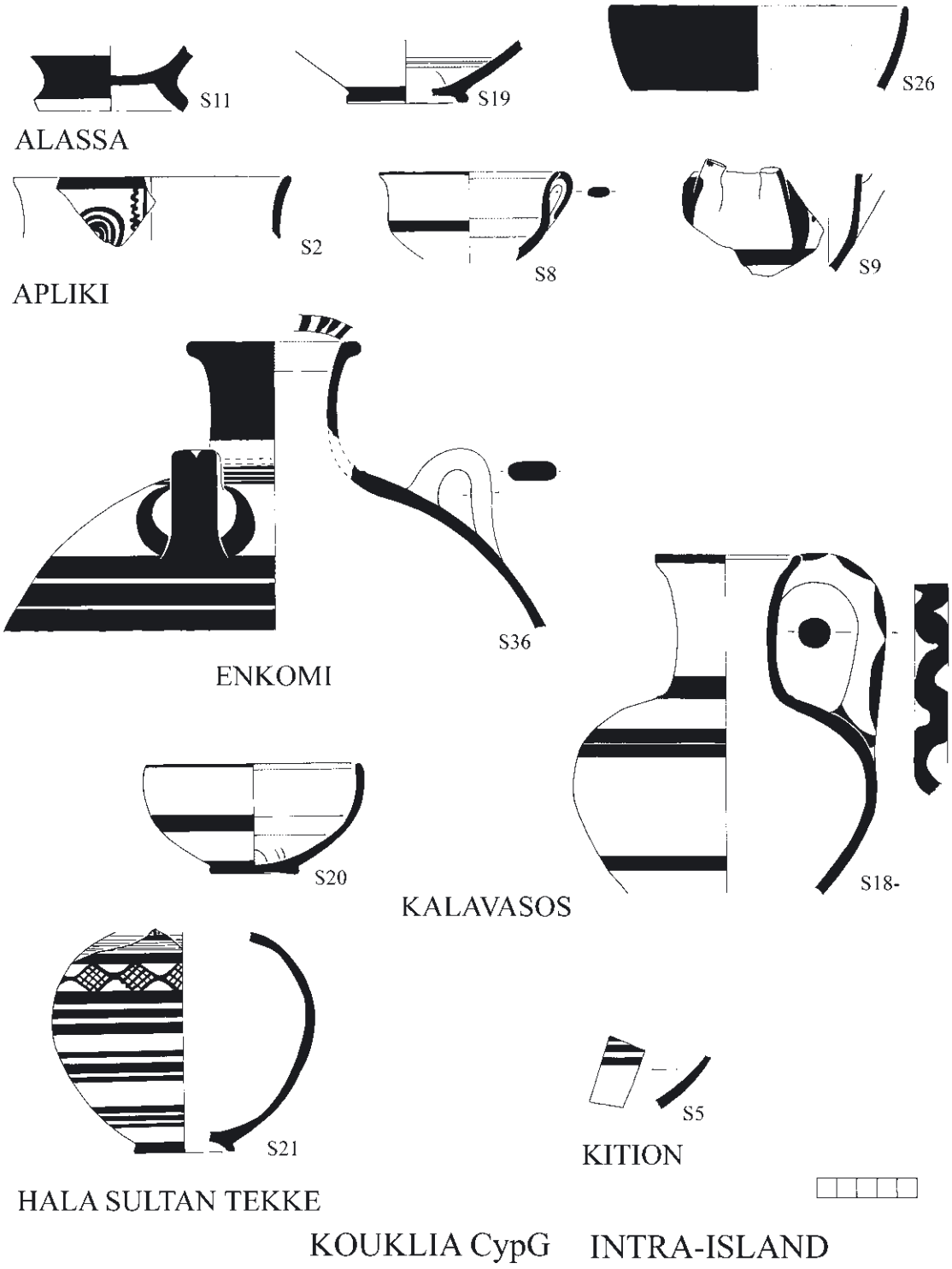



Fig.19 The CypG chemical profile. Exports from Kouklia. Scale 1:3.

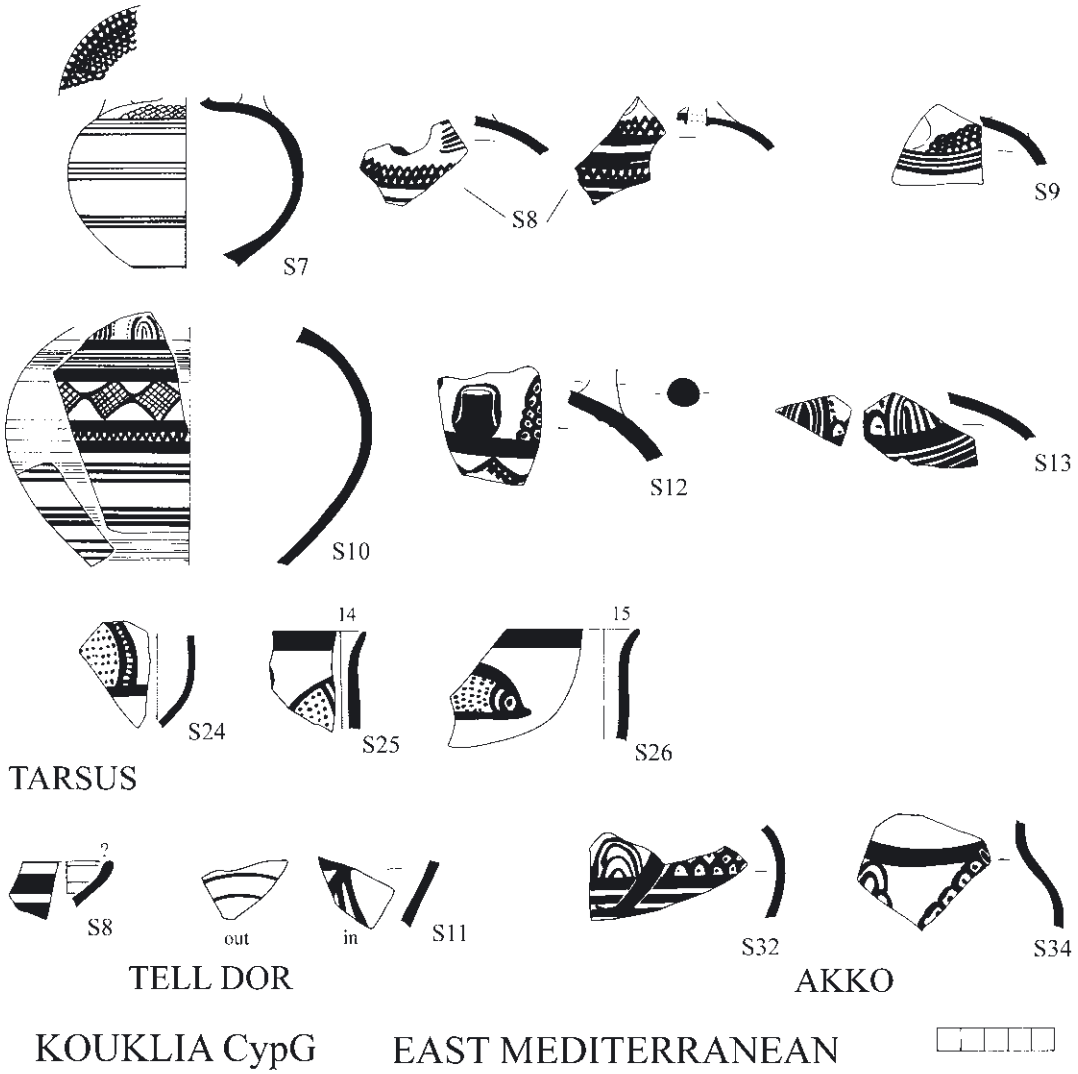



Fig.20 The CypG chemical profile. Exports from Kouklia. Tarsus, Mountjoy 2005b, 95 fig. 4.47 S7, 48 S8, 49 S9, 50 S10, 52 S12, 53 S13, 112 fig. 8.156 S24, 157 S25, 160 S26, Tell Dor and Akko, Zuckerman *et al*. in prep. Scale 1:3.

Group CypG (Figs. 18–20). A large number of pieces can be assigned to CypG, both at Kouklia and round the island, as well as abroad. The local pieces include kraters S11–12 and a number of deep bowl rims with antithetic spiral; there is also one with what seems to be a row of lozenge S7 and two with narrow triglyphs S6,9. The monochrome interiors of most of the deep bowls are a feature at Kouklia. Production of Rude/Pastoral Style kraters at the site is now certain S23–25. It has been possible to assign pieces analysed earlier by Perlman and Asaro[74] to this workshop (Fig. 18 bottom row). CypG vessels were exported to nearby Alassa and along the south coast to Kalavasos, Kition and Hala Sultan Tekke; they also reached Enkomi in the east of the island. It is of interest that both CypG and CypS vessels appear at Apliki in the north-west, whither they probably went by sea. At Alassa **Alassa S11** might be the base of a small amphoroid krater, **Alassa S19** is the bowl Types 6–9; **Alassa S26** is a bowl Type 5. Apliki has two deep bowls, **Apliki S2, 9** with the monochrome interior typical of Kouklia and a Levanto-Helladic cup, **Apliki S8**; **Kalavasos S20** is the Levanto-

[74] Karageorghis *et al*. 1972, 188–97.

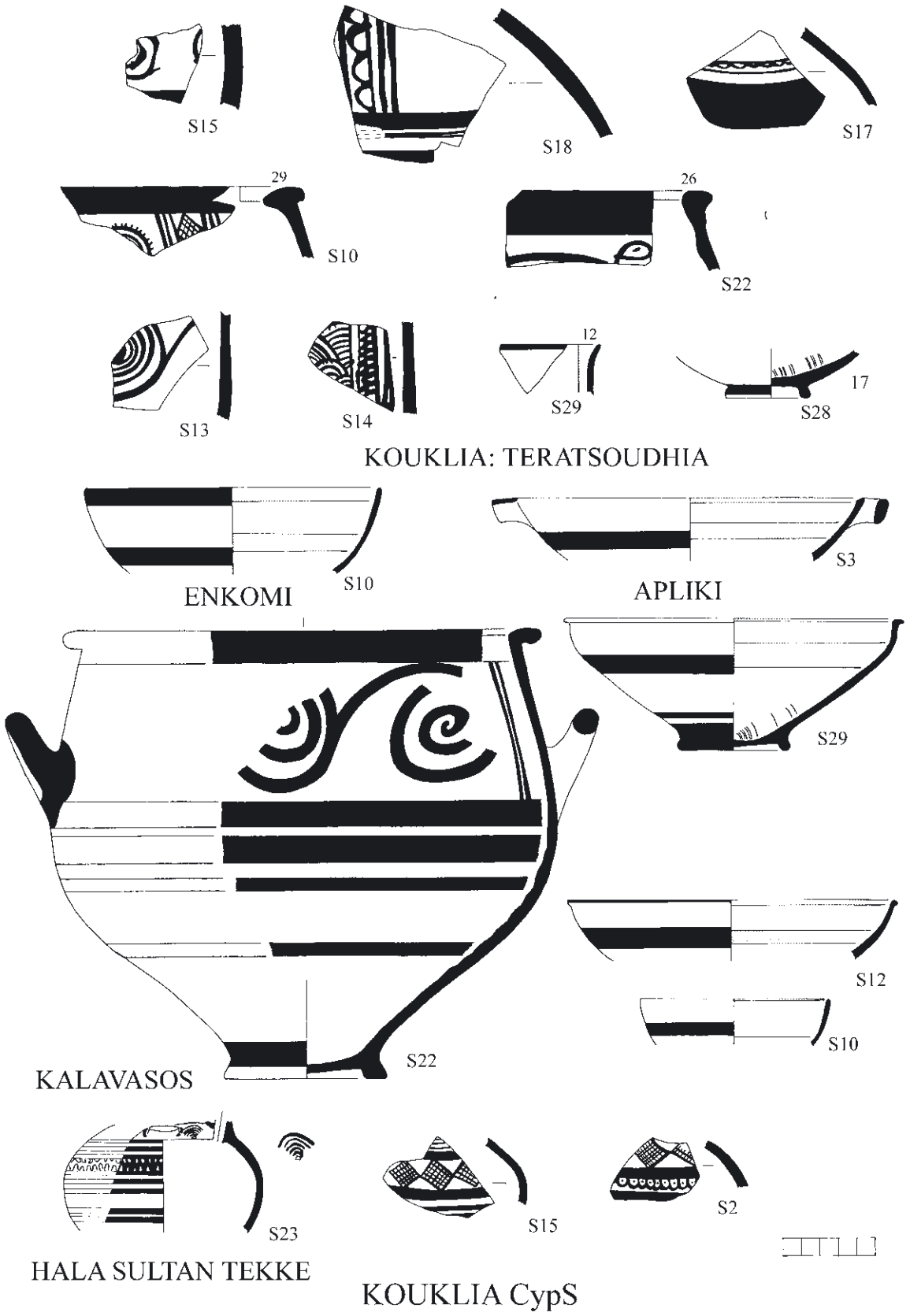



Fig.21 The CypS chemical profile, with exports to Enkomi, Apliki, Kalavasos and Hala Sultan Tekke. Scale 1:3.

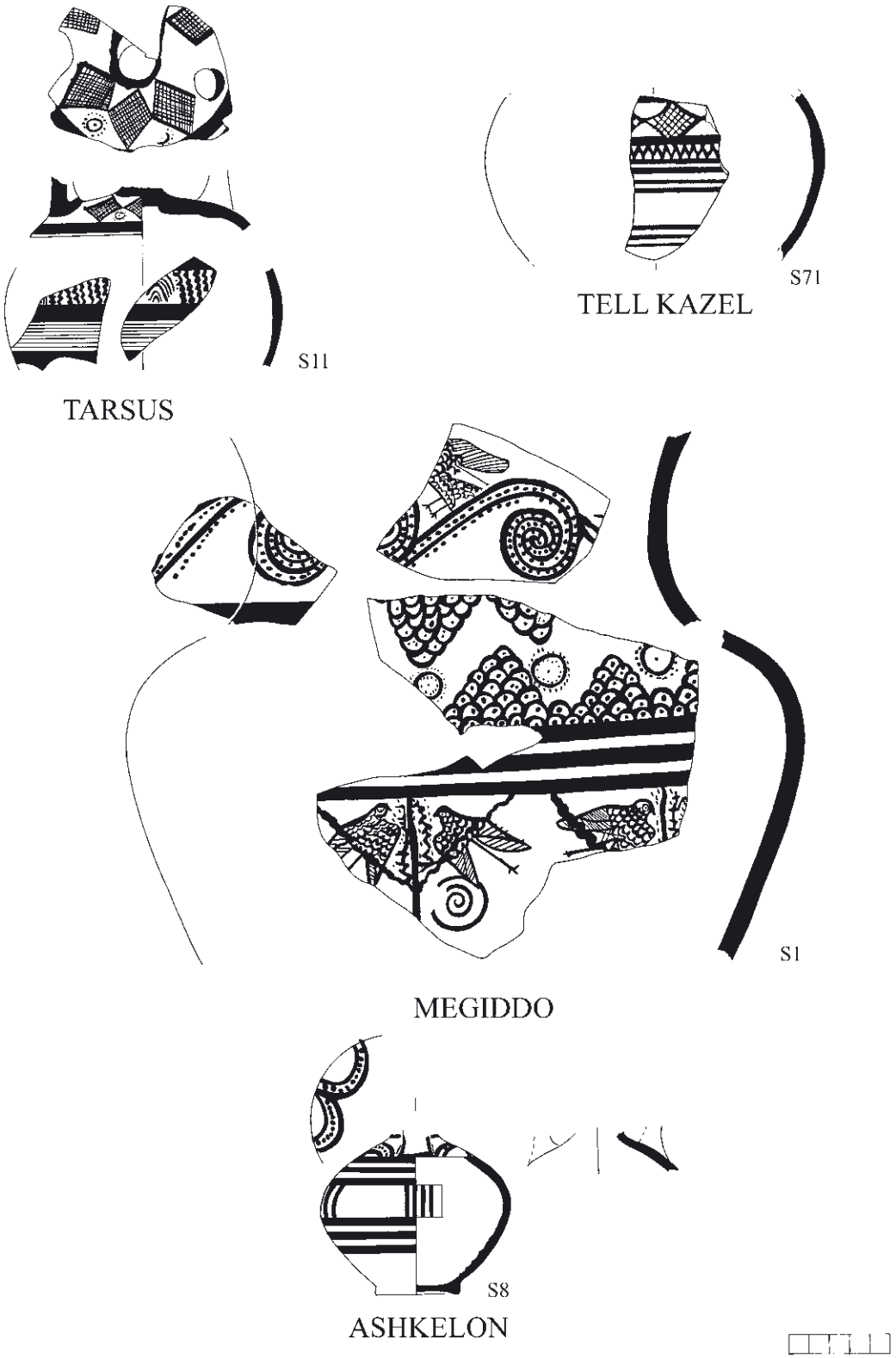



Fig.22 The CypS chemical profile. Exports from Kouklia. Tarsus, Mountjoy 2005b, 95 fig. 4.51, Tell Kazel, after Badre *et al*. 2005, 33 fig. 8.6, Megiddo, Mountjoy 2008, 16 fig. 3a, Ashkelon, Master *et al*. 2015, 238 fig. 2 S8. Scale 1:3.

Helladic FS 210 and **Kalavasos S18** is FS 116, a shape which continued to be locally made in Cypriot IIIC Early. A large piriform jar FS 36 was exported to Enkomi, **Enkomi S36**. This large Levanto-Helladic type also continued to be manufactured locally in Cypriot IIIC Early; a complete vessel from Kouklia is a good parallel to Enkomi S36.[75] **Hala Sultan Tekke S21** belongs to the Near Eastern group of stirrup jars; it has the typical groups of bands down the body and the lozenge chain (see below). **Kition S5** belongs to the Levanto-Helladic bowl FS 296.

Exports abroad (Fig. 20) include a number of pieces at Tarsus belonging to the Near Eastern group of stirrup jars **Tarsus S7–10, 13**. The stirrup jar **Tarsus S12** has the dot-filled triangular patch so popular on the island in Cypriot IIIC Early. The same motif appears on **Akko S34**, and possibly on **Akko S32**. Pictorial deep bowls at Tarsus also came from Kouklia, **Tarsus S24–26**. Fish with dot-filled body is depicted S26 and the spotted humped duck S24, and possibly S25.[76] Exports to Tell Dor include a Levanto-Helladic bowl FS 296, **Dor S8**, and a kalathos, **Dor S11**, the latter with what may be a hatched triangle on the interior. This is a rare Cypriot IIIC shape.

Group CypS (Figs. 21–22). This chemical profile is less common and exports round the island are correspondingly fewer. At Kouklia (Fig. 21) three closed shapes S15, 17–18, four kraters S10, 13–14, 22 and two deep bowls S28–29 can be assigned to it. S29 has the monochrome interior typical at Kouklia; the krater S14 has an elaborately filled triglyph; S22 belongs to a Rude/Pastoral Style krater, demonstrating that both clay groups were used for this type. A bowl Type 2 was exported to Enkomi (S10), Type 6 to Apliki (S3) and two Levanto-Helladic bowls FS 296 to Kalavasos (S12, 29). Kalavasos also has a Rude/Pastoral Style krater **Kalavasos S22**. **Kalavasos S10** is a Levanto-Helladic bowl FS 210. Three examples of the Near Eastern group were exported to Hala Sultan Tekke (S2, 15, 23). Outside the island (Fig. 22) this chemical profile is also uncommon. A large stirrup jar was exported to Tarsus (S11) and another example of the Near Eastern group of stirrup jars to Tell Kazel (S71); it has a similar zone of zigzag on the belly to that of another member of the group **Hala Sultan Tekke S23**; **Megiddo S1** was published as a Single,[77] but as a result of the increased number of samples from our analyses, it can now be assigned to CypS. **Megiddo S1** is a good example of the use of the Cypriot dot-filled triangular patch; there is a parallel to the dot-filled spirals on a late Rude/Pastoral Style krater.[78] The birds are perched antithetically on a Levantine-type tree of life. The stirrup jar **Ashkelon S8** also has the Cypriot dots, this time in semi-circles.

### Small Groups (Figs. 23–24)

Mycenae/Berbati (chemical profile MYBE) (Fig. 23). Most of the Mycenaean exports to Cyprus and the Near East came from workshops in the north-east Argolid. This has been well illustrated by recent NAA analysis of Mycenaean imports in north Israel.[79] Obvious imports were not sampled in the current NAA analysis, but one or two doubtful vessels did turn out to be imported. The ubiquitous Levanto-Helladic bowl FS 296 was exported to Apliki (S4), Athienou (S8), Idalion (S12), Kalavasos (S5) and Kition (S9). The cylindrical jug FS 139 **Athienou S7** was expected to be an import, but **Kouklia S16** with triangular patch might have been local. However, triangular patch, especially without dot fill, was popular on the Greek mainland in LHIIIB2 and LHIIIC Early 1.[80] **Kalavasos S2, 8** are examples of the imported linear Levanto-Helladic cup FS 220.

Boeotia. The carinated bowl FS 295, **Kalavasos S1**, is assigned to the Boeotian Theban group. KnoL and KnoK are central Cretan chemical profiles. None of the three sherds assigned to these groups is informative; nor is the Kition krater sherd **Kition S19**, which is assigned to KroP, a Greek mainland group from Attica. The most interesting pieces are **Hala Sultan Tekke S22**, a Grey Ware krater sherd probably belonging to Blegen Shape C82,[81] which turned out to be a Trojan import[82] and **Kition S7, 35**, which are assigned to Miletos. S35 is an East Aegean type amphoroid krater with the typical tails below the handle found on these vas-

[75] Maier and von Wartburg 1985, pl. 11.5.

[76] For a complete example of this protome see Vermeule and Karageorghis 1982, XIII.10.

[77] D'Agata *et al*. 2005, 375.

[78] Mountjoy 2008, 18 fig. 5.1.

[79] Zuckerman *et al*. 2010, 400–16.

[80] Mountjoy 1999, LHIIIB2 Phocis nos. 141–42, 157–58, LHIIIC Early Korinthia no. 188 (with some dots in the scale).

[81] Blegen *et al*. 1958, fig. 216.

[82] See Mommsen *et al*. 2001, for the Troy groups.

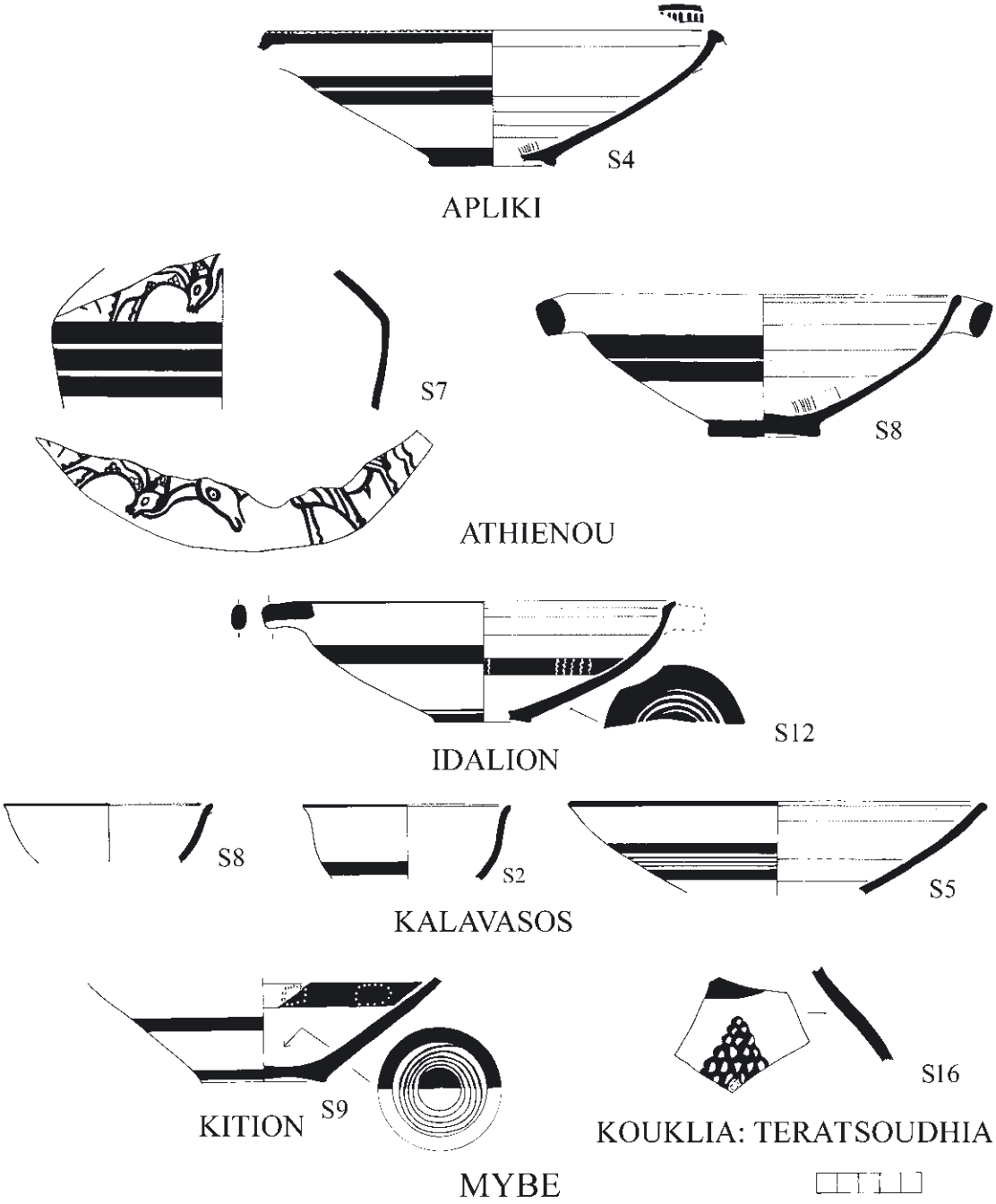



Fig.23 The Mycenae-Berbati chemical profile. Scale 1:3.

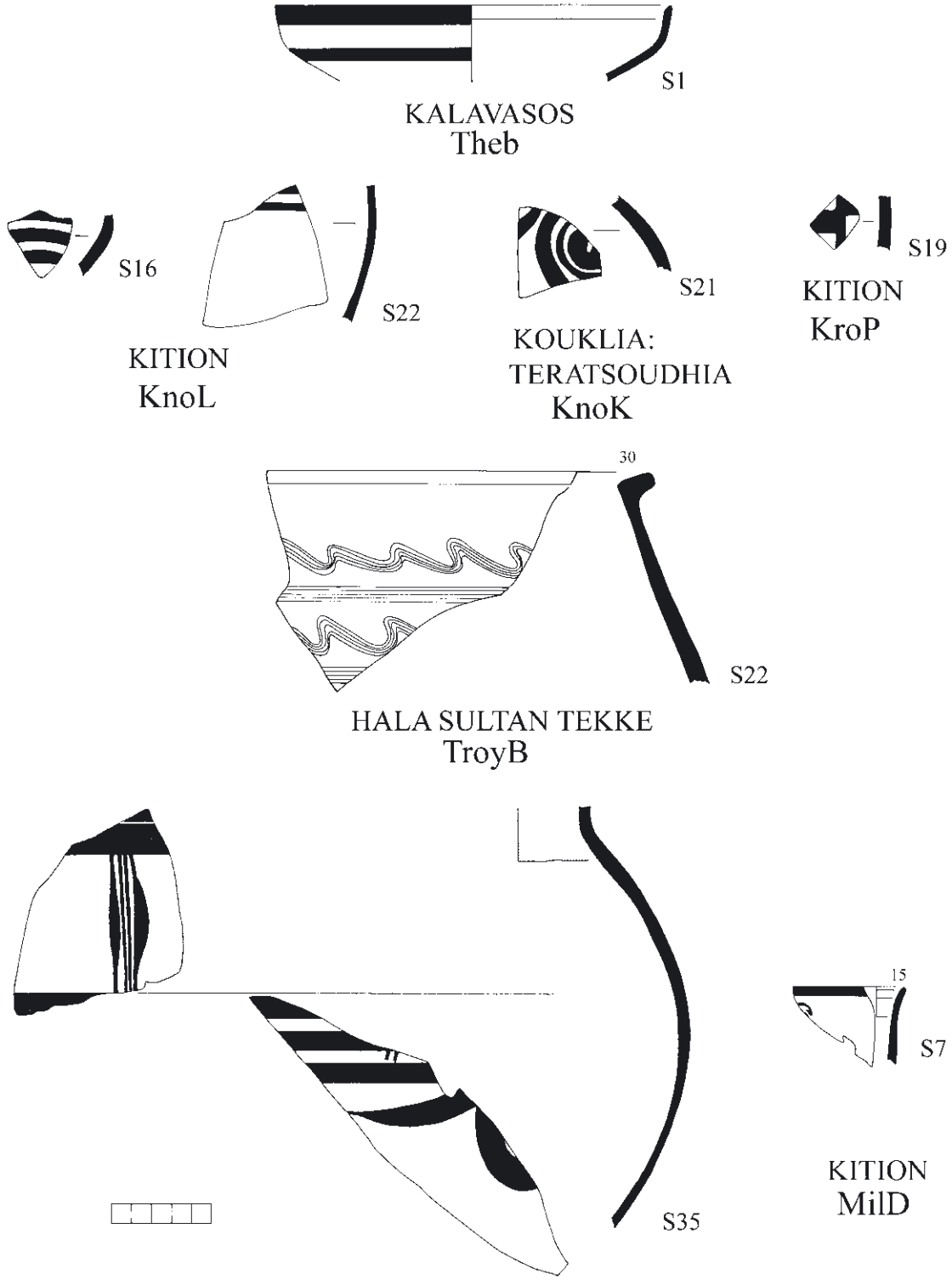



Fig.24 Small groups. Scale 1:3.

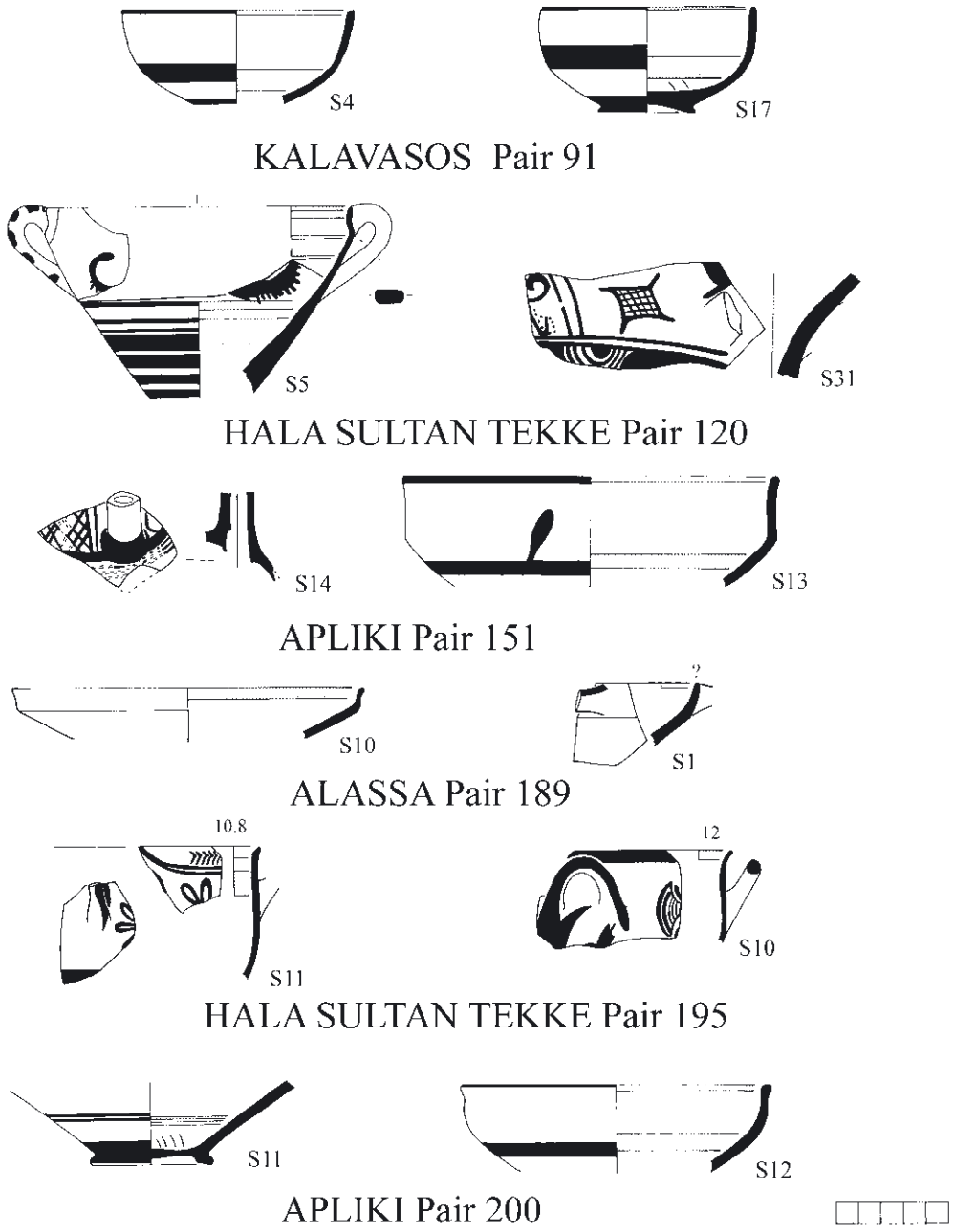



Fig.25 Pairs. Scale 1:3.

es;[83] S7 is a deep bowl, an example of the export of fine table ware as opposed to containers.

**Pairs (Fig. 25)**

Five sets of pairs, that is two sherds with the same unknown chemical profile have been isolated. Kalavasos Pair 91 comprises two Levanto-Helladic small locally made bowls FS 210. Hala Sultan Tekke Pair 120 has a Minoan-type carinated kylix S5 and a kalathos with pleonastic decoration S31, while Apliki Pair 151 comprises a stirrup jar S14 and a bowl Type 13 S13. The net decoration on S14 could be part of a triglyph or part of a triangle with double outline. The pair has unusually high scandium. Alassa S1 and S10, Pair 189, are bowl

[83] See Mountjoy 1998, 56, fig. 11, 57 fig. 12.1.

Type 7 and Type 9 respectively. This pair also has high scandium. The deep bowls Hala Sultan Tekke S10,11 Pair 195 both have derivative Minoan motifs. S11 has a petaloid flower[84] and S10 a Minoan papyrus.[85] Apliki S11 and S12, Pair 200, are both Levanto-Helladic types, the former a base of the bowl FS 296 and the latter the small bowl FS 210. This is another pair with high scandium.

**Groups with unidentified origins (Figs. 26–27)**

There are some groups of sherds for which the origin is unknown. Each group is generally from the same site and each group has its own chemical profile.

Group X075.

This group comprises four sherds from Alassa. The closed linear body sherd S8 is not informative; the jug S14 has an unusual thickened triangular rim; S18 is the bowl Type 6–9 and S6 a bowl Type 5. The group has unusually high scandium.

Group X076

This is a mixed group with samples from Enkomi and Hala Sultan Tekke. The Enkomi vessels are an interesting collection. They comprise **Enkomi S27**, the base of a feeding jug, a local shape almost always decorated with vertical bands from neck to base, **Enkomi S30, S5** and **S8**, bowl Types 3, 12 and 14 respectively, and **Enkomi S1**, a PWP sherd possibly from a belly-handled amphora. The bowl Type 14 is extremely rare at Enkomi; it is a south island product from workshops at Kourion and probably Kouklia. It is of interest that S8 comes from neither of these workshops. The presence of the PWP S1 is also unexpected, since the two main producers of PWP are Kition and Enkomi. However, **Kourion S9** shows local production at that site, suggesting that there was no monopoly of the style. The pleonastic **Hala Sultan Tekke S24** with paddle filler is also enigmatic, as only Enkomi, Sinda, Kition and Hala Sultan Tekke produced this pottery, the other sites with Cypriot IIIC pottery having been abandoned or destroyed; thus, one would expect it to match the chemical profile of one of these sites.

Group X077

Two sites at Idalion are involved here. The Levanto-Helladic bowl FS 244 S3 and pedestal bowl FS 310 S10 are from Idalion: Kafkallia, while the two Type 6 bowls S13-14 are from Idalion: Ambelleri. The sample from Idalion is very small, since the Cypriot IIIC material from the Swedish excavations has not been fully published and is all in Stockholm; thus no chemical profile could be achieved for Idalion. It is possible that X077 might be the chemical profile for the site, but the sample is too small to be certain. All these pieces have high scandium.

Group X078

This is a mixed group. **Idalion S11** is bowl Type FS 296/295 and **Athienou S3** is bowl Type 10. **Athienou S5** is a deep bowl with derivative Minoan decoration.

Group X079

**Kition S21**, possibly from a piriform jar FS 36, and **Kition S13**, a bowl FS 296, both have a greenish fabric, which might suggest that they are Mainland imports, but the chemical profile has characteristics of the other local groups.

Group X080

The group is assigned as probably from Kouklia. It comprises three deep bowls, which all have the monochrome interior found in the west of the island at Kouklia and Maa.

Three of the pairs, from Apliki and Alassa, and two of the groups, from Alassa and Idalion, all have very high scandium. Work by Artzy with NAA on Cypriot imports to Ras Shamra has shown that the composition of the clays of the White Slip wares was basaltic and also had high scandium.[86] Artzy has suggested the clays probably came from the Troodos.[87] This is certainly borne out by our groups here, which come from sites in the Troodos foothills in the north (Apliki), east (Idalion) and south (Alassa).

[84] See Khamalevri, Andreadaki-Vlazaki and Papadopoulou 2005, 367 fig.21 top right.

[85] Khamalevri, Andreadaki-Vlazaki and Papadopoulou 2007, 46 fig.3.7.

[86] Artzy *et al*. 1981, 44, 46 Table.

[87] Artzy *et al*.1981, 45.

