FROM MICROCOSM TO MACROCOSM

INDIVIDUAL HOUSEHOLDS AND CITIES IN ANCIENT EGYPT AND NUBIA



edited by Julia Budka & Johannes Auenmüller

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Introduction

Julia Budka^{*} and Johannes Auenmüller^{**}

From Microcosm to Macrocosm

This edited volume comprises the proceedings of a conference also entitled "From Microcosm to Macrocosm: Individual households and cities in Ancient Egypt and Nubia". The conference, hosted by the Ludwig-Maximilians-University, was held from 1-3 September 2017 in Munich and represented the closing event of the European Research Council funded project AcrossBorders. Recent work on settlement archaeology, households, cities and urban patterns in Egypt and Sudan was presented. The emphasis lay on fresh fieldwork in Northern Sudan, highlighting latest results from New Kingdom sites such as Amara West, Sai, Tombos, Kerma (Dokki Gel) and Sesebi (see also Budka Households in this volume).

The conference focused on 1) individual households of selected sites in Egypt and Nubia (*e.g.*, Tell el-Dab'a, Amarna, Elephantine, Amara West, Sesebi and Tombos). On this topic, architectural studies as well as analyses of material culture were presented. The fruitful application of new scientific methods such as microarchaeology, especially with regard to soil samples, micromorphology and a wide range of archaeometric methods, and their potential for Egyptian settlement archaeology was illustrated with a number of case studies.

In addition to this micro-approach, introducing microhistories of individual sites based on recent archaeological fieldwork that incorporates interdisciplinary methods, the event not only discussed 2) general patterns and regional developments – thus, the macrocosm of New Kingdom Nubia (cf. Auenmüller in this volume; Vieth in this volume), but also aspects of urbanism in earlier periods (see Moeller and Marouard in this volume). Comparative approaches were also regarded useful on a larger scale. Therefore, the role of foreigners in Egyptian towns was discussed from a broader perspective, with the Asiatics in the Nile Delta as a case study (Bietak 2016; in this volume).

The combination of micro-level research questions with the general macro-level promises new information about cities and households in Ancient Egypt and Nubia. Thus, the AcrossBorders conference represents an example for the current status of modern settlement archaeology in the Nile valley which is characterised by a strong interdisciplinary focus (cf. Moeller 2016). The rich potential of well-preserved but still not completely explored sites in modern Sudan, especially as direct comparison for already excavated sites located in Egypt, was particularly emphasised. In general, during the last decade settlement archaeology in Egypt and Nubia has moved away from a strong text-based approach and generalised studies to a more site-specific approach and to household studies (see Müller (ed.) 2015). Thanks to new and ongoing fieldwork, more detailed information on individual sites are now available and are currently being discussed also within comparative approaches (cf. already Shaw 1998). Sai Island and the AcrossBorders project are ready examples for this bottom-up perspective illustrating dynamic structures of Egyptian sites in both Egypt and Nubia (Budka 2017a; b).

*.** Institute of Egyptology and Coptology, Ludwig-Maximilians-Universität München, Katharina-von-Bora-Str. 10, 80333 Munich, Germany; *Julia.Budka@lmu.de; **Johannes.Auenmueller@lmu.de

Case studies of a bottom-up approach to settlement archaeology in Ancient Egypt and Nubia

Besides Sai Island in Sudan, the AcrossBorders project has in the last years concentrated on settlement archaeology at Elephantine in Egypt where it conducted fieldwork in cooperation with the Swiss Institute for Architectural and Archaeological Research on Ancient Egypt, Cairo. In his paper at the conference, Cornelius von Pilgrim discussed intriguing evidence from House 55 under the title "Beyond houses and temples: A building in the town of the late 17th and early 18th Dynasty at Elephantine" (cf. von Pilgrim 2015; in press). He focused on the general challenges in urban archaeology associated with the identification of the actual use of individual rooms or entire buildings. Especially for Egypt, there has been a diverse discussion about room function in the last decades (see, e.g., Moeller 2015; Müller 2015; Spencer 2015). As outlined in his conference abstract: 'Many activities of daily life do not leave reliable traces to determine any specific function and possible traces may have been removed by later activities or by a later redesigning. Furthermore, many rooms in domestic buildings were predominantly used in a multi-functional way.' 1 Von Pilgrim presented the meticulous examination of the extensive sequence of floors and deposits in House 55 and proposed a first interpretation of both its function and its building phases.