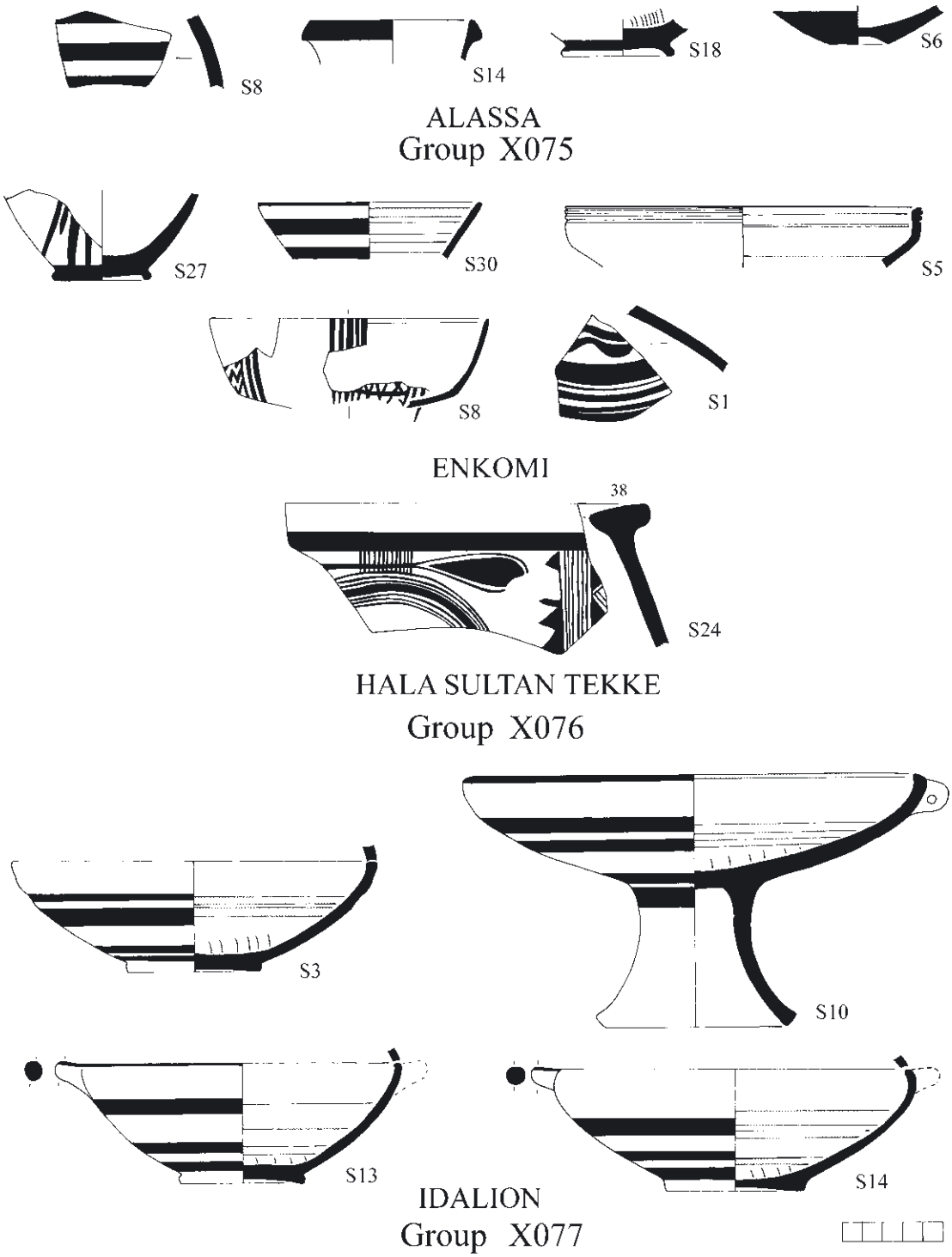



Fig.26 Local groups of unknown origin. Scale 1:3.

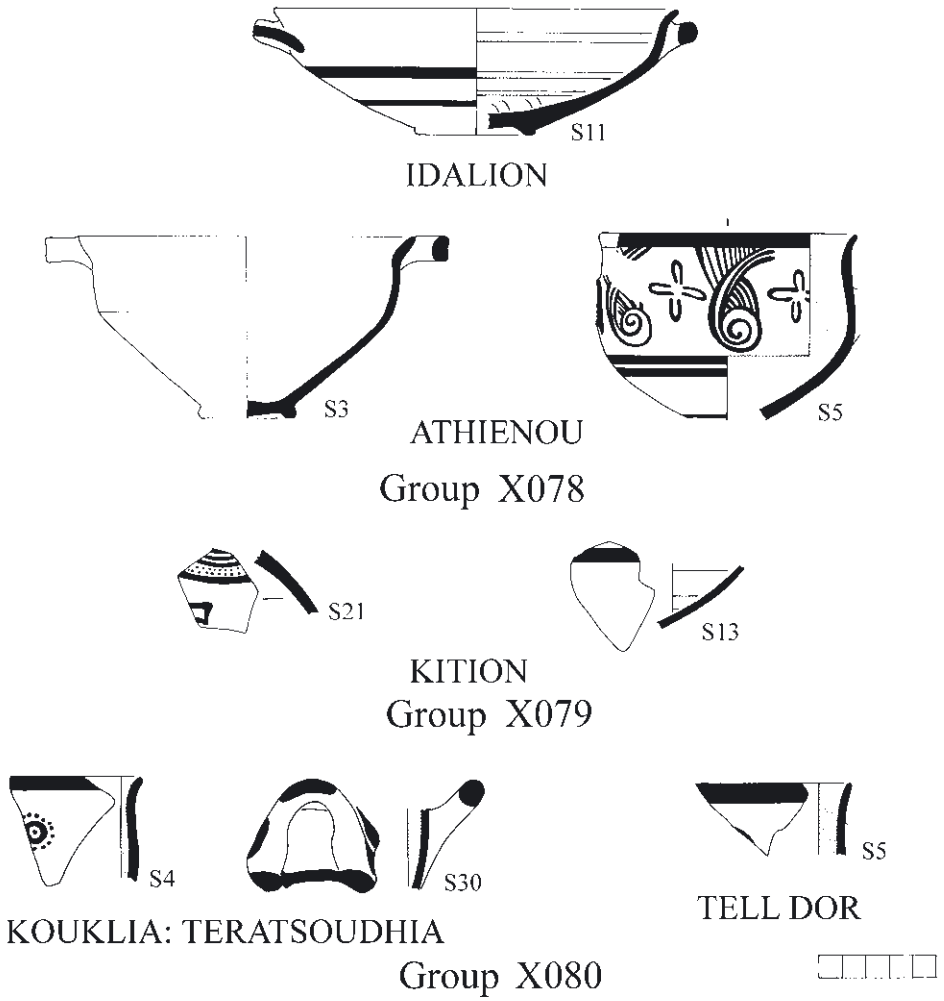



Fig.27 Local groups of unknown origin. Scale 1:3.

**Singles (Figs. 28–30)**

Sherds which did not match any known group are listed below by site.

**Alassa**

Apart from the deep bowl base S22, three of the bowl Types could not be assigned to any known chemical profile: Type 8 S29, Type 13 S3 and a possible example of Type 5, the unpainted S28. However, Type 5 is usually monochrome or linear, so it may be that S28 belongs to a different shape in the plain ware assemblage.

**Apliki**

The unusually large number of unassigned sherds from Apliki may reflect the nature of the site. As a mining site it seems not to have produced its own fine ware pottery, but to have imported it from elsewhere. This is demonstrated by the presence of pottery from the three main sites of Enkomi, Kition/Hala Sultan Tekke and Kouklia (Fig. 1). Apliki must also have used pottery from Toumba tou Skourou and other surrounding sites, both near and further away, such as Ankastina.

The Singles include the small Levanto-Helladic types FS 210 S19, FS 223 S16, FS 232 S17 and FS 310 S18. S6 is the linear jug FS 116. The stirrup jar S1 has no obvious parallels on the island; the goblet/kylix S21 belongs to a small group of vessels with the rim of the LHIIIB kylix and the deep body of the earlier LHIIIA1 goblet; it has the popular dot-filled triangular patch and should be local to the island. The strainer jug sherd S7 merits attention as it is decorated in the pictorial style

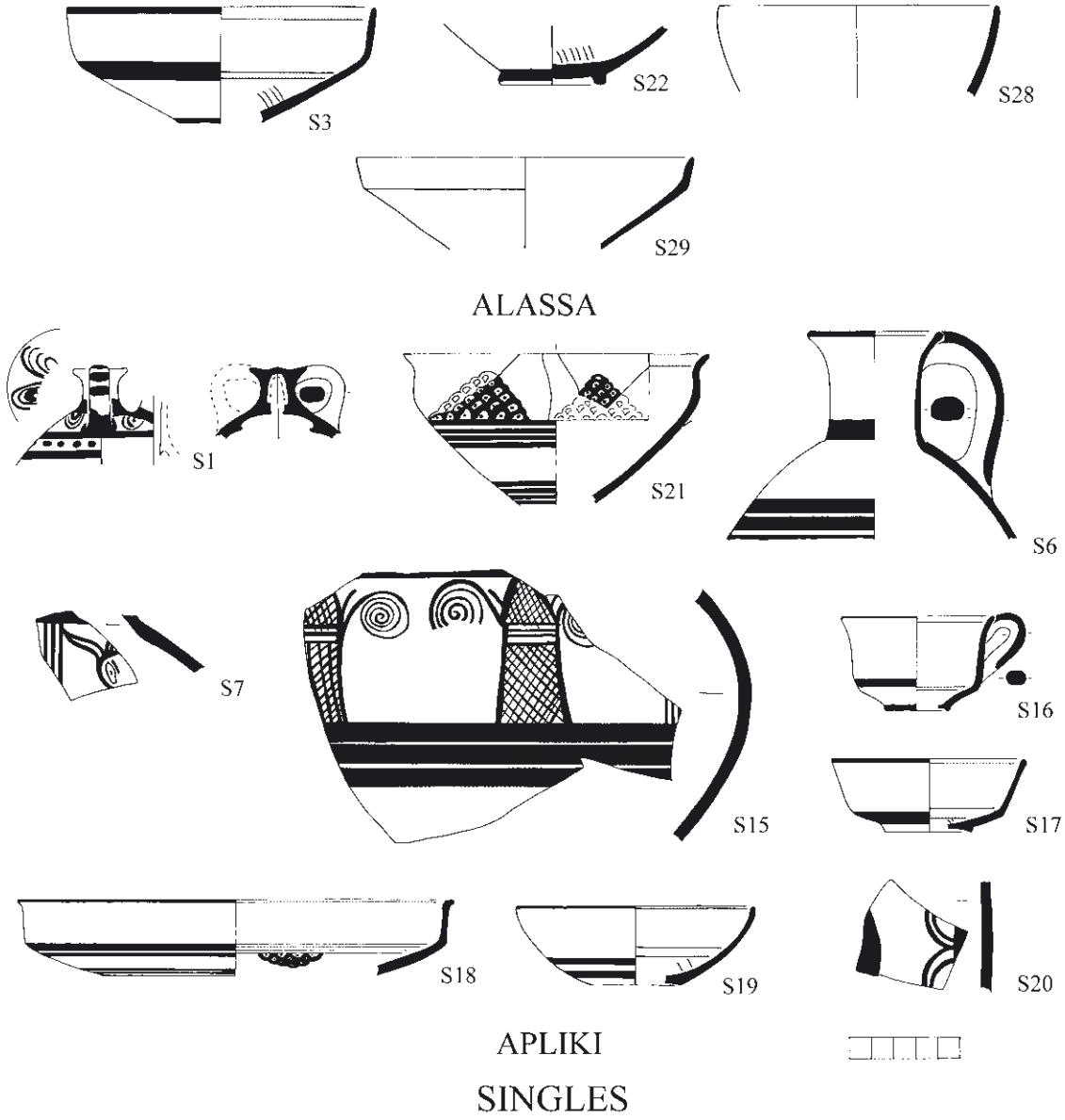



Fig.28 Singles of unknown local origin. Scale 1:3.

with bull. It would be of interest to know which centre it came from, as also the origin of the amphoroid and ring-based kraters S15 and S20, both of which have unusual decorative motifs.

**Athienou**

This is also a mining site for which no local chemical profile could be attained. The imported fine ware comes from Enkomi and Kition/Hala Sultan Tekke. The Rude/Pastoral Style krater S2 has three vertical lines between the handle stubs somewhat similar to the inverted V found in the same position on kraters from Bademgediği Tepe in the East Aegean/West Anatolian interface.[88] However, the main decoration suggests the vessel is a local product.

[88] Mountjoy 2009a, 68 fig. 4.1.


Fig.29 Singles of unknown local origin. Scale 1:3.

**Hala Sultan Tekke**

The two Minoan derived carinated kylikes S4,16 found no match. However, it is unlikely that they are Minoan imports as they deviate too much from the Minoan kylix.[89] The decoration of linked spirals on the deep bowl S8 is also Minoan derived.[90] The lack of a match for the Simple Style stirrup jar S33 and the pleonastic krater S1 raises questions, as it suggests that other unknown sites also produced these types.

[89] I thank B. Hallager for this information.

[90] See Karantzali 1986, 63 fig. 12 V.13.

**Kalavasos**

The fact that no match was found for a number of the Kalavasos samples is not surprising, as they are slightly earlier than most of the pottery sampled. All the pieces here are Levanto-Helladic types except the base S6, which is bowl Types 6–9, and S3, which is an early bowl Type 13. S7 and 14 are FS 210 and S21, 28 are the linear bowl FS 296. These types may have been produced using a different clay from that of the Cypriot IIIC types.

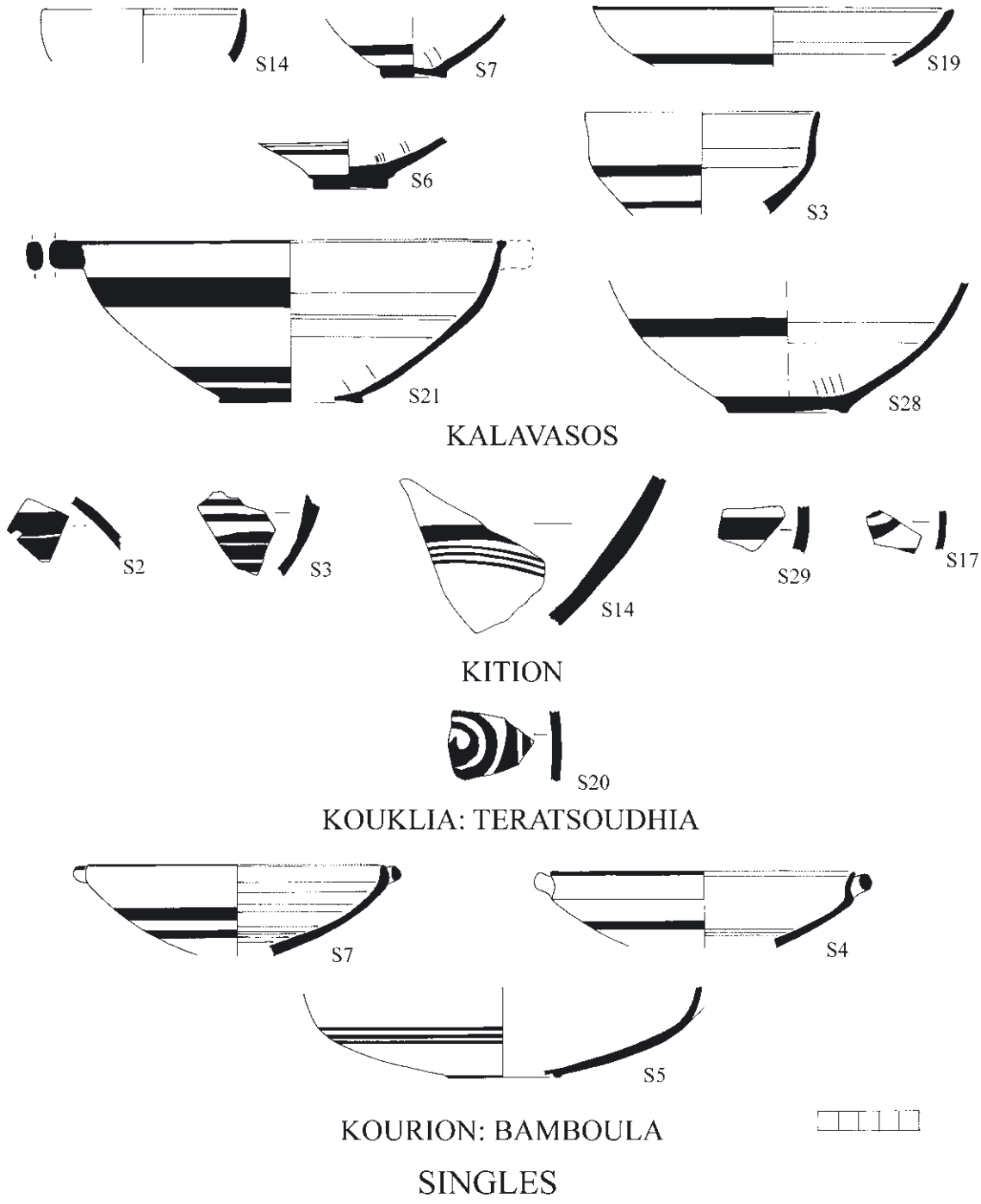



Fig.30 Singles of unknown local origin. Scale 1:3.

**Kition**

The four sherds from Kition are not informative. S2, 3, 29 are closed linear body sherds; S2 is probabaly from the large piriform jar FS 36, S14 and possibly S29 might belong to a jug or hydria.

Kouklia: Teratsoudhia

S20 belongs to a deep bowl. A possible source might be Maa: Palaiokastro, which was not included in the project for financial reasons.

**Kourion: Bamboula**

Three bowls Type 7 S7, Type 9 S4 and Type 14 S5 could not be assigned to any group.

**PART II**

This section briefly describes some of the pottery categories, which formed part of the 12th century Aegean-style assemblage. It outlines the considerable new amount of information provided by NAA as to their origins and their circulation on the island and abroad, highlighting workshops, items produced especially for trade, and hitherto unknown trade patterns of great interest for interregional trade.

The Levanto-Helladic Style

The term Levanto-Helladic was adopted by Sjöqvist to define a class of pottery in use in Cyprus in LCIIC.[91] The class was called Levanto-Mycenaean by Furumark as he used the term Mycenaean rather than Helladic to describe the pottery of the Aegean.[92] Furumark assigned a number of LHIIIB shapes which he thought typical of the east Mediterranean to his Levanto-Mycenaean style.[93] I have separated the style into two components, an Aegean group (Figs. 31–32) comprising shapes exported from Mainland Greece, some of which were then made locally, and a Cypriot group (Fig. 32) comprising types of local derivation.

As a rule the Aegean shapes with lustrous paint are generally Mainland imports and those with matt paint are local products. However, this criterion cannot always be applied, since lustrous paint can lose its lustre and appear matt. This is particularly highlighted by the linear version of the shallow bowl FS 296, which was both imported and locally made. Moreover, NAA has also demonstrated that matt painted pieces can be Argive imports, such as FS 296 **Kalavasos S5** (Fig. 23),[94] and that lustrous painted pieces can be locally made: examples of FS 296 **Kition S8** (Fig. 7) and **Kalavasos S27** (Fig. 12) are assigned to CypI Enkomi and CypJ Kition/Hala Sultan Tekke respectively. In addition NAA of pieces with lustrous paint exported to Megiddo (a piriform jar FS 36 (Fig. 13) S7 and two Simple Style stirrup jars (Fig. 34) S4–5) has also assigned them to the CypJ group. It seems that small amounts of lustrous painted pottery were produced in some Cypriot workshops (see below Near Eastern group).

**The Mycenae/Berbati chemical profile (Fig. 23)**

NAA has assigned a large number of LHIIIA2–IIIB Aegean exports to workshops in the northeast Argolid.[95] Our programme also included some imported Levanto-Helladic pieces. Imported pieces with lustrous paint assigned by NAA to the Mycenae/Berbati chemical profile include the cylindrical jug FS 139 **Athienou S7**, and the linear cup FS 220 **Kalavasos S2,8,** but the commonest shape is the bowl FS 296 **Apliki S4**, **Idalion S12**, **Athienou S8, Kalavasos S5, Kition S9**. The only non-Levanto-Helladic piece assigned to this profile is **Kouklia S16** (see below for a definition of the Levanto-Helladic style and vases).

The Levanto-Helladic types appear on the Greek Mainland in LHIIIB and continue on Cyprus into Cypriot IIIC Early 1, that is LCIIC equivalent to Enkomi Level IIB. One or two of the large imported shapes were locally manufactured in LCIIIA, but most of them disappeared, as also the small locally produced bowls; these gave way to a new set of bowls, Bowl Types 1–14, which started to appear in late LCIIC, became dominant in the first part of LCIIIA, corresponding to LHIIIC Early 1 and continued into later LCIIIA corresponding to LHIIIC Early 2 and LHIIIC Middle.

[91] Sjöqvist 1940, 65–73.

[92] Furumark 1941a, 9–10.

[93] Furumark 1941a, 590, 603, 606, 610, 622–24, 626, 632–33, 636, 638; see also Leonard 1994, 7 for a useful chart of the shapes.

[94] See also Tell Kazel, Jung 2006, TK34 154 fig. 7.21.

[95] For example, Zuckerman *et al*. 2010.

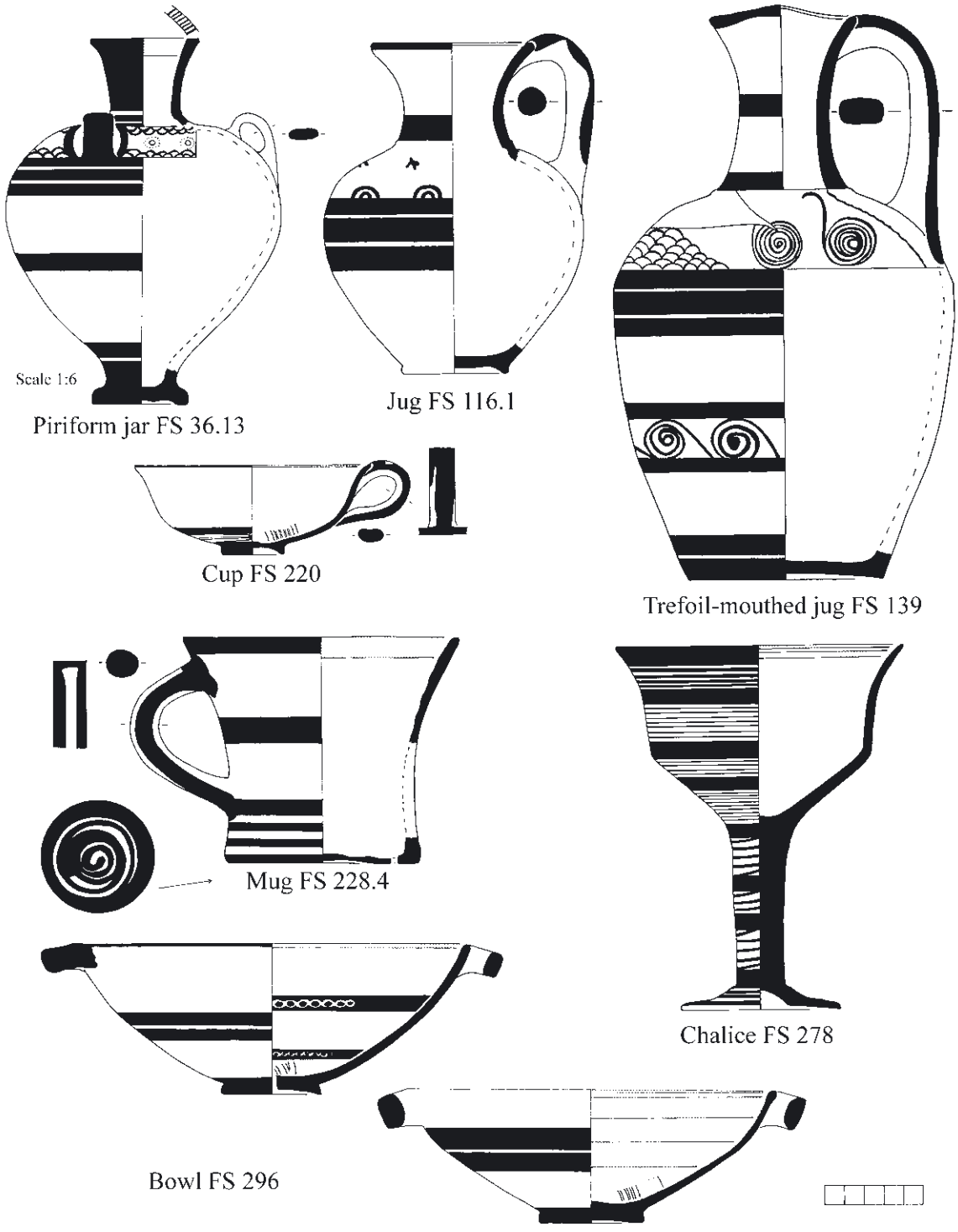



Fig.31 Levanto-Helladic types. Scale 1:3.

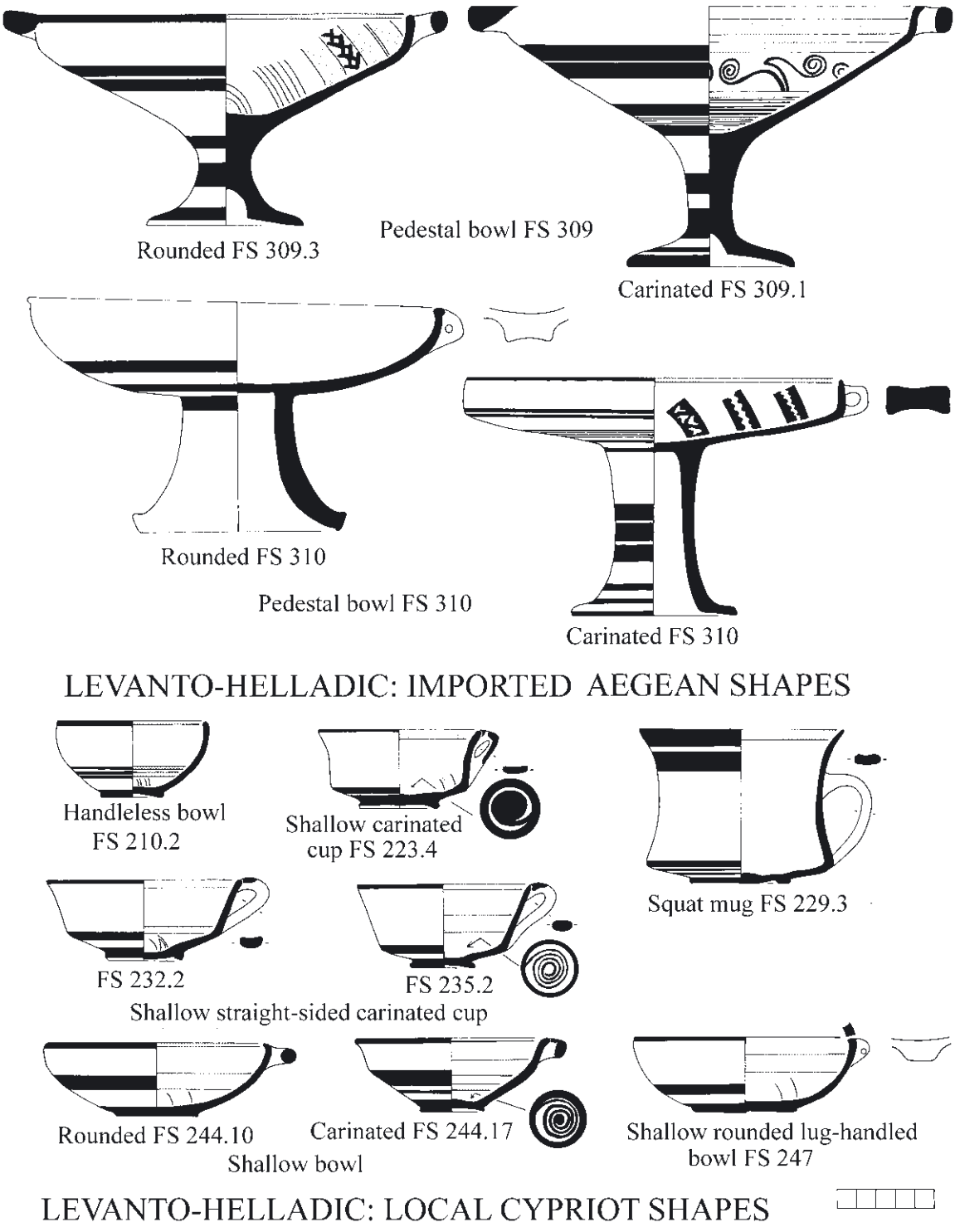



Fig.32 Levanto-Helladic types. Scale 1:3.

Levanto-Helladic pottery is not common in Syria-Palestine; only the large piriform jar FS 36 and the shallow bowl FS 296 are better attested.[96]

**The imported Aegean Levanto-Helladic shapes (Figs. 31–32)**

Imported shapes include the large piriform jar FS 36, the jug FS 116, the trefoil mouthed jug FS 139, the linear cup FS 220, the mug FS 228, the chalice FS 278, the shallow bowl FS 296 and the pedestal bowls FS 309, FS 310. These shapes are rare in Greece, if they appear there at all; they seem to have been made especially for export. They are generally large shapes and were perhaps imported as prestige objects to impress; subsequently FS 36, FS 116, FS 220 linear, FS 296 linear and FS 309, 310 were locally produced on Cyprus in LCIIC.

Since some of the imported Levanto-Helladic types were subsequently locally produced, we sampled some pieces to test for local production. The large piriform jar FS 36 was locally produced at Enkomi, **Enkomi S35**, Kition/Hala Sultan Tekke, **HST S3**, and Kouklia, **Enkomi S36**. FS 36 continued to be produced in LCIIIA; **Enkomi S36** is in fact the Cypriot IIIC type; it has a good parallel at Kouklia.[97] This shape was exported from Kition/Hala Sultan Tekke to Megiddo, **Megiddo S7**, and to Tell el-Fa'rah **Oren S24**. A jug FS 116, **Kalavasos S18**, is associated to Kouklia CypG. An example of the cylindrical jug FS 139, **Athienou 1**, was an import from the Mycenae/Berbati area, as also the linear cup **Kalavasos S8**. Two obviously locally produced examples of the pedestal bowl FS 310, **Idalion: Kafkallia S10** and **Apliki S18**, were assigned to the unknown Group X077 and as a Single respectively.

The commonest of the imported Levanto-Helladic shapes is the large bowl FS 296; the patterned examples are usually imports, but the linear type was a common local product. NAA has assigned the patterned **Apliki S4, Idalion S12** and **Kition S9** to MYBE; all have lustrous paint. The linear **Athienou 8** with lustrous paint is also MYBE; however, the linear **Kalavasos S5**, which is MYBE, has matt paint. Other linear examples with matt paint were produced at Enkomi, **Kalavasos S30, Kition S8, 12**, and at Kouklia, **Kalavasos S12, 29**. However, the linear **Kalavasos S27** with lustrous paint is assigned to Kition/Hala Sultan Tekke. This is another instance of the production of lustrous painted vessels of Aegean-type at these two sites. The remaining linear bowls analysed could not be assigned to a known chemical profile. All have matt paint: **Kition S13** is Group X079, **Apliki S11** is Pair 200 and **Kalavasos S21, 28** are Singles.

**The local Cypriot Levanto-Helladic shapes (Fig. 32)**

The local Cypriot Levanto-Helladic types are all small shapes comprising a large number of small cups and bowls: FS 210, 223, 229, 232, 235, 244, 247. These shapes are not found in Mycenaean Greece. They may be adaptations of Plain White Wheelmade shapes.[98]

The few examples we analysed were almost all Singles. These types were produced in late LCIIC, that is before and at the beginning of the production of the Cypriot IIIC Aegean-style vessels. The NAA results suggest that different clays were used for these local types than for the Aegean-style vessels. Only three of the vessels analysed could be assigned to production centres. **Kalavasos S20**, a bowl FS 210, was made at Kouklia, as also **Apliki S8**, a cup FS 223; **Idalion: Kafkallia S4**, a bowl FS 244, was made at Enkomi. Vessels which were assigned as Singles are FS 210 **Apliki S19, Kalavasos S14, 7**, FS 223 **Apliki S16**, and FS 232, **Apliki S17**. A bowl FS 210 **Apliki S12** is part of Pair 200, and a bowl FS 244 **Idalion: Kafkallia S3** belongs to Group X077, together with two examples of FS 310 from Kafkallia and Apliki listed above. These small open types were in use on the cusp of the change from the use of local types to that of Aegean-style wares. The NAA of these vessels highlights the gradual introduction of the change of clay from the total production of local wares to the manufacture of Aegean-style wares.

The earliest imitation of Mycenaean pottery on Cyprus (Fig. 33)

Furumark included some LH IIIA shapes in his definition of the Levanto-Helladic style. One of these is a small conical piriform jar FS 47, which

[96] Leonard 1994, 6.

[97] Maier and von Wartburg 1985, pl. 11.5.

[98] For example, Furumark 1941a, 32 fn. 5, 66 fn. 2.

[99] See, for example, Mountjoy 1999, 115 LH IIIA2 early, Argolid nos.142–45, and LH IIIA2 late, Argolid no.146).


Fig.33 The earliest Cypriot imitation of Mycenaean pottery. Enkomi Murray *et al.* 1900, T.45 fig. 71.945, T.88 fig. 62.1253 (drawings PAM), Hala Sultan Tekke, after Öbrink 1983, Figs. 50i, 110. Scale 1:3.

usually depicts reversed curve-stemmed spirals running round the shoulder including under the handles. These vessels have a deep decorative zone in order to accommodate the spirals below the handles; such a deep zone is usually found on LH IIIA2 early piriform jars, suggesting a date in this phase for the group, since the LH IIIA2 late piriform jar has a narrower decorative zone.[99] This type is extremely common on Cyprus with about 70 vessels noted,[100] but rare in Syria-Palestine.[101] Åström suggested that they were produced on Cyprus, a suggestion based on the soft fabric, the flaking slip, the shape and the decoration.[102] He then had a piece from Hala Sultan Tekke (Fig.33) analysed by NAA in Bonn; it was assigned as a Single, but similarities to two Cypriot groups suggested a Cypriot provenance for the piece.[103] The increased number of analyses from Hala Sultan Tekke as a result of our programme have enabled this piece to be assigned to our Group CypT, thus confirming its local provenance. This result suggests that the other vessels, which all have the same characteristics, were also locally produced on Cyprus, at Hala Sultan Tekke and at other sites. The piriform jar with spiral decoration FS 47 is thus the earliest Mycenaean type to be produced on Cyprus.

The Simple Style (Figs. 34–35)

Furumark was the first to recognise the Simple Style as a separate class after study of examples from Syria, Palestine and Egypt.[104] He assigned three main shapes to the style: the large Levanto-Helladic piriform jar FS 36, the stirrup jar, especially FS 173, and the lentoid flask FS 186.[105] All these types had linear decoration consisting of broad bands, or in the case of the lentoid flask, vertical concentric circles. Furumark emphasised that his classification was provisional, as he had only had access to a limited range of vessels.[106] The banding of the Simple Style vases was then connected by Koehl and Yellin to that of LMIIIB vases,[107] particularly stirrup jars.[108]

Leonard subsequently reviewed the Simple Style and emphasised that it applied only to vessels with broad bands; he excluded vessels with fine line groups between the bands, such as are found on Mycenaean vases.[109] He noted that the commonest stirrup jar shape to carry the Simple Style was the globular FS 171–173; the squat FS 178–180 and the conical FS 182–83 were less popular,[110] as also the two-handled lentoid flask FS 186.[111]

The place of origin of the Simple Style was unknown until Koehl and Yellin associated it with

[100] Åström 1972, 302–04.
[101] Leonard 1994, 20 lists two examples.
[102] Åström 1972, 302–04, 1973, 127.
[103] Mommsen *et al.* 2003, 6–7.
[104] Furumark 1941b, 116–18.
[105] Furumark 1941b, 116 fn. 3–5.
[106] Furumark 1941b, 117 fn. 3.
[107] Koehl and Yellin 1982, 273.
[108] For example Popham 1964, pl. 5c–f globular, pl. 6a–d squat.
[109] Leonard 1994, 7–8, 51, 61.
[110] Leonard 1994, 55–56, 60, 61, 64, 66, 77–78.
[111] Leonard 1994, 82–83.

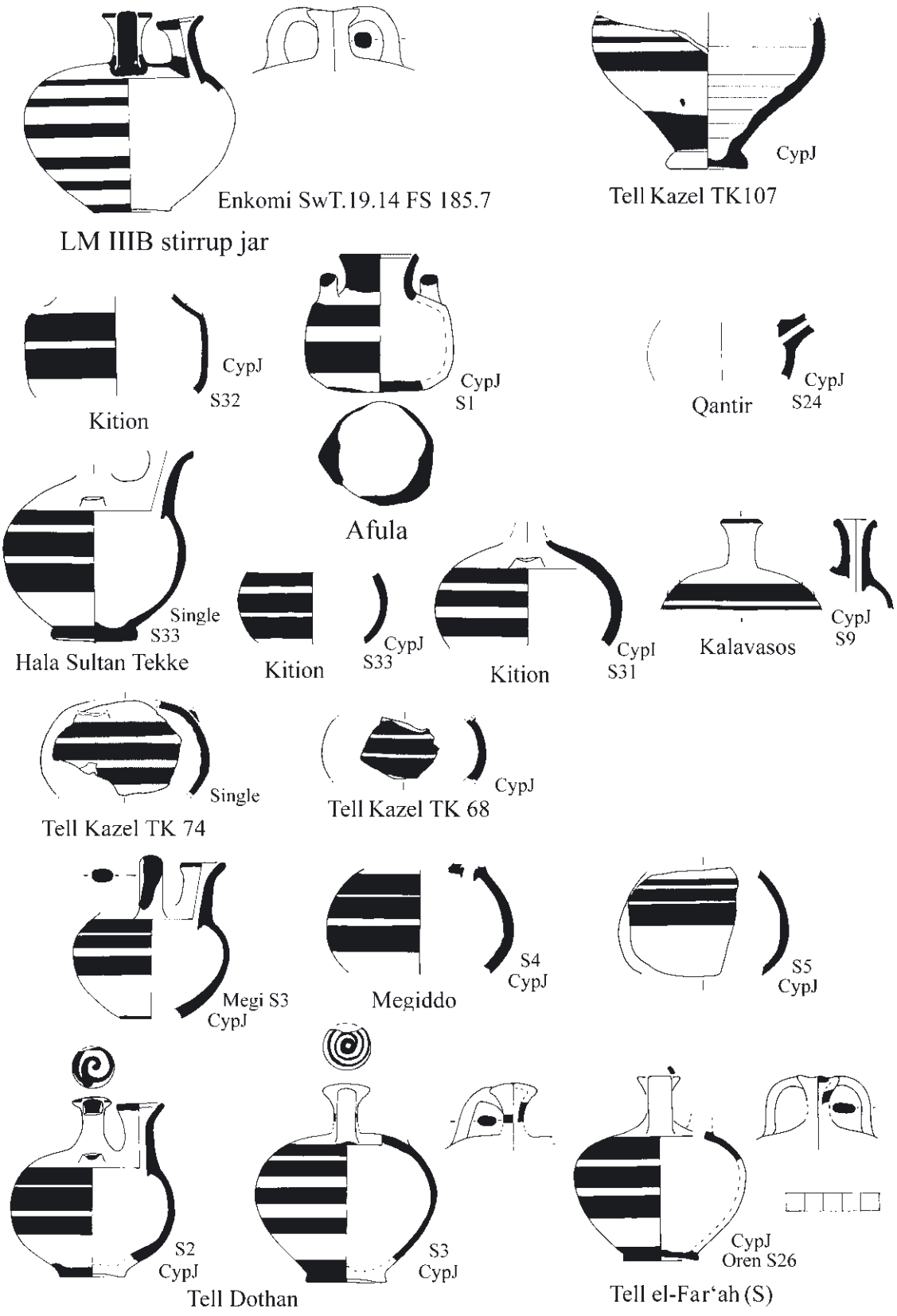



Fig.34 The Simple Style. Scale 1:3.