The paper "From the Delta to the Second Cataract: Households in Egypt's borderlands in the late Middle Kingdom" by Miriam Müller tied in nicely within the comparative approach of both the AcrossBorders project and the conference. Her paper examined similarities and differences in domestic architecture and settlement structures in Egypt's borderlands, in this case the eastern Nile Delta and the Second Cataract in Nubia. With several case studies on these regions and a particular emphasis on Tell el-Dab'a/ Avaris, she presented thoughts about concepts in domestic architecture and especially about the perception of their function and use which are, according to Müller, 'inherent to the Egyptian world view and often copied by new settlers of native and foreign descent in Egypt's borderlands.' This paper stimulated a rich discussion at the conference, in particular in direct conjunction with Manfred Bietak's presentation about "Settlements of mixed societies: Tell el-Dab'a as a case study" (see Bietak in this volume). Indigenous Nubian traditions were discussed by Charles Bonnet in his new assessment of the latest findings at Dokki Gel/Kerma. He has identified an architecture which can be attributed to an African tradition since around 2400 BC and that influ-

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enced the urban topography of the site also during the time of Egyptian domination (Bonnet 2017; in this volume).

Another paper focusing on household archaeology was the one by Kate Spence (cf. Spence 2015). Under the title "House, household, community and settlement at Sesebi", she discussed the archaeological data of houses for the community living and working at Sesebi during the 18th Dynasty (see also Spence 2017). Her assessment of the houses and the town was mainly based on the original excavation records of the Egypt Exploration Society in the 1930s in addition to a comparison with contemporary housing at Amarna.

Amarna as one of the most important New Kingdom sites in Egypt was also discussed by Peter Lacovara's contribution entitled "Everyman's home a castle: The design of the Tell el-Amarna villa". His survey of domestic architecture in the New Kingdom and beyond aimed to highlight that the uniformity found at Amarna is unique in many respects. Lacovara does not see the Amarna houses as a 'natural development in vernacular building, but [as] the result of a uniform design imposed by the city planners, and one adapted from the plans of earlier royal palaces. In this aspect, Tell el-Amarna represents the culmination of the preplanned royal city of the New Kingdom and the imposition of the state in designing almost every aspect of this unique community.' Although some of the responses at the conference illustrated a certain disagreement in this matter (see also Spence 2004), Lacovara's paper nicely illustrated that we need to re-study Egyptian house types and so-called "standards", which are mostly derived from architectural plans omitting individual building phases and details (see now e.g. Adenstedt 2016 and Doyen 2017 in contrast to Azim 1975 for the example of Sai). Thus, also for studies of domestic architecture in Egypt and Nubia, a reflection of details and data from a bottom-up assessment seems appropriate after more than 80 years of discussions of Egyptian house types (see e.g., Ricke 1932; cf. Bietak 1996). Such a bottom-up approach is, among others, strongly illustrated by recent work at Amara West (Spencer 2014; 2015; 2017). At the 2017 conference, Neal Spencer discussed the topic "Beyond imperial power and town planning: an experiential perspective from Amara West." In this paper, he stressed that the Egyptian towns of New Kingdom Nubia 'have traditionally been researched within a framework of pharaonic control, resource extraction and even acculturation, with the formal temples, inscriptions and elite funerary monuments (and associated assemblages) attracting considerable attention." Spencer built upon recent developments within settlement archaeology in New Kingdom Nubia (see Budka 2015; Spencer et al. 2017) and the new concept of "cultural entanglement" (see below and also Budka Households in this volume) and highlighted often forgotten experiential perspectives: those of the inhabitants of a colonial Pharaonic foundation in Northern Sudan.

All quotations used in the following for papers not included in the present volume were taken from the Book of Abstracts, see http://acrossborders.oeaw.ac.at/wp-content/uploads/2017/06/ AcrossBorders-Book-of-Abstracts.pdf (last accessed: 19/02/2018).

Research within settlement archaeology concerned with community and social stratigraphy can benefit substantially if the case studies also take funerary remains into account, thus if an integrated approach with funerary archaeology is feasible. In Nubia, this is the case at most "colonial sites" of the New Kingdom and therefore a number of papers at the conference focused on information provided by tombs and funerary remains (see Budka Tomb 26 in this volume; Smith and Buzon in this volume; Williams in this volume; Wohlschlager and Stadlmayr in this volume). The case of Tombos highlights in particular that cemeteries are important tools when trying to estimate the character of a site, and that "cultural entanglement" often coincides with "biological entanglement" (Smith and Buzon 2014; 2017; in this volume). Furthermore, artefacts from tombs are important sources for aspects of daily life, especially when compared with objects from domestic contexts. Material culture and finds from both tombs and settlements were also discussed during the conference.

In general, the comparative value of material culture for the study of contemporary settlement sites was a cornerstone of the AcrossBorders project. Working on both sides of the early New Kingdom Nubian border at the islands of Sai and Elephantine, questions of production, trade and local innovation were discussed, phenomena that are especially traceable within the ceramic material (see Budka Pots in this volume; cf. also Rose 2017 for a comparison between Sesebi and Amarna). Here, recent work by the British Museum Amara West research project ties in nicely (see Spencer 2017). Manuela Lehmann presented aspects of the finds from both the town and the cemetery of Amara West. Preliminary findings on wooden, ivory, stone and faience artefacts were used to illustrate current research questions about cultural entanglement, self-sufficiency vs. external supply, trade patterns, local craft production and beliefs. These aspects are currently also explored by the AcrossBorders project and correlate the micro perspective of analysing specific find assemblages with meso-level questions about the distribution of goods between the sites located in Nubia. Valentina Gasperini gave an overview of her ongoing analysis of the ceramic material from Amara West. Within the rich corpus of primarily Ramesside pottery, she chose examples from the extramural house D11.2 as a case study to illustrate the main research themes within her project such as the dating, function and interconnections of the ceramic material and its role in Nubian-Egyptian cultural entanglement.

The case studies presented at the 2017 conference that assess material culture from settlement sites in Egypt and Nubia in detail also discussed, among others, questions about so-called hybridity and "cultural entanglement" (see Stockhammer 2012; 2013; van Pelt 2013; Spencer *et al.* 2017; see also Budka Households in this volume). The potential of micromorphological applications and other scientific analyses was highlighted by Julia Budka and Neal Spencer in their papers. Spencer referred, *inter alia*, to recent work by Matthew Dalton (Dalton 2017) and Kate Fulcher (2017) which represent milestones for future studies.

General patterns and regional aspects in settlement archaeology in Ancient Egypt and Nubia

The application of landscape archaeology (see, e.g., Woodward et al. 2017) and in particular the study of resources and trade routes allows addressing questions dealing with macro aspects of ancient Egypt and Nubia. At the 2017 conference, Dietrich and Rosemarie Klemm (in this volume) focused on gold mining activities in Egypt and Nubia from a diachronic perspective and presented archaeological evidence for settlement remains associated with the exploitation of this highly valued resource (see also Klemm and Klemm 2013). Quarry logistics were also discussed in the paper "Settlement and logistics at quarrying and mining sites in the Eastern Desert" by Ian Shaw and Elizabeth Bloxam. They chose the complex set of archaeological remains situated in a mountainous region of the central Wadi Hammamat in the Eastern Desert, 75km east of Quft in the Nile Valley and 75km west of Quseir on the Red Sea coast as a case study. They convincingly argued that the Wadi Hammamat can be considered as 'a "peopled" landscape at the centre of considerable social networks.' Their paper discussed to which degree the social fabric of this landscape of procurement and production can be reconstructed and analysed on the basis of the survey results of the Wadi Hammamat Project (see also Bloxam et al. 2014).

Stuart Tyson Smith discussed "The fortified settlement at Tombos and Egyptian colonial strategy in New Kingdom Nubia" (see Smith and Buzon in this volume). Combining textual references with the archaeological evidence at both the settlement and cemetery allows putting forward important ideas about the role of Tombos within the so-called "re-conquest" of Kush and illustrates new aspects about the communities living and dying at Tombos which are of significance also for the regional and trans-regional perspective.

In her paper, Jördis Vieth focused on the so-called "temple towns" that have mainly been discussed in the light of Egyptian imperialism and colonialism (*e.g.* Kemp 1978; Morris 2005; see Vieth in this volume). She uses a landscape archaeological point of perspective to address the issues of definition, terminology and typology of these sites by means of spatial pattern analysis, site typology and landscape analysis. Vieth's still ongoing work aims for a better understanding of the nature of Egyptian presence in

New Kingdom Nubia. Closely related to this topic is the contribution by Johannes Auenmüller (in this volume). He evaluated the towns of Sai, Soleb and Amara West, which were successive administrative centres of Upper Nubia in the New Kingdom, on the basis of compilations of prosopographical data from larger archaeological contexts such as cemeteries, settlements and temples. This analysis enables him to draw a more comprehensive picture of the people and the social fabric of these sites which is also of relevance for general questions regarding New Kingdom society and social structures in both Egypt and Nubia.