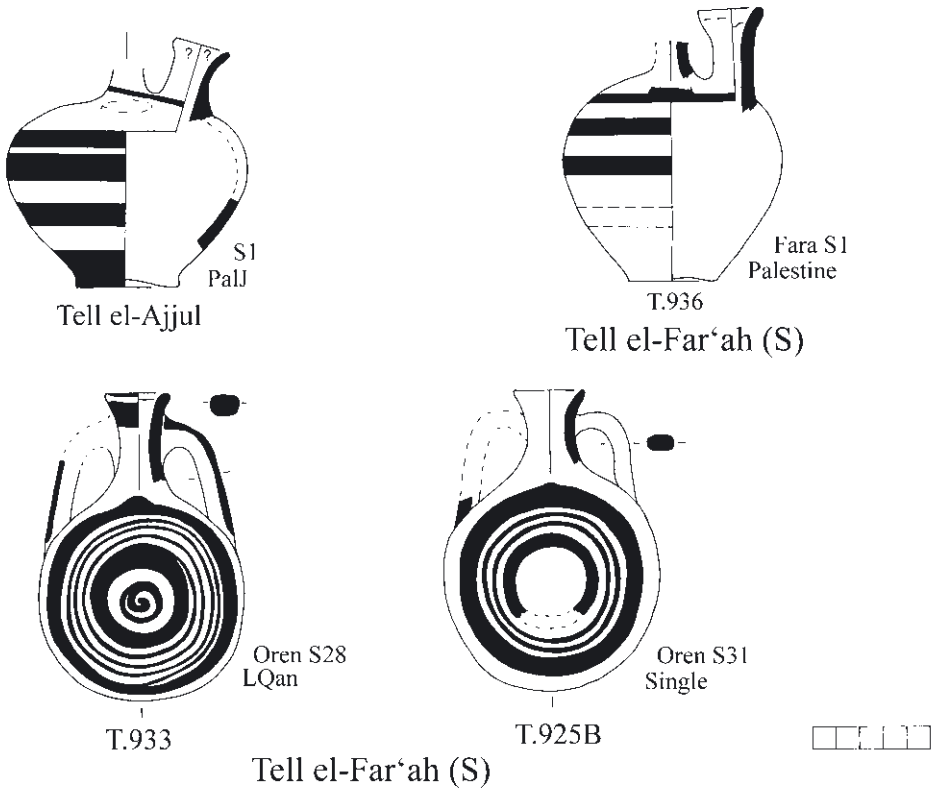



Fig.35 Vessels from unlocated Palestinian workshops. Scale 1:3.

Cyprus after chemical analysis by NAA of a vessel from Tell es Sa'idiyeh in Jordan.[112] Since then a number of chemical analyses have been able to assign Simple Style vessels to workshops in Cyprus and in the Levant. One of the problems with Cyprus as the source of the Simple Style was that it did not seem to be present on the island.[113] However, there are now pieces from Kalavasos and I have identified three sherds in the Kition Floor IV–-IIIA deposits; two vases from Hala Sultan Tekke T.1 can also be assigned to this style. The style is probably better represented on the island than it appears to be and has not been recognised in sherd material.

In the meantime analysis by NAA of Simple Style sherd material from Qantir in the Nile Delta had assigned some of it to Cyprus. There were two chemical groups, HCYP, with 10 pieces, (now CypH) and Kqan, with three pieces; however, the provenance of the latter group was less certain; it could be either Cypriot or Egyptian.[114] Subsequently Simple Style pieces from Israel, from the western Negev and north Sinai, were assigned by NAA to CypH (seven pieces) and to CypI (one piece).[115] Simple Style sherds from Tell Kazel in Syria have also been assigned by NAA to the CypH group.[116] Further analysis has been able to locate the CypH group to Sinda.[117] The analyses of Cypriot IIIC pottery from 10 of the Cypriot IIIC sites undertaken by the author and H.Mommsen for this study have enabled the large CypH group to be split into CypH and CypJ. The CypJ pottery production was centred at Kition and probably also at Hala Sultan Tekke. This refinement means that a large number of samples assigned to CypH have now moved to CypJ. These include all the CypH pieces analysed

[112] Koehl and Yellin 1982, 273.

[113] Koehl and Yellin 2007, 202–03.

[114] Mountjoy and Mommsen 2001, 125–33, 138, 146–48; Mountjoy 2011c, 179–80.

[115] Mommsen *et al*. 2005.

[116] Badre *et al*. 2005, 32–33.

[117] Mommsen and Sjöberg, 2007.

from the western Negev and north Sinai[118] and from Qantir.[119] Many of these samples are from Simple Style vessels.

Our analyses included some Simple Style vessels. The straight-sided alabastron FS 94, 96 can now be added to the corpus. NAA asigned both **Kition S32** and **Afula 1** to CypJ. Analysis of more stirrup jars assigned **Kition S33, Kalavasos S9,** Megiddo **Megi S3** and **Tell Dothan S2–3** to CypJ and **Kition S31** to the Enkomi CypI profile. **HST S33** proved to be a Single. Other CypJ stirrup jars have moved from CypH. They include **Megiddo S4–5, Tell el-Fa'rah Oren S26**, and **Tell Kazel S68**; **Tell Kazel S74** remains a Single. The piriform jar **Tell Kazel S107** and the feeding bottle **Qantir S24** have also moved to CypJ. NAA demonstrates that the Kition/Hala Sultan Tekke workshops had a thriving trade with the Levant for the contents of the Simple Style vases. They also exported other vessels. These include the large Levanto-Helladic piriform jar FS 36, **Tell el Fa'rah Oren S24** (Fig. 14) and **Megiddo S7** (Fig. 13). The latter is patterned and also has lustrous paint. The stirrup jar **Dothan S1** (Fig.13) is also patterned with the triangular patch so characteristic of the island, but most vessels are linear. Aegean-style vessels, particularly stirrup jars, were also imitated in local Palestinian workshops (Fig. 35). The Simple Style stirrup jar **Fara S1** has a chemical profile assigned as general Palestine, but the Simple Style **Ajjul S1** belongs to the PalJ chemical profile. This workshop, which includes material from Qantir,[120] is still unlocated, as also another workshop represented at Qantir, that with the LQan profile to which the lentoid flask FS 186 **Tel el-Fa'rah Oren S28** belongs. Another flask **Tel el-Fa'rah Oren 31** is a Single. The style was produced in late LCIIC, that is LHIIIB2 and Cypriot IIIC Early Phase 1.

### The Rude/Pastoral Style (Fig. 36)

A.H.Smith coined the name Rude Style for a class of pottery which was produced in Cyprus in the second half of LHIIIB, that is late LCIIC.[121] The style was particularly used on the ring-based krater FS 281, but the amphoroid krater does appear. These vessels replaced the ring-based and amphoroid kraters decorated in the Pictorial Style, which had been imported from the Greek Mainland during LHIIIA2 and LHIIIB1. In mid-LHIIIB disturbances began on the Greek Mainland and import of these vases dried up. Karageorghis and Vermeule have analysed the style and divided it into three stylistic phases: Early, Middle and Late.[122] They suggested that it be called the Pastoral Style after the motifs adopted from the natural world.[123] However, since a large number of these kraters are decorated with spiraliform motifs, the term Rude Style is used here together with Pastoral Style. It is now recognised that the Rude/Pastoral Style did continue into LCIIIA.[124]

The Rude/Pastoral Style ring-based krater is generally a small shape with rim diameter around 26–30 cms, in contrast to the larger LHIIIB imported types, although there are exceptions. There is a limited range of motifs. It comprises both pictorial and abstract representations with both types sometimes appearing on the same vessel. The three most used pictorial motifs are the bull, the bird and the goat, with the bull by far the most popular; lions and sphinxes appear, but are rare. Spirals are usually running spirals, but there is also an agglutinative form in which stemmed spirals are elaborated with filling motifs (Fig. 36 bottom).

Some chemical analysis of Rude/Pastoral Style pottery has been carried out particularly by Anson.[125] Anson, using Optical Emission Spectroscopy (OES) was able to show that the style was produced by workshops at Enkomi, Kouklia and, possibly, Kition.[126] Subsequent analysis by NAA in Manchester, which included some Rude/Pastoral Style sherds from Enkomi, confirmed that the style was produced at Enkomi.[127]

A few Rude/Pastoral Style sherds were included in our project. They belonged only to the Enkomi CypI, the Kition/Hala Sultan Tekke CypJ and the Kouklia CypG and CypS chemical profiles, demonstrating that the style was produced in all

[118] Mommsen *et al*. 2005, Samples 2, 15–18, 24, 26.

[119] Mountjoy and Mommsen 2001, Samples 9, 10, 24, 49, 51, 53, 56, 57, 61, 68, 70, 81, 98; 51 and 55 are CypJ assoc.

[120] Mountjoy and Mommsen 2001, S7, 54, 59, 66, 69, 71–72.

[121] Smith 1925, 7.

[122] Karageorghis 1965, 231–59; Vermeule and Karageorghis 1982, 59–68.

[123] Vermeule and Karageorghis 1982, 60.

[124] Vermeule and Karageorghis 1982, 67, Kling 1989, 123–24.

[125] See Jones 1986, 603–09 for an overview.

[126] Anson 1980a, 1980b, 14–16.

[127] Bryan *et al*. 1997.

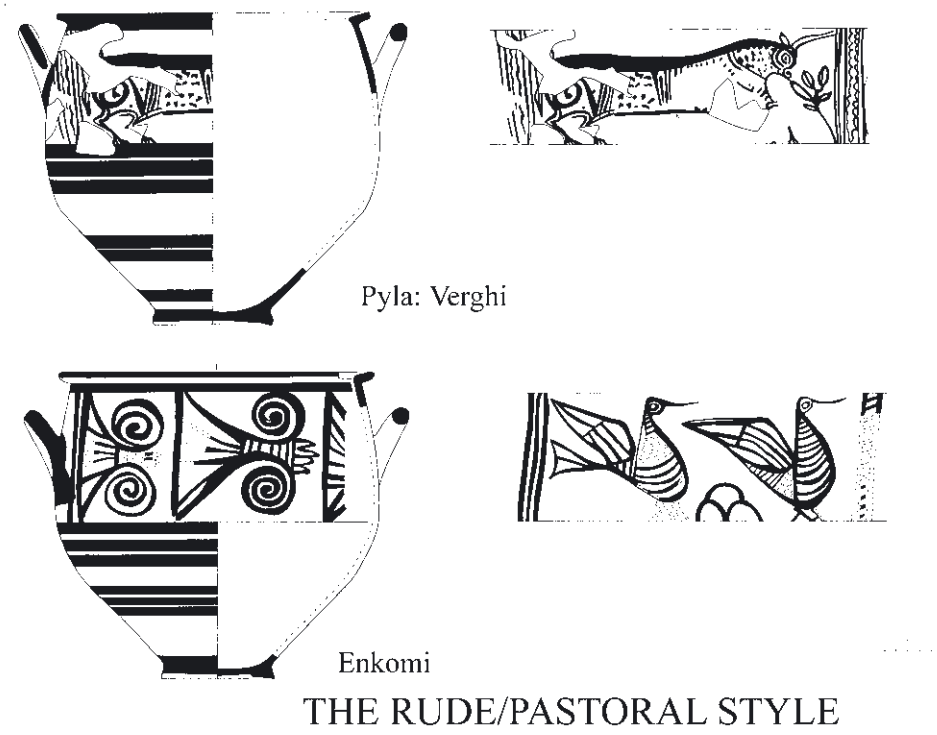



Fig.36 The Rude/Pastoral Style: bull, Dikaios 1969, pl. 233.3, agglutinative spiral, bird, Murray *et al*. 1900, fig. 71. Drawings PAM. Scale 1:6.

three centres. More analysis is needed to know if it was also produced at other centres; a Single, **Athienou S2**, might suggest at least one other workshop. The CypI vessel **Idalion: Kafkallia S1** has a T-rim instead of the usual long, everted rim found on this shape. The CypJ pieces include **Kition S11,28** with triglyphs and **Kalavasos S15, 23–24** with bull and triglyphs; there are also two exports to the Levant, **Tel Dor 12–13,** with spiraliform decoration. **Kouklia S23–25,** depicting bull and triglyph belong to the CypG profile. A large sherd depicting a bull analysed by Perlman and Asaro,[128] (Fig. 18 bottom right), can also be assigned to CypG, as, too, the sherd with the lady, (Fig. 18 bottom left). Another Rude/Pastoral Style krater **Kouklia S22** with bird is assigned to CypS, as also **Kalavasos S22** with running spiral.

### The Bowl Typology

The following is an abbreviated account of the extended pan-island bowl typology in Mountjoy, in press c. It has seemed advisable to include it here as a number of the different bowl types have been included in our programme and the names of the types without further identification will be meaningless to the reader. The text is intentionally repeated almost verbatim, as the book will be some time in press.

One of the characteristics of late LCIIC and early LCIIIA, that is LHIIIC Early 1 in Greek mainland terms, is the appearance of very large numbers of linear bowls; they have different shapes, often with variants, and different pedigrees. Some bowl shapes appeared in the equivalent of Greek mainland LHIIIB2, but most appear in the equivalent of LHIIIC Early 1. Production of most of these bowl types continued throughout LCIIIA, but the acme was at the beginning of the phase. They appeared at a time when the import of Mycenaean pottery had almost totally ceased due to events in the Aegean area; thus locally made kraters painted in the Rude/Pastoral Style and locally produced Levanto-Helladic shapes formed

[128] Karageorghis *et al*. 1972.

the decorated component of the late LCIIC ceramic assemblage. The bowls appeared shortly after these two wares and ultimately replaced the Levanto-Helladic small bowls to become dominant in early LCIIIA. They functioned particularly as burial gifts, usually being the main vessel type put in the tombs. Although the number of samples in our project is not large, nevertheless NAA has illustrated considerable movement of these vessels round the island. They are not found outside the island, apart from a version of Type 10, which appears in the Near East, but which may not be Cypriot derived.[129]

Bowl typologies have been produced by several scholars with particular reference to assemblages they have excavated, such as Karageorghis 1965 for Kouklia: Mantissa, Benson 1972 for Kourion and Maier 1985 for Kouklia: Palaepaphos. Overviews have also been made, the most recent being Åström 1972 and Kling 1989. However, there is now a much larger corpus of material, which enables the typology of the bowls to be more narrowly defined. In an island-wide survey based on the sites with Cypriot IIIC pottery it has been possible to assign the bowls to 14 different types, some of which have subgroups. The types correspond broadly to the Karageorghis types, but there are numerous exceptions.[130]

**Handleless bowls (Fig. 37)**

**Type 1**
A wide shallow shape with rounded or conical sides, cut-off rim with deep central groove giving rise to a ledge, and a ring base. Decoration can be linear, monochrome or monochrome with reserved bands on exterior and interior. Karageorghis 1965, Type A1, Kling 1989, Type 4; Åström's WPWM III Type IIIA is a mixture of shapes.[131] No examples of Type 1 were analysed.

**Type 2**
The shape is a development of the Levanto-Helladic FS 210 (Fig. 32).[132] The lower body is semi-globular, with flaring upper body with lipless rim; the base is a ring base. Decoration is linear. There is no Karageorghis type for this shape, as it was not present in the Mantissa deposit. Kling 1989, Type 5b comprises three different shapes, but 1989, fig. 6d is Type 2; Åström's WPWM III Types 1C, 1E are also a mixture of types, but include some examples of Type 2.[133]

Both the Type 2 vessels we analyed were imports: **Enkomi S10** (Fig. 21) is assigned to CypS and **Kition S4** (Fig. 7) to CypI.

**Type 3**
This is a mixture of FS 209 and a handleless version of the Levanto-Helladic cup FS 232 (Fig. 32). It is a shallow shape with flaring conical sides above a carination on the lower body, a lipless rim and a raised concave or ring base. There is much variation in the shape, which includes a variant with a flat base. Decoration consists of multiple bands on the interior and exterior, often with a spiral on the interior base, which may continue up the sides of the vessel. Some vessels are bichrome. There is no Karageorghis type for this shape, as it is not present in the Mantissa deposit. Kling 1989, Type 8 figs. 8a–b, Benson 1972, 85 Type 7 and Åström 1972, 280 WPW III Type IGa also correspond to Type 3.

**Kition S38** (Fig. 11) is assigned to CypJ, **Kourion S8** (Fig. 16) to CypF and **Enkomi S30** (Fig. 26) to Group X076. X076 is a small group which also contains a Type 12 and a Type 14 bowl. **Kition S34** (Fig. 11), the variant with flat base, is also assigned to CypJ; it is bichrome. Both the Kition vessels are assigned to the local chemical profile, but the Kourion vessel, which has a convex base, was imported from nearby Alassa.

**Type 4**
A carinated deep bowl with conical lower body and straight upper body with lipless flaring rim and a high ring base. Decoration is linear with a monochrome interior with reserved circle on the base. This type has only been found at Kition. Kling 1989, Type 9. No example of Type 4 was analysed.

**Type 5**
The shape is generally hemispherical, but there are shallow examples; the rim is lipless and the base flat raised, the latter with pointed edge and counter-sunk. The shape is linear, often with a spiral on interior base, or monochrome with reserved bands

[129] See Mountjoy, in press d.
[130] Karageorghis 1965.
[131] Åström 1972, 281.
[132] Furumark 1941a, 66 fig. 19, 620.
[133] Åström 1972, 278–80.

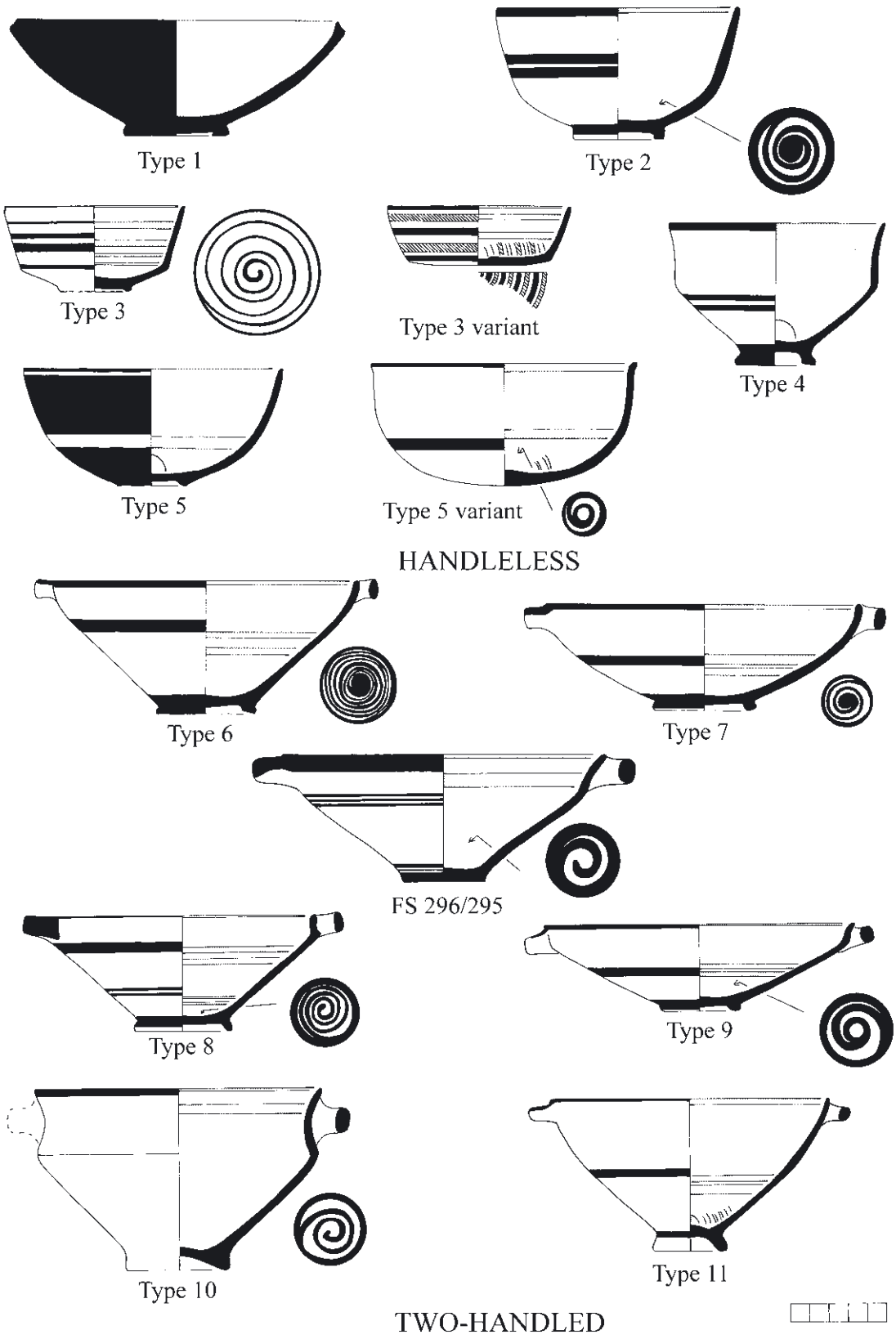



Fig.37 The Pan-island Bowl Typology. Scale 1:3.

and reserved circle on the interior base. There is a variant with a flat base. Karageorghis 1965, Types A2, A3, Kling 1989, Type 5a fig. 6a, Benson 1972, 84 Type 6, Åström 1972, 277–79, WPW III Types IB flat-based, ID counter-sunk.

This type was widely produced. **Enkomi S6** (Fig. 5) is assigned to the local CypI profile and **Kourion S6** (Fig. 17) to the local CypN. **Alassa S26** (Fig. 19) is assigned to the Kouklia CypG profile and **Alassa S6** (Fig. 26) to Group XO75.

**Two-handled bowls (Fig. 37)**

**Type 6**

Vessels assigned to this type have a height of more than 5.5 cm. This is a deep rounded or conical shape with lipless rim, sometimes slightly incurving, strap handles, usually straight or down-sloping, and a ring base. Decoration is linear; the interior base usually has a spiral, but concentric circles are still used on the earlier examples. Karageorghis 1965, Type A8, Kling 1989, Type 1a fig. 5a, Benson 1972, 80 Type 1, Maier 1985, Type I, IV (round handles), Åström 1972, 281–82 WPW III, Type IIId. Kling's Type 1a does not differentiate the depth of the body, so it includes both Type 6 and Type 7.

Several pieces were sampled. **Enkomi S13** (Fig. 5) and **Idalion: Kafkallia S7** (Fig. 6) are assigned to the Enkomi chemical profile CypI, **Enkomi S14** (Fig. 12) to the Kition/Hala Sultan Tekke profile CypJ and **Apliki S3** (Fig. 21) to the Kouklia profile CypS. **Idalion: Kafkallia S13–14** (Fig. 26), a variant with incurving rim, are assigned to Group X077. **Kourion S3, 10, 11** (Fig. 17), assigned to the local CypN profile, cannot be more closely identified than Bowl Types 6–9, as also **Kalavasos S6** (Fig. 30), assigned as a Single. NAA demonstrates that this type was widely produced round the island.

**Type 7**

Vessels assigned to this type have a height up to 5.5 cm. Type 7 is a shallow version of Type 6 with a shallow rounded-conical body. Decoration is also similar to Type 6. Karageorghis 1965, Type A7, Kling 1989, Type 1a fig. 5a, Benson 1972, 80 Type 1, Maier 1985, Type I, IV. **Alassa S1** (Fig. 25) belongs to Pair 189 and **Kourion S7** (Fig. 30) is a Single.

**FS 296/295**

A hybrid type develops in LCIIC from the Levanto-Helladic FS 296, which aquires a slight carination, but not enough for the shape to be classed as the carinated FS 295. The FS 296/295 varies from a deep to shallow rounded shape with a slight carination on the upper body, lipped or lipless rim with large or small rim diameter, and strap handles, generally straight or down-sloping; the upper body is usually flaring, but it can be straight; the base is raised concave or ring; some vessels can have a flat concave base or a flat base. The splaying flaring rim can be a criterion of this shape. Decoration is linear with spiral or concentric circles on the interior base. Maier 1985, Type IA; Kling's Type 1c fig. 5d seems to be the patterned or linear FS 296. **Idalion S11** (Fig. 27) is assigned to Group X078.

**Type 8**

Vessels assigned to this type have a height of more than 5.5 cm. This shallow angular bowl type comprises a deep, conical lower body below a short, carinated upper body with a lipless rim, strap handles rising or down-sloping, and a base which is generally ring, but may sometimes be raised concave. Decoration is linear; the interior base has spiral or concentric circles. Karageorghis 1965, Type A9 (some examples), Type A10, Benson 1972, Type 3, Maier 1985, Type II, Åström 1972, 282, WPW III Type IIIe. **Enkomi S7** (Fig. 5) and **Idalion: Kafkallia S5–6** (Fig. 6) are assigned to Cyp I and **Kourion S2** (Fig. 17) to the local CypN. Idalion is well situated to receive imports from Enkomi and also from Kition/Hala Sultan Tekke. **Alassa S29** (Fig. 28) is a Single.

**Type 9**

Vessels assigned to this type have a height up to 5.5 cm. The shape is a shallow version of Type 8. Decoration is linear; the interior base usually has a spiral on it; concentric circles are rare, but may appear on the earlier LCIIC/IIIA vessels. Karageorghis 1965, Type A9 (some examples), Kling 1989, Type 1b fig.5b, Benson 1972, Type 3, Maier 1985, Type II. **Alassa S10** (Fig. 25) is the other half of Pair 189 with the Type 7 **Alassa S1**. **Kourion S4** (Fig. 30) is a Single.

**Type 10**

The shape has a deep, concave upper body with flaring lipless rim above a carination, which is usually quite sharp; the lower body is deep conical, the strap handles generally rising or horizontal; the base is usually ring, but there are one or two raised concave examples. There is an

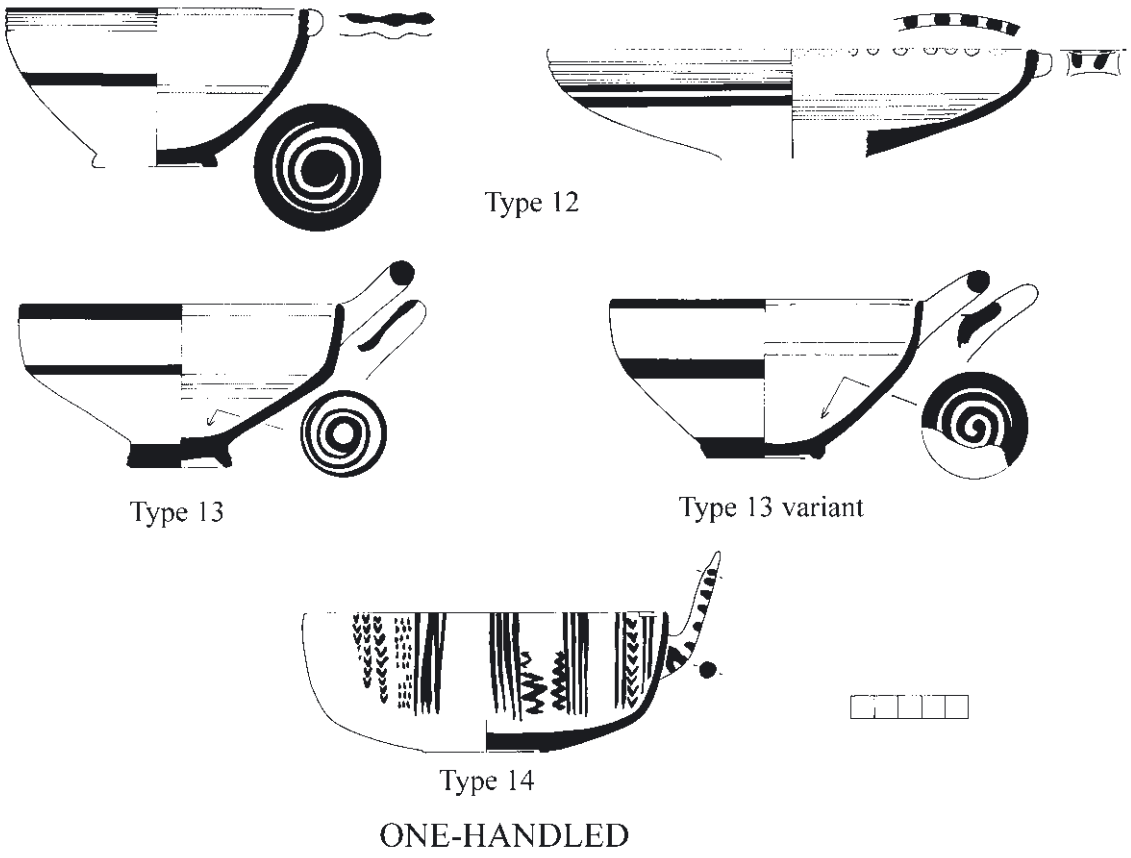



Fig.38 The Pan-island Bowl Typology. Scale 1:3.

immense variety in the shape. Decoration is linear with the exterior usually unpainted apart from a stripe along the handle; the interior base almost always has a spiral on it; concentric circles are very rare. Karageorghis 1965, Type A9 no. 8, Kling 1989, Type 2 fig. 5c. **Enkomi S9,15** (Fig. 9) are CypH, **Kition S30** (Fig. 11) and **Athienou S9** (Fig. 12) are CypJ. Sinda has a good range of well-made Type 10 bowls, so it is not surprising that nearby Enkomi imported them. Similarly to Idalion, Athienou was also well positioned to import from Kition/Hala Sultan Tekke and from Enkomi.

**Type 11**
The shape has a deep conical body with lipless rim, two strap handles, and a ring base. Decoration is linear; the interior base has a spiral or concentric circles. This shape is a possible prototype for Furumark's FS 242, the one-handled conical cup. The body is an exact parallel to that shape, but there are two strap handles instead of one round handle. It is found at Kition.[134] No example of Type 11 was analysed.

One-handled bowls (Fig. 38)

**Type 12**
The shape is a mixture of the wide, shallow FS 208 with grooved rim,[135] which may have a metallic origin,[136] and the narrow, shallow Levanto-Helladic FS 247 (see above Levanto-Helladic) with a horizontal pierced lug handle. The shape thus appears in two versions: it has either a wide shallow rounded body (Fig. 38 top right) or a narrower deep semi-globular body (Fig. 38 top left). Both versions are sometimes incurving at the rim, and often have a vertical shallow upper body above a soft carination; the rim is flat with grooves below

[134] See discussion Mountjoy 2009b, 292; Mountjoy, in press b.
[135] See Furumark 1992, pl. 120 FS 208.1 for an illustration.
[136] Furumark 1941a, 103.

on the exterior and one long unperforated bipartite or tripartite lug handle at the lip; the base is ring or flat raised. Decoration is minimal and linear; there is sometimes a spiral on the interior base; the rim may be blobbed. Some examples are completely unpainted. This shape is usually made of semi-coarse clay with many grits; at Enkomi it can be orange or greenish. Kling 1989, Type 5b fig. 6c, Åström 1972, 278–80, Type IC group f. **Idalion S15–16** (Fig. 15) are assigned to CypT, **Alassa S25** (Fig. 16) to the local CypF and **Enkomi S5** (Fig. 26) to Group X076. The very small **Alassa S25** has no handle. The Idalion and Alassa vessels are the narrow deep type, but the Enkomi vase is the broad shallow type. The Idalion vessels are rare examples of the Hala Sultan Tekke CypT group.

**Type 13**

A carinated shape with a conical lower body and a straight or flaring or slightly inturning upper body with lipless rim, a single round horizontal handle set at the carination and rising generally, but not always, above the rim, and a ring or raised concave base. There is also a rounded variant, which is less common. Decoration is linear, there is usually a spiral on the interior base, but there can be concentric circles. Karageorghis 1965, Type A4, Kling 1989, Type 6 fig. 7c, Benson 1972, Type 2, Maier 1985 Type V, Åström 1972, 285 WPWIII Type VIIIf. Åström WPWIII Type 1Cd is mixed; it includes the carinated type. **Enkomi S12** (Fig. 5) and **Idalion: Kafkallia S8–9** (Fig. 6) are CypI, **S9** being the rounded variant. **Kalavasos S26** (Fig. 7) is also CypI, **Apliki S13** (Fig. 25) is part of Pair 151 and **Alassa S3** (Fig. 28) and **Kalavasos S3** (Fig. 30) are Singles. It is of interest that Enkomi bowls reached round to Kalavasos.

**Type 14**

A wide shallow shape with a rounded lower body and a straight upper body with lipless rim, a single wishbone handle rising above the rim, and a tiny ring base. There is much variety in the shape of the body. The shape is usually decorated with panelled patterns of triglyphs and metopes; there is often a spiral on the underside of the base. Kling 1989, 137–39 Type 7 fig. 7a,b, Benson 1972, Type 4, Åström 1972, WPWIII Type 1Ce. **Kourion S12** (Fig. 17) belongs to the local CypN group; it is a rare unpainted example of the shape. **Enkomi S8** (Fig. 26) is Group X076.

The Faience Vessel Imitation Group (Fig. 39)

A small number of the bowls at Kition, especially those of Type 3, very unusually have rows of blobs either floating in the field (Fig. 39.3, 7) or set between the bands (Fig. 39.4–6). They imitate the blobs used as filling motifs on bichrome and polychrome faience stirrup jars, a shape itself borrowed from the ceramic repertoire. These stirrup jars are found amongst other places at Kition (Fig. 39), Hala Sultan Tekke, Enkomi (Fig. 39) and Ugarit.[137] It is striking that two of the Type 3 bowls with blobs are also in bichrome technique (Fig. 39.5–6). The bowl types are not usually painted in bichrome, but there are a large number of bichrome bowls of several types from the Kition T.9 Upper Burial deposit,[138] including one Type 3 variant with a flat base (Fig. 37). The bowls with blobs have not been analysed; the Fosse examples have been missing since 1974 and I found the Area II examples in the Kition sherd material after our sampling programme was finished. However, another bichrome flat-based Bowl Type 3 from Kition has been analysed; NAA assigned it to the local Kition/Hala Sultan Tekke CypJ profile (Fig. 11 Kition S34). There seems to have been one or more workshops at Kition producing all these bichrome bowls and also copying the blob motif characteristic of a number of faience vessels, particularly onto Type 3 bowls.

The miniature cylindrical jug with blobs, FS 139, from Hala Sultan Tekke (Fig. 39.9) is so close in fabric and paint to the Kition Type 3 bowl (Fig. 39.5), it seems they must be from the same workshop. It is possible that vessels, such as the small cylindrical jug from Tell el-Fa'rah (Fig. 39.8), which is a Levanto-Helladic import from the Mycenae/Berbati area, gave rise to the miniature Hala Sultan Tekke vessel. It is also possible that a motif such as that on the Tell el-Fa'rah vase may be the motif from which the blobs on the faience vessels evolved. The motif is of Minoan derivation; it was especially popular in LMIB, when it was rendered as a type of ivy leaf.[139] It appears on a Minoan beaked jug at Kition: Bamboula in a more curtailed version, closer to that of

[137] Peltenberg 1976, pl.LXIII; Schaeffer 1929, pl. LII.4.

[138] Karageorghis 1974, 87.

[139] For example Mountjoy 2003, 85 fig. 4.15.199, 98 fig.4. 21.295–304.

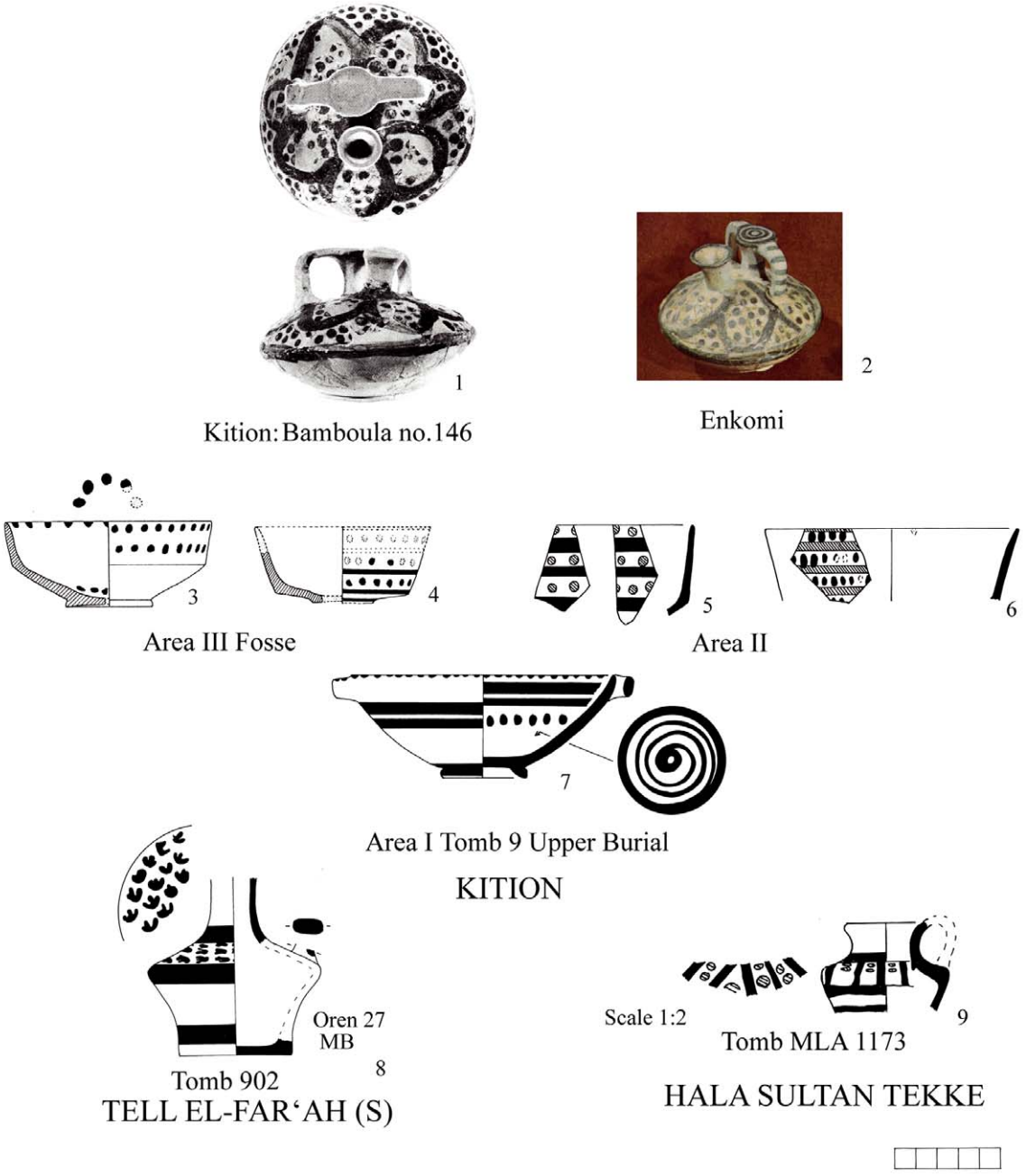



Fig.39 The faience vessel imitation group. 1) Kition: Bamboula, after Yon and Caubet 1985, fig.37. 146; 2) Enkomi, after Schaeffer 1952, Supplementary Fig.B; 3)–4) Kition Fosse, after Karageorghis 1960, 566 fig.115, 566, fig.116; 5)–6) Kition Area II Mountjoy, in press c, Kition nos.523,594; 7) Kition T.9 Upper Burial, Karageorghis 1974, pl.CLXII.247 (drawing PAM); 8) Mommsen *et al*.2005, 153 Table 1, Sample 27 (drawing PAM), 9) Hala Sultan Tekke, Samaes and Nys 2010, 225 fig.4.1 T.1 (drawing PAM). Drawings at scale 1:3.

the Fa'rah vase.[140] There is no exact Furumark motif which corresponds to it, but FM 10A, the iris, is the closest.

### The Near Eastern Group of Stirrup Jars (Fig. 40)

In earlier articles[141] I isolated a Near Eastern group of Mycenaean IIIC stirrup jars for which I suggested a Cypriot origin.[142] The group comprises stirrup jars found in Cyprus, Turkey and Israel. A lozenge chain in the belly zone is usual for these vases, but the most characteristic feature is the body banding, which consists of groups of 3–4 bands all down the body. This banding is not found on stirrup jars on the Greek Mainland[143] or on Crete.[144] However, it appears earlier in a LH IIIA2 south Rhodian style;[145] it may have originated from the Dodecanese.

Pieces from several of these Cypriot stirrup jars have been analysed as part of our programme. They add to information obtained from analyses of other vessels of this group exported to the Near East. Apart from one piece assigned to Hala Sultan Tekke Cyp T (Fig. 15 **HST S14**), all our samples are assigned to Kouklia, **HST S21** to CypG (Fig. 19) and **HST S2, 15, 23** to CypS (Fig. 21). They join **Tarsus S7–10** (Fig. 20), which have already been assigned to CypG[146] and **Tell Kazel S71** (Fig. 22) now assigned to CypS.[147] Kouklia is also suggested as a source for the Tell Keisan vase (Fig. 40 top left) as a result of NAA.[148]

One of the striking features of these vessels is that some of them have lustrous or semi-lustrous paint instead of the matt paint usually found in the eastern Mediterranean in the LHIIIC phase. They include (Fig. 40) **Tarsus S10**, **Bethshean S17** and a Single **Bethshean S9–10**,[149] as well as the Tell Keisan vase. A piece from Kouklia, TE 119, not analysed also has lustrous paint.[150] However, the sherds assigned to Kouklia **HST S21** CypG and **HST S2, 15, 23** CypS all have matt paint, as also a Single **Bethshean S3.** Other Cypriot exports to Bethshean from Sinda, which do not belong to this Near Eastern group, also have lustrous paint,[151] as also vessels at Megiddo exported from Kition/Hala Sultan Tekke. It is clear that in spite of the overwhelming amount of matt painted pottery they produced in early Cypriot IIIC the Cypriot work shops could manufacture Aegean-style vessels in lustrous painted ware, even though there is no precedent for it on the island; these vases may well have been made especially for the export market.

The workshops did not always paint a lozenge chain on the belly. Another imported stirrup jar **Tarsus S7** (Fig. 20) has the same banding but no lozenge. This vase also has lustrous paint. A vase from Alassa, which has not been analysed (Fig. 40 bottom right), has almost the same shape, shoulder decoration and belly banding to **Tarsus S7**. It too has semi-lustrous paint. It should be a local Cypriote product.

The Bethshean stirrup jar (Fig. 40 S17) has been dated to LH IIIC Middle in Greek Mainland terms by Warren and Hankey,[152] but the stylistic parallels and the recently excavated stratigraphy in Area S at Bethshean suggest a Cypriot IIIC Early date for these stirrup jars.[153] The sherds from Area S come from Strata S4 and S3, which equate to Level VI of the Pennsylvania University excavations. There was a partial destruction at the end of S4, possibly due to an earthquake. S3 was rebuilt on a different alignment and ended with a burnt destruction which terminated the Egyptian presence at the site.[154] The sherds from both strata form a stylistic group showing no development. Most come from the earlier S4. Sherratt suggests that most of them are secondary deposition and that all could have belonged originally to S4.[155] This level equates mostly to LH IIIC Early Phase 1, but on the low chronology,[156] it ends in LH IIIC Early Phase 2. The Bethshean stirrup jars, and, therefore, the other stirrup jars belonging to the group, could date to the equivalent of LH IIIC Ear-

[140] Yon and Caubet 1985, 150 fig. 68.308.
[141] Mountjoy 2005c, 2007.
[142] Mountjoy 2007.
[143] Mountjoy 1986, figs. 180–81, 215.2.
[144] For example Seiradaki 1960, pl. 6a right; Day 2011, 291 fig. 9.17.
[145] Mountjoy 1995, 21–35.
[146] Mommsen *et al*.2011, 903 Table 1.
[147] Badre *et al*. 2005, 40 Table TK 71, published as CypH.
[148] Gunneweg and Perlman 1994, 559–61.
[149] Mommsen *et al*. 2009, 510–11 Table 7.4, BS 17 published as a Single, BS 9–10, published as CypK.
[150] Mountjoy 2005c, 330 fig. 1F.
[151] Mommsen *et al*. 2009, 510–11 Table 7.4 BS6.
[152] Warren and Hankey 1989, 164–65.
[153] Mountjoy 2007, 590.
[154] Panitz-Cohen and Mazar 2009, 94–194.
[155] Sherratt 2009, 491–92.
[156] Kitchen 2000, 49.

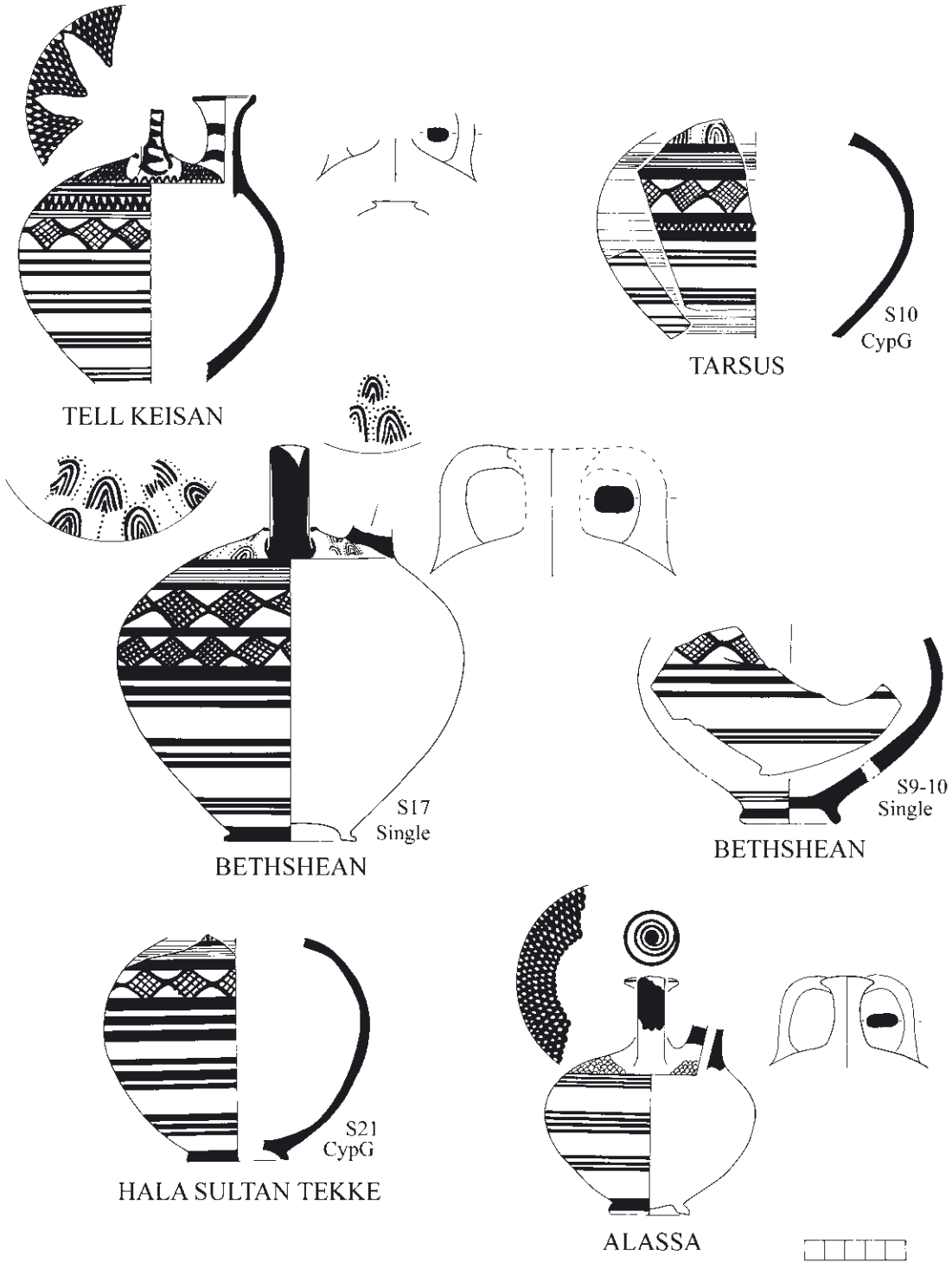



Fig.40 The Near Eastern group of stirrup jars. Mountjoy 2005c, Tell Keisan 330 fig. 1E, Bethshean S17 330 fig. 1B, Alassa 332 fig. 3B, Tarsus, Mountjoy 2005b, 95 fig. 4.50, Bethshean S9-10, Mommsen *et al*. 2009, 510–11 Table 7.4, BS 9, 10. Scale 1:3.

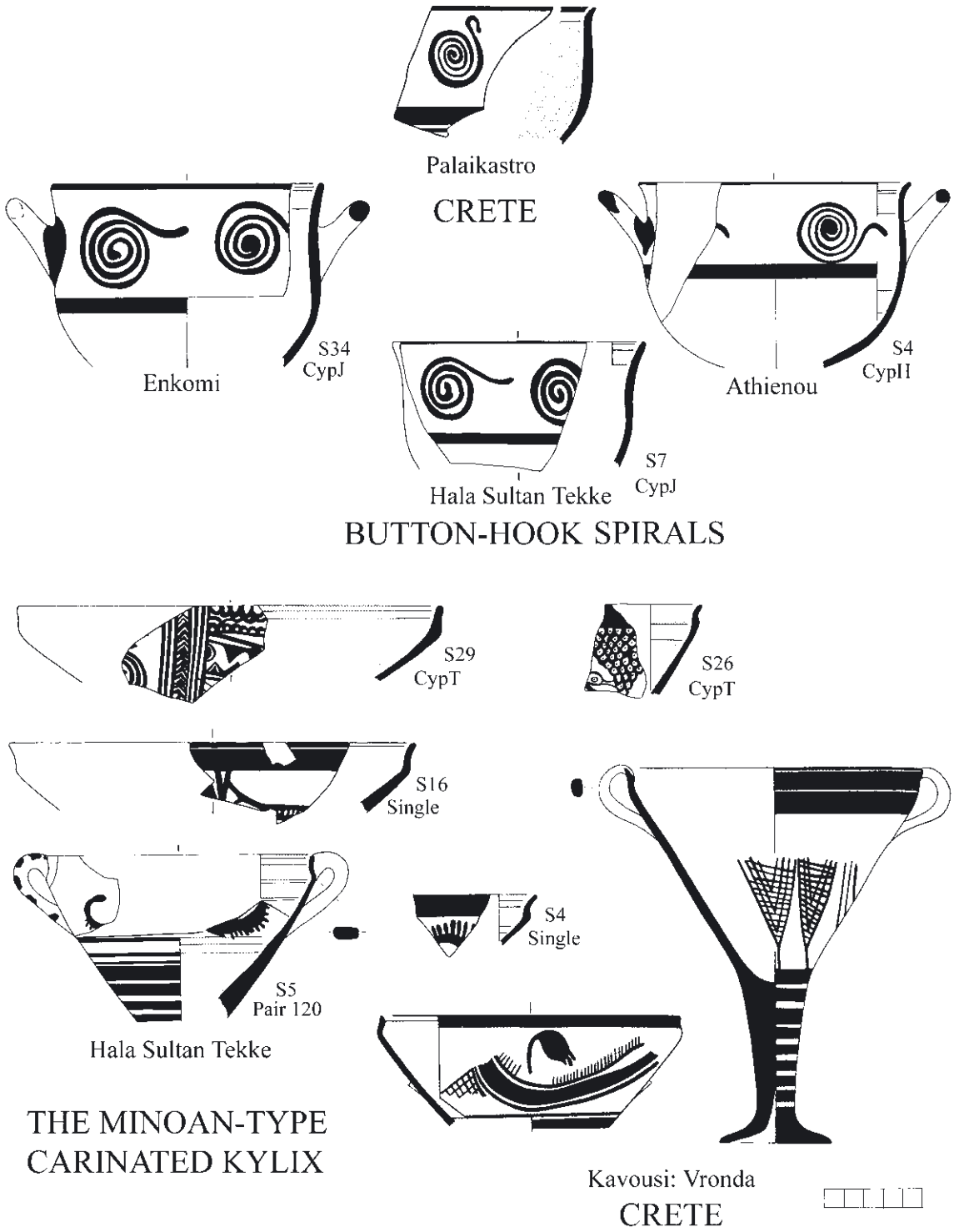



Fig.41 Minoan influence on Cypriot IIIC pottery. Palaikastro, after Popham 1965, 326 fig.6.28, Kavousi: Vronda, after Day *et al.* 2009, fig.22 B3 P6, B3 P4. Scale 1:3.

ly Phase 1 or Phase 2. The vases of this group are thus useful chronological markers. These well-made, finely painted vessels would have been luxury items in their own right, as well as for their contents.

### Minoan Influence on the Pottery

Cypriot IIIC pottery exhibits some Minoan influence on the shapes and much more on some of the motifs, which are in fact adaptations of Minoan motifs.[157]

#### The Minoan-type button hook spirals (Fig. 41)

A derivative form of the Minoan button-hook spiral appears as an isolated spiral, FM 52, with a short tail, **Athienou S4, Enkomi S34, Hala Sultan Tekke S7**, imitating the hook of the Minoan type (Fig. 41 top). NAA has assigned **Athienou S4** to CypH, that is Sinda, while **HST S7** belongs to CypJ, the local Kition/Hala Sultan Tekke chemical profile, as also **Enkomi S34**. The differing NAA assignations are borne out by the motifs themselves, which suggest the vessels come from two different workshops: the CypH **Athienou 4** has the tail rising from the bottom right, but the CypJ Hala Sultan Tekke and Enkomi vessels have the tail springing out from the top right.

#### The Minoan-type carinated kylix (Fig. 41)

The Minoan IIIC carinated kylix is present in the sherd material at Hala Sultan Tekke. Six pieces have been published, but one cannot now be found.[158] The Hala Sultan Tekke vessels are good imitations of the Cretan type (Fig. 41 bottom right), with the usual very short upper body above the carination. NAA has assigned **HST S26,29** to the local CypT chemical profile, and **HST S5** as Pair 120 with a kalathos **HST 31**; **HST S4, 16** are Singles. The two CypT vessels have pictorial decoration, **HST 26**, and pleonastic decoration, **HST S29**, the latter with monochrome interior with reserved band below the rim. **HST S26** depicts a bird pecking at a bunch of grapes, which is actually dot-filled triangular patch, a popular Cypriot IIIC Early motif.[159] The Single **HST S16** has antithetic spirals with elaborated loop flanking a triglyph, while the other two piecss **HST S4–5** depict the Minoan tricurved streamer, a favourite motif on the Minoan kylix.[160]

### Wavy Line and Proto-White Painted (PWP) (Fig. 42)

Fig. 42 depicts the sherds sampled by NAA on the right; since some are very small, a complete vessel is illustrated on the left to give an idea of the shape.

The Wavy Line Style consists of single or reduplicated flowing wavy lines, generally of medium width (Fig.42 bottom left). It is used on open and closed shapes. The pottery in this style in Dikaios' excavations at Enkomi in Areas I and III is not well fired, but is soft and often has impurities; the surface is often greenish or white and the paint matt black or orange. The term Proto-White Painted ware (PWP) was introduced by Gjerstad for a class of pottery often depicting wavy lines, which was made of hard fired well levigated clay with matt or slightly lustrous paint and which was related both to the end of the Aegean-style pottery and to CG I pottery.[161] Although he had the Wavy Line Style, Dikaios thought that he did not have PWP in Areas I and III and, therefore, that it began after his Level IIIC.[162] He assigned this level and Level IIIB Late to LCIIIB1 and suggested a gap between this and the CG occupation of the site.[163]

Iacovou has classed Sols III–I in the Sanctuary of the Ingot God at Enkomi as PWP and suggested that they continued in use after the rest of the site was abandoned, since this pottery was not present in Dikaios' excavations.[164] She also suggested that the pottery of Sols III–I covered a single short phase, since there is no evolution in it.[165] In fact this criterion does apply to Sols III–II, but Sol I has later pottery. Kling disagreed with the conclusion that Sols III–I lasted later than the rest of the site, on the grounds that there was no stratigraphic confirmation that PWP was later than the Aegean-style IIIC Wavy Line Style, since PWP mostly came from tombs and the Wavy Line Style from settlements, and also that the pottery from the rest of the

[157] For further examples see Mountjoy, in press c, d.
[158] Åström 1998, 13 fig. 17 centre.
[159] Mountjoy 2008, 13–24.
[160] Hallager and Hallager 2000, 144.
[161] See full discussion with references Mountjoy 2005a, 163.
[162] Dikaios 1969, 298.
[163] Dikaios 1971, 494.
[164] Iacovou 1988, 8.
[165] Iacovou 1988, 9.

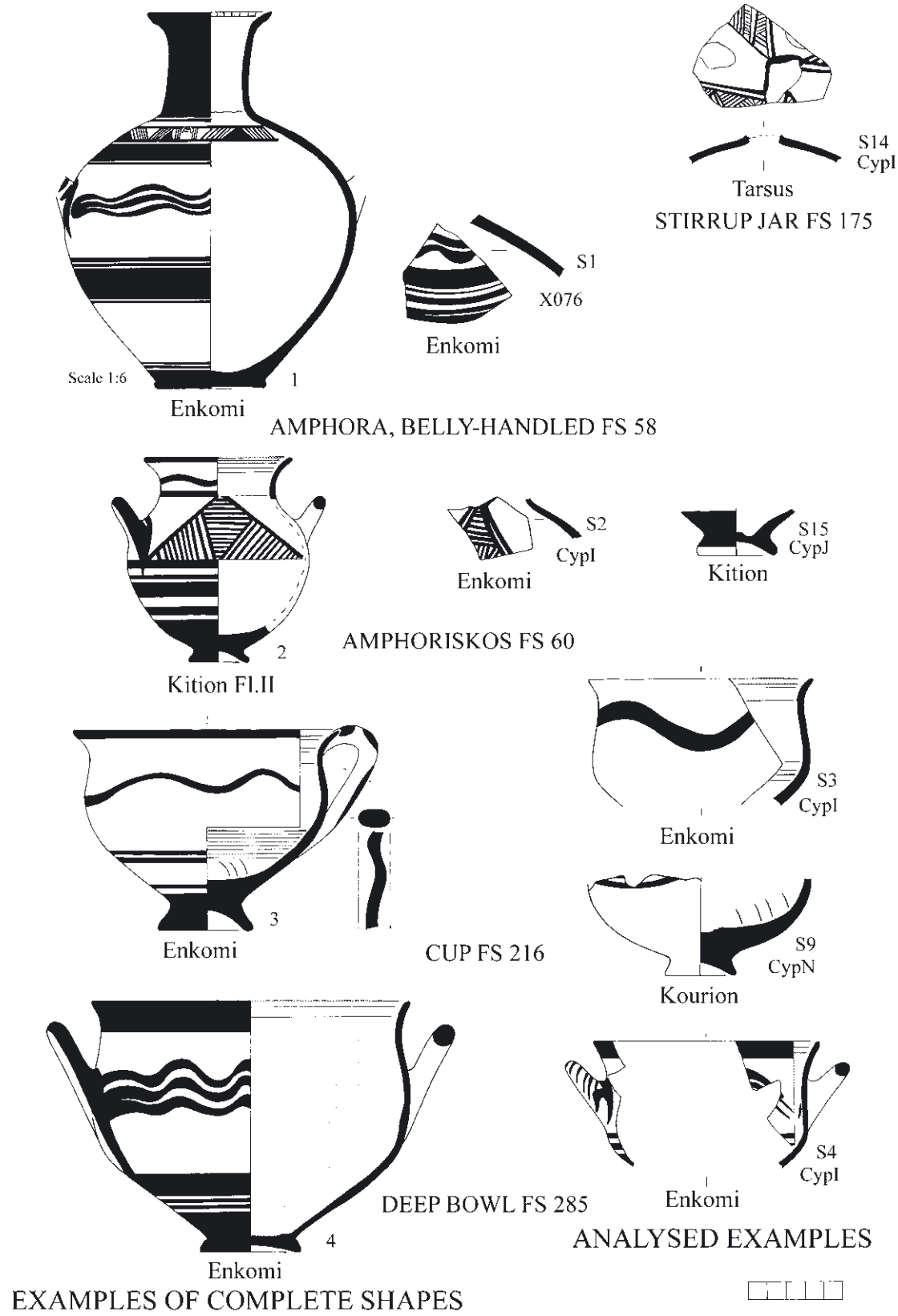



Fig.42 Wavy Line Style and Proto-White Painted pottery. 1) Enkomi Courtois 1971, 323 fig. 140.826, 2) Kition, Karageorghis and Demas 1985, pl.CXLIV, 3)–4) Enkomi, Dikaios 1969, pl. 79.24, 104.3, Tarsus, Mountjoy 2005b, 95 fig. 4.56. Scale 1:3.

settlement had parallels to that from the Ingot God Sanctuary and to PWP from other sites.[166]

The Level IIIB Late destruction in Enkomi Area I Room 12, the Sanctuary of the Double Goddess, caught a number of vessels *in situ* on Floor II by the hearth. The recovered vessels make up a good Wavy Line Style assemblage, while the sherd material shows other shapes and motifs current in this phase. Amongst the pottery on Floor II are three pieces of Proto-White Painted Ware. They differ from the mass of pottery in not having soft green fabric with fugitive paint and in being hard fired. Two of these sherds have been seen by M. Iacovou, who agreed with their classification as PWP.

A number of complete vessels and fragments were found *in situ* on Sol III in the Sanctuary of the Ingot God.[167] They have been assigned to PWP.[168] It has recently been possible to locate two of these vases in the depot of the Cyprus Museum, the belly-handled amphora (Fig. 44 top left) and the ring vase.[169] The amphora is made of the hard fired pottery usually associated with PWP, but the ring vase is made of the usual low quality soft greenish fabric with fugitive matt light brown paint prevalent in the pottery in Areas I and III. Thus, as with the Dikaios Room 12 assemblage, both wares are present together. These two mixed ware assemblages show that the pottery in soft greenish fabric and PWP were synchronous. This is borne out by the corpus of pottery; the same shapes and motifs are found in both assemblages.[170]

Support for this conclusion comes from NAA. It demonstrates that both wares were locally produced at Enkomi (**Enkomi S3** Wavy Line Style and **Enkomi S1–2,4** PWP) and in use together in Area I, which could not, therefore, have been abandoned before the appearance of PWP. A stirrup jar found at Tarsus was also made at Enkomi (Fig. 42 top right). PWP was also manufactured at Kition and at Kourion; the PWP **Kition S15** and the PWP/CGI **Kourion S9** both have a local provenance.

## Trade Connections

NAA allows trade connections to be mapped **(**Fig. 43). The coloured lines (Fig. 43) show trade links; they are not shipping routes. The map is skewed, as there is a lack of large groups of samples available from Syria-Lebanon, except Tell Kazel. The huge majority of exports is from CypJ, Kition/Hala Sultan Tekke, red on the map. After Kition/Hala Sultan Tekke the next biggest exporter was Kouklia, blue on the map. There are a number of exports from Kouklia at Tarsus, in contrast to single pieces from Enkomi and Hala Sultan Tekke. Indeed, surprisingly, NAA has identified almost no exports from Enkomi. It may be that it exported to Syria-Lebanon, while Kition/HST had the southern market. However, a group of stirrup jars allied to Simple Style stirrup jars, but with triangular patch on the shoulder, has parallels at Ugarit.[171] A similar stirrup jar from Kalavasos could not be analysed, as it is fragile,[172] but a piriform jar from Kalavasos also with this decoration (Fig. 12 S25) and the Tell Dothan stirrup jar (Fig. 13 S1) both analysed as CypJ. The Dothan vase is so close to the Ugarit vases, it suggests the same workshop and thus that Kition/Hala Sultan Tekke also exported to the north Levant. The route to the south probably went from Kition/Hala Sultan Tekke to Akko and Dor and then on down to Ashkelon. There was no protected harbour there, but boats could be dragged up onto the beach.[173]

The number of Cypriot exports identified by NAA is too small to give much information as to the nature of the trade; it could have been casual trade or organised trade. The high quality pictorial or pleonastic decorated bowls and kraters at Tarsus imported from Kouklia for use as fine table ware may have been the result of a special arrangement rather than casual trade. Mazar has suggested the elaborately decorated stirrup jars from Sinda found at Bethshean were brought by Cypriot mercenaries in the Egyptian garrison.[174] Stockhammer further suggests that other imported stirrup jars at Bethshean were used by high-ranking Egyptians in the garrison.[175] At Megiddo the number of Simple Style stirrup jars imported from Kition/Hala Sultan Tekke suggests a possible special trade link for whatever oil the pots contained. However, the trade link may have been with the port of entry, such as Akko, Tel Nami or Dor, rather than directly with Cyprus.

166 Kling 1989, 174.
167 Courtois 1971.
168 Webb and Courtois 1980, 101.
169 Courtois 1971, 234 fig. 77 no.1030.
170 See Mountjoy, in press a.
171 Courtois and Courtois 1978, fig. 35.16, 17, 18.
172 Russell 1989, fig.13.
173 I thank D. Master for this information.
174 Mazar 2007, 573.
175 Stockhammer 2014, 214.

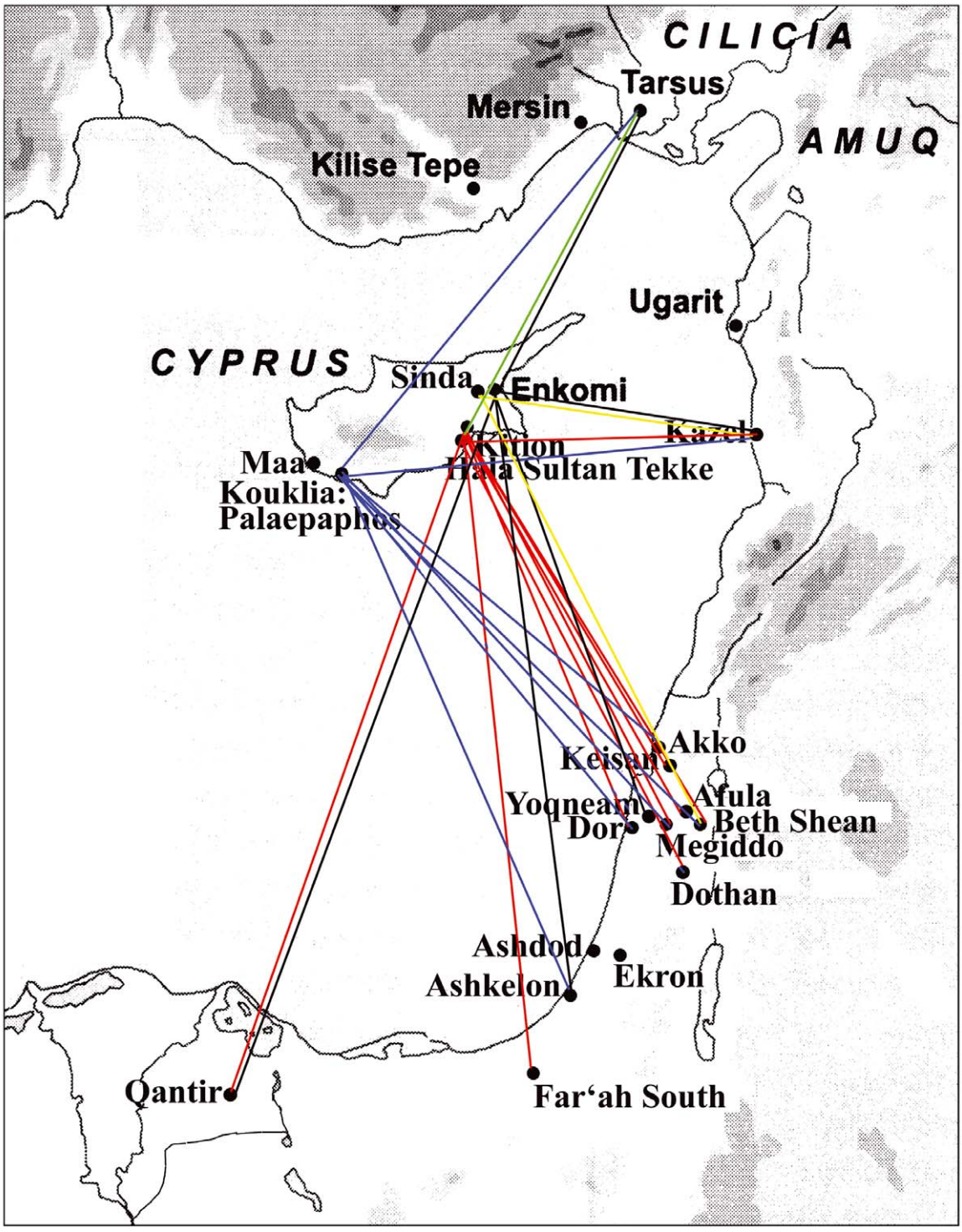



Fig.43 Trade Connections identified by NAA.

The imports at Qantir include a number of oil containers, such as stirrup jars and flasks, mostly Simple Style. They were found in the royal stables and in the chariot garrison. I have suggested the oil might have been used for the royal horses, either on the tack, or on the horses themselves, on their manes and tails.[176] A list of oils from different countries in the 19th Dynasty Papyrus Anastasi IV, 15.1–5 mentions two oils from Alashiya used to annoint the army and chariotry of Seti II; the oil may have travelled in the stirrup jars and flasks.[177] The import of the oil for such a use was surely a special order.[178]

Within the island a number of exports went from Enkomi to nearby Sinda and from Kition/Hala Sultan Tekke to nearby Kalavasos. Although the sample from Idalion was small, many of the vessels sampled from Kafkallia came from Enkomi. Some pottery was also exported from Enkomi to Kition and Hala Sultan Tekke, particularly open shapes. Pottery from Enkomi is mostly found in the east of the island, apart from exports to Apliki, whereas, in contrast to Enkomi, the Kouklia workshops exported all round the island. The presence of exports from them at Apliki hints at a possbile maritime trade network between Kouklia and sites close to the Bay of Morphou, particularly Toumba tou Skourou. The exports between all sites may have largely been based on the copper routes.

The identification by NAA of Minoan-style pottery on the island as locally produced suggests that the intense Minoan interaction with Cyprus in LMIIIB, as witnessed particularly by large numbers of Minoan imported stirrup jars,[179] continued into LMIIIC. Numerous Minoan-style pieces at Hala Sultan Tekke suggest a particular trading connection with this port.[180]

The production of vessels decorated with semi-lustrous or lustrous paint instead of the usual matt paint seems to have been aimed at the export market; it was surely influenced by the fact that the Levantine consumers were used to the imported lustrous decorated Mycenaean pottery; the Cypriots were trying to replicate it.

## PART III

### Catalogue of samples analysed

The catalogue is arranged geographically starting with Enkomi and continuing southwards and then westwards round the island. Some topographical details are given to highlight the connections of each site overland or by sea, many routes being relevant to copperworking. The pottery is catalogued by sample number.

### Enkomi

The settlement lies close to the east coast of the island on the edge of the Mesaoria plain. Originally the site was a coastal one with an inlet from the sea to the south into which the Pedhieos river flowed. The inlet is now silted up.[181] There is evidence of copper smelting at the site from MCIII onwards. 36 sherds were sampled from the stratified excavations of P.Dikaios in Areas I and III.[182]

Area I

1 Amphora, belly-handled FS 58. PWP. Grey[183] with one or two white grits fired buff; white slip, matt dark brown paint. FM 53, double wavy line. Room 12 246/4. Group X076. (Fig. 26).
2 Amphoriskos FS 60. PWP. White; matt black paint. FM 71, elaborate triangle. Room 12 460/5. CypI. (Fig. 5).
3 Cup FS 216. Buff; matt shaded-brown paint. Gold and silver mica. D.rim 12. FM 53, wavy line. Room 12 460/1, 2. CypI. (Fig. 5).
4 Deep bowl FS 286. PWP. Rust with small white grits; buff slip, black to brown paint, red on interior. D.rim 12. FM 53, double wavy line, multi-splashed handle, monochrome inte-

[176] Mountjoy and Mommsen 2001, 124.

[177] I thank S.Bunimovitz for this reference and for the suggestion; see also Leonard 1981, 96–97.

[178] E.Oren has also informed me that many Simple Style stirrup jars have been found in the Sinai area and has suggested that the large numbers are to do with an extensive trade in oils involving the Egyptians.

[179] See Graziadio 2011 for discusssion. The suggestion that Enkomi was the main centre of the development of the Simple Style, 2011, 94, must be reconsidered in the light of the NAA results from Kition/Hala Sultan Tekke.

[180] Mountjoy 2011b.

[181] Catling 1964, 18, 32.

[182] Dikaios 1969–71.

[183] The first colour always refers to clay; if no colour is given for the slip, then it is the same colour as the clay.

rior with reserved band below rim. Room 12 107/1, 2. CypI. (Fig. 5).

5 Bowl Type 12. Orange; greenish-cream slip on exterior, orange on interior, matt brown and orange paint. D.rim 18. Linear. Room 58 6176/4. Group X076. (Fig. 26).

6 Bowl Type 5. Buff; matt brown paint. D.rim est.13. Monochrome with reserved bands on exterior and interior. Room 29 5625/1. Dikaios 1969, pl. 71.4. CypI. (Fig. 5).

7 Bowl Type 8. Pale orange; matt orange paint. D.rim 17.4, D.base 4.5, H.est. 5. Linear, spiral on interior base. Room 24 1907/9, 10. Dikaios 1969, pl. 69.27, 35. CypI. (Fig. 5).

8 Bowl Type 14. Buff with small white grits broken through; matt orange-brown paint. D.rim 14, H.ex. 4.5. FM 75, panelled. Room 2 4932/2. Dikaios 1969, pl. 79.1. Group X076. (Fig. 26).

Area III

9 Bowl Type 10. Orange; cream slip, matt brown-orange paint. D.rim 14.8, D.base 4, H. 7.9. Linear, edge of spiral or concentric circles on interior base. Ex-Room 33 1137/1. Burial 1 Shaft Grave 23. CypH. (Fig. 9).

10 Bowl Type 2. Deep buff; matt dark brown paint. D.rim 16. Linear. Room 7 4632/1. CypS. (Fig. 21).

11 Deep bowl FS 285. Pale orange; buff-white slip, matt brown-orange paint. D.rim 13. FM 42, joining semi-circles. Room 7 4632/4. CypI. (Fig. 4).

12 Bowl Type 13. Buff; matt red-brown paint. D.rim 17, D.base 6, H. 7–7.8. Linear, interior base worn. Room 35 3845/1. CypI assoc. (Fig. 5).

13 Bowl Type 6. Buff; matt brown-orange paint. D.rim 16. Linear. Room 35. 3842/4. CypI. (Fig. 5).

14 Bowl Type 6. Semi-coarse orange; fugitive cream slip, fugitive matt brown paint. Linear. Ex-Room 5 1082. CypJ. (Fig. 12).

15 Bowl Type 10. Buff; matt dark brown paint. D.rim 16. Linear. Room 2 4591/4. CypH. (Fig. 9).

16 Deep bowl FS 285. Whitish; matt dark brown paint. D.rim 16. FM 46, running spiral. Room 16 4651/6. Dikaios 1969, pl. 74.21. CypT. (Fig. 15).

17 Strainer jug FS 155. Greenish; fugitive matt brown paint. FM 50, antithetic spiral flanking lozenge. Room 2 2542/15. CypH. (Fig. 9).

18 Krater FS 282. Grey fired orange; cream slip, matt dark brown to black. D.rim 26. ?FM 51, stemmed spiral. Room 2 4591/19. CypI. (Fig. 4).

Area I

19 Kalathos FS 291. Buff fired orange; buff slip, matt orange paint. D.base 12. FM 75, panelled on interior and exterior. Room 37 6146/1. CypI. (Fig. 4).

Area III

20 Krater FS 282. Orange; cream slip, matt brown orange paint. D.rim 28. Spiral. Room 2 4591/20. CypI. (Fig. 4).

21 Basin, carinated. Orange fired greenish; matt dark brown paint. D.rim 28, H.ex. 7.3. Linear. Room 2 4591/22. CypI. (Fig. 5).

22 Krater, carinated FS 282. Rust; buff slip, matt orange paint. FM 46, running spiral. Room 2 4591/23. CypI. (Fig. 4).

23 Basin, carinated. Grey fired orange; matt red paint worn on exterior. D.rim 29. Linear. Room 2 4591/18. CypI assoc. (Fig. 5).

24 Krater FS 282 or large deep bowl. Buff fired orange; buff slip, matt dark brown paint. FM 75, panelled. Room 2 4591/13. CypH. (Fig. 9).

25 ?Strainer jug FS 155. Orange; cream slip, matt orange paint. D.base 4.2. Linear. Room 2 4591. CypJ. (Fig. 12).

26 Krater FS 282. Buff; whitish slip, matt black paint. D.rim 34. FM 50, antithetic spiral. Room 2 4586/13. CypI. (Fig. 4).

27 Feeding bottle FS 162/jug. Semi-coarse yellow-buff; greenish slip, matt fugitive black paint. D.base 4.9. Groups of vertical stripes down body. Room 69/71 3017/6. Group X076. (Fig. 26).