Outlook

The 2017 conference has both demonstrated recent advances and highlighted blank areas in our knowledge of settlement archaeology in Egypt and Nubia during the New Kingdom (see Budka Households in this volume). All in all, the conference can be regarded as an outcome of the new era of settlement archaeology in Egypt and Nubia, which is characterised by archaeometric methods and a strong focus on bioarchaeology, but also by new theoretical approaches foregrounding the phenomenon of "cultural entanglement" (Spencer et al. 2017). With a continued focus on settlement archaeology, a more holistic understanding of ancient Egypt, including its "colonial" phases in northern Sudan, different from elite-biased and idealised projections deriving from the mortuary record only, can be gained. Communication between the individual disciplines nowadays engaged in settlement archaeology and collaborative research between teams investigating settlement sites throughout Egypt and Sudan promise further advances in the near future. The editors

hope that this volume will contribute to this aim, making up-to-date analyses of a large variety of sites and materials available and opening up further discussions.

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March 2018. Munich.

References

- Adenstedt, I. 2016. Reconstructing Pharaonic Architecture in Nubia: The Case Study of SAV1, Sai Island. Contributions to the Archaeology of Egypt and Nubia 3. Vienna: Austrian Academy of Sciences Press.
- Azim, M. 1975. Quatre campagnes de fouilles sur la Forteresse de Saï, 1970-1973. 1^{ère} partie: l'installation pharaonique. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 3, 91-125.
- Bietak, M. 1996. Zum Raumprogramm ägyptischer Wohnhäuser des Mittleren und Neuen Reiches, in: Bietak, M. (ed.), *Haus und Palast im alten Ägypten. Internationales Symposium 8. bis 11. April 1992 in Kairo*. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 14. Vienna: Austrian Academy of Sciences Press, 23-43.
- Bietak, M. 2016. The Egyptian Community at Avaris during the Hyksos Period. *Egypt and the Levant* 26, 263-274.
- Bloxam, E., Harrell, J., Kelany, A., Moloney, N., el-Senussi, A. and Tohamey, A. 2014. Investigating the Predynastic origins of greywacke working in the Wadi Hammamat. *Archéo-Nil* 24, 11-30.
- Bonnet, C. 2017. From the Nubian temples and palaces of Dokki Gel to an Egyptian *mnnw* during the beginning of Dynasty 18, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 107-121.
- Budka, J. 2015. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2017a. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Budka, J. 2017b. Crossing Borders. Settlement Archaeology in Egypt and Sudan. *Near Eastern Archaeolo*gy 80.1, 14-21.
- Dalton, M. 2017. Reconstructing lived experiences of domestic space at Amara West: Some preliminary interpretations of ancient floor deposits using ethnoarchaeological and micromorphological analyses, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 357-388.
- Doyen, F. 2017. II. The Architecture of SAV1 North, in: Budka, J. (ed.), AcrossBorders I. The New Kingdom Town of Sai Island, Sector SAV1 North. Contributions to the Archaeology of Egypt, Nubia and the Levant 4. Vienna: Austrian Academy of Sciences Press, 23-118.

- Fulcher, K. 2017. Evidence of the use of madder as a pigment in Nubia. Sudan & Nubia 21, 113-116.
- Kemp, B.J. 1978. Imperialism and Empire in New Kingdom Egypt (c. 1575-1087 B.C.), in: Garnsey, P. and Whittaker, C.R. (eds.), *Imperialism in the Ancient World*. Cambridge Classical Studies. Cambridge: Cambridge University Press, 7-57.
- Klemm, R. and Klemm, D. 2013. Gold and Gold Mining in Ancient Egypt and Nubia. Geoarchaeology of the Ancient Gold Mining Sites in the Egyptian and Sudanese Eastern Deserts. Natural Science in Archaeology. Heidelberg: Springer.
- Moeller, N. 2015. Multifunctionality and Hybrid Households: The Case of Ancient Egypt, in: Müller, M. (ed.), *Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches*. Oriental Institute Seminars 10. Chicago: Oriental Institute, 447-462.
- Moeller, N. 2016. *The Archaeology of Urbanism in Ancient Egypt. From the Prehistoric Period to the End of the Middle Kingdom.* Cambridge: Cambridge University Press.
- Morris, E.F. 2005. The Architecture of Imperialism. Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom. Probleme der Ägyptologie 22. Leiden: Brill.
- Müller, M. 2015. Introduction: Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches, in: Müller, M. (ed.), Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, xiii-xliii.
- Müller, M. 2015 (ed.). Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute.
- Ricke, H. 1932. Der Grundriß des Amarna-Wohnhauses. Wissenschaftliche Veröffentlichungen der Deutschen Orient-Gesellschaft 56. Leipzig: J.C. Hinrichs.
- Rose, P. 2017. Sesebi: Ceramics, chronology and society, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 465-473.
- Shaw, I. 1998. Egyptian Patterns of Urbanism. A Comparison of Three New Kingdom Settlement Sites, in: Eyre, C.J. (ed.), *Proceedings of the Seventh International Congress of Egyptologists, Cambridge, 3-9 September* 1995. Orientalia Lovaniensia Analecta 82. Leuven: Peeters, 1049-1060.
- Smith, S.T. and Buzon, M. 2014. Colonial Entanglements: "Egyptianization" in Egypt's Nubian Empire and the Nubian Dynasty, in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of*

the 12th International Conference for Nubian Studies. British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 431-442.

- Smith, S.T. and Buzon, M. 2017. Colonial encounters at New Kingdom Tombos: Cultural entanglements and hybrid identity, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 615-630.
- Spence, K. 2004. The Three-Dimensional Form of the Amarna House. *Journal of Egyptian Archaeology* 90, 123-152.
- Spence, K. 2015. Ancient Egyptian Houses and Households: Architecture, Artifacts, Conceptualization, and Interpretation, in: Müller, M. (ed.), *Household Studies* in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, 83-99.
- Spence, K. 2017. Sesebi before Akhenaten, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 449-463.
- Spencer, N. 2014. Creating and Re-Shaping Egypt in Kush: Responses at Amara West. *Journal of Ancient Egyptian Interconnections* 6:1, 42-61.
- Spencer, N. 2015. Creating a Neighborhood within a Changing Town: Household and other Agencies at Amara West in Nubia, in: Müller, M. (ed.), Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, 169-209.
- Spencer, N. 2017. Building on new ground: The foundation of a colonial town at Amara West, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 323-355.

- Spencer, N., Stevens, A. and Binder, M. 2017. Introduction: History and historiography of a colonial entanglement, and the shaping of new archaeologies for Nubia in the New Kingdom, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 1-61.
- Stockhammer, P.W. 2012. Conceptualizing Cultural Hybridization in Archaeology, in: Stockhammer, P.W. (ed.), Conceptualizing Cultural Hybridization. A Transdisciplinary Approach, Berlin: Springer, 43-58.
- Stockhammer, P.W. 2013. From Hybridity to Entanglement, From Essentialism to Practice. Archaeological Review from Cambridge Issue 28.1: Archaeology and Cultural Mixing, 11-28.
- Van Pelt, W.P. 2013. Revising Egypto-Nubian Relations in New Kingdom Lower Nubia: From Egyptianization to Cultural Entanglement. *Cambridge Archaeological Journal* 23.3, 523-550.
- Von Pilgrim, C. 2015. Excavation of House 55, in: Seidlmayer, S.J. et al., Report on the Excavations at Elephantine by the German Archaeological Institute and the Swiss Institute from autumn 2014 to spring 2015, 10-12 [www.dainst.org/projekt/-/ project-display/25953].
- Von Pilgrim, C. in press. House 55: A workshop of the late 17th and early 18th Dynasty (Area VIII), in: Seidlmayer, S.J. *et al.*, Report on the 46th season of the Excavations at Elephantine by the German Archaeological Institute and the Swiss Institute. *Annales du Service des Antiquités de l'Égypte.*
- Woodward, J., Macklin, M., Spencer, N., Binder, M., Dalton, M., Hay, S. and Hardy, A. 2017. Living with a changing river and desert landscape at Amara West, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in* the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 227-257.

Individual Households and Cities in Ancient Egypt and Nubia

A short summary of the state-of-the-art

Julia Budka^{*}

Abstract

This paper offers a summary of the state-of the-art of research on settlement archaeology in ancient Egypt and especially Nubia with a focus on the Late Bronze Age (2^{nd} millennium BC). Innovative advances are notable thanks to new methods and a stronger archaeometric focus and here northern Sudan plays a key role. These scientific analyses in particular enable investigations on the micro-scale and site-specific approaches. Furthermore, new theoretical approaches have stimulated a diverse discussion about the concept of "Egyptianisation" and moved away from colonial and postcolonial understandings of New Kingdom colonialism in Nubia. Their direct impact on archaeological fieldwork in Northern Sudan is discussed with the European Research Council AcrossBorders project as a case study.