28 Deep bowl FS 285. Buff; matt shaded-brown paint. FM 42, joining semi-circles. Court 94 3341/1. CypI. (Fig. 4).

29 Collar-necked jar FS 64. Buff; matt brown-orange to dark brown paint. FM 50, antithetic spiral with fill of panelled pattern and urchin on belly, FM 51, stemmed spiral with lozenge fill on shoulder, stemmed spiral/tongue on belly. Court 94 3378/5, 6, 3379/6, 3341/4. Dikaios 1969, pl. 81.2, 11. CypI. (Fig. 4).

30 Bowl Type 3. Semi-coarse rust; white slip, matt black to brown paint. D.rim 11. Linear. Room 69 4432/5. Group X076. (Fig. 26).

31 Krater, carinated FS 282. Greenish; fugitive matt black to brown paint. D.rim 23.2, D.base 10, H.restored 22.8. FM 73, linked lozenges, bars and semi-circles across rim, monochrome interior. Room 70 3094/1. Dikaios 1969, pl. 81.19 (3094/1). CypH. (Fig. 9).
32 Krater, carinated FS 282. Coarse buff; matt dark brown paint. D.rim 28, H.ex. 17.3. FM 51 stemmed spiral ending in hour-glass rosette. Corridor 92 3419/8, 10. CypI. (Fig. 4).
33 Deep bowl FS 285. Greenish; fugitive matt brown paint. D.rim 16. FM 46, running spiral. Room 70 3112/1, 2. Dikaios 1969, pl. 81.4. CypI assoc. (Fig. 4).

Area I

34 Deep bowl FS 285. Soft buff; matt brown paint. D.rim 14. FM 52, isolated spiral. Well 32 4539 15.50–16.50 m. CypJ. (Fig. 12).
35 Piriform jar FS 36. Levanto-Helladic. Buff; matt brown-orange paint. D.max.ext. 25.8. FM 70, scale pattern. Room 61 692/1. Nicosia. Dikaios 1969, pl. 70.37. CypI. (Fig. 4).
36 Piriform jar FS 36. Levanto-Helladic. Greenish-white; matt black paint. D.rim 8.8, H.ex. 14.6. Linear, bars all round rim. Room 61 692/2, 3. Nicosia. Dikaios 1969, pl. 70.86, 71.7. CypG. (Fig. 19).

**Athienou**

The site is located on a low hill in the plain between Larnaka and Nicosia. Large amounts of metallurgical waste suggest the site was used as a secondary processing station between the mines, such as Troulli or Sha, and the coastal centres of Enkomi, Kition and Hala Sultan Tekke.[184] Some NAA was carried out by J.Yellin.[185] We could only sample 10 sherds for our project, as other pieces could not be located.

1 Bowl Type 6–9. Buff; matt brown orange paint. D.base 4.4. Unpainted exterior, spiral on interior base. L665. Stratum I. 5991 on sherd. A3365. CypT. (Fig. 15).
2 Krater FS 281. Rude/Pastoral Style. Orange fired buff; matt shaded-brown paint. D.rim 28, H.ex. 14.4. FM 46, running spiral, stripe across handle, splash across interior attachment flanking central vertical splash. L551,637. Dothan and Ben-Tor 1983, fig. 13.1. 2130, 2185, 3130. Single. (Fig. 29).
3 Bowl Type 10. Tan, rough. Some silver mica. D.rim 14.5, D.base 4.1, H. 7.8. L543. Dothan and Ben-Tor 1983, fig. 50.2. 2200. Group X078. (Fig. 27).
4 Deep bowl FS 285. Buff; matt black to brown paint. D.rim 14. Button hook spirals. L543. AT 71, 2160, 2161. CypH. (Fig. 9).
5 Deep bowl FS 285. Handle now missing. Sandy-buff; matt dark brown paint. D.rim 11, H.ex. 8. Double-stemmed spirals with fill of concentric arcs alternating with quadruple U motif, monochrome interior. L618. Dothan and Ben-Tor 1983, fig. 53.4, pl. 37.2. 7084/1. Group X078. (Fig. 27).
6 Deep bowl FS 285. Buff; matt brown-orange paint. D.rim 13.2–5, D.base 4.5, H. 9.4–6. FM 51, stemmed spiral, spiral on interior base. L543. Dothan and Ben-Tor 1983, fig. 53.3, pl. 36.2. AT 71, 2110, 2112, 2160, 2001. CypJ assoc. (Fig. 12).
7 Cylindrical jug FS 139. Levanto-Helladic. Deep buff; buff slip, lustrous orange paint. FM 3, bull. L551, 637. Dothan and Ben-Tor 1983, fig. 14.14, pl. 16.3. MYBE. (Fig. 23).
8 Bowl FS 296. Levanto-Helladic. Buff; lustrous orange paint. Silver mica. D.rim 19, D.base 5.4, H. 6.8. Linear. L551. Dothan and Ben-Tor 1983, fig. 13.3. 2134 (on pot, 2135 in publication); Yellin 2007, no.6. MYBE. (Fig. 23).
9 Bowl Type 10. Deep buff; matt dark brown paint. Fine silver mica. D.rim 16, H.ex. 6.7. Linear. L543. Dothan and Ben-Tor 1983, fig. 50.3. 2074, 2110, 2160. CypJ. (Fig. 12).
10 Deep bowl FS 285. Orange-buff; matt brown-orange paint. FM 61, zigzag. L543. CypI. (Fig. 6).

**Idalion**

Idalion is situated in the valley of the Yalias river south of the modern village of Dhali; the Troodos mountain range with its metal sources rises to the west and south. The site had easy access to the ports of Enkomi and Kition. The 16 pieces of LCIIC pottery analysed here come from two tombs, Tomb 1.76 below the Western Acropolis south of Dhali villlage, and Tomb G on the hill of

[184] Keswani 1993, 77.

[185] Yellin 2007.

Kafkallia, north of Dhali village. The range of vessels is limited.

1 Krater FS 281. Rude/Pastoral Style. Sand; buff slip, matt red to orange paint. D.rim 26, D.base 8.4, H.21.8. FM 46, running spiral, handle decoration not extant. T.G.101. Overbeck and Swiny 1972, 18. CypI. (Fig. 6).
2 Krater FS 9. Coarse buff with white grits; matt red paint. D.rim 20.6, D.base 9–9.3, D.max. 22.3, H. 18.2–19. Wavy lines with 'tassel', bars across handle. T.G.39. Overbeck and Swiny 1972, fig. 20. CypF. (Fig. 16).
3 Bowl, rounded FS 244. Levanto-Helladic. Sand; buff slip, matt red paint. D.rim 18.2, D. base 6.6, H. 5.2–5. Linear. T.G.103. Overbeck and Swiny 1972, 18. Group X077. (Fig. 26).
4 Bowl, carinated FS 244. Levanto-Helladic. Buff; matt light brown paint. D.rim 16.6–8, D. base 6.2, H. 5.3–4. Linear. T.G.30. Overbeck and Swiny 1972, 11. CypI. (Fig. 6).
5 Bowl Type 8. Buff; matt red-brown paint. D.rim 16, D.base 5.2, H. 5.7–6.4. Linear, edge of spiral on interior base. T.G.27. Overbeck and Swiny 1972, fig. 14 bottom left. CypI. (Fig. 6).
6 Bowl Type 8. Greenish; matt dark brown paint. D.rim 18, D.base 4.8, H. 5.9. Linear, spiral on interior base. T.G.23. Overbeck and Swiny 1972, fig. 14 bottom right. CypI. (Fig. 6).
7 Bowl Type 6. Buff; matt dark brown paint. D.rim 18, D.base 5.4, H. 6.9–7.4. Linear. T.G.25. Overbeck and Swiny 1972, figs. 14 top left, 16 left. CypI. (Fig. 6).
8 Bowl Type 13. Orange; matt orange to brown paint. D.rim 14, D.base 4.6, H. 6.8–7.7. Linear. T.G.29. Overbeck and Swiny 1972, fig. 17 right. CypI. (Fig. 6).
9 Bowl Type 13. Buff; matt brown paint. D.rim 16, D.base 4.8, H. 4.1–5. Linear, traces of paint on handle. T.G.26. Overbeck and Swiny 1972, fig. 17 left. CypI. (Fig. 6).
10 Pedestal bowl FS 310. Levanto-Helladic. One pierced lug handle. Coarse buff; yellow-buff slip, matt red paint. D.rim 23.2, D.base 10, H. 12.6–13. Linear. T.G.38. Overbeck and Swiny 1972, fig. 18. Group X077. (Fig. 26).
11 Bowl FS 296/295. Orange; white slip, matt pale brown paint. D.rim 17.3, D.base 5, H. 5.4. Linear. T146/863. Adelman 1989, Pl. 10. Cat. 36. Listed as 168/886. Group X078. (Fig. 27).
12 Bowl FS 296. Levanto-Helladic. Buff with a few small brown grits fired pale orange; buff slip, lustrous brown-orange to brown paint with added white. Silver mica. D.rim 18.4, D. base 4.6, H. 5.8. Linear exterior, groups of vertical wavy lines on interior, spiral on interior base. T175/893. Adelman 1989, Pl. 11, Cat. 38. Listed as 170/888. MYBE. (Fig. 23).
13 Bowl Type 6, incurving. White; matt dark brown paint. D.rim 16, D.base 6.3, H. 6. Linear. T152/869. Adelman 1989, Pl. 9 Cat. 33. Listed as 166/884. Group X077. (Fig. 26).
14 Bowl Type 6, incurving. Orange; white slip, matt red paint. D.rim 17.6, D.base 6.9, H. 6.1. Linear. T153/870. Adelman 1989, Pl. 10. Cat. 34. Listed as 167/885. Group X077. (Fig. 26).
15 Bowl Type 12. Orange; white slip, matt orange paint. D.rim 12.9, D.base 5.3, H. 6.6–8. Linear, spiral on interior base. T147/864. Adelman 1989, Pl. 9 Cat. 31. Listed as 165/883. CypT. (Fig. 15).
16 Bowl Type 12. White; matt brown to orange paint. D.rim 14.6, D.base 5.4, H. 7.2. Linear, spiral on interior base. T150/867. Adelman 1989, Pl. 9. Cat. 30. Listed as 164/882. CypT. (Fig. 15).

**Kition**

Kition on the south coast had a good harbour before it silted up. The harbour lay about 500 m in from the present coast line.[186] There is much evidence of copper working in the two main excavated areas, Area I and Area II. We analysed 38 sherds from these areas.

Area I

Room 27A Floor II Lot 55. Karageorghis and Demas 1985, 49.

1 Basin. Buff with white grits; matt brown paint. D.base 6.6. Unpainted exterior, spiral on interior base. CypJ. (Fig. 11).
2 Piriform jar FS 36. Levanto-Helladic. Buff; semi-lustrous red-brown paint. Linear. Single. (Fig. 30).
3 Closed shape. Slightly burnt; matt black paint. Linear. Single. (Fig. 30).

[186] See Gifford 1985, 377 fig. 1, 385 fig. 4 for the topgraphy.

4 Bowl Type 2. Buff with white grits; matt brown-orange paint. D.rim 13. Linear. CypI. (Fig. 7).
5 Bowl FS 296. Levanto-Helladic. Buff; matt orange-brown paint. Linear. CypG. (Fig. 19).
6 Bowl. Buff with white grits. Linear. CypI assoc. (Fig. 7).

Room 42 Floor IV–III Lot 78. Karageorghis and Demas 1985, 15.

7 Deep bowl FS 285. Buff; cream slip, lustrous red-brown paint. D.rim 15. Edge of decoration. Karageorghis and Demas 1985, pl. 14. MilD. (Fig. 24).
8 Bowl FS 296. Levanto-Helladic. Buff; buff slip on exterior, buff-pink on interior, matt dark brown paint. D.rim 21. Linear. Karageorghis and Demas 1985, pl. 14. CypI. (Fig. 7).
9 Bowl FS 296. Levanto-Helladic. Greenish fired buff; lustrous orange paint with added white. D.base 6. Linear, FM 27, rosette in added white on interior. Karageorghis and Demas 1985, pl. 14. MYBE. (Fig. 23).

Room 37 Floor IIIA–III Lot 128. Karageorghis and Demas 1985, 25.

10 Deep bowl FS 285. Buff; matt brown-orange paint. D rim 12 (oval). Edge of splashes above handle. CypJ assoc. (Fig. 11).

Room 35A,B,C Floor IIIA-III Lot 58/2. Karageorghis and Demas 1985, 23.

11 Krater FS 281. Rude/Pastoral Style. Orange-buff; white-cream slip, matt orange paint. FM 75, panelled with edge of FM 51, isolated spirals. Karageorghis and Demas 1985, pl. 18. CypJ. (Fig. 11).

Room 43 Floor IV–III Lot 129. Karageorghis and Demas 1985, 15.

12 Bowl FS 296. Levanto-Helladic. White-green; greenish slip, matt brown-orange paint. Linear. CypI. (Fig. 7).
13 Bowl FS 296. Levanto-Helladic. Greenish; fugitive greenish paint. Linear. Group X079. (Fig. 27).
14 Jug/hydria. Greenish; fugitive matt black paint. Linear. Single. (Fig. 30).

Room 9 Floor I Lot 313. Karageorghis and Demas 1985, 70.

15 ?Amphoriskos FS 59. PWP. White-buff; matt black to brown paint. D.base 4.1. Monochrome. CypJ. (Fig. 11).

Room 33 Floor III–II Lot 495. Karageorghis and Demas 1985, 33.

16 Closed shape. Buff; matt dark brown paint. Linear. KnoL. (Fig. 24).
17 Deep bowl FS 285. Greenish; matt brown paint. Edge of spiral. Single. (Fig. 30).

Room 40 Furnace B Floor IV–IIIA Lot 570A. Karageorghis and Demas 1985, 13.

18 Closed shape. Buff; matt brown paint. Linear. CypI. (Fig. 7).
19 Krater FS 282. Buff; matt brown paint; interior left rough. Silver mica. FM 56, chequer pattern. KroP. (Fig. 24).
20 Deep bowl FS 285. Pink-buff; buff slip, matt dark brown paint. D.rim 14. Linear. CypJ. (Fig. 11).

Room 32A Floor III–II Lot 581. Karageorghis and Demas 1985, 40.

21 Piriform jar FS 36. Greenish; matt shaded-brown paint ?once lustrous. FM 73, lozenge, band of dots at base of neck. Group X079. (Fig. 27).
22 Jug. Buff; greenish slip, fugitive matt brown paint. Linear. KnoL. (Fig. 24).

Room 28 Floor III Lot 747. Karageorghis and Demas 1985, 29.

23 Closed shape. Buff; matt brown-orange paint. Spiral. CypH. (Fig. 9).
24 Deep bowl FS 285. Buff; matt black paint. D.rim 16. FM 50, antithetic spiral, with edge of handle splash on left side of sherd. CypJ. (Fig. 11).

Room 28 Floor III Lot 751. Karageorghis and Demas 1985, 29.

25 Deep bowl FS 285. Buff; fugitive matt brown paint. Linear. CypJ. (Fig. 11).
26 ?Piriform jar FS 36. Buff; fugitive brown paint. Linear. CypJ. (Fig. 11).

Room 28 Floor III Lot 752. Karageorghis and Demas 1985, 29.

27 Closed shape. Cream-buff; matt orange paint. Linear. CypJ assoc. (Fig. 11).

28 Krater FS 281. Rude/Pastoral Style. Orange; buff slip, matt orange-brown paint. FM 75, panelled. CypJ. (Fig. 11).

Room 28 Material of Fl. III Lot 754. Karageorghis and Demas 1985, 29.

29 Closed shape. Buff; whitish slip, matt brown paint. Linear. Single. (Fig. 30).

30 Bowl Type 10. Buff; matt red-brown paint. D.rim 14. Linear. CypJ. (Fig. 11).

Other contexts

31 Area I. Stirrup jar, Simple Style. FS 171/173. Orange; white-buff slip, fugitive matt brown-orange paint. D.max.10.1, H.ex. 9. Linear. Room 41 Floor IV–III Lot 361. CypI. (Fig. 7).

32 Area I. labastron, straight-sided, Simple Style. FS 94. Buff; matt red paint. D.max.10. Linear. Room 30F Floor IV–III Lot 982. CypJ. (Fig. 11).

33 Area II. Stirrup jar, Simple Style. FS 171. Orange with small black grits; buff slip, matt red paint. D.max. 8. Linear. Temple 5/10. From Pit in Floor IIIA–III. CypJ. (Fig. 11).

34 Area II. Bowl Type 3, variant. Bichrome. Buff; matt black and red-brown paint. D.base 11. Linear exterior, spiral on interior base continuing up wall. Temple 5/4. Pit of Floor II in Floor IIIA–III. CypJ. (Fig. 11).

35 Area I. Amphoroid krater. Deep buff; white slip, matt dark brown paint. FM 75, panelled, edge of handle loop and tail framing decorative zone. Room 30E. Well 18 Lot 1148/2. Karageorghis and Demas 1985, pl. 37, Mountjoy 2009a, 67 fig. 3.2. MilD. (Fig. 24).

36 Area I. Krater FS 282. Buff fired pale orange; orange-buff slip, matt orange paint. Silver mica. FM 75, panelled with FM 56, chequers and FM 7, bird and flowers. Floor IV–III. Room 30D. Lot 899/1, 2+ Room 40A Lot 792A/1, 2. Karageorghis *et al*. 1981, pl. IX.19, 20, 23. CypI. (Fig. 7).

37 Area I. Krater, carinated FS 282. White; matt brown paint. D.rim 30. FM 46 running spiral with FM 51, stemmed spiral attachments, monochrome interior, joining semi-circles on rim. Room 30 Floor III. Lot 914/1. Karageorghis and Demas 1985, pl. XLIV. CypJ assoc. (Fig. 11).

38 Area I. Bowl Type 3. White; matt black paint. D.base 4.1, H.ex. 2.5. Linear. Room 30 Floor III–II. Lot 895A/1. Karageorghis and Demas 1985, pl. XLVI. CypJ. (Fig. 11).

**Hala Sultan Tekke**

This south coastal site lies on the west of the Larnaka Salt Lake, which was originally connected to the sea and offered a very large, sheltered harbour. The settlement became an important trading centre. Widespread finds of slag suggest extensive copper working took place in the town. 33 sherds were analysed for our project.

1 Krater FS 282. Greenish; matt black paint. FM 7, bird with FM 51, double-stemmed spiral and FM 27, rosette. Area 8 Building D. FIh-FKa 480–83. Room 55. Layer 4. F5071. Single. (Fig. 29).

2 Stirrup jar FS 174/175. Buff; pale yellow slip, matt orange-brown paint. FM 73, lozenge chain above FM 42, joining semi-circles with dot fill. Area 8 Building F. FHa-FIb 490–99. F1360. CypS. (Fig. 21).

3 Piriform jar FS 36. Levanto-Helladic. Buff; matt orange-brown paint. Edge of main motif with FM 42, triangular patch with dot fill. Area 8 Building F. FHb-FIa 490–99. F1507. CypJ. (Fig. 11).

4 Kylix, carinated. Buff; matt dark brown paint. D.rim 13. FM 62, streamer with fringe. Area 8 Building A, Well. F1241. Åström 1998, fig.17; Mountjoy 2011b, 340 fig. 1.1. Single. (Fig. 29).

5 Kylix, carinated. White; matt dark brown paint. D.rim 13.8. FM 62, streamers with fringe. Area 8 Building A, Well. F1221+1241+1244. Åström 1998, fig. 36; Mountjoy 2011b, 340 fig. 1.2. Pair 120. (Fig. 25).

6 Deep bowl FS 285. Buff; matt orange paint. Minoan flower with zigzag in centre. Area 8 Building A, Well. F1244. Åström 1998, fig. 36. CypJ. (Fig. 11).

7 Deep bowl FS 285. Buff; matt brown paint. D.rim 15. FM 52, isolated spiral. Area 8 Building A, Well. F1244. Åström 1998, fig. 36 top centre. CypJ. (Fig. 11).

8 Deep bowl FS 285. Buff; matt brown paint on exterior, red on interior. D.rim 13. FM 51, stemmed spiral linked by cross bars, groups of blobs on top of rim, blobs round handles, handle splash reaching to top of decorative zone. Building A, Well. F1244+F1247. Åström 1998, figs. 36, 43. Single. (Fig. 29).

9 Deep bowl FS 285. White; self slip, matt black paint. D.rim 13, H.ex. 6.6. FM 75, panelled with FM 50, antithetic spiral with hatched almond fill. Building A, Well. F1241+1244+1247. Åström 1998, figs. 19, 29. CypI. (Fig. 6).

10 Deep bowl FS 285. Pale orange fired buff; matt red-brown paint. D.rim 10.8. Minoan papyrus, stripe along handle. Area 23 Well F7010. Åström 1998, fig. 208. Pair 195. (Fig. 25).

11 Deep bowl FS 285. Pale orange; yellow-buff slip, matt brown-orange paint. D.rim 12. FM 62, streamers with fill of Minoan flower and chevrons. Area 23 Well F7010. Åström 1998, fig. 208. Pair 195. (Fig. 25).

12 Carinated krater FS 282. Orange; white slip, matt black paint. Small silver mica. FM 50, antithetic spiral. Area 23 Well F7012. Åström 1998, fig. 270 top left. CypT. (Fig. 15).

13 Jug FS 118. Buff fired orange; buff slip, matt brown to red-brown paint. FM 75, panelled with fill of bivalves. Area 6 ECd-e F2001. Åström, E.1983, fig. 218. CypJ. (Fig. 11).

14 Stirrup jar FS 174/175. Buff; fugitive matt brown paint. FM 20, fish with FM 73, lozenge chain. Area 8 Building A, Well. F1190. Åström 1998, fig. 3. CypT. (Fig. 15).

15 Stirrup jar FS 174/175. White; matt brown-orange paint. FM 73, lozenge chain on belly. Area 8 NW of Building A, F1307. Hult 1981, fig. 85. CypS. (Fig. 23).

16 Kylix, carinated. Buff-white; white slip, matt black paint. D.rim 21. FM 75, panelled with FM 50, antithetic spiral with fill in loop. Area 8 Building A, F1026. Olofsson and Hult 1977, fig. 130; Mountjoy 2011b, 340 fig. 1.4. Single. (Fig. 29).

17 Krater FS 282. Buff; matt brown-orange paint. D.rim c60. FM 7, bird with basin and racquet. Area 8 Building A. F1141+Area 8 East F1344, F1358. Hult 1978, fig. 112a; Mountjoy 2011b, 348 fig. 10.1. CypJ. (Fig. 11).

18 Deep bowl FS 285. White; matt brown-orange paint. D.rim 24. FM 75, panelled pattern with FM 50, antithetic spiral with fill of FM 43, antithetic semi-circles in loops, interior worn. Area 8 Building A Room 2. F1103E+1121 Layer 5. Hult 1978, figs.106 m, n, 127, 128, 132i. CypJ. (Fig. 11).

19 ?Strainer jug. White-buff; white slip, matt dark brown paint. FM 75, panelled pattern fringed with dot-filled joining semi-circles with FM 43, rows of semi-circles. Building F. F1348A. FGd 495–96. Room 13. CypJ. (Fig. 11).

20 Krater FS 282. Orange (rust); cream slip, matt black paint. D.rim 30. FM 75, panelled with FM 50, antithetic spiral. Building F Room 41 or 42. F1376 FGf–g 490–1. CypT. (Fig. 15).

21 Stirrup jar FS 174. White; green-white slip, matt brown paint. D.base 5, D.max. 13.2, H.ex. 11. FM 42, triangular patch with dot fill on shoulder, FM 73, lozenge on belly. Building F. FGh–k 490–93. F1351. Niklasson 1983, fig. 487. CypG. (Fig. 19).

22 Krater, Grey Ware. Pale grey. No mica. D.rim 30. Groups of incised wavy lines. Area 8 Building D Layer 4 F5090. TroB. (Fig. 24).

23 Stirrup jar FS 174/175. Soft buff; cream-buff slip, matt dark brown paint. D.max.11. FM 25, bivalve on shoulder flanking spout, main shoulder decoration not preserved, zone of FM 61, zigzag on belly. Area 8 South Room 95. CypS. (Fig. 21).

24 Krater FS 282. Greenish-white; matt black paint. D.rim 38. FM 75, panelled pattern with FM 62, streamer attached to rim band by vertical bars, fill of outlined solid almond. Area 22 Room 6. F6122. Öbrink 1979, 33 fig. 175. Group X076. (Fig. 26).

25 Krater FS 282. Orange; matt black paint. FM 75, panelled pattern. Area 22. F6217. Öbrink 1979, 34 fig. 180i. CypT. (Fig. 15).

26 Kylix, carinated. Buff; matt red paint. FM 7, bird with fill of FM 42, dot-filled triangular patch. Area 22 Square 1 Layer 2b. F6510C. Niklasson-Sönnerby 1989, fig. 139a. CypT. (Fig. 15).

27 Deep bowl FS 285. Buff; matt red-orange paint. D.rim c16. FM 62, streamer with chevron fill. Area 22 Square 1 Layer 2. F6515. CypJ. (Fig. 11).

28 Krater FS 282. Yellow-buff fired orange; yellow-buff slip, matt brown-orange paint. Minoan flower, bars across rim. Area 22 Square 1 Layer 3. F6521. Niklasson-Sönnerby 1989, fig. 149a. CypI. (Fig. 6).

29 Kylix, carinated. Buff; matt chocolate paint. D.rim 22. FM 75, panelled pattern with edge of ?spiral on left, monochrome interior with reserved band below rim. Area 6 South Sector F2020. Hatziantoniou 1983, fig. 345a. CypT. (Fig. 15).

30 Deep bowl FS 285. Greenish; fugitive black to brown paint. D.rim 17. Minoan palm. Area 6 South Sector F2200. Hatziantoniou 1983, fig. 349a. CypI. (Fig. 6).

31 Kalathos FS 291. Buff; matt orange-brown paint. FM 73, lozenge with ?stemmed spiral above FM 43, reserved semi-circles, monochrome interior. Area 6 South Sector

F2078+2079. Hatziantoniou 1983, fig. 359. Pair 120. (Fig. 25).

32 Deep bowl FS 285. Buff; greenish slip, fugitive sepia paint. D.rim 18. FM 62, streamer. Area 6 South Sector F2406. Hatziantoniou 1983, fig. 339a. CypH. (Fig. 9).

33 Stirrup jar FS 173. Simple Style. Orange; buff slip, matt orange paint. D.base 4.4, D.max. 9.9, D.spout 2.7, H.ex.(body) 9.1. Linear, spout and shoulder worn. T.1.27. Karageorghis 1976, pl. LXIX.27. Single. (Fig. 29).

**Kalavasos**

This very large LBA settlement is situated a few kilometers in from the coast just west of the Vasilikos river at a nexus of inland routes; it is 8 km south of the Kalavasos copper mines. The river was not navigable, but there may have been an anchorage at its mouth. Metallurgical activity took place in the settlement. The site is thought to have been abandoned shortly before the end of LCIIC,[187] after Cypriot IIIC Early 1 pottery started to appear, but before the end of the phase. For this reason the site is particularly interesting, as it demonstrates which of the LCIIIA types were already in circulation at that time. 30 sherds were analysed for our project.

1 Shallow angular bowl FS 295. Buff; matt red paint. D.rim 20. Linear. Building X; A173. 3.9. Theb. (Fig. 24).

2 Cup FS 220. Levanto-Helladic. Buff; matt red paint. D.rim 10. Linear. Building X; A173. 3.10. MYBE. (Fig. 23).

3 Bowl Type 13. Buff; matt brown paint. D.rim 11.6. Linear. Building X; A173. 3.7 F.N.45. Single. (Fig. 30).

4 Bowl FS 210. Levanto-Helladic. Buff; matt brown-orange paint.. D.rim 10.4. Linear. Building X; A173. 3.7 F.N.44. Pair 91. (Fig. 25).

5 Bowl FS 296. Levanto-Helladic. Buff; matt dark brown to orange paint. D.rim 20. Linear. Building X; A173. 3.7 F.N.61. MYBE. (Fig. 23).

6 Bowl Types 6–9. Buff; matt orange-brown paint. D.base 3.6. Linear, spiral/concentric circles on interior base. Building X; A173. 3.8 F.N.99/97. Single. (Fig. 30).

7 Bowl FS 210. Levanto-Helladic. Buff; matt orange paint on exterior, dark brown on interior. D.base 3.8. Linear. Building X; A173. 3.8 F.N.99/97. Single. (Fig. 30).

8 Cup FS 220. Levanto-Helladic. Buff; semi-lustrous orange paint. D.rim 10. Linear. Building X; A173 3.8 F.N.99/97. MYBE. (Fig. 23).

9 Stirrup jar, Simple Style. FS 171/173. Buff; matt black to red-brown paint. D.spout 2.3. Linear. Building X; adjacent P1D 4.1. CypJ. (Fig. 12).

10 Bowl FS 210. Levanto-Helladic. Buff; matt brown paint. D.rim 10.2. Linear. Building X; adjacent P 1 D 4.1. CypS. (Fig. 21).

11 Feeding jug. Buff; matt orange paint. D.base 3.4. Vertical stripes down body. Building X; adjacent P1D 3.4. CypJ. (Fig. 12).

12 Bowl FS 296. Levanto-Helladic. Buff; matt brown-orange paint. D.rim 19. Linear. Building X; adjacent P1D 4.1. CypS. (Fig. 21).

13 Bowl Type 6. Buff; matt brown-orange paint. D.rim 18 (oval). Linear. Building X; adjacent P1D 3.3. CypJ. (Fig. 12).

14 Bowl FS 210. Levanto-Helladic. Buff; matt brown-orange paint. D.rim 10. Unpainted exterior, linear interior. Building X; adjacent P1D 4.2. Single. (Fig. 30).

15 Krater FS 281. Rude/Pastoral Style. Orange; matt orange paint. FM 3, bull. Building X; adjacent. R1A 7.1. CypJ. Rude Style. (Fig. 12).

16 Bowl FS 296. Levanto-Helladic. Buff; matt red-brown paint. D.base 5.8. Linear, spiral on interior base. Building X; adjacent. R1A 7.1. CypJ. (Fig. 12).

17 Bowl FS 210. Levanto-Helladic. Buff; matt brown-orange paint. D.rim 9.6, D.base 4.3, H. 4.7. Linear. 1269. Building X; Area 173. Pair 91. (Fig. 25).

18 Jug FS 116. Levanto-Helladic. Buff with some large white inclusions fired orange; matt brown paint. D.rim 7.7, H.ex. 17. Linear, wavy line down handle. 1253. Building X; Area 173 Pit. South 1988, 226 fig. 2. CypG assoc. (Fig. 19).

19 Bowl Type 7. Greenish-buff; matt shaded brown paint. D.rim 18. Linear. 1051. Building III; Central Area. Russell 1989, 145, Pl. V. Single. (Fig. 30).

20 Bowl FS 210. Levanto-Helladic. Deep orange; pink-orange slip, matt red paint. D.rim 11, D.

[187] South 2002, 65.

base 4.4, H. 5.3–6. Linear. 1048. Building II; East Area, M 10.B, 4.1 A27/28. Russell 1989, fig. 12. CypG. (Fig. 19).

21 Bowl FS 296. Levanto-Helladic. Buff; matt black paint. D.rim 21.4, D.base 7, H. 8.1. Linear. 1037. Building VIII; SE Area. Russell 1989, fig. 12. Single. (Fig. 30).

22 Krater FS 281. Rude/Pastoral Style. Grey fired dark buff; matt red paint. D.rim 26.3, D.base 9, H. 24.7. FM 46, running spiral with FM 75, triglyph of vertical stripes by handle. 536. Building III; Central Area, A.212, 3.1. Russell 1989, fig. 13. CypS. (Drawing courtesy of A.South). (Fig. 21).

23 Krater FS 281. Rude/Pastoral Style. Salmon fired buff; fugitive cream slip, matt shaded brown paint. FM 75, triglyph with edge of decoration, circle round handle stub. 1042. Building IX; SE Area. Russell 1989, fig. 13. CypJ. (Fig. 12).

24 Krater. FS 281. Rude/Pastoral Style. Buff; matt red paint. D.rim 26. FM 75, triglyph with edge of ?FM 6, goat. 1041. Building IX, SE Area. Russell 1989, fig. 13. CypJ. (Fig. 12).

25 Piriform jar FS 36. Levanto-Helladic. Buff; matt orange paint. FM 42, triangular patch with ?FM 51, stemmed spiral. 1043. Building IX; SE Area, A.51, 3.1, 5.1. Russell 1989, fig. 13. CypJ. (Fig. 12).

26 Bowl Type 13. Deep buff; lustrous red paint. Silver mica. D.rim 12. Linear, stripe along handle. 1038. Building II; East Area, M 10.B, 4.1 A27/28. Russell 1989, fig. 12. CypI. (Fig. 7).

27 Bowl FS 296. Levanto-Helladic. Deep buff; lustrous red paint. Silver mica. D.rim 17, D. base 5, H. 6. Linear, spiral on interior base. 1036. Building IX; SE Area, A. 4 5, 3.2. Russell 1989, fig. 12. CypJ. (Fig. 12).

28 Bowl FS 296. Levanto-Helladic. Buff; matt red-brown paint. D.base 6. Linear. K-AD 1039. Russell 1989, 144. Single. (Fig. 30).

29 Bowl FS 296/295. Burnt. D.rim 18.6, D.base 6.1, H. 7.2. Linear, traces of spiral on interior base. 1035. Building II; East Area, M 10.B, 4.1 A27/28. Russell 1989, fig. 12. CypS. (Fig. 21).

30 Bowl FS 296. Levanto-Helladic. Deep buff; white slip, matt brown paint. D.rim 21, D.base 6.6, H. 7. Linear. 1034. Building II; East Area, M 10.B, 4.1 A27/28. Russell 1989, fig. 12. CypI. (Fig. 7).

**Alassa: Pano Mandilaris**

Alassa is situated about 10 km. north of Kourion: Bamboula in the Kouris river valley on the foothills of the Troodos.[188] Alassa was on a copper route leading from the mines in the foothills of the Troodos to the south coast via Kourion: Bamboula; the copper alloys would have been taken to Alassa after primary smelting and been resmelted.[189] 30 sherds were analysed from the excavations at Pano Mandilaris.

1 Bowl Type 7. Very slight carination. Deep sand with white grits; no slip, matt dark brown paint. Linear. 103. Pair 189. (Fig. 25).

2 Closed/open body sherd. Whitish; matt brown paint. Monochrome exterior, abraided interior. 104. CypF. (Fig. 16).

3 Bowl Type 13. Whitish; matt black to dark brown paint. D.rim 14. Linear. 104. Single. (Fig. 28).

4 Bowl Types 6–9. Deep sand with white grits; matt dark brown paint. D.base 5.7. Linear, spiral/concentric circles on interior base. 110. CypF. (Fig. 16).

5 Deep bowl. Buff; matt orange paint. D.base 5. Linear, interior concreted. 112. CypF. (Fig. 16).

6 Bowl Type 5. Buff; matt brown paint. D.base 3. Monochrome. 112. Group X075. (Fig. 26).

7 Jug base. Orange-buff; white-green slip on exterior. D.base 4.9. Unpainted. 112. CypF. (Fig. 16).

8 Closed body sherd, Orange; cream slip, matt pale orange paint. Linear. 125. Group X075. (Fig. 26).

9 Jug base. Buff; matt dark brown paint. D.base 6. Linear. 125. CypF. (Fig. 16).

10 Bowl Type 9. Buff; white slip, matt dark brown paint. Linear. 125. Pair 189. (Fig. 25).

11 ?Amphoroid krater, small size. Buff; matt brown paint. D.base 7.4. Monochrome exterior, abraided interior. 126. CypG. (Fig. 19).

12 Bowl Types 6–9. Burnt. D.base 5.4. Unpainted exterior, spiral/concentric circles on interior base. 130. CypF. (Fig. 16).

13 Bowl Types 6–9. Buff; matt brown-orange paint. D.base 6. Linear, spiral/concentric circles on interior base. 130. CypF. (Fig. 16).

[188] See Hadjisavvas 1991, 2003, 31–34 for an overview.

[189] Hadjisavvas 1989, 40–41.

14 Jug. Buff with brown grits; traces of matt brown paint. D.rim 9. Linear. 130. Group X075. (Fig. 26).
15 Bowl Types 6–9. Deep sand with brown grits; matt brown-orange paint. D.base 6.1. Linear, spiral on interior base. 134. CypF. (Fig. 16).
16 Closed body sherd. Orange; white slip, matt pale brown paint. Linear. 148. CypF. (Fig. 16).
17 Closed body sherd. Orange; white slip, matt orange paint. Linear. 148. CypF. (Fig. 16).
18 Bowl Types 6–9. Sand; white slip, matt brown paint. D.base 6. Linear, spiral/concentric circles on interior base. 148. Group X075. (Fig. 26).
19 Bowl Types 6–9. White; matt brown paint. D.base 6. Linear, spiral/concentric circles on interior base. 148. CypG. (Fig. 19).
20 Strainer jug FS 155, with non-joining spout (not drawn). Deep orange-buff; matt brown-orange paint. D.rim 8. Paint not preserved on rim, wavy line down handle. 177. CypF. (Fig. 16).
21 Krater. Orange; white slip, matt brown-orange paint. Edge of decoration, interior worn. 177. CypF. (Fig. 16).
22 Deep bowl. Buff; matt orange paint. D.rim 5. Linear, spiral/concentric circles on interior base. 177. Single. (Fig. 28).
23 Jug. D.base 4.4. Buff; matt black slip/paint. Monochrome. 225. CypF. (Fig. 16).
24 Jug/bowl. Buff; matt orange paint. D.base 6. Linear, interior worn. 225. CypF. (Fig. 16).
25 Bowl Type 12. Grey with many white grits; buff surface abraided. D.rim 10, D.base 4.6, H. 4.2. Unpainted. 70. CypF. (Fig. 16).
26 Bowl Type 5. Orange-buff; matt black to orange-brown paint. D.rim 15. Monochrome. 64. CypG. (Fig. 19).
27 Hydria/krater, with handle. White-buff; matt black paint. Multiple splashes across handle, rough interior. 64. CypF. (Fig. 16).
28 ?Bowl Type 5. Deep buff with many brown and white grits. Unpainted. 93. Single. (Fig. 28).
29 Bowl Type 8. Orange; paint abraided. D.rim 16. Abraided. 93. Single. (Fig. 28).
30 Deep bowl. Buff; paint abraided. D.base 4.4. Abraided. 96. CypF. (Fig. 16).

**Kourion: Bamboula**

The tombs and settlement of Bamboula are located on the north part of a low ridge separating Episkopi village from the Kouris river. Material from the tombs and the settlement was sampled, but we were not allowed to sample sherds from vessels broken since restoration in case they were restored again, so we could only sample 12 sherds from this site.

1 Amphoroid krater body sherd. Stubs of vertical strap handle and oval horizontal handle. Buff with depressions from matter fallen out; matt dark brown paint. Zigzag, dotted scale pattern, dot filled panel and the stems of tectonic spiral linked by bars. A-D:2 House VII Room 2. P787. B569. Benson 1972, pl. 23 top row. CypN. (Fig. 17).
2 Bowl Type 8. Non-joining fragments restored on paper. Deep buff with brown grits; fugitive matt black to brown paint. D.rim 15, D.base 5, H. 5.6. Exterior worn, interior linear. E-D:1d. P893. B434. CypN. (Fig. 17).
3 Bowl Types 6–9. White-buff; matt brown paint. D.base 5.8, H.ex. 4. Exterior worn, linear interior with ?spiral on interior base. A-D:2 House VI. P795. B408. Benson 1972, 80. CypN. (Fig. 17).
4 Bowl Type 9. White-buff; white slip, matt dark brown paint. D.rim 15. Linear. A-D:2 House V. P792. B440. Benson 1972, pl. 53. Single. (Fig. 30).
5 Bowl Type 14. Greenish; matt black paint. D.base 5.6. Linear. A-E:2. Street 2a. P788. B498. Benson 1972, pl. 53. Single. (Fig. 30).
6 Bowl Type 5. About 1/3 extant. Greenish-white, rough. D.rim 19.8, D.base 4.8, H. 7.9. Unpainted. D-B:1b P960. B897. Benson 1972, pls. 48,86. CypN. (Fig. 17).
7 Bowl Type 7 Buff; matt dark brown paint. D.rim 15. Linear. A-D:2 House VI. P785. B439. Benson 1972, Pl. 53. Single. (Fig. 30).
8 Bowl Type 3. Half burnt. Buff with brown grits; matt dark brown paint. D.base 6.6. Linear, eye spiral on interior base. A-E:2 House V. P757. B552. Benson 1972, 85. CypF. Alassa. (Fig. 16).
9 Cup FS 217. Buff; matt brown paint. D.base 3.8, H.ex. 4.8. FM 53, double wavy line. A-E:2 House VI. P790. B622. Benson 1972, pl. 46. CypN. (Fig. 17).
10 Bowl Type 6/7. White; matt black to brown paint. D.base 5, H.ex.5.2. Linear. A-Unstratified. P791. B407. CypN. (Fig. 17).
11 Bowl Types 6–9. Orange-buff; matt black to brown paint. D.base 5.1. Linear, spiral on inte-

rior base. T.16.33. P1348. B466. Benson 1972, 82. CypN. (Fig. 17).

12 Bowl Type 14. Half extant. Buff, rough. D.rim 14, D.base 5, H. 6. Unpainted. A-D:2 House V. P794. B913. Benson 1972, 101. CypN. (Fig. 17).

**Kouklia: Palaepaphos**

The site is situated in a coastal plain on the south-west coast where the Dhiarizos river enters the sea; it extends back over a series of plateaux. The mountainous terrain behind the site meant that communication with the rest of the island would have taken place most easily along the coast. The harbour of Kouklia silted up and has now disappeared, but Iakovou suggests it was close to the area of the Bronze Age sanctuary.[190] A chamber tomb complex at Teratsoudhia comprising Tombs 104 and 105 was uncovered during ploughing and was subsequently excavated by the Department of Antiquities.[191] The pottery in T.105 included Cypriot IIIC Early sherds from Chamber B. Other sherds came from Pit C. 30 sherds from these two deposits have been analysed as part of our NAA project.

Teratsoudhia Tomb 105 Chamber B

1 Deep bowl FS 285. Orange fired buff; yellow-buff slip, matt shaded-brown paint on exterior, red-brown to black on interior. D.rim 14. FM 50, antithetic spiral, monochrome interior. Karageorghis 1990, Pl. A.1. CypG. (Fig. 18).

2 Deep bowl FS 285. White-buff; matt dark brown to black paint. D.rim 15. FM 50, antithetic spiral, monochrome interior. Karageorghis 1990, Pl. A.2. CypG. (Fig. 18).

3 Deep bowl FS 285. Orange-buff; deep buff slip, matt red-brown paint. D.rim 16. FM 50, antithetic spiral flanking dot rosette. Karageorghis 1990, Pl. A.3. CypG. (Fig. 18).

4 Deep bowl FS 285. Buff; matt dark brown to black paint. D.rim 16. FM 27, rosette, monochrome interior. Karageorghis 1990, Pl. A.4. Group X080. (Fig. 27).

5 Deep bowl FS 285. Orange-buff; cream slip, matt red-orange paint. D.rim 19. FM 75, panelled with FM 50, antithetic spiral. Karageorghis 1990, Pl. A.5. CypG. (Fig. 18).

6 Deep bowl FS 285. Buff; matt orange paint. FM 75, panelled, monochrome interior. Karageorghis 1990, Pl. A.6. CypG. (Fig. 18).

7 Deep bowl FS 285. Buff with large brown and white inclusions; greenish slip, matt black to brown paint. FM 73, lozenge, monochrome interior. Karageorghis 1990, Pl. A.7. CypG. (Fig. 18).

8 Deep bowl FS 285. Same as Sample 2? FM 50, antithetic spiral, monochrome interior. Karageorghis 1990, Pl. A.8. CypG. (Fig. 18).

9 Deep bowl FS 285. Buff fired orange; buff slip, matt orange paint. FM 75, panelled, monochrome interior. Karageorghis 1990, Pl. A.9. CypG. (Fig. 18).

10 Krater FS 282. Orange; matt orange paint. D.rim 29. FM 75, panelled with edge of ? fringed stems/palm tree. Karageorghis 1990, Pl. A.10. CypS. (Fig. 21).

11 Krater FS 282. White; matt shaded-brown paint. FM 51, stemmed spiral, monochrome interior. Karageorghis 1990, Pl. A.11. CypG. (Inverted in publication). (Fig. 18).

12 Krater FS 282. Buff; matt shaded-brown paint. Spiral, monochrome interior. Karageorghis 1990, Pl. A.12. CypG. (Fig. 18).

13 Krater FS 282. Buff; matt shaded-brown paint; interior left rough. FM 46, running spiral. Karageorghis 1990, Pl. A.13. CypS. (Inverted in publication). (Fig. 21).

14 Krater FS 282. Buff with many small white grits fired orange; pale cream slip, matt shaded-brown paint; interior left rough. FM 75, panelled. Karageorghis 1990, Pl. A.14. CypS. (Fig. 21).

15 Collar-necked jar/krater. Semi-coarse buff; matt orange-brown paint. Spiral. Karageorghis 1990, Pl. A.15. CypS. (Fig. 21).

16 ?Jug, narrow-necked FS 121. Buff; fugitive brown paint. FM 42, triangular patch. Karageorghis 1990, Pl. A.16. MYBE. (Fig. 23).

17 Closed shape. Buff; white slip, matt brown-orange paint. FM 42, joining semi-circles. Karageorghis 1990, Pl. A.17. CypS. (Fig. 21).

18 ?Collar-necked jar FS 63. Semi-coarse greenish-buff; white slip, matt brown-orange paint. FM 75, panelled. Karageorghis 1990, Pl. A,18. CypS. (Fig. 21).

19 ?Jug, narrow necked FS 121. Ridge at base of neck. Semi-coarse buff; matt brown-orange

[190] Iakovou 2012, 62–63.

[191] Karageorghis 1990.

paint. Spiral. Karageorghis 1990, Pl. A.19. CypT. (Fig. 15).

20 Deep bowl FS 285. Grey with small white grits fired deep buff; buff slip, matt shaded-brown paint; interior left rough. Spiral. Karageorghis 1990, Pl. A.20. Single. (Fig. 30).

21 Closed shape. Orange-pink with grey and white grits; matt brown-orange paint. Spiral. Karageorghis 1990, Pl. A21. Knok. (Fig. 24).

Tomb 105 Pit C

22 Krater FS 281. Rude/Pastoral Style. Buff; white slip, matt black to brown paint. D.rim 26. FM 7, bird. Karageorghis 1990, Pl. IV.Pit C (v). CypS. (Fig. 21).

23 Krater FS 281. Rude/Pastoral Style. Buff fired pale orange; white slip, matt black to brown paint. D.rim 31. FM 75, panelled with edge of handle splash. Karageorghis 1990, Pl. IV Pit C (vi). CypG. (Fig. 18).

24 Krater FS 281. Rude/Pastoral Style. Buff; matt dark brown paint. D.rim 28. FM 3, bull. Karageorghis 1990, Pl. IV Pit C (iii). CypG. (Fig. 18).

25 Krater FS 281. Rude/Pastoral Style. Salmon fired buff; white slip, matt black paint. Tree with muzzle of quadruped to left of it. Karageorghis 1990, Pl. IV Pit C (iv). CypG. (Fig. 18).

Tomb 105 Unstratified Sherds

26 Piriform jar FS 36. Buff fired salmon; yellow-buff slip, matt to lustrous black paint. FM 42, joining semi-circles with dot fill. CypG. (Fig. 18).

27 Deep bowl FS 285. Orange; matt orange paint. D.base 5. Linear. CypF assoc. (Fig. 16).

28 Bowl Type 6–9. Greenish with many brown grits; matt yellow-green paint. D.base 5. Linear, spiral/concentric circles on interior base. CypS. (Fig. 21).

29 Deep bowl FS 285. Buff; matt black paint. D.rim 12. Linear, monochrome interior. CypS. (Fig. 21).

30 Deep bowl FS 285. White; matt black to brown paint. Linear, monochrome interior. X080. (Fig. 27).

**Apliki: Karamallos**

This mining site is situated in the north-west of the island on the foothills of the Troodos mountains on the east bank of the river Marathasa. Primary processing of copper was carried out here. We were allowed to sample 21 sherds from the site.

House A Room 1

1 Stirrup jar FS 174. Buff; matt dark brown paint. D.false mouth 2.6, H.ex. 4.4. FM 43, semi-circles on shoulder, zone of blobs below shoulder, loop joining false neck and spout, ring round handle base, decoration on false mouth not extant. From packing of large jars. IV 4. Taylor 1952, pl. 28b.7, Taylor and Kling 2007, no. 570. Single. (Fig. 28).

2 Deep bowl FS 285. Orange-buff; buff slip, semi-lustrous brown-orange paint. D.rim 14. FM 75, panelled with spiral or multiple stem, monochrome interior. From packing of large jars. IV 5. Taylor 1952, pl. 28a.4, Taylor and Kling 2007, no. 529. CypG. (Fig. 19).

3 Bowl Type 6. Buff; white slip, matt black to brown paint. D.rim 19. Linear. From packing of large jars. IV 3. Taylor 1952, pl. 28b.3, Taylor and Kling 2007, no. 521. CypS. (Fig. 21).

4 Bowl FS 296. Levanto-Helladic. Buff fired orange; buff slip, lustrous brown-orange paint. Linear, bars across rim. From packing of large jars. IV 3. Taylor 1952, pl. 28a.3, Taylor and Kling 2007, no. 525. MYBE. (Fig. 23).

5 Jug FS 110/116. Edge of handle stub on right edge of sherd. Orange-buff; buff slip, worn matt shaded-brown paint. FM 51, stemmed spiral. From packing of large jars. IV 3. Taylor 1952, pl. 28b.6, Taylor and Kling 2007, no. 558. CypJ. (Fig. 12).

House A Room 2

6 Jug FS 116. Levanto-Helladic. Buff fired orange; matt red-orange paint. D.rim 6.1. Linear. AK IV 2 + AK Rm 2 VII 9a. Room Inv. 27. Taylor 1952, fig. 5.3, Taylor and Kling 2007, no. 564. Single. (Fig. 28).

7 Strainer jug FS 155. Greenish-white with brown grits and some white grits; matt dark brown paint. FM 75, panelled with FM 3, bull. VII 9. Room Inv. 33. Taylor 1952, 157 no. 33, Taylor and Kling 2007, no. 577. Single. (Fig. 28).

8 Cup, carinated FS 223. Levanto-Helladic. Burnt. D.rim 9. Linear. VII 6. Room Inv. 43.

Taylor 1952, fig. 5.5, Taylor and Kling 2007, no. 508. CypG. (Fig. 19).

9 Deep bowl FS 285. Buff fired orange-buff; lustrous orange-brown paint on exterior, maroon on interior. Linear, monochrome interior. VII 8. Room Inv. 35. Taylor 1952, pl. 28a.5, Taylor and Kling 2007, no. 531. CypG. (Fig. 19).

10 Bowl Type 5 variant. Buff fired orange; matt orange paint. Monochrome. VII 9a. Room Inv.28. Taylor and Kling 2007, no. 519. CypI. (Fig. 6).

House A Room 3

11 Bowl FS 296. Levanto-Helladic. Rust; buff slip, matt orange paint. D.base 5.4. Linear. Room Inv. 31. Taylor 1952, fig. 5.18, Taylor and Kling 2007, no. 538. Pair 200. (Fig. 25).

12 Bowl FS 210. Levanto-Helladic. Burnt; matt red-brown paint. D.rim 14. Linear. VII 2. Room Inv. 11. Taylor 1952, fig. 5.13, Taylor and Kling 2007, no. 522. Pair 200. (Fig. 25).

House A Room 4

13 Bowl Type 13. Buff fired rust; orange-buff slip, matt brown-orange paint. D.rim 17. Linear. 2 Room Inv. 20. Taylor 1952, fig. 5.19, Taylor and Kling 2007, no. 537. Pair 151. (Fig. 25).

House A Room 7

14 Stirrup jar FS 174. Orange; buff slip, matt red paint. FM 57, net pattern. Rm7 4. Taylor and Kling 2007, no. 581. Pair 151. (Fig. 25).

15 Krater, amphoroid. Orange; orange-buff slip, matt red-orange paint. D.max.c. 36. FM 51, stemmed spirals attached to net triglyph. 2 4a. Taylor 1952, fig. 7.6, Taylor and Kling 2007, nos. 578–80. Single. (Fig. 28).

House BI Room 3

16 Cup FS 223. Levanto-Helladic. Orange-buff; matt black to brown paint. D.rim 7, D.base 3, H. 4.3. Linear. T.T. Ex Pit (2) 4. Taylor 1952, fig. 10.2, Taylor and Kling 2007, no. 509. Single. (Fig. 28).

17 Cup FS 232. Levanto-Helladic. Buff; matt orange-brown paint. D.rim 9, D.base 3.8, H. 3.3. Linear. T.T.A. Ex Pit (2) 3. Taylor 1952, fig. 10.3, Taylor and Kling 2007, no. 510. Single. (Fig. 28).

18 Pedestal bowl FS 310. Levanto-Helladic. Buff fired pale orange; buff slip, matt brown paint. D.rim 20. FM 42, triangular patch with dot fill. T.T.A. Ex Pit 4. Taylor 1952, fig. 10.8, Taylor and Kling 2007, no. 555. Single. (Fig. 28).

House BIII Pit West of House

19 Bowl FS 210. Levanto-Helladic. White; buff slip, fugitive matt orange paint. D.rim 11, D. base 4, H. 3.6. Linear. T.T.C. Ex Pit Layer 4. Taylor 1952, fig. 11.10, Taylor and Kling 2007, no. 515. Single. (Fig. 28).

Area C

20 Krater FS 281. Rust; buff slip, matt brown paint. FM 75, panelled with semi-circles. Lower shaft +. Single. Part of Taylor 1952, pl. 28b.5 (Fig. 28).

House A Room 1

21 Goblet/ kylix. Orange; white slip on exterior, orange slip on interior fading into buff as a result of firing, matt dark brown paint. D.rim 14, H.ex. 6.9. FM 42, triangular patch with dot fill. From packing of large jars. IV 2, 3, 4, 5. Taylor 1952, pl. 28a.6, Taylor and Kling 2007, nos. 552, 554. Single. (Fig. 28).

### Cypriot Exports in the Near East

Exports from Cyprus (CypJ) found in the Near East and local copies made in unlocated Palestinian workshops, which have not been published in detail elsewhere, are catalogued below.

**Tell Afula**

1 Alabastron straight-sided, Simple Style. FS 94. Buff; matt to semi-lustrous red-orange paint. D.rim 4, D.base 5.4, D.max. 7.9, H. 7.1–4. Linear. Rockefeller 37.668. Sukenik 1948, pl. XVII.9. CypJ. (Figs. 13, 34).

**Megiddo**

Megi 3 Stirrup jar, Simple Style. FS 173. Buff with very large brown grits; deep buff slip, matt bright red paint. D.max. 8.4, D.spout 2.3, H.ex. 8.4. Linear. Base now missing. T.912B. Rockefeller P3568. Guy and Eng-

BERG 1938, Pl. 124.13. Inv. 34–1864. CypJ. (Figs. 13, 34).

**Tell Dothan**

Stirrup jar. FS 173

1 Buff; cream slip, semi-lustrous orange paint. D.base 4, D.max. 10.2, D.false mouth 2.4, D. spout 2.4, H. 11.3 at handle, 11.1 at spout. FM 42, triangular patch on shoulder, spiral on false mouth. Base of necks unpainted, but band across between spout and false neck linking the triangular patch each side of the spout. P2044. CypJ. (Fig. 13).

2 Simple Style. Buff with traces of burnish on surface; matt to lustrous orange paint. D.base 3.5, D.max. 8.9, D.false mouth 2.2, D.spout 2.5, H. 9.7. Linear, spiral on false mouth. Hollow false neck. Handles missing. P2218. CypJ. (Fig. 13).

3 Simple Style. Buff; matt orange paint. D.base 4.3, D.max. 9.8, D.false mouth 2.4, H. 10.8. Linear, spiral on false mouth. Hollow false neck. Paint splashed from top edge of neck band up neck almost to false mouth on one side. One handle and spout missing. P2522. CypJ. (Fig. 13).

**TELL EL-FA'RAH (S)**

Tomb 936 (Rockefeller)

Fara S1 Stirrup jar, Simple Style. Semi-coarse buff with some white grits, deep buff slip, worn matt red paint. D.base 3.8, D.max. 9.4, D. spout 2.9, H. ex. 11.8. Linear, base of false mouth and spout unpainted, beginning of ? stripe up handle. F 936 64M. Rockefeller 1.6972. NAA Palestine. (Fig. 35).

Tomb 902 (London)

24 Piriform jar FS 36. Levanto-Helladic. Buff; matt red to brown paint. D.rim 6.5, D.base 7, D.max. 18.1, H. 24–24.3. Linear. London E. VI.24/8. MOMMSEN *et al*. 2005, Table 1 Sample 24. CypH now CypJ. (Fig. 14).

26 Stirrup jar, Simple Style. FS173. Buff; matt brown-orange paint. D.base 4, D.max. 9.3, D.false mouth 2.3, H.ex. 7.7. Linear, base of false mouth and spout unpainted, traces of stripe down handle. Hollow false mouth. London E.VI.24/41. MOMMSEN *et al*. 2005, Table 1 Sample 26. CypH, now CypJ. (Figs. 14, 34).

Mycenae/Berbati import

27 Cylindrical jug FS 139, miniature. Levanto-Helladic. Very soft buff; deep buff slip, lustrous streaky brown to orange paint. D.base 5.3, D.max. 8.2, H.ex. 8.4. FM 10A, iris derivative. London E.VI.24/11. MOMMSEN *et al*. 2005, Table 1 Sample 27. MYBE. (Fig. 39).

T.933 (London)

28 Flask FS 186. Buff; matt orange-brown paint. D.rim 2.8, D.max. 8.8 × 5.1, H. 13.3. Concentric circles on body. London E.VI.18/2. MOMMSEN *et al*. 2005, Table 1 Sample 28. Lqan. (Fig. 35).

T.925B (London)

31 Flask FS 186. Buff; matt orange-brown paint, very worn. D.rim 3, D.max. 9.1 × 5.4, H. 13. Concentric circles on body (decoration largely restored on paper). London E.VI.19/1. MOMMSEN *et al*. 2005, Table 1 Sample 31. Single. (Fig. 35).

**Tell el-Ajjul (Gaza)**

Governors Tomb T.419

1 Stirrup jar, Simple Style. Semi-coarse buff, buff slip, matt red to brown paint (mauve). D.base 4.4, D.max. 10.3, D.spout 2.4, H.ex. 10.6. Linear, thin loop connecting base of false mouth and of spout. Rockefeller 33–1521. PETRIE 1933, pl. XI.44. No.G. NAA PalJ. (Fig. 35).

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# HOW MANY PORTERS?

*Vera Vasiljević*

*Abstract*: Members of the Old Kingdom elite were at times represented in their tombs in carrying chairs, transported by varying numbers of porters, from two up to twenty four. More than a dozen porters seems to be unparalleled in both ancient and more recent written and visual sources, including photographs. It will be examined whether and to what extent the representations of the porters of carrying chairs, and especially their number, in the Old Kingdom private tombs represent a reality, a snap-shot of a particular moment, or convey the idea of the event, with all the elements of which the mental image consists, regardless of whether they were all present, employed or visible at the same time or not.

## Introduction

The oldest representations of carrying chairs in private tombs,[1] as well as two records of the item in offering lists[2] from the same context, date from the 4th Dynasty, as does the only actual find of the object.[3] The basic repertoire of the ways in which the carrying chair occurs further on in the Old Kingdom tomb decoration is already present at the time: Nefermaat in a carrying chair is carried by porters, Meresankh III sits in a carrying chair which is lowered, (though not on the ground as it is the case later, but on the boat deck), and her tomb decoration shows a carrying chair in a workshop, and also among the grave goods brought by the attendants. The majority of the Old Kingdom representations of the object are from the 5th and 6th Dynasty, and some forty persons, approximately two thirds of those who had a carrying chair at their disposal in the Old Kingdom, were represented while being carried in it.[4] The data on the blood relationships and titles of the carrying chair owners/users and the chronological distribution of the representations allow us to draw a conclusion, that the carrying chair, originally a prerogative of a king and after that of his descendants, became accessible to a limited number of elite members, not necessarily of royal descent; since the regular or temporary use of the sedan chair being at least in some cases if not always assigned by a king, it retained its value as sign of high social status.[5] The position of the carrying chair scene in tomb decoration, and the written sources show that although the journeys of a high ranking persons in a carrying chair may have been undertaken out of mundane reasons (in order to inspect the agricultural works, building activities in the necropolis including the official's own tomb), some authors

1 Nefermaat (Petrie1892, pl. XXI); Harpur 2001, 67–68, 75, pl. 8a); Meresankh III (Dunham and Simpson 1974, figs. 5, 8).

2 Neferhetephuther (Murray 1905, pl. II); Rahotep (Petrie 1892, pl. XIII; Harpur 2001, 108, fig. 98).

3 The litter belonging to the Queen Hetepheres (Reisner and Smith 1955, 33–34, fig. 34, Pls. 27–28).

4 Four owners are included in the list (Table 1) although the porters of the carrying chair were not or were poorly preserved: Neferseshemre: Sheshi, Kaemnefert, Meru: Tetiseneb and Pepiankh: Hui. The scene from the tomb of Kaemnefert (Saqqara D 23; PM III, 467 (3, n.r.); Simpson 1992, 15–16, fig. 14, pl. E) probably had the porters, but the lower register is not preserved. The porters from the scene of Neferseshemre: Sheshi (PM III, 512 (6 – n.r.); Kanawati and Abder-Raziq 1998, 35–6, pls. 18, 58) are not preserved, but were certainly originally represented (cf. similarly composed and placed scenes of Sehemnefer from Dahshur, Ptahhotep II (Saqqara D 64), Ptahhotep: Tjefu). The traces indicating that Meru: Tetiseneb (PM III, 520(3)) and his sunshade bearer were a part of a carrying chair scene were detected (Lloyd *et al*. 1990, 9, pl. 7), but they were not commented on, nor was the drawing of the traces published. In the tomb of Pepiankh: Hui, in the lower left corner of the carrying chair scene (PM IV, 125 (n.r.); Schenkel und Gomaa 2004, 194ff., pl. 172–173, Beilage 15), in front of the bearer of sandals, the leg of one person, drawn to a larger scale than the figures behind it, is preserved, and it probably belongs to the last porter of the carrying chair or eventually to the supervisor. When it was not clear whether a carrying chair was carried or placed on the ground, the scene was not included in the analysis: e. g. the lower part of the scene representing Metjetji sitting under the canopy is not preserved, and it is not certain whether it was intended to show the owner and the chair when carried or not (Kaplony 1976, 21–22).

5 Rössler-Köhler 1984, 334.

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recognize in it an underlying "mortuary metaphor" but most of those who analysed the scene agree that the emphasis on the status[6] was not only present, but had been of primary importance when representing the journey. The representations of the entourage, consisting of members of the family and household, personal attendants, pets and their keepers, sunshade carriers etc., are often part of the scene and they contributed to the image of social and economic status and power, especially when the size of the entourage was considerable. The number of porters of the carrying chair can also considerably vary from scene to scene, fluctuating from two to over twenty. Observing that the number of porters often exceeds the number necessary to carry the palanquin and the person in it, A.M. Roth explained that the intention may be to display the economic power, a prerequisite to engage so many carriers.[7] This explanation of the reasons to represent high numbers of porters fully accepted, the question remains as to whether the simultaneous use of numerous porters is suitable for a reasonably fast journey in daily life,[8] i.e. does a scene with numerous porters represents a reality, a snap-shot of a particular moment, or it primarily conveys the idea of the event, with all the elements the mental image of it consists of included (regardless of whether they were all present, employed or visible at the same time or not), whereby the details which particularly contribute to the image of power were stressed or exaggerated. The iconographic and written data on the porters of carrying chairs will be examined focusing on the Old Kingdom scenes in the private tombs, and as the practical issues of using human power for carrying chairs are not exclusively Egyptian, some non-Egyptian ancient and more recent written and visual sources will be taken into account. Since the means of transport of a culture correlate with the physical context of their usage, few remarks on roads and travel by land will be made too.

## A note on land travel and roads in the Nile Valley

Though the boats are almost an epitome of the transportation in ancient Egypt, some routes, within the Nile Valley and beyond it, were always to be made by land.[9] For the officials of the higher class the boats were probably the primary choice for the travel on longer distances,[10] but their private interests and official duties could have called for occasional,[11] and presumably also regular, if not daily, shorter journeys over the land. Transportation in a carrying chair meant a journey with reasonable comfort and little effort for those officials who had it at their disposal. If the visits to the building site of an official's own tomb and inspection of agricultural activities represented by the carrying chair scenes correspond to the activities on this world and not exclusively to his needs in the Afterlife, the question of the distances to be travelled arises.[12] Unfortunately, there are no data informing us on the stretches between the home and the estates of an official. As for the visits to the tomb, the area of Memphis and its necropolises, from Dahshur to Giza, wherefrom the majority of the Old Kingdom scenes come, stretches along the Nile for approximately 25 kilometres.[13]

A number of ancient Egyptian roads leading to or in the area of the oases, mines, quarries and building sites has been identified and the archaeology of desert roads became a dynamic field of research.[14] During the last decade, new studies on the roads and transport over land in ancient Egypt included the data on the existence of road network within the Nile Valley before the Roman period, and the reasons for its use for military, economic and private needs,[15] as well as the typology of the roads and paths, and the means of the transport.[16] The two main roads running from north to the south along the edge of cultivated land were presumably connected by smaller roads with settle-

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6 Funerary interpretation: Altenmüller 1984–1985; Roth 2006, 248. Representation of status: Goedicke 1959, 9; Roth 2006, 247–248; Van Walsem 2006, 301–303 (including the critique of the funerary interpretation).

7 Roth 2006, 248.

8 There is no indication that any of the Old Kingdom carrying chair scenes were meant to represent a participation of the elite member in a religious festival.

9 For the short discussion of the issue, see Darnell and Darnell 2002, 1–2.

10 Graeff 2004, 193, n. 1.

11 On the possible royal ceremonial visits – in a carrying chair – to the pyramid building sites, and similar ones by a vizier: Roth 1994, 238.

12 There are no iconographic and visual data on the use of a carrying chair for other travel destinations, and therefore, the question remains open whether or not high officials travelled on foot over the longer distances, eg. to the quarries, mines or oases, as the lower ranking members of the expeditions certainly did.

13 Baines and Málek 2000, map on pp. 166–167 (10 km according to Jeffreys 1999, 588).

14 Riemer and Förster 2013; Darnell and Darnell 2002; Graeff 2004; Aston *et al*. 2000, 18–20.

15 Graeff 2004, 185, 191–193.

16 Köpp 2009a, 31–37; Köpp 2009b, 71–77.

ments within the area of cultivated (and flooded) land. The roads in the Nile Valley itself are less known, especially those from the earlier periods. The tops of the embankments and dikes were suitable for such roads and paths over most of the year, some possibly always, and they are recognized in the sign N 31,[17] and could have been as well used to access the fields from the settlements. The tracing of the roads and paths in the Valley is largely impeded by problems of identification:[18] on the one hand, some of them have been continuously used up to the present time and the solid proofs of their age are meagre or virtually non-existent; on the other hand, the majority was obliterated or stays hidden bellow the silt deposits there where they crossed the arable land, etc. As for the latter, it is assumed, that due to reasons such as the annual flooding of the Nile, the shifting of its river bed, or even the minor changes in size and place of irrigation channels and basins, some paths and roads disappeared or were abandoned and new trails were made.

The main and desert roads could have considerable width.[19] The passage in the *Eloquent Peasant* illustrates how narrow some of the paths can be: on one side of the path there was water, on the other a field of barley, and a loin-cloth was sufficient to cover the path and block the way.[20] It can be presumed, that a carrying chair of an official had to be suitable for the use on both wide roads and narrow paths.[21]

The distances to be travelled by foot must have also varied over the seasons, increasing with the receding water level; during the dry season, for many distances the travel by water was inconvenient or impossible. Therefore, beside the economic reasons for the assumption that transport of the troops or of the crop through some parts of the land was not exclusively conducted by ships,[22] the seasonal differences in depth of water and with it in the usability of channels and boats should be taken into account, as they may have affected the private and administrative journeys, which were carried out over the whole year.

## Travelling in a carrying chair

It is likely that during the Old and Middle Kingdom the majority of Egyptian population, including the elite, had to go on foot in order to cover the distances over land.[23] The iconographic and written records show that only a small fraction of the elite owned carrying chairs or had access to them. Most of the ancient Egyptian scenes with carrying chair belong to the members of the Old Kingdom elite –sixty-five individuals, predominantly male,

17 Helck 1986, 1163; Gardiner 1976, 489.

18 On the subject, including the difficulties of identifying the roads, paths and similar: Köpp 2009a, 31; Graeff 2004, 3, n. 4; Aston *et al.* 2000, 18; Partridge 1996, 80.

19 The width was closely related with the function of the roads. The broadest roads were made for transport of heavy stones (Graeff 2004, 49, 119–120), eg. the 10 m wide Ramesside road on the route Alexandria – Abousir was probably used for military needs (Graeff 2004, 18–19, 26); Dahshur desert road, ca 25 m wide, in Dynasty 25–26, was possibly used for transport of stone already during the Old Kingdom (Graeff 2004, 49–50), whereas 4 m, the width of Fayum road, would represent the average width of ancient Egyptian desert roads (Graeff 2004, 50, n. 2, 95); the road leading into the Valley of the Kings, intended for the funerary processions, was 4–6 m wide (Graeff 2004, 91). On the subject also: Köpp 2009a, 32–36.

20 Gardiner 1923, 7–8; Parkinson 1997, 59.

21 H. Köpp considers the paths unsuitable for the carrying chairs, suggesting that a 2 m wide walking surface is necessary for a carrying chair and its porters; except for the dimensions of the litter of Hetephres, other parameters used for the calculation are not named (Köpp 2009b, 71–73). Different calculations are also plausible: if the width of the same litter (53 cm: Reisner and Smith 1955, fig. 34) with ca 47 cm for average male shoulder width are taken as a starting point, the necessary path width would be 1.50 m (when a row of porters walk on each side of the carrying chair, holding the poles in hands at the height of their hips) or even less (if the poles rested on their shoulders, probably ca 1.30 m); if the porters walked in one row between the poles, a path wide enough for one person to walk on it, i.e. for a pedestrian would be suitable for the carrying chair too (especially in open spaces, in which there are no objects that demand to manoeuvre it because of the length).

22 Graeff 2004, 198–199.

23 There is no iconographic evidence of donkeys being ridden by the Egyptians during the Old Kingdom (Brunner-Traut 1977, 28; Partridge 1996, 97–98). It was recently suggested that saddled donkeys were represented in the Old Kingdom tombs – those of Kahief, Neferiretenef and Methethi (Köpp–Junk 2013, 7), but it is probable that the objects are to be identified as empty, rolled sacks fastened to the donkeys' backs to be brought to the field during the harvest, and which were later filled and carried away by donkeys, as the well preserved details (especially the visible "ears" of the rolled sack) in the scene in tomb of Neferiretenef show (Van de Walle 1978, pl. 12; on the "couffin classique", and on an example of opened empty sack: Vandier 1978, 129, 132).

were shown in a carrying chair, being carried or lowered to the ground, or the item was being brought empty, and in some instances brought with other grave goods.[24] Five Old Kingdom women are attested as owners of carrying chairs,[25] but only one of them, Watetkhether, king's daughter and the wife of Mereruka, is represented being carried in her litter.[26] The only find of a carrying chair dates also from the period and belonged to the Queen Hetepheres, mother of Khufu.[27] Eight private owners of such human-powered transport vehicle, all male, are dated to the Middle Kingdom,[28] and after that there are no representations of carrying chairs owned by the private persons, however high their status was. A relatively small number of scenes showing a king in a carrying chair is preserved, ranging from the Old Kingdom to the Ptolemaic Period.[29]

The decoration of private tombs in the Old Kingdom had multiple functions to fulfil, and some individual scenes have likewise multiple meanings. Such a scene is the one showing a tomb owner in a carrying chair.[30] Depending on the position of the scene in the decoration of a tomb, its orientation and inscriptions, as well as on the content of the scenes placed close to it, the carrying chair scene may be seen as closely connected to funerary activities like dragging the statues and slaughtering the cattle are, or as an inspection of agricultural activities or of the work on the official's own tomb. Whether the funerary or mundane meaning or their interconnection is perceived as crucial for the theme, all the examples of the scenes have one thing in common: they are a statement on the high status of the person represented.[31] What is more, the self-presentation of the Old Kingdom elite members in the decoration of their tombs found its best visual expression in these scenes. The tomb owner, or in some cases his close relative,[32] was shown sitting in the sedan chair, sometimes as if he is sitting on it, in order to avoid overlapping of his body with armrest.[33] The litter is usually being transported by means of human power, or, in few cases, fastened on the back of pair of donkeys.[34] The carrying chair is more often than not equipped with a canopy, and the additional protection from sun is occasionally provided by sunshades held by men running by the sides of the carrying chair. The carrying poles were attached on the underside of the seat/canopy, and though in some cases the carriers hold them at the height of their hips, they generally place the

[24] Empty carrying chairs were brought with other grave goods: Seshathetep – Junker 1934, fig. 31; Ti – Épron and Daumas 1939, pls. 16, 18. The number of individuals is slightly higher, if the carrying chairs named in the offering lists (Neferhetephuther – Murray 1905, Pl. 1; Rahotep – Petrie 1892, pl. 13; Senenu – Brovarski 1996, 128, 134; Seshemnefer I – Kanawati 2001, pls. 41, 43), those mentioned in the autobiographies (see below), as well as those represented in workshops or in magazines, together with other tomb goods are taken into account. Workshops: Meresankh III – Dunham and Simpson 1974, fig. 5; Kaemrehu – Borchardt 1937, pl. 48; Ibi – Davies 1902a, pl. 14; Djaw – Davies 1902b, pl. 10; Tepemankh – London UC14309; possibly also Kaihep: Tjeti iqer – Kanawati 1980, fig. 9. Magazines: Sekhentiu and Neferseshemptah, a carrying chair with a canopy – Moussa and Junge 1975, Frontispiece, pl. 1; Kaiemankh – Kanawati 2001, pl. 35. Some portable chairs (see Brovarski 1996, 144–146, fig. 9) may have been used as carrying chairs (Épron and Daumas 1939, pls. 16, 18; Moussa and Junge 1975, Frontispiece, pl. 1; Borchardt 1937, pl. 48; Moussa and Altenmüller 1977, pl. 63) if attached to the poles (for the representations of the way the poles were attached, s. Duell 1938, pl. 158; Épron and Daumas 1939, pls. 16). Owner sitting in a carrying chair lowered on the ground: Perneb (PM III, 497), Metjetji (PM III, 647), Idu (Simpson 1976, pl. 25a, fig. 38), Pepiankh Her-ib (PM IV, 255.15), Pepiankh/Iniankh (Schenkel and Gomaa 2004, 113–114, pls. 56–57); probably also Akhetmehu, sitting *on* a chair lowered on the ground (G2375, Giza Archives, photo ID number A5797_NS) – cf. Vasiljević 2012, 398ff., on the identification of the seat as a carrying chair. Empty chair on the ground, prepared for the owner standing nearby: Werirniptah (PM III, 699.2)

[25] On the subject of female owners of carrying chairs: Vasiljević 2012.

[26] Kanawati and Abder-Raziq 2008, pls. 47–49, 69.

[27] Reisner and Smith 1955, 33–34, fig. 34, pls. 27–28.

[28] Beside the five Middle Kingdom carrying chair owners mentioned in Table 1 (end), two persons are shown in a chair placed on the ground: Karenen (model: Quibell 1908, 74–75, pl. 16), and Anonymous (relief: Arnold 2008, 87, pl. 167a). A fragment of a relief showing a carrying chair is found in the tomb of Wahka II (Steckeweh 1936, pl. 12b).

[29] Vandier 1964, 354–363; see also n. 38 below.

[30] Vandier 1964, 328–363; Brovarski 1996, 134–135, n. 104; Roth 1994; Roth 2006; Vasiljević 1995, 56–63; Vasiljević 2012.

[31] Altenmüller 1984–85, 15–30; Roth 2006, 247–248, 253.

[32] In the tomb of Iymery (LG 16, G 6020) it is his father, Shepseskhafankh, who is sitting in a carrying chair (Weeks 1994, 38–9, fig. 32, pl. 16).

[33] Vasiljević 2012, 401–402.

[34] A kind of litter strapped to the donkey's back, with a tomb owner squatting in it: Hassan 1944, fig. 104; Moussa und Altenmüller 1977, Tf. 42, 43; Martin 1979, pl. 33 (90).

poles on their shoulders, thus lifting the traveller above their heads. The scene rarely consists only of the carrying chair, its owner and the bearers; usually, the subordinates, personal attendants, and pets with their keepers accompany the official too. The overall number of the members of such an entourage could mount to several dozens of persons (fig. 1).

Fig 1 Kagemni in his carrying chair (after Wreszinski, Atlas III, Taf. 9)

At least in some cases, the difference in size of the entourage can be explained by the status and/or wealth[35] of the official, but the affordable space in the tomb decoration can also play a role.[36] Just as the number of the other members of the entourage varies, the number of men carrying the palanquin does too. The higher numbers of bearers enhance the impression of the official's high status already created by the carrying chair itself. The size of a carrying chair, including a canopy, seems to be of little influence on the number of represented bearers – there can be almost any number of them ranging from twenty-four to six, even four; the number of porters for a carrying chair without a canopy ranges from two to twelve (see Table 2).[37] If the number of represented porters is taken on the face value, the varying number is perplexing. The questions arise: does the different number of porters reflect different weight to be carried, how many porters were sufficient to carry a palanquin and its occupant, and to what extent this segment of the representations, and with it the scene itself, corresponded to the reality? The manner the porters and the carrying chair were shown in the scenes from the private tombs will be analysed, and some aspects of the royal representations will be commented on too. Both visual and written data will be taken into account, and they will be reconsidered in the light of some of the abundant non-Egyptian data of the later date on the way of transportation.