Keywords: Settlement archaeology, urbanism, household, city, workshop, entanglement, Egypt, Nubia

Settlement archaeology in Egypt and Nubia

Settlement archaeology in Egypt and Nubia is still a comparatively young discipline within the long history of Egyptology and Egyptian archaeology and the more recent one of Sudan archaeology. Especially rural settlements and village life in ancient Egypt were traditionally neglected by Egyptology in favour of tombs, temples and statuary, resulting in a very restricted, elite-biased view of Pharaonic culture (see Trigger 1967; Bietak 1979). A first heyday in modern settlement archaeology started in the late 1960s and 1970s with the works by Manfred Bietak, Barry Kemp and Werner Kaiser at Tell el-Daba, Amarna and Elephantine (Bietak 1996a and b; Kemp 1977a; Kemp and Garfi 1993; Bard 2008, 13-14; for a historical overview of settlement archaeology in Egypt, see Moeller 2016, 31-38). Important studies were also published by David O'Connor, in particular on the demography and geography of Egyptian settlements (O'Connor 1972). In general, significant aspects of urbanism and urban society in ancient Egypt were discussed in the 1970s and 1980s by Kemp (1977a; 1977b; 1978) and O'Connor (1972; 1993; see also Moeller 2016, 36). For Sudan, one of the most prominent scholars engaged in settlement archaeology since the 1970s is Charles Bonnet working at Kerma

*Institute of Egyptology and Coptology, Ludwig-Maximilians-Universität München, Katharina-von-Bora-Str. 10, 80333 Munich, Germany; Julia.Budka@lmu.de (Bonnet 1996; 2017; see also his contribution in this volume). The UNESCO rescue and salvage campaign in the 1960s and 1970s represented a heyday in Nubian archaeology and also resulted in the documentation of a large number of settlement sites from a wide range of periods (Säve-Söderbergh 1987; Moeller 2016, 34-35).

Felix Arnold (1989) and Cornelius von Pilgrim (1996) have made, among others, substantial contributions to Egyptian domestic architecture, site formation processes and estate development in settlements. Moeller's new publication on urbanism (2016) provides an up-to-date overview of theories and methods in Egyptian settlement archaeology and urban phenomena in Egypt with a focus on the period covering Predynastic times until the end of the Middle Kingdom (Moeller 2016, 6-41 and *passim*) and has already become a reference work.

In general, much progress has been made in recent years concerning urbanism and settlement patterns in Egypt (*e.g.* Shaw 1998; Bietak, Czerny and Forstner-Müller 2010; Snape 2014; Moeller 2016). Rural occupation and smaller villages remain particularly difficult to trace, both in Egypt (Lehner 2010; Snape 2014, 226; Moeller 2016, 25-26) and Nubia (Edwards 2012, 66-74). With Gism el-Arb'a (Gratien 1995; Gratien *et al.* 2003; 2008) and H25, a settlement close to Kawa (Ross 2014), important evidence for non-urban settlements of rural



Figure 1. Map of the most important New Kingdom sites in Nubia (with reference to temple and settlement remains).

character in Nubia were discovered, but are until now only partially explored. The better-understood New Kingdom settlements in Northern Sudan fall into the category of so-called Nubian temple towns (fig. 1, see also Vieth in this volume). Following Kemp, these are newly built fortified towns with an enclosure wall and a prominent temple within the settlement area (Kemp 1972, 651-656; Morris 2005, 5; Graves 2011, 63). A common feature for the specific urban layout of these temple towns is the limited domestic space, with much of the room instead occupied by storage facilities and magazines, putting these sites into direct connection with the Egyptian administration of Nubia. With a temple, a governor's residence, a town enclosure wall, an administrative area, an orthogonal layout, a repetition in house layouts/a hierarchy of houses and a location next to the floodplain these temple towns clearly fall into Moeller's category of 'state foundations with urban character' (Moeller 2016, 22).

The last few years have seen an increase in archaeological fieldwork at these New Kingdom sites in Nubia (see, most recently, Spencer *et al.* 2017). Excavations at Amara West (see, *e.g.*, Spencer 2010; 2014; 2017), Sesebi (Spence and Rose 2009; Spence *et al.* 2011; Spence 2017) and on Sai Island (Doyen 2009; 2014, 367-375; Budka 2014; 2015; 2017a; SAV1 in this volume) were resumed after long periods of neglect. Because of the urban character of the temple towns, these new investigations can also serve as a trigger for new ideas about urbanism in Northeast Africa.