## The number of porters of private carrying chairs – iconographic data

The weight to be carried is the one of the chair itself and its occupant. Usually only one person sits in the chair, the only Old Kingdom solid exceptions are from the tomb of Mereruka.[38] Watetkhether is sitting with her son Meryteti at

[35] Roth 2006, 248: economic power.

[36] It is especially noticeable with scenes decorating the false doors: in the tombs of Seshemnefer from Dahshur, and the Saqqara tombs of Ptahhotep II: Tefi, Ptahhotep: Tefu and Neferseshemre: Sheshi, the entourage is reduced to porters. Somewhat different is the case of Seneb: the whole decoration of the tomb is concentrated in the offering niche, and the scene is "condensed", so that beside the porters a sunshade bearer and a personal attendant are shown too.

[37] The main bibliographic data for the scenes discussed are part of the Table 1.

[38] Room B5 (Watetkhether with her son), and Room C1 (Meryteti with his wife?): Kanawati and Abder-Raziq 2008, pls. 47–49, 69; Kanawati and Abder-Raziq 2004, 27f., pls. 10, 48; Nims 1938, 642, n. 25. Although two persons are represented standing within the canopy of Pepi-ankh Heny-kem who is sitting under it (Blackman and Apted 1953: Pl. 31), they were actually attendants striding at the sides of the palanquin. A.M. Roth considered the possibility that the wife or a child of Kaemnofret were shown with him inside the canopy (Roth 2006, 250). The Middle Kingdom model shows Karenen and his wife sitting in the carrying chair placed on the ground (Quibell 1908, 74f, pl. 16; Smith 1946, 103), but it is uncertain whether the intention was to clearly connect the wife with her husband and distinguish her from the musicians surrounding them or to show that they were also carried together.

The representations belonging to the royal and ritual sphere are out of the scope of the paper, but some examples with more than one figure in a carrying chair will be mentioned: The only example of a king and a queen in one carrying chair is the one of Akhenaten and Nefertiti (Vandier 1964, 359f., fig. 181). The mummy-form figures sitting in a litter with an arched roof occur in the context of Heb-Sed, and among those dating from the formative period of the state and from the Old Kingdom at least some may have represented statues, not living beings (Kaiser 1983, 273–274, 289–290). In some cases, it seems that two

Table 1: Number of porters: first number – number of the porters in front of the palanquin; when one number – there is a continuous row of bearers; when the number is multiplied, the bearers are represented as a double row; square brackets – unknown whether there was continuos row or two groups of porters; if not all porters of a group are preserved, the number of the preserved ones with an added „*x*" is in brackets.

| Old Kingdom | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Tomb owner** | **Cemetery / tomb number** | **Reference** | **Date** | **P - number of porters** np – not preserved **F – a foreman present**, (t) touches a pole or (t*) chair, (L) holding a loop of rope | | **Details**: canopy (C); empty chair (E); occupant sitting low (ls) or high (hs), chair carried on shoulders (s) or hands (h) | | | | | **Porters' dress**: B – Belt-sash O – ordinary kilt np – not preserved W – women's dress | |
| | | | | | P | F | C / E | ls | hs | s | h | B | O |
| 1 | **Nefermaat** | Maidum 16 | PM IV, 93; Harpur 2001, 67–8, 186–7, fig. 77, pl. 8a. | IV.1E-M | *x*+3 | | | | hs | | h | | O? |
| 2 | **Iymery** | Giza / LG 16 G6020 | PM III, 171(4); Weeks 1994, 38–9, fig. 32, pl. 16. *Shepseskafankh, father of Iymery, in palanquin* | V.6 | 3+3 | F/t/L | C | ls | | s | | B | |
| 3 | **Ptahshepses** | Abusir | a) PM III, 341(1); Verner 1986, 98–104, photos 90–7, pls. 53–55.<br>b) Vachala 2004, 86 [E296 (1974)]. | V.6–7 | a) 8+9<br>b) [1+*x*] | F/t/L | C | ls | | s<br>s | | a) B<br>b) B | |
| 4 | **Niankhkhnum and Khnumhotep)** | Saqqara | PM III, 643(18); Moussa and Altenmüller 1977, 129–30, Taf. 60.<br>*Niankhkhnum in palanquin* | V.6L-7 | 3+3 | F/t | C | ls | | s | | B | |
| 5 | **Itisen** | Giza G 8410 | PM III, 252(2). | V.6–8? | 2+3 | | C | ls | | s | | *B*? or | *O?* |
| 6 | **Seshemnefer** | Dahshur No 1 | PM III, 891. | V.6–9? | 3 × 2 | | C | | hs | s | | O | |
| 7 | **Ti** | Saqqara D 22 | PM III,470 (6–7). | V.7-8E | 5+5 | | C | ls | | s | | B | |
| 8 | **Kaemnefert** | Saqqara D 23 | PM III,467 (3 n.r.) Simpson 1992, 15–16, fig. 14, pl. E. | V.7-9E | np | | C | | | (s) | | np | |
| 9 | **Rashepses** | Saqqara LS 16 S902 | PM III, 496 (13) unpublished | V.8M | unpublished | | | | | | | | |
| 10 | **Senedjemib : Inti** | Giza LG 27 G 2370 | a) PM III 85 (3); Brovarski 2001, 46–7, pl. 25a, fig. 40<br>b) PM III n.r.; Brovarski 2001, 6, pl. 30, fig. 51 | V.8M-L | a) 6+7<br>b) 4+4 | | a) C<br>b) np | | hs | s | | a) *B*? or | *O?* |
| 11 | **Neferkhuwi** | Giza G 2098 | PM III, n.r.; Roth 1995, 145–6, pl. 191. | V.8–9 | (3+*x*)+5 | F/t | C | ls | | s | | B | |
| 12 | **Nimaetre** | Giza G 8900 | PM III, 283(2) | V.9 | 6+6 or (6 × 2)+(6 × 2)? | | C | ls | | s | | B | |
| 13 | **Ankhmare** | Giza G 7837 G 7843 | PM III, 206(6); Simpson 1979, 494–5, fig. 3. | V.9 | 7+7 | | C | ls | | s | | B | |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | **Seneb** | Giza | PM III, 102 (3,e) | V.9? | 1+1 | | | | hs | s | | | O |
| 15 | **Ptahhotep [II] : Tjefi** | Saqqara D 64 | PM III, 603(20) | V.9M-L | 4 | | | | hs | s | | | O |
| 16 | **Ptahhotep : Tjefu** | Saqqara | PM III, 605 (south false door, scene not mentioned) | V.9L | 4 | | (C) | | | s | | | O |
| 17 | **Kagemni** | Saqqara LS 10 | PM III, 523(22) | VI.1E-M | (5 × 2)+(5 × 2) | F/t | C | ls | | s | | | O |
| 18 | **Neferseshemre: Sheshi** | Saqqara | PM III, 512 (6 - n.r.); Kanawati and Abder-Raziq 1998, 35–6, pls. 18, 58. | VI.1M | Not preserved | | C | | | | | ? (np) | |
| 19 | **Sabu: Ibebi** | Saqqara E 1, 2 | PM III, 460(3); Khadragy 2005, fig 5. | VI.1M? | 5+5 | F/t (2?) | C | | hs | s | | B | |
| 20 | **Khnumenti** | Giza G 2374 | PM III,87(n.r.) Brovarski 2001, 120–1, pl. 91, fig. 86. | VI.1 | 10 × 2 | | C | | hs | s | | B | |
| 21 | **Hetepniptah** | Giza / LG 25 G 2430 | PM III, 94 (2); Altenmüller 1981, Abb. 2. | VI.1 | 9+7 | | | | | s | | | O ? |
| 22 | **Seshemnefer-tjeti : Tjeti** | Giza | PM III, 227. | VI.1? | (*x*+4)+5 | | C | ls | | s | | B | |
| 23 | **In-snefru-ishtef** | Dahshur No 2 | PM III, 891. | VI.1? | 12 | F/t | (C) | ls | | s | | B | |
| 24 | **Nikauisesi** | Saqqara | PM III n.r.; Kanawati and Abder-Raziq 2000, 44, pls. 24, 25 [a], 55. | VI.1L-2E | 5+4 | F/t | C | ls | | s | | B | |
| 25 | **Hesi** | Saqqara | PM III n.r.; Kanawati and Abder-Raziq 1999, 29–30, pls. 20, 55. | VI.1L-2E | 15 | | C | | | s | | | O |
| 26 | **Seankhuiptah : Hetepniptah** | Saqqara | PM III n.r.; Kanawati and Abder-Raziq 1998, 62, pls. 33, 69, 75–6. | VI.1L-2E | 8 | 1st porter –L | C | ls | | s | | B | |
| 27 | **Mereruka: Meri** | Saqqara | a) PM III, 527(14); Kanawati et al. 2010, pl. 71<br>b) PM III, 529 (33, n.r.); Kanawati et al. 2010, pl. 83a.<br>c) PM III, 532 (74); Kanawati et al. 2011, pl. 73 | VI.1M | a) 7 × 2<br>b) (2 × 1+*x*) only the first pair preserved<br>c) (3 × 2)+(3 × 2) | F/t*<br>F/t/L | a) C / E<br>b)<br>c) | <br><br>ls | | s<br>s<br> | <br><br>h | a) B<br>b) B?<br> | <br><br>c) O |
| 28 | **Watetkhether : Seshseshet** | Saqqara | a) PM III, 535 (94); Kanawati and Abder-Raziq 2008, pl.57a.<br>b) PM III, 535 (108); Kanawati and Abder-Raziq 2008, pl. 69. | VI.1M-L | a) 2+2<br>b) 2+2 | | a) E<br>b) | <br> | <br>hs | <br> | h<br>h | a) W<br>b) W | |
| 29 | **Ankhmahor : Zezi** | Saqqara | PM III, 512–515 (n.r.); Kanawati and Hassan 1997, 70–1, pls. 30 [a], 71 [TNE95: F146]; adjoining fragment, Eisenberg 1992, No. 328 | VI.1L-2E | [3+*x*] | | C (?) | ls | | s | | np | |
| 30 | **Iteti: Shedu** | Deshasha | PM IV, 122 (1–2, wrongly identified as pyramid) | VI.1–2? | 3+*x* | F/t* | C (?) | ls | | s | | B ? | |
| 31 | **Meryre-Merypta-hankh: Nekhebu** | Giza G2381 | PM III 90 (2) | VI.2 | double row, [min 12 (?)] | | C | ls? | | | | B | |
| 32 | **Meru: Tetiseneb** | Saqqara | PM III. 520 (3); Lloyd et al. 1990, 9, pl. 7. | VI.2E-M? | np | | | | | | | | |

| Old Kingdom | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Tomb owner** | **Cemetery / tomb number** | **Reference** | **Date** | **P - number of porters** np – not preserved **F – a foreman present**, (t) touches a pole or (t*) chair, (L) holding a loop of rope | | **Details**: canopy (C); empty chair (E); occupant sitting low (ls) or high (hs), chair carried on shoulders (s) or hands (h) | | | | | **Porters' dress**: B – Belt-sash O – ordinary kilt np – not preserved W – women's dress | |
| | | | | | P | F | C / E | ls | hs | s | h | B | O |
| 33 | **Meryteti : Meri** | Saqqara | a) PM III, 536(115); Kanawati and Abder-Raziq 2004, 26–7, pls. 7 [a, b], 47.<br>b) PM III, 536(116–117) Kanawati and Abder-Raziq 2004, 27–8, pls. 10, 48. | VI.2M-L | a) 12 × 2<br>b) (3 × 2)+(3 × 2) | | a) C<br>b) np | ls<br>ls | | s | h | a) B | b) O |
| 34 | **Ibi** | Deir el-Gebrawi (8) | PM IV, 244 (5–6) | VI.4E | [(*x*+)1] | | C | | | | | np | |
| 35 | **Meryrenefer : Qar** | Giza G 7101 | PM III,185(8); Simpson 1976, 8, pl. xi [b], fig. 27. | VI.4 | 4+6 | | C | ls | | s | | unclear | |
| 36 | **Ipi** | Saqqara | PM III, 671(3) | VI.4? | 7 | F/t | C | | hs | s | | B | |
| 37 | **Djau** | Deir el-Gebrawi (12) | PM IV, 245(9) | VI.4L | (1 × 2)+(1 × 2) | | C | ls | | s | | B | |
| 38 | **Pepyankh : Henykem** | Meir A 2 | PM IV, 247, 249, n.r.; Blackman and Apted 1953, 39–40, pls. xxxi, lix. | VI.4–5 | 6 × 2 | F/t* | | | hs | s | | B | |
| 39 | **Kahep : Tjeti-iqer** | El Hawawish H26 | PM V, 19; Kanawati 1980, 23–4, pl. 9 [left], fig. 13. | VI.5–6 | *x*+ 5(?) | | C | | | s | | B | |
| 40 | **Shepsipumin : Kheni** | El Hawawish H24 | PM V, n.r.; Kanawati 1981, 25–6, pls. 2, 6 [b], figs. 21–2. | VI.6 | 4+4 | F/t* | C | | hs | s | | B | |
| 41 | **Remni** | Saqqara | PM III n.r.; Kanawati 2009, pls. 23, 25, 48. | | (3 × 2)+ (3 × 2) | | | | | s | | | O |
| 42 | **Pepiankh: Hui** | Kom al Ahmar / Sharuna V23 | PM IV, 125 (n.r); Schenkel und Gomaa 2004, 194ff., P.l 172–173, Beilage 15 | Dyn VI | 1(?)+*x* | | C | | | | | ? | |
| ***Middle Kingdom*** | | | | | | | | | | | | | |
| 1 | **Kheti** | Thebes TT 311 | PM I.1, 386–387; Grajetzki 2009, fig. 21g. | Dynasty XI | ? | | C | ls? | | | | | |
| 2 | **Khnumhotep** | Beni Hasan | PM IV, 145(6) | Dynasty XII | 2+2 | | | | hs ? | s | | | O |
| 3 | **Djehutihotep** | Bersheh | PM IV 180 | Dynasty XII | a) 2+2<br>b) 2+2 | | a) E<br>b) E | | | s<br>s | | | O |
| 4 | **NN** | Sedment | Manchester Museum 6596; Tooley 1995, fig. 59. | | 1+1 | | (E) | | | s | | | |
| 5 | **Ny-ankh-Pepi, usurper (originally Itjefy, late OK)** | Hierakonpolis | PM V, 197(2); On ownership & dating, Davies 1999, 18; Davies 2001, 117. | SIP / Dynasty XII | 4+4 | | | | | s | | *B*? or | *O?* |

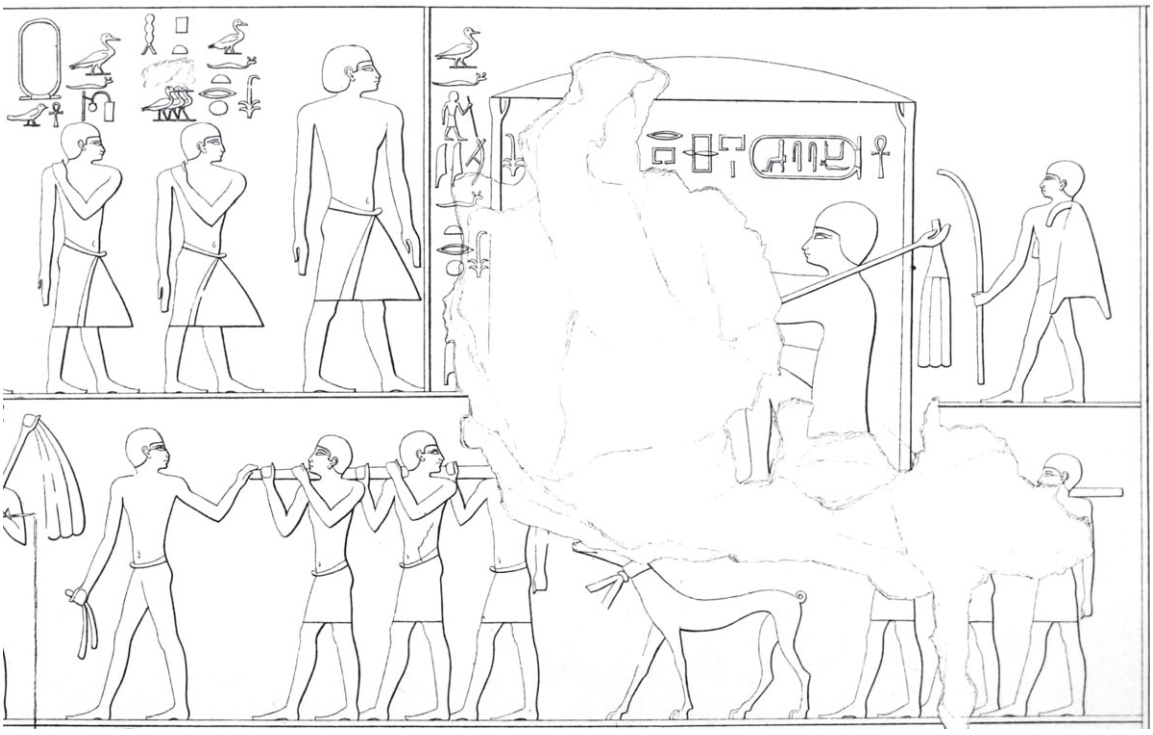

Fig. 2 Shepseskhafankh in a carrying chair, from the tomb of Iymery, G 6020 /LG 16 (after LD. , II. 50 [a])

her feet, but his hair style, the bird he is holding and the lack of the bureaucratic titles in the inscription identifying him show that he is represented as a child. The person accompanying Meryteti in his sedan chair is not identifiable, and therefore its potential weight is unknown.

The number of porters for an occupied carrying chair varies from two (Seneb) to twenty (Kagemni, Khnumenti) or even twenty four (Meryteti, perhaps Nimaatre too). There is an impression, that from the beginning of the Sixth Dynasty, there is a tendency to represent more often more than ten bearers, whereas before that fewer than ten and ten are common. Most of the carrying chairs have a canopy, and the design of its roof varies from simple curved or seldom flat form mounted on tent poles, to an elaborate woodwork forming the sides of the roof, in some cases resting on the tent poles, in other enclosing the upper part of the poles (fig. 2). Though a canopy and especially the woodwork of the roof must have had increased the weight of the carrying chair,[39] they do not seem to correlate with the number of bearers (Table 2). Thus, the palanquin of Meryteti,

or three figures were placed in the same carrying chair. Thus, in the Sun-Temple of Niuserre, one incomplete and one damaged representation of the chair being carried can be recognized as one chair with several figures in it – Kees 1928, 35, Bl. 14 (246); Bissing und Kees 1923, 3, Bl. 3 (7b). Two better-preserved representations from the same temple show that it indeed may be the case: the carrying chairs are without porters, set on the ground (?), each of the figures is represented sitting under their own vaulted roof, whereas the lower, box-like part looks like as if one carrying chair is meant (Bissing und Kees 1923, 7, Bl. 18 (44d), 21 (50a). As for the earlier examples, the figurine from Tell el Farkha, dated to Dynasty 0/early First dynasty, represents two persons, identified as a woman and child, in a litter (Ciałowicz 2011, 57–59, fig. 6.5; Ciałowicz 2009, 8, pl. VI). On the obverse of the palette fragment from San Antonio, in front of the male figure shown seated within a carrying chair with an arched roof; the figure in front of it, identified as a female, may be sitting on the ground (Scott 2007, 344ff., fig. 1) but as the short feet of the carrying chair are under the line she is sitting on, this may have been the open part of the carrying chair. Two figures, each in its own litter (without a roof) and set beside each other, are represented on the Scorpion's macehead (Quibell 1900, pl. 25; Emery 1984, fig. 3) and on the wooden label of Djer, from the tomb S 3035, attributed to Hemaka (Emery 1984, 59, fig. 21; for the more recent discussion on the ownership of the tomb: Morris 2007, 182–183, 186–188).

[39] Vandier 1964, 343.

Table 2. Overview of the number of porters in carrying-chair scenes. (? – indicates tentative number of porters; cursive – alternative possibilities; capital X stands for the porters carrying a chair with a canopy)

| Old Kingdom | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 13 | 14 | 15 | 16 | 17 | 20 | 24 |
| 1 | OK 1 | | | | x? | | | | | | | | | | | | |
| 2 | OK 2 | | | | X | | | | | | | | | | | | |
| 3 | OK 3a | | | | | | | | | | | | | | X | | |
| 4 | OK 4 | | | | X | | | | | | | | | | | | |
| 5 | OK 5 | | | X | | | | | | | | | | | | | |
| 6 | OK 6 | | | | X | | | | | | | | | | | | |
| 7 | OK 7 | | | | | | | | X | | | | | | | | |
| 8 | OK 10 a | | | | | | | | | | X | | | | | | |
| 9 | OK 10 b | | | | | | x | | | | | | | | | | |
| 10 | OK 11 | | | | | | | | X? | | | | | | | | |
| 11 | OK 12 | | | | | | | | | *X* | | | | | | | *or X* |
| 12 | OK 13 | | | | | | | | | | | X | | | | | |
| 13 | OK 14 | x | | | | | | | | | | | | | | | |
| 14 | OK 15 | | x | | | | | | | | | | | | | | |
| 15 | OK 16 | | x | | | | | | | | | | | | | | |
| 16 | OK 17 | | | | | | | | | | | | | | | X | |
| 17 | OK 19 | | | | | | | | X | | | | | | | | |
| 18 | OK 20 | | | | | | | | | | | | | | | X | |
| 19 | OK 21 | | | | | | | | | | | | | x | | | |
| 20 | OK 22 | | | | | | | | X? | | | | | | | | |
| 21 | OK 23 | | | | | | | | | X | | | | | | | |
| 22 | OK 24 | | | | | | | X | | | | | | | | | |
| 23 | OK 25 | | | | | | | | | | | | X | | | | |
| 24 | OK 26 | | | | | | X | | | | | | | | | | |
| 25 | OK 27a | | | | | | | | | | | X | | | | | |
| 26 | OK 27c | | | | | | | | | x | | | | | | | |
| 27 | OK 28a | | x | | | | | | | | | | | | | | |
| 28 | OK 28b | | x | | | | | | | | | | | | | | |
| 29 | OK 30 | | | | *X* | | *or X* | | | | | | | | | | |
| 30 | OK 31 | | | | | | | | | X+ | | | | | | | |
| 31 | OK 33a | | | | | | | | | | | | | | | | X |
| 32 | OK 33b | | | | | | | | | x | | | | | | | |
| 33 | OK 35 | | | | | | | | X | | | | | | | | |
| 34 | OK 36 | | | | | X | | | | | | | | | | | |
| 35 | OK 37 | | X | | | | | | | | | | | | | | |
| 36 | OK 38 | | | | | | | | | x | | | | | | | |
| 37 | OK 39 | | | | | | | | X? | | | | | | | | |
| 38 | OK 40 | | | | | | X | | | | | | | | | | |
| 39 | OK 41 | | | | | | | | | *x/X* | | | | | | | |
| Middle Kingdom | | | | | | | | | | | | | | | | | |
| 1 | MK 2 | | x | | | | | | | | | | | | | | |
| 2 | MK 3a | | x | | | | | | | | | | | | | | |
| 3 | MK3b | | x | | | | | | | | | | | | | | |
| 4 | MK 4 | x | | | | | | | | | | | | | | | |
| 5 | MK 5 | | | | | | x | | | | | | | | | | |

furnished with an elaborate woodwork canopy, is carried by twenty four bearers, the one of Pepi-ankh Heny-kem by twelve bearers; Ipi and Shep-sipumin: Kheni needed eight and seven men respectively to carry them,[40] whereas Djau had merely four porters for the similar task. And the litter in which Watetkhether with her son were sitting was carried by just four female attendants.

An occupied carrying chair is usually represented on the shoulders of bearers. There are four

[40] Kahep: Tjeti iqer probably had ten bearers.

exceptions, in two Old Kingdom tombs, showing the bearers that hold the poles at the height of their hips. The one belonging to Nefermaat is at the same time the earliest example of a private carrying chair. Other three are from the family tomb of Mereruka, representing, Mereruka, Watetkhether, and Meryteti (scene OK 33b) respectively. Only one carrying chair out of these four, the Meryteti's, may have had a canopy.[41] The only attested further example of the occupied chair without a canopy is the one of Seneb, but it is carried on the shoulders of the bearers.

The representations of the porters of carrying chairs are attested in the decoration of two Middle Kingdom private tombs, and one model was found too. None of these has a canopy, and the poles are attached at mid-height of the chair, and carried on the shoulders. Khnumhotep from Beni Hasan (BH 3) sits in a lavishly decorated box-like litter, carried by four men.[42] In two scenes from the tomb of Djehutihotep in Bersheh, four porters carry an empty chair.[43] The model from Sedment shows two porters with an empty chair suspended from one carrying pole resting on their shoulders.[44] Unfortunately, there are no data on the number of porters assigned to carry the chairs equipped with canopies, documented in the tombs of Khety (Thebes) and Djehutyhotep (Bersheh).[45]

The Old Kingdom porters are represented as A1) continuous single row; A2) continuous double row; B1) two groups, each in a single row, usually one in front of the palanquin, the other behind it; B2) as B1, but shown as a double row. When shown as two groups, the number of porters in both groups is often the same; when one group is larger, it is usually the one behind the chair (exception: Hetepniptah G2430; Niakuisesi, Saqqara).[46] The space between the groups, under the carrying chair itself, is sometimes left empty, but more often it is used for representation of other members of the retinue. Because of the reduced height of the space and the proximity to the palanquin owner, these are often the pets with their keepers who are frequently dwarfs, or text of the „Sänftenlied".[47]

Hermann Junker had suggested that the porters holding the carrying poles in their hands were standing between the poles, whereas each of the poles had its own row of the porters when carried on the shoulders.[48] The assumption H. Junker made on the position of porters relative to the poles finds support in the etchings and photos representing the same means transportation in more recent past, from the eighteenth to twentieth centuries, although they also document some cases of a single row of porters striding between the poles which rest on their shoulders.[49]

The number of porters was commented on by several authors. Heidi Köpp[50] objected that the number of four, moreover female, bearers of Watetkhether is surprisingly low, given the supposed weight of the woman and her son. Commenting on Washptah's autobiography, E. Brovarski observed that the number of ten bearers would be too high to

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41 It is not clear whether a pole of a canopy or a perpendicular slat of the footrest frame is represented in front of Meryteti's feet.

42 Newberry 1893, pl. 29.

43 Newberry 1894, 17, 38, pls. 13, 29.

44 Petrie and Brunton 1924, pl. 17.4. The carrying chair in the other model, from Saqqara and belonging to Karenen, was shown placed on the ground, without porters: Quibell 1908, pl. 16.

45 Relief fragments from TT 311 show the tomb owner, Khety, the treasurer of Montuhotep II, under the elaborately made canopy of a carrying chair (Metropolitan Museum of Art, accession nos 23.3.49, 26.3.354d, 23.3.26; Winlock 1923, fig. 8; Grajetzki 2009, fig. 21g). It is not certain if the chair was carried or placed on the ground – to my knowledge no persons who could be porters are identified on the relief fragments. The third carrying chair in the tomb of Djehutyhotep, was placed under the canopy on the boat; only traces of the figure of Djehutyhotep, holding a fly-whisk in his hand, remained: P.E. Newberry 1894, 27, 30, pl. 18.

46 Beside the scene showing Senedjemib Inti in his carrying chair (cf. n. 52), the difference in numbers is attested in the scenes of Ptahshepses (Verner 1986, 98–104, photos 90–97, pls. 53–55), Itisen (Hassan 1944, 266–267, figs. 122–123), Hetepniptah (Altenmüller 1981, 15–16, fig. 2), Nikauisesi (Kanawati and Abder-Raziq, 2000, 44, pls. 24, 25 [a], 55), and Merinefer: Qar (Simpson 1976, 8, pl. xi [b], fig. 27).

47 Old Kingdom-pets with keepers: Iymeri, Niankhkhnum, Ti, Senedjemib : Inti, Neferkhuwi, Ankhmare, Hetepniptah, Seshemnefer-tjeti : Tjeti, Nikauisesi, Mereruka, Shepsipumin : Kheni. Various, including personal attendants: Nimaetre, Seneb, Kagemni, Sabu: Ibebi, Kahep : Tjeti iqer(?); "Sänftenlied": Djau. Middle Kingdom-dog under the carrying chair: Djehutihotep. On the funerary meaning of the 'palanquin song'/'Sänftenlied': Altenmüller 1984–85; *contra*: van Walsem 2006, 302–303.

48 Junker 1953, 253.

49 S. below.

50 Köpp 2008, 35.

space them out along the poles of the carrying chair of the type Hetepheres had, and proposes that the word *ḫwd.t* may be used for a chair furnished with a canopy with wooden decorated parts,[51] i.e. for a heavier chair which requires higher number of porters, up to twenty-four.

The opinion that the number of the porters should have been higher than represented, occasionally led to a generalization, that a single row of the porters had to be understood as a double row, even though there is no indication for it in the drawing itself.[52]

The lowest number of bearers carrying an occupied sedan chair is two, and there is only one such example, explainable by the small stature of the occupant, the dwarf Seneb. The complete sets of four bearers are preserved in four scenes, those representing Ptahhotep: Tjefi, Ptahhotep: Tjefu, Watetkhether: Seshseshet, and Djau. Whereas the number of the female bearers of Watetkhether, basing on the find of Hethepheres's carrying chair, may be seen as realistic, it could be objected that with the other three scenes the chosen scale of representation and limited available space, dictated the number of elements to be used in the scene. But, if iconographic reasons could cause the lower number of bearers, it could be the other way around too: they can be used to represent a higher numbers of bearers than were really used at a particular moment.

The only argument supporting the view that the four female porters of Watetkhehther carry two grown-ups is the kilt Meryteti is wearing. But Meryteti holds a bird, and has a side-lock as children often do. In other scenes in Watetkhether's rooms, he is naked, i.e. he is undoubtedly a child, and in the father's part of the tomb he is again represented with the same signs, but in a kilt.[53] The representation of Watetkhether and her son is clearly based on Egyptian principles of art – the scale of representation of the occupants of the chair is the scale of importance (*Bedeutungsmaßstab*)[54] and the ambiguous representation of Meryteti's age may be understood in that fashion too – the fact of his being a son, i.e. child of Watetkhenther is stressed here.

**Who were the porters and their supervisors?**

More often than not, the bearers of the carrying chair are dressed in a garment consisting of a sash bound around the waist and several loose strips hanging from it, and covering, at least partly, the genitals (figs. 2, 3). This simple garment is worn by king's Userkaf porters, but also by workers of various kinds,[55] particularly those having to do with water, marshes, and waterlogged areas. Another kind of porters'clothing, including those of king Niuserre, is a simple short kilt, also usual with workers.[56] Their hair is cropped short, sometimes covering the ears, as it does in porters of king Niuserre too. All Middle Kingdom porters wear simple kilts.

The porters of Kagemni, In-snefru-ishtef, Mereruka (scenes OK27a and OK27b), and Remni[57] all have short sticks in the free hand, and those of Seshemnefer short sceptre-like batons. With Seankhuiptah, the first bearer has a loop of rope

[51] Brovarski 1996, 134–135, 153.

[52] Junker 1953, 253; Vandier 1964, 341; Kanawati and Abder-Raziq 1998, 62; Harpur 2001, 67f. Doubting the exactness of the Lepsius drawing for Senedjemib, E. Brovarski adds one porter in front of the chair, and then, accepting Vandier's opinion, doubles the number, thus obtaining 28 porters, i.e. the same number he presumes there were for Akhmare (Brovarski 2001, 47). Neither with Senedjemib nor Ankhmare is there a recognizable second outline indicating a double row of porters (for numbers of porters see Table 1), and in the same Lepsisus's drawing (LD II, 78b) the double row of men dragging the statues is clearly indicated.

[53] Kanawati and Abder-Raziq 2008, pls. 55, 56, 57, 58, 59, 61, 62, 64, 70; Kanawati *et al.* 2010, pls. 66, 76, 84a; Kanawati *et al.* 2011, pl. 89c.

[54] On the scale of importance: Schäfer 1974, 230–234; Assmann 1987, 30–31; Altenmüller 1995, 19–29, 27–28.

[55] Staehelin 1975, 385f.; Vandier 1978, 56, fig. 34 (6); Hall 1986, 20; Roth 1991, 141; Brovarski 2001, 47, 120, fig. 94b (e); Green 2001, 274. Gillian Vogelsang-Eastwood 1993, 35f. classifies the garment as apron. Though poorly preserved, the garment of the first Shedu's porters allows identification as a loincloth with straps (for identification of the scene as carrying chair scene, see Smith 1946, 220; for identification of the Shedu's "Sänftenlied": Vasiljević 1995, 20, 38f.). If the fragments from the Pyramid complex of Userkaf are identified correctly, the porters of the royal carrying chair may have been dressed in the same way (Labrousse et Lauer 2000, 122–123, figs. 266–268).

[56] Staehelin 1975, 386; Staehelin 1984, 745; Vandier 1978, 56, fig. 34 (1b; 75). The representations are in the bad state, or the published drawings are unclear, so that it looks like as if the porters of Itisen, Senedjemib wear sashes with strips over a simple kilt. Lepsius's drawing of Hetepniptah's scene (LD Erg., × [a]) is insufficiently precise.

[57] Kanawati 2009, Pl. 23, 25b, 48.

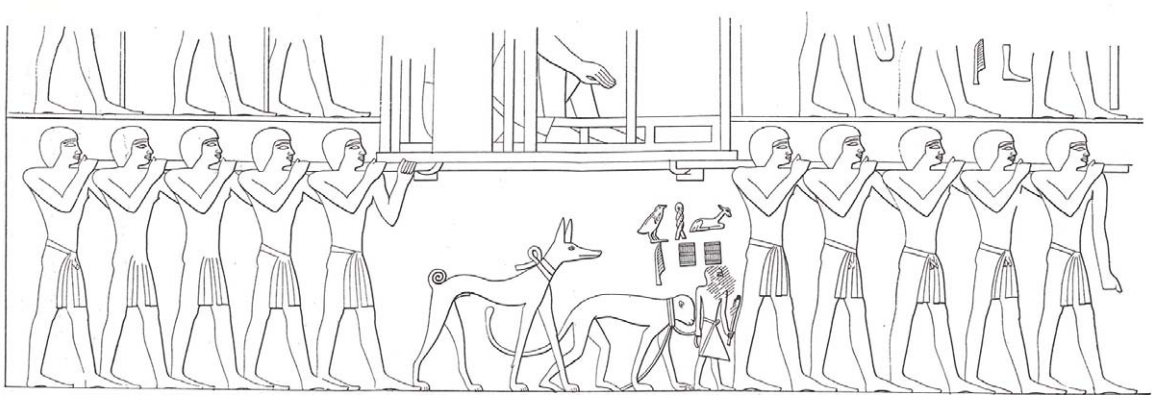

Fig..3 Scene from the tomb of Ty, D 22 (after Épron and Daumas, Ti , Fasc. I (1939), pl. xvi)

(?) in his free hand, as do all the porters of Meryteti on the north wall of room C1 (OK33a).

In the carrying chair scenes, the bearers are neither named as a group, nor – with few exceptions[58] – as individuals, even when the titles and names of the foreman of the bearers' crew, of the attendants, or the names of the pets walking by the carrying chair were inscribed (fig. 3). This indicates that the bearers were usually chosen among persons of lower standing who were at a disposal of an official, and not among men having other duties of a kind considered important enough to be mentioned. Thus the porters are deprived of any personal identity; they simply convey the idea of 'a crew of porters' together with their specific task.

The bearers of the carrying chair are mentioned as *nfr.w* in the auto-biographic inscription of Hetepherenptah,[59] and the *jdw.w nw ḫnw* assigned to the anonymous official may have had the same task.[60] In the inscription of Washptah only the number of assigned men (ten) is preserved, unfortunately without specific titling.[61] In all three texts, the carrying chairs, as well as the crew of men with them, were provided by a king. The duties of *nfr.w* were (semi-) military, and the word is translated as recruits, conscripts, cadets, and mariners.[62] The titles of *jdw.w* show that they were associated with the palace, residence and the word itself is translated as 'noble youths'; the range of their duties is less clear, though they seem to be of non-military character.[63] Common to *nfr.w* and *jdw.w* is that they were young people.[64] As it was the king who assigned the bearers for Washptah's carrying chair, it can be assumed that they were from the workforce under king's control, but with parts of inscription missing, it remains unresolved whether there was any, and if so, what kind of further specification concerned the bearers. The fact that the *nfr.w* and *jdw.w* were assigned by a king transformed them into an additional, valuable status marker, and were therefore, as a group, mentioned in the biographic inscriptions of the three officials.[65]

Persons acting as supervisors, directly connected to bearers and taking care of their even pace,[66] are present in approximately one third of the

[58] The exceptions are the scenes of Seneb and Seshemnefer Tjeti (Junker 1941, 20–21, Abb. 20; Junker 1953, 135–136, Abb. 100) where the names of all the bearers were inscribed, but in their short form, without any titles (Junker 1953, 136). The first of the bearers in Nikauisesi's scene has his title and name inscribed *ḫrp jzt J...j*, but the overseer, *jmj-r jzwt*, who is striding in front of him stayed nameless (Kanawati and Abder-Raziq 2000, p. 44, pls. 24, 25 [a], 55).

[59] Sethe 1933, 231.14; Kloth 2003, 228–229; Baud and Farout 2001: 47–48.

[60] Goedicke 1959, 10; Fischer 1960, 12; Kloth 2002, 40–41, 150.

[61] Sethe 1933, 43.16; Kloth 2002, Abb. 4c; Kloth 2003, 229.

[62] Jones 2000, 483 (nos. 1807 and 1808); Fischer 1960, 13, n. 52; Eichler 1993, 181–182.

[63] Jones 2000, 347 (no. 1292); Fischer 1960, 12–13, n. 48, 52. Because of the association with the palace, and presuming the military character of their duties, H. Goedicke recognized in *idw.w* a kind of guard (Goedicke 1959, 10).

[64] On *idw.w* as a stage between being a child and an adult man, in the autobiography of Ptahshepses: Fischer 1960, 11–12; Baud 2005, 120, 349, n. 717.

[65] On the low ranking of the position of a *nfr*, see also: Eichler 1993, 181.