The understanding of settlement patterns in Upper Nubia (Kush) prior to the new boom in urban archaeology concentrated on the general organisation and administration which are quite well understood (see Müller 2013) since most studies have concentrated on economic and strategic aspects of the sites (cf. Morkot 2013; Budka 2014, 57-58). As it is for example well illustrated by the site of Soleb, there was a tendency to focus on stone temples respectively the cemeteries, neglecting the domestic remains and settlement features. There is no doubt that temples were the key elements of the Egyptian towns in Nubia (Kemp 1972; see also Spencer et al. 2017, 22-25). Furthermore, the positioning of the main sites in the Abri-Delgo-reach (Sesebi, Soleb, Tombos, Sai) considered the character of the area as a rich gold ore region (Budka 2014, 57-58) and also followed strategic needs (Spencer et al. 2017, 20).

Archaeologies of ethnicity and social aspects of settlement archaeology

Archaeological studies dealing with ethnicity, groups and identity have markedly increased in recent decades (*e.g.* Graves-Brown *et al.* 1996; Jones 1997; Brather 2004; Gramsch 2009), but were not yet fully incorporated in Egyptian and Nubian archaeology (see now, *e.g.*, Bader 2013 for a case study in Egypt; for the current state in

Nubia, see Spencer et al. 2017). With the Egyptian "re-conquest" of Nubia in the 18th Dynasty, the indigenous occupants of the Nubian towns and villages clearly faced Egyptian culture during the New Kingdom, both at the level of materiality and the level of ideology and religion (cf. Doyen and Gabolde 2017). Consequently, the question arises: who were the occupants of the newly founded towns as far as their cultural identity is concerned - Egyptians, Egyptianised Nubians or a mix of both? Recent work has begun to highlight that impenetrable boundaries and prominent ethnic categorisation in New Kingdom Nubia are likeliest to be a modern conception and thus no longer supportable (cf. Smith 2003; Smith and Buzon 2014; 2017). Since 2013, the concept of "cultural entanglement" is also discussed for New Kingdom Nubia (van Pelt 2013; see also below).

In general, Egyptology introduced the study of social relationships and anthropological approaches for settlement archaeology relatively late, only in the 1970s (e.g. Kemp 1977a; Trigger 1979). More recent Egyptological studies have begun to stress social aspects of domestic architecture (Koltsida 2007), social and cultural identities of the occupants (e.g. Shaw 2004; Spence 2010; Müller 2015b; Bietak 2016) as well as environmental conditions affecting daily life (Kemp and Stevens 2010). As was already mentioned above, dealing with cultural identities became especially relevant in the study of the inhabitants of Upper Nubia during the New Kingdom (cf. Smith 2003; Török 2009, 280-283). Recent studies have furthermore investigated the impact of individuals for the developments of planned towns (Spencer 2015; see also below with further references).

From households and cities

Another fresh approach to Egyptian and Nubian settlement archaeology is the question of individual households. Important case studies were published as conference proceedings, edited by Miriam Müller and combining the archaeological and the textual record (Müller (ed.) 2015). Müller argues that, especially because of the partially very limited state of preservation in settlements, 'an integration of archaeology, micro-archaeology, and texts is in that respect essential in coming to a better understanding of households in ancient societies' (Müller 2015a, xxx). Egyptian archaeology seems in this respect in a favoured position because of its wealth of data, including texts, depictions and wooden models illustrating household activities. However, because early research mainly focused on the architecture of the houses, detailed accounts of all the house contents and finds in their specific find spot were rare (Müller 2015a, xiv; this also holds true for the early investigation of the New Kingdom town of Sai when the architect Michel Azim rarely noted finds, but only focused on the mudbrick architecture, see Azim 1975). Thus, despite of an extraordinary

set of data, household archaeology was quite neglected in Egyptology and the 2013 conference edited by Müller represents an important measure into a promising sub-discipline of settlement archaeology. The publication comprises among others case studies from sites in Egypt and Sudan which are also key sites in the present volume and of Egyptian and Nubian settlement archaeology in general: Tell el-Daba, Amarna, Elephantine and Amara West. Since the publication by von Pilgrim on the Middle Kingdom and Second Intermediate Period settlement of Elephantine (1996) already considered the themes of household archaeology, the island is of particular importance. Artefact distribution was also considered at the Amarna workmen's village (Kemp 1987) and the so-called stone village (Stevens 2012; see also Müller 2015a, xix). A recent analysis by Kate Spence has illustrated how essential for the Egyptian case studies the combination of the evidence for activities with the house architecture is (Spence 2015). Nadine Moeller has also argued for a study of households within the framework of the specific cultural setting in ancient Egypt (Moeller 2015); similar to Spence, she touches upon the much-debated topic of "multifunctionality" of rooms within Egyptian domestic architecture.

All in all, the detailed investigation of houses and settlements on a micro-level and including 'as many lines of evidence as possible' (Müller 2015a, xxix) has much potential for a better understanding of household composition, stages of household lifecycles as well as other social processes and the use of space. For the case of Nubia, I follow Neal Spencer in his approach: 'A re-assessment of the role of individual/household agency in creating and shaping a new town in Pharaonic Nubia is necessary' (Spencer 2017, 352; see also Spencer 2015).

Although the field of household archaeology emerged from a predominance of macro-scale investigations of house architecture (Tringham 1995; Spence 2015, 83), the study of Egyptian cities in Egypt and Nubia is still a field which requires more research. As was noted above, Egyptian towns in Nubia were mostly addressed from a macro perspective, sometimes including the meso-level as well (cf. Vieth in this volume). As Moeller pointed out, the classification of sites in "urban" and "nonurban" still opens up several questions (Moeller 2016, 22) and can profit from further fieldwork, both in Egypt and Nubia.

The state-of-the-art of settlement archaeology in Nubia

Key aspects of current settlement archaeology in Upper Nubia, tackled by various missions working on relevant sites, can be characterised as follows (Budka 2015, 58-59; see also Spencer *et al.* 2017, 13-15): 1) Dating: There are changing views regarding the earliest and latest occupation on various sites, especially as fieldwork is continuing. At several sites, e.g. at Sesebi, Egyptian presence started earlier than previously thought (Rose 2017; Spence 2017). Amara West has produced interesting evidence that the Egyptian presence might have lasted beyond the New Kingdom (Binder 2011, 39-53; Spencer et al. 2014); and new finds at Sai illustrate the importance of the site also during the Ramesside period (Budka 2017a). All in all, this dating issue illustrates a still limited understanding of the diachronic evolution of Egyptian occupation in Kush which was considerably enlarged in the last years. 2) Social stratification: There is no common understanding regarding the social interconnections and power hierarchies of Egyptians and Nubians in the Egyptian towns established in Upper Nubia during the New Kingdom. Cultural and material entanglement and processes of adaptation and acculturation with the important impact by indigenous elements are the most important phenomena which are currently being discussed (see below). 3) Background and landscape: Modern technical advances have become highly relevant for settlement archaeology in both Egypt and Nubia. At most Sudanese sites, but also at Egyptian ones, the environmental settings are being explored (Spence and Rose 2009, 43-45; Spencer et al. 2012, 37-47; Woodward et al. 2015; 2017; Bunbury et al. 2017; cf. also Edwards 2012, 67). Various aspects of archaeometry are conducted by the missions working in the field. Especially geoarchaeological and interdisciplinary applications like soil sampling, micromorphology and isotope analysis are common and the analysis of the material culture is undertaken from a multi-perspective level, including various scientific analyses (e.g. iNAA, see D'Ercole and Sterba in this volume) and different approaches (Spencer 2014; Budka 2015; Spataro et al. 2015; Spencer et al. 2017, 13-15).

Based on these key aspects of its research, the ongoing archaeological fieldwork in Upper Nubia has much potential for a better understanding of settlement patterns in the region. Recent advances in assessing the diachronic and regional development of the settlements in the area as well as the local properties of the individual sites at a synchronic level can be noted (Budka 2015, 58-59; Spencer *et al.* 2017; see also below).

Modern settlement archaeology incorporates also in Egypt and Nubia a wide range of various analyses, archaeological sciences and interdisciplinary methods. Large teams of experts and specialists for fieldwork have become standard: geologists, biologists, zooarchaeologists, physical anthropologists and experts for digital documentation, image-based modelling, for GIS applications and diverse sampling methods. Although settlement archaeology in Northeast Africa is still developing in this respect, big footsteps forward have been made in the last years (see Spencer *et al.* 2017). In Egypt, there are currently some structural problems for applying sampling strategies. Because of laws designed to protect Egyptian antiquities, archaeological missions do not have permission for exporting samples and the relevant infrastructure to conduct the analyses in Egypt is still developing. The situation in Sudan is markedly different: archaeologists can apply all sorts of modern methods and archaeometry because there are little restrictions for the export of samples (see Spence 2015, 84; Budka 2017a, 41; Spencer *et al.* 2017, 13-15).

Therefore, much potential lies in results of research beyond traditional