[66] Junker 1953, 255; Vandier 1964, 342. The scenes from the tombs of Ptahshepses, Niankhkhnum, Neferkhui, Nikauisesi, with further examples of supervisors, were published after Vandier's analysis.

scenes preserved enough to be more closely examined in this respect.[67] There are up to three such foremen or supervisors, occasionally with a loop of rope in their hands[68], and they walk in front, behind or between two groups of porters. They usually touch (probably steady) the pole the porters are holding, and turn their heads to the porters when striding in front of them, indicating their role by these gestures (figs. 1, 2). The same role was probably played also by those who are in some cases represented in the register above the porters, touching the pole of the canopy or the seat within it.[69] Supervisors are distinguished from the porters by wearing kilts, or a different type of kilt, indicating their higher position. Only in tombs of Iymery and Ptahshepses, and probably also in the one of Seshemnefer-tjeti, the supervisors are dressed in a belt-sash with front strips as are the porters.[70] That the status of overseers is higher than that of the porters is supported by the fact that they are labelled with both titles and names in several tombs. The supervisors following and touching the palanquins of Niankhkhnum, and Neferkhui, are *ḥm-kꜣ ḫˁḳw Kꜣ(j)-zbj*, and *snw Ḥꜣj.f* respectively.[71] The supervisor striding in front of Sabu/Ibebi's palanquin stayed nameless, the one behind the palanquin is *ḥm-kꜣ smsw wḫrt Jw.f-nj*,[72] while the man striding between two groups of porters is *ḥm-kꜣ jmj-r sšr ḥm nb*. The partly-damaged text concerning the supervisor and the first porter of Nikauisesi identifies an *jmj-r jzw* and a *ḫrp jzt J..j* respectively;[73] the person steading the empty canopy of Mereruka (OK27a) is *jmj-r sšr Wrt*. Although the man who is standing inside the canopy, with a piece of cloth (?) over his shoulder and holding the staff to Pepiankh Heny-kem, touches the pole of the canopy with one hand, he is not a supervisor, and the inscription *jmj-r sšrw mrjj nb.f jrr ḥsst.f rˁ nb Sˁnḫjj* identifies him as a (favourite) personal attendant of his master; the acting supervisor is the other man who is touching the same pole, *jmj-r jzwt Ḥnnjt*,[74] striding in front of the canopy with a 'sceptre-like baton' in his other hand, and calling out: *jm j wrt wꜣt nfrt pw* "Westwards, that is the good road!", as navigators address a boat's crew.[75] The persons either holding the title *jmj-r sšrw* 'overseer of linen/cloth' or who are acting in that capacity (recognizable by bags with linen they carry over a shoulder) are relatively often represented among personal attendants of the elite members, as the barbers are in few instances too.[76] The relatively low rank of overseers of cloth, combined with intention to commemorate them because of their personal relationship to their master due to the task they performed, may have resulted in ascribing their identity to supervisors of crews of porters in the scenes of Niankhkhnum, Sabu: Ibebi, Mereruka and Pepi-

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67 The scene OK 9 is unpublished, and in the scenes OK 3b, 8, 10b, 29, 32, the porters and/or the persons in their immediate vicinity (potential supervisors) are poorely or not at all preserved. Supervisors were thus identified in 14 scenes out of 42 scenes (48 scenes are listed in Table 1).

68 Iymery, Pthashepses, Kagemni, Mereruka (scene OK27b), Seshemnefer-tjeti (there dressed in belt-sash, in register above the porters), and the porter with a loop of rope in Seankhuiptah's scene acted probably in the same time as a foreman, whereas the foreman of Ipi's porters has a longer stick in his free hand. On the rope loop is a sign of a person overseeing the performing of certain task or who is in charge of men performing it: Fischer 1959, 259, n. 60. One of the *nfr.w* in funerary complex of Sahure holds such loop in his hand, whereas the others from the same group hold short sticks: Borchardt 1913, Bl. 17.

69 Persons touching/steadying the poles of the canopy, standing above the porters at the height of the carrying chair owner, are represented in scenes of Mereruka (empty carrying chair, OK27a), Iteti/Shedu, Ipi, Pepiankh Heny-kem and Shepsipumin, and may be supervisors, but their relationship to the porters is not clearly defined.

70 The first porter of Seankhuiptah has a loop of rope in one hand and may be the leader of the crew.

71 Moussa und Altenmüller 1977, Tf. 58, 60; Roth 1995, 145, pl. 191. It should be noted though, that the inscription of the barber is one of those that were not originally planned and were hewn by a less skilful hand.

72 Jones 2000, no. 3301: elder of the dockyard/workshop.

73 Kanawati and Abder-Raziq 2000, 44. The authors of the publication did not comment on the damaged inscription above the heads of the two men. Overseer of the crew (*jmj-r jzw*): Jones 2000, no 313; Director of the crew, director of the gang of workmen/boat crew (*ḫrp jz*(*w*)*t* ): Jones 2000, no. 2559.

74 *jmj-r sšrw mrjj nb.f jrr ḥsst.f rˁ nb Sˁnḫjj*: Overseer of cloth/linen, loved by his master, one who does what he favours every day, Sanhy (Jones 2000, no. 864; Doxey 1998, 131ff., 140ff.). The title *jmj-r jzwt*: Overseer of crews/gangs (Jones 2000, no 313), 'master mariner' (Blackman and Apted 1953, 40, Pl. 31).

75 I am indebted to Prof. Dr. Hartwig Altenmüller for drawing my attention to the instruction Henenit is giving to the porters and to its parallels in the context of the boat navigation. For the phrase: Erman 1919, 53–55.

76 Jones 2000, nos. 864, 2822; Vasiljević 1995, 78–80.

ankh Heny-kem. The physician (*snw Ḥ3j.f*) walking behind the porters of Neferkhuwi may have acted as supervisor out of similar reasons, but his presence also strongly reminds one of the accounts of Washptah and an anonymous official, how they were taken ill and have been provided with carrying chairs and porters by the king, who also engaged physicians for Washptah.

**The carrying chair**

Finds of carrying chairs could have been useful for conclusions on the weight that was to be carried, and on the number of porters necessary to do it, but only one actual carrying chair, owned by Queen Hetepheres, was found. The chair was meticulously reconstructed, whereby the length of the seat and the footrest was estimated at 99 cm, and poles at 206.05 cm. On the basis of representation from the tomb of Meresankh III, the seat was placed in the middle of the poles' length.[77] This meant that in front and behind the seat, just over 50 cm of the poles, together with palm capitals of gold at the ends,[78] was free to be grasped by bearers. If the bearers were standing between the poles, there could have been only two of them, and in the case they walked on the sides, two pairs at most could be engaged, which is consistent with the number of women who were represented carrying Mereruka's wife Watetkhether in the same type of sedan chair.[79]

The representations of the poles of the carrying chair in several scenes of King Niuserre, as in those of Niankhkhnum, Ptahhotep: Tjefu, Ptahhotep: Tjefi, Kagemni, Hesi, Seankhuniptah (probably also Neferseshemre: Sheshi), all from Saqqara, and those of Seshemnefer from Dahshur and Iteti: Shedu from Dishasha show that the accuracy was not the main goal of the artisan: the poles are either shortened (on the back side of Niankhkhnum's no poles, and very short in front), or nonexistent, so that the palanquin with canopy looks like a kiosk.[80] The same treatment is observed elsewhere: E. Brovarski noticed that because of the limited space, the poles of the *wṯz* in offering lists of Neferhetephuther, Rahotep, and Seshemnefer (I) were shortened.[81] The *idea* of a carrying chair is still preserved, although not all parts of the object are represented accurately. Similarly, the act of carrying a palanquin had precedence over accuracy of details: the poles can be too short to be functional or even omitted in the scenes showing a palanquin on the shoulders of carriers.

The representations show several forms of the canopies.[82] The canopy can be represented as simple low or high vault (type A), supported by two column-like poles. The vaulted canopy can be shown with protruding parts under the vault, on both sides of the outer poles, whose number may be two, four or six (type B). There is also a vault with a slope (Type C), or trapezoid roof combined, in all but one example with elaborate woodwork (Type D). The flat upper surface of the canopy also occurs (type E) and in one case the roof is represented as a triangle (Type F). Still, the representations do not inform us clearly on the form of some variants, on the position of the woodwork with others, nor on the size or proportions of the canopy.

In a number of represented carrying chairs the roof was supported by so-called tent poles, indicating that a light material was used, perhaps a cloth over the wooden frame.[83] The kind of poles is recognizable also on the upper side of the canopy of Kaihep: Tjeti iqer, which is having woodwork. The tent poles protruding from the woodwork probably mean that the cloth was the roof, and the woodwork on the sides provided additional shade, without blocking ventilation. The woodwork is represented only in six cases, all dated to the Sixth Dynasty. The two earliest ones are from Saqqara (Meryteti, Ipi), the others are from tombs in Deir el Gebrawi, Meir and el Hawawish.

Because of its importance, the main motive of the scene, the carrying chair and its occupant, are

77 Reisner and Smith 1955, 33–34.

78 Reisner and Smith 1955, fig. 34.

79 Kanawati and Abder-Raziq 2008, pl. 69.

80 It is also true for the Royal-Athena Galleries fragment (Eisenberg 1992, No. 328), which seems to belong to Ankhmahor: Zezi's carrying chair scene, as it was aleady presumed (Oxford Expedition to Egypt: Scene-details Database, scene 11.7.5.[35], accessed 6.8. 2013: http://archaeologydataservice.ac.uk/archives/view/oee_ahrc_2006/ ; ADS: 686; doi:10.5284/1000009 ).

81 Brovarski 1996, 134. The treatment is usual for the carrying chairs placed on the ground; the only exception is the tomb of Meresankh (Vasiljević 1995, table on p. 62; Vasiljević 2012, 401; Dunham and Simpson 1974, fig. 8).

82 Vandier 1964, 339–341; Vasiljević 1995, 58–60.

83 Vandier 1964, 340. Cf. the canopy of the Queen Hetepheres (Reisner and Smith 1955, Pl. 5).

consistently represented on a larger scale (though in a various degree) than other elements of the scene (*Bedeutungsmaßstab*).[84] Thus the canopy sometimes equals the height of several registers. There, where the upper part of the canopy is preserved, in some cases enough space was provided for an inscription[85] above the head of the official, whereas in other cases, the roofing being immediately above the head of the chair's occupant, an inscription, if any, was placed in front of the official. [86]

**Excursus: On the porters of carrying chairs outside and after the Dynastic Egypt**

In various cultures, regardless of time, the carrying chair was a means of transport for persons of status – the latter often coinciding with wealth – and was generally unaffordable for the poor.[87] The right to use a carrying chair may have been limited by customs, special permission[88] or regulated legally.[89] The history of the carrying chair is beyond the scope of the present article, and only a few examples providing some information on the porters will be mentioned here.

The so-called Palanquin Fresco from the Palace at Knossos can be mentioned only tentatively here. Only a few fragments of the fresco were identified and the proposed reconstruction of the palanquin representation was supported by the reconstructed terracotta model of a portable seat found among other cult objects in a sanctuary;[90] the number of (four) bearers appears to be arbitrary and cannot be verified by the remaining fragments of the fresco. Roman litters were carried by two to eight slaves,[91] and the Byzantine miniature from Madrid Chronicle of Ioannis Skylitzis shows a woman being carried in a litter by eight men too.[92]

The subject of one Raphael drawing is the Procession of the Pope Sylvester I, presumably prepared for the Sala di Costantino in the Vatican Palace.[93] Though representing an event from the fourth century CE, Raphael probably relied on contemporary use of the carrying chairs by popes, as Pinturicchio did in one of the frescoes from Piccolomini Library in Siena, showing Pope Pius II in *sedia gestatoria*, or later Horace Vernet, representing Pope Pius VIII being carried into St. Peter's cathedral in 1829.[94] None of these three representations of certainly formal occasions shows clearly all the porters, but it can be concluded with some certainty that for the two older *sediae* not more than six men were engaged, whereas Pius VIII was probably carried by twelve men.

Nineteenth century travelling accounts contain some relevant information on the way a carrying chair was used.

In his book *Voyages and Travels to India, Ceylon, the Red Sea, and Egypt 1802–1806*, George Viscount Valentia, Second Earl of Mountnorris, mentions repeatedly travel by a palanquin. He gives only a brief description of a palanquin, considering it too well known, but gives more information on porters: on one occasion forty porters were obtained for three palanquins, and on the other occasion, sixteen men were hired to carry Henry Salt, who was to travel separately for a month.[95] Other passages of Viscount Valentia's account

[84] When compared with the size of porters or attendants, even the empty carrying chairs of Mereruka and Werirniptah are larger than they could have been in reality.

[85] In the tomb of Iymery one line (G 6020); two lines in the scenes of Niankhhnum, Khnumenti (G 2374); Meryteti: Meri, scene 1; Meryrenefer: Qar; Kaihep: Tjeti Iqer and Shepsipumin: Kheni.

[86] Inscription in front of the official: Seshemnefer from Dahshur; Ankhmare from Giza; Nefersehemre: Sheshi and also Ipi from Saqqara; Pepiankh: Heny-kem from Meir. Without an inscription under the canopy: Itisen; Kaemnefert, from Saqqara, Ptahhotep: Tjefi; Seshemnefer Tjeti (Giza), Seankhuiptah/Hetepniptah; Djau, from Deir el Gebrawi.

[87] McGinn 1998, 245–246, n. 21–23, 26.

[88] For ancient Egypt, s. above and Rössler-Köhler 1984, 334.

[89] On the regulations in ancient Rome, including revoked right to use a litter for adulteresses: McGinn 1998, 246–250.

[90] Evans 1928, 770–773, figs. 490, 502, 503; Evans 1921, 221, 224, fig. 166G; Castleden 2003, 115.

[91] A brief summary, with references to the studies concerning the subject of the Roman lectica is given by T.A.J. McGinn (McGinn 1998, 241, 245–247).

[92] Madrid, Biblioteca Nacional, Cat. No. 338, fol. 102r (a); probably 12th Century: Antonova 2010, 39, fig. 2.2.

[93] Kept in the Isabella Stewart Gardner Museum in Boston, Accession Number: 1.1.r.12. The drawing was also used by Giulio Romano, the pupil of Raphael (Hartt 1944, 79, n. 38; Wolk-Simon and Bambach 1999, 171, n. 12, fig. 5).

[94] Pinturicchio: http://www.wga.hu/frames-e.html?/html/p/pinturic/siena/index.html. H. Vernet's painting: Chateau de Versailles (http://www.scholarsresource.com/browse/artist/2142561947); the study for the painting: The State Heremitage Museum, St. Petersburg (http://www.arthermitage.org/Vernet-Horace/index.html).

reveal that the system of relay was used, with fresh sets of bearers waiting on different stages of the route, at posts placed at a distance that could be at up to ten miles.[96] Eight bearers "formed a complete change", which meant that two sets of four men rotated while carrying the burden, as another passage, on eight bearers agreeing to carry two palanquins only because of the short distance of two and half miles to be covered, implies.[97]

Some sixty years later, in the book he published in 1870, James Sibree reports that he did not see any wheeled vehicle on Madagascar, and that for the longer journeys by land, except for walking, the only transportation means on the island was *filanzana*, a carrying chair.[98] He explained some details concerning its design and commented on the porters too: "Eight of the strongest and most active young men, accustomed to work together, were chosen to carry my palanquin. *These were divided into two sets of four each, and took the duty alternately*."[99] Sibree explains how the two sets of porters exchanged without halting and almost unnoticeably, and furthermore, how the porters moved the pole from one shoulder to the other constantly while moving on, and describes their pace as "a quick trot".[100] There where the situation demanded it, James Sibree would change several times from palanquin to a boat, whereby the bearers of the palanquin and the baggage were those who paddled than.[101]

The historical photographs from the late nineteenth and first half of the twentieth centuries from Madagascar, Congo, Cameroon, Ghana, Turkey, India, Korea, China etc. document the use of carrying chairs by local chiefs and the elite, missionaries and colonial officers.[102] Most of these chairs are of a modest size, the inner space made for just one occupant, and the roof of some sort, if present, was hanging relatively low above his/her

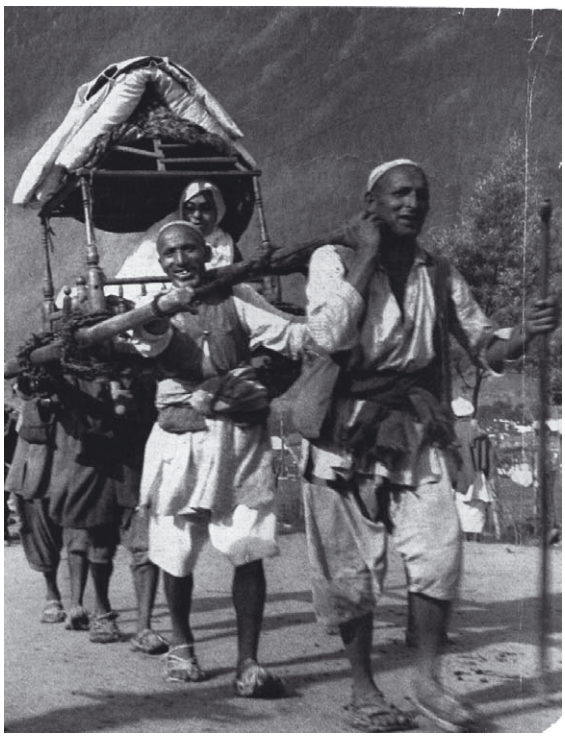

Fig. 4 Carrying-chair, India, 20th century
(from: Arthur C. Custance, Does Science Transcend Culture?, PhD Thesis, University of Otawa 1958, Ch.3, fig. 18 – http://www.custance.org/Library/Thesis/part_I/chapter3.html)

95 Valentia 1811a, 45, 335; Valentia 1811b, 95. Valentia (1811a, 379–388) included Salt's report on the trip in his book. As a young man, Henry Salt accompanied Viscount Valentia on his journey, in capacity of secretary and draughtsman (Manley and Rée 2001, 8, 10).

96 Valentia 1811a, 38 (a footnote on the page), 44, 341, 355, 388, 398.

97 Valentia 1811a, 44–45, 59. The comment "The first set of bearers was excellent, and carried me twenty-six miles in five hours…" (Valentia 1811a, 339) probably means that the men rotated over the distance, what would explain that they carried their burden at an average speed of 8 km per hour (26 miles = 41.84 km). The more modest 20 miles per day foreseen for Henry Salt's journey, had a purpose: Salt was to visit some thirty-eight pagodas and was to be given "leisure to draw any thing that might be interesting" (Valentia 1811a, 335).

98 Sibree 1870, 42–43.

99 Sibree 1870, 36, 42–43, 46–49 (quotation: p. 46, cursive by V.V.). James Sibree (Sibree 1870, 160) mentions, that in moments when the narrow path demanded it, only two bearers were carrying the palanquin.

100 Sibree 1870, 36, 79–80. James Sibree (loc.cit.) reports that the porters changed shoulders constantly, after a few minutes, while moving on, and he also observed that the exchange of sets of porters usually took place every fifteen to twenty minutes, but it was also more or less frequent depending on the terrain.

101 Sibree 1870, 54, 68. George Viscount Valentia (Valentia 1811a, 42, 224) mentions also that the palanquins were loaded on boats, when a part of the journey was to be made by a boat.

102 University of Southern California Digital Library (http://digitallibrary.usc.edu/); Library of Congress http://www.loc.gov/pictures/).

Fig. 5 Bride in sedan chair, Masan, Korea, ca. 1920–1940 (Copyright Maryknoll Mission Archives)

Fig. 6 „A Sedan chair, revived at the Turkish Village of the World's Columbian Exposition, 1893" http://commons.wikimedia.org/wiki/File:Sedan-chair.jpg

head (figs. 4, 5). In some cases, the person was sitting on the floor of the carrying chair, in others in a seat, or was occasionally able to recline on the floor. Whether the chair is small and consists of carrying poles and seat, or has a roof, and more or less elaborately decorated sides, whether the poles are attached at the bottom or at the middle of the chair (approximately at height of the occupant's waist), the number of porters for carrying chairs which are used in everyday life remains consistent - four is the usual number, but two is frequent enough (Fig. 6). Even the lavishly-decorated and more spacious carrying chairs used on festive occasions are carried by four, six or – not so often – more men, but the crews of fourteen to twenty-four men seem to be not recorded.

**Concluding discussion**

The post-medieval representations of carrying chairs are based on perspective and tend to depict a particular moment of action and the participants in it as seen by the eye of an observer. They consistently record lower numbers of porters than do some Egyptian scenes from Old Kingdom private tombs. The same is true for modern travel reports, photographs and for known representations of the ancient Egyptian royal carrying chairs. Thus, the representations of carrying chairs of the king Niuserre predominantly show four bearers in single row, no matter if it is full or empty, or if the bearers are human or divine.[103] The number of royal porters increases after the Old Kingdom, though not exceeding a dozen. In the tomb of User (TT 131) eight porters, arranged in a double-row, carry Thutmose III, who is sitting high on the chair placed in a box-like litter.[104] Twelve bearers (in a double-row) were employed for Akhenaton's and Nefertiti's throne-like sedan chair in tomb of Huya in Tell Amarna,[105] and was also the case with Horemhab in Gebel el-Silsila, Ramses III in Medinet Habu, and Amenhotep III in Soleb, whereas six men carried Osorkon II.[106] The Luxor representation of Amenhotep III being carried by four divinities (in a double row) may have followed the Old Kingdom pattern.[107]

It seems unlikely that the some of the Old Kingdom high officials needed more porters than their kings or other participants in royal ceremonies did. The performative nature of royal processions and the importance and status of the occupant of the chair called for maintaining a dignified

[103] Bissing und Kees 1923, Bl. 15–22; Kees 1928, Beiblatt A.

[104] Lythgoe and Davies 1926, 3, fig. 5.

[105] Davies 1905, pl. 13.

[106] Vandier 1964, figs. 178.3, 181–183; Champollion 1845, pl. 111; The Epigraphic Survey 1940, pls. 196–197; Naville 1892, pl. 6; Lange 2008, 71, 201–202, Abb. II.2.2.3.

[107] Gayet 1894, pl. 74.

presentation of the person/statue[108] in the litter, and thus dictated the pace of the carriers. The distances depended on the defined route of the procession on the occasion of a festival, and it can be assumed that the processional roads used on the occasions were relatively broad and in good condition. Such a procession would allow coordinating the pace of higher number of porters, and still they were not shown. In contrast to this, a number of the Old Kingdom private owners of carrying chairs had let more porters to be represented than – according to the existing visual records – any of the kings used for the purpose. Whereas the number of royal porters may have been limited by the predetermined way of depicting the scene, the question remains: are the high numbers of porters of Old Kingdom non-royal carrying chairs an iconographic exaggeration or they still in some way correspond to the reality?-

For the private owners of a carrying chair, the goal was to travel a certain distance for a variety of reasons, probably prevailingly mundane ones (official or private, such as an inspection of the works in field, marshland, or on their tomb). Still, the travel should be comfortable, and also efficient, in the sense of covering some distances in a reasonable amount of time. It is doubtful whether a higher number of carriers used at the same time could provide it. Namely, with higher the number of the carriers, it is more difficult to synchronize their movements and to preserve an even pace, necessary for a relatively pleasant ride for the occupant of the chair without too much vibration, and therefore such travel would have been slow. Such a higher number of porters also seems to contradict some of the later records which are explicit on the similar use and on the velocity of that kind of transportation outside Egypt.[109] Further, the same records indicate that the height of the canopy of the represented Egyptian carrying chairs, or the size of the chairs themselves should not be taken at face value, and with it, their overall weight and the strength necessary to carry them should not be overestimated.

The explanation for the high number of the represented porters of carrying chairs can be found in the principles of Egyptian art combined with the intentions to emphasize the status of the person who is being carried. The carrying chair scenes should not be understood as a statement that everything represented takes place simultaneously, as a moment frozen in time. For example, a representation of a metal-workshop is hardly to be understood as a representation of a production line with the exact number of artisans working at a particular moment shown, but rather as showing the different activities the workers have to perform in order to produce an object. This can be even reduced to one of the basic principles – all the characteristic views of an object are represented, though the eye cannot see them at the same time, i.e. the idea of an object is displayed. This can be applied to the scene in question here. The porters are generally left nameless and clearly reduced to their role, to the notion "those who carry NN". The aim was to show the porters with a palanquin as a status attribute of an elite member, not as individuals. In some cases, the number of the represented porters corresponds to the number necessary for the task in a particular moment. That number would be probably four to eight men, if the data on Roman practice combined with those from the nineteenth and the first half of the twentieth centuries are taken into account as a relatively reliable testimony on the number of porters and the ways they were engaged.[110] The scenes with more than eight or ten porters should be probably understood as a statement on the overall number

[108] Cf. n. 38.

[109] Heidi Köpp-Junk (2013, 11) presumed, that the speed of travel by carrying chair in Egypt was similar to the the speed of walking, i.e. 4–6 km per hour. This corresponds to the representations: the Egyptian porters and their foremen are always represented with both feet firmly on the ground, i.e. walking at a moderate speed; exceptionally, the supervisor of the Kagemni's gang of porters is running. The sunshade carriers moving along them, represented occasionally in the scenes, are in some of the scenes shown running (Kagemni, In-snefru-ishtef, Hesi, Seankhuiptah: Hetepniptah, Iteti: Shedu, Ibi, Ipi, Pepy-ankh: Heny-kem, as well as Nekhebu – MFA Boston, accession number Accession Number 13.5830.11) , thus indicating that their velocity could have been higher than indicated by porters' pace. It can be presumed, that the sunshade carriers had to move faster when they had to change their position in order to constantly provide the shade for the person in the litter, and that the supervisors had to keep an eye on all the porters as well as on the road ahead, and therefore sometimes swiftly changed their position. Sunshade carriers walking: Senedjemib, Seneb, Watetkhether, Djau.

[110] Approximately 40% of Old Kingdom private carrying chairs fall into this group (16 out of 39 scenes, see Table 2). It should also be considered that in order to have enough room for 3–6 porters in front and so many behind the palanquin, the poles of carrying chairs would have been of

of porters that were at the disposal to an official. It does not necessarily mean that they are all carrying in the same time.[111] The intended viewers, ancient Egyptians, had knowledge of the real situation and the intended meaning of the representation.[112]

The porters could have been divided into groups that carry the palanquin in turn, i.e. the tired men have been replaced after certain distance. Such way to organize the similar kind of labour is recognized in the length measure *jtrw*, originating from expression *jtrw n sḳdwt*, used for the distance one gang of workmen had to haul a ship along the river before being replaced, and possibly also for workmen dragging building stone over the land roads.[113] Whether the distance after which an exchange of the porters took place was a fixed one, or varied,[114] depending on the terrain, distance to be travelled, weight of the carrying chair and its occupant, and the number of the men one set of porters consisted of, remains an open question. The question whether an official had several groups of porters all the time with him, or the fresh set of porters waited at prearranged spots,[115] stays open too. Both systems could have been used, depending on circumstances.

In some scenes of the pyramid complexes of Sahure and Unas the men wearing belt-sash are identified as *nfr.w*,[116] they reappear on some other fragments of scenes without a preserved inscription in these two complexes, and are present in at least one scene in the funerary complex of Userkaf.[117] According to A.M. Roth, there are not sufficient data to conclude whether these men were in that time still organized in gangs (*ꜥpr*), as one of the inscriptions may suggest, or the type of organization survived only as a motif in royal iconography,[118] whereas E. Eichler recognizes the use of the word (*ꜥpr*) in other contexts throughout the Old Kingdom.[119] During the Fourth dynasty the gangs (*ꜥpr*) consisted of phyles (*z3*), and though the precise data on the subdivision of phyles are absent, the hypothetical units of ten[120] do coincide with the ten (men) later appointed to carry Washptah.[121] Although there is no written evidence – at least at present moment – that would directly connect the porters of private carrying chairs with one of the attested organizing units of work force, it can be assumed that a certain level of organization was necessary, and it could have reflected the forms existing in public sector of life. The units did not have to consist literally of ten men,[122] but a 'ten' could be e. g. divided in two sets of four porters, with a foreman for each set, so that the sets could exchange. Even if we presume that the weight of carrying chairs with a canopy is substantially higher than the weight of those without it, that additional burden could be the reason to exchange sets of porters during a journey.

In the story of 'King Cheops and the Magicians',[123] upon his arrival by boat to Ded-Snefru, Hardedef continued his journey by land, sitting in

considerable length, and the whole difficult to use on any kind of path or curves. If the representations are accepted as reliable facts on the object, a number of Egyptian carrying chairs would have been unsuitable for the narrow and curvy spaces and paths (cf. n. 21). But if the principles of the Egyptian iconography are taken into account and the representations are understood as a conceptual image, a record of the idea of the journey of an elite member in a carrying chair, an image in which the exact representation of individual elements and their mutual relationships is subordinated to the intended meaning and the effect of the scene – it is then conceivable that the large carrying chairs with numerous porters, could have been in reality smaller, easier to be carried and manoeuvred in multifarious spaces.

111 The number of the porters used could have varied depending on the length of the journey, and for the short distances one set of the porters could have been sufficient (cf. above, with n. 97).

112 On the subject in broader sense, see: Bryan 2009.

113 *Wb* I, 147; Helck 1980, 1200; Grandet 2001, 494; Graeff 2003, 162.

114 The distance did not necessarily have to do with measures of length. On variable distances designated by *jtrw*, depending on that how demanding are the terrain and the task of the workers: Graeff 2003, 162; Graeff 2004, 50–51.

115 Cf. Graeff 2004, 51, on two small buildings on Dahshur road, possibly used to accommodate up to ten workers.

116 Borchardt 1913, Bl. 9, 17, 52; Labrousse et Moussa 2002, 66–67, fig. 91.

117 Labrousse et Lauer 2000, 71–73, figs. 80, 83a–b; Roth 1991, 141–142.

118 Roth 1991, 141–142, n. 64.

119 Eichler 1993, 167.

120 Roth 1991, 120–121; Roth 1995, 43.

121 Ten porters of carrying chairs were represented in the tombs of Ty and Sabu: Ibebi, probably in those of Neferkhuwi and Seshemnefer-tjeti: Tjeti, whereas the number is doubled in carrying chair scenes of Kagemni and Khnumenti.

122 Roth 1991, 121.

a carrying chair (7.12–14). The episode probably reflected the way of travelling appropriate and affordable for a member of royal family, but it may have been valid for the members of the elite at the time when the story was composed,[124] but also at the times the story was set in.[125] In the same text there is a reference to the too shallow water for the royal boat in a canal during the *prt*-season (9.15–18).[126] The condition could only worsen during the next season, and would cause longer distances to be travelled by land. The porters, who were not mentioned in the text, may have waited on the river bank or the boat crew was engaged to carry the king's son. In both cases the men would have been of the low rank and their costume could have consisted of the belt-sash.

The members of the elite presumably also combined, when necessary, travel by boat and in palanquin, and in their case it is probable that the boat crew was also used to carry the palanquin. Though occurring only in few scenes, the titles of the elder of the dockyard, overseer of the crew and director of gang of workmen (or boat crew)[127] held by foremen, seem to point in this direction, as does the 'sceptre-like baton', usual with those who direct the boats,[128] held by Henenit, one of the foremen of porters. Seen in light of written data mentioning *nfr.w* and *jdw* as porters, and their simple apparel in the context of royal representations, it is tempting to see the belt-sash worn by private porters not only as a reminiscence of originally royal prerogative of using a carrying chair,[129] but also as an indication of the type of duties the porters further on could have been allotted, depending on the wishes/needs of their superiors. It is true that in none of the carrying chair scenes are the porters labelled *nfr.w* or *jdw*, but for *nfr.w* it can be explained by Eichler's observations concerning boat-crews as a part of Old Kingdom expeditions. Translating *nfr.w* as "Matrosen", sailors, Eichler notes that they were of such a low rank, that a person names the title among own titles only at obtaining a title at least one level above it (*sḫḏ nfr.w*).[130] The appearance of the men and the role they played in the scenes would have been sufficient for their contemporaries to identify them, to "read" who they were.

The representations of carrying chairs may have lost their importance in iconography already during the Middle Kingdom, either due to the increased number of persons using them (thus ceasing to be a status marker), or due to the shift in the concept of private tomb decoration. Other subjects, such as representations of funeral activities, obtained importance, and the symbolic value of the themes of travel and crossing water by boat was growing – the Journey to the beautiful West and journeys to sacred places, especially to Abydos, performed by boat.[131] Though not explicitly documented, the carrying chairs could have been further on used in private daily life.[132]

## A note on iconography

The number of porters in the Old Kingdom carrying chair scenes in the elite tombs varies considerably, from two to more than twenty, and the initial question was do these numbers correspond to reality: does the scene in this respect represent what was perceived? An indication that the number of porters of private carrying chairs was exaggerated is the size of royal crews of porters, not exceeding a dozen of men in any of the preserved representations, although the royal appearance in a litter had strong ritual aspect (resulting probably in a dignified, slow pace, allowing easy coordination of higher numbers of porters), and displayed the power of the king too. It is unlikely that the elite members would in public display their power by the crews of porters larger than the royal ones were;

[123] Simpson 1977, 23.

[124] Simpson 1982, 744; Jenni 1998, 113–141; Hays 2002, 20–30.

[125] The queen Meresankh III is represented sitting in a carrying chair placed on the boat deck (Dunham and Simpson 1974, fig. 5). For the Middle Kingdom, cf. P.E. Newberry's identification of the elaborately decorated seat represented on the boat as a sedan, meant to be used for Djehutihotep's journey on land (Newberry 1894, 27, Pl. 18).

[126] Simpson 1977, 26; Jenni 1998, 124.

[127] See n. 74, 75.

[128] Fischer 1978, 16–17, fig. 22.

[129] The sticks in hands of the porters of Kagemni, In-snefru-ishtef, Mereruka, and Remni (s. above) remind one too of sticks in hands of *nfr.w* in Sahure's reliefs; for the loops of rope s. above, n. 68.

[130] Eichler 1993, 167, 181–182. On *nfr* and its descriptive quality, besides being used as a title, already Fischer 1959, 258–259.

[131] Assmann 2001, 400f.

[132] H. Goedicke suggested that Sinuhe travelled back to Egypt in a carrying chair, the porters being provided by the local rulers at King's request on Sinuhe's behalf (Goedicke 1965, p. 41–42, 47).

beside that, the elite used the carrying chair for mundane reasons, and would therefore be interested to use an optimal size of crews not merely for comfortable, but also relatively fast journeys. The analysed data show that the porters of the elite could have been in reality divided into groups that carry the palanquin in turn, i.e. the tired men have been replaced after a certain distance, similar to the practice of gangs of workmen who hauled ships along the river. The movements of smaller groups of men are easier to synchronize, which would contribute to the comfort and stability of the occupant of the carrying chair, whereas the steady pace and – if necessary – a higher velocity could be obtained through the regular exchange of a tired group for a fresh one. In the Old Kingdom carrying chair scenes, the representations of the sets of porters consisting of two to six men certainly corresponded to the size of the crew engaged at one moment. This may have been the case with groups of eight to ten porters too, although these can be also understood as a sum of all sets of porters that were at the disposal of an official, shown as if they worked simultaneously, in spite of the fact that they in reality rotated, and could not be seen at work at the same time. In opinion of the present author, the latter explains the scenes showing large groups of porters – those consisting of more than eight or ten persons, and certainly those with twenty or more porters. In this way, by this kind of exaggeration, a number of Old Kingdom officials additionally stressed their power and status, already expressed by the very subject of the scene.

One possible way to describe the carrying chair scene is a *Sinnbild,* in the sense that it does not record a journey in a carrying chair as a copy of reality (rendered according to Egyptian principles of representation), devoid of any further meaning except 'transporting a person', but it also has a symbolic level, expressing the high status of the person who is transported in this way.[133] At the same time, it is the example *par excellence* of the basic principles of Egyptian art in composition of a scene – it exhibits the division of the surface into the registers, representation of the elements that cannot be seen at the same moment or actions which do not happen simultaneously, as well as the emphasis of importance through size (*Bedeutungsmaßstab*), and the avoidance to overlap important elements by objects or minor figures. It is a good visual representative of the concept Emma Brunner-Traut named "aspective".[134] The carrying chair scene represents the idea of the event with its characteristic components, a kind of a list of items the event consists of, it is not the visual record of an event as it happens and which would be represented by a selected moment frozen in time – it is a conceptual image of the event, not a perceptual one.[135] Therefore, the sets of porters who were rotating during a journey could be represented as a part of a single action. The action of the single set of porters was identical with the action of the set with which it exchanged, and thus they could be condensed in the image of one larger group, in one iconographic record which conveyed the idea of status of the elite member who had higher number of the porters at his disposal.[136]

For the analysis of the way the governing principles of Egyptian art were used in practice, Heinrich Schäfer's *Von ägyptischen Kunst*, first published in 1919, is further on the basic study on that aspect of research on the ancient Egyptian iconography.[137] The concepts underlying Egyptian art have since been under scrutiny, the debates on methodological issues intensified, and new approaches formulated.[138] Still, since the two-dimensional representations are often used as a

[133] The meaning of Sinnbild is here, for the purpose of the article, limited to the aspect of status. The expressions 'Sinnbild' (symbolic/metaphorical image) and 'Sehbild' (visual image) were used by Kessler (1987, 64–65) in his interpretation of Old Kingdom representations, which promoted the religious meaning (*Sinnbild*) in contrast to and over the simple mundane one (*Sehbild*); Kessler's conclusions and the terminology itself were criticized by van Walsem (2005, 71–72, 80–81). A short overview on the subject: Verbovsek 2015, 147.

[134] Brunner-Traut 1974. On some limitations of Brunner-Traut's "aspective" as a comprehensive concept underlying Egyptian thought: Assmann 2001, 34–35.

[135] "Conceptual", as opposite to the "perceptual", e. g.: Schäfer 1974, 109; Brunner-Traut 1974, 423–424; Teeter 1994, 16; Laboury 2011, 10.

[136] The priority of the representation of an idea of an object or action over the visually accurate image is illustrated in the same scene by the representations of carrying chairs with very short or virtually no poles (s. above).

[137] Schäfer 1919. The fourth German edition, edited by E. Brunner-Traut in 1963, was translated into English and edited by J. Baines (Schäfer 1974); the revised edition was reprinted in 1986 and 2002.

[138] E.g. Brunner-Traut 1974; Baines 1985. For a state-of-the-art overview of the various aspects of the subject, see the recent publication edited by Melinda Hartwig (Hartwig 2015).

source of information on various aspects of Egyptian culture and society, but also in order to verify the validity of some long-standing conclusions concerning specific examples, it may be useful to re-examine – at least occasionally – the way we perceive and interpret the iconographic data, to observe critically our understanding of the principles of Egyptian art and especially the way they are applied by Egyptians, as well as to complement the visual information as far as possible with the data that could shed light on the knowledge the artist's contemporaries had from their experience of the real course of action, on the participants of the event and their mutual relationship.

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## UNTERSUCHUNGEN DER ZWEIGSTELLE KAIRO DES ÖSTERREICHISCHEN ARCHÄOLOGISCHEN INSTITUTS

Herausgegeben in Verbindung mit der Kommission für Ägypten und Levante der Österreichischen Akademie der Wissenschaften von Manfred Bietak

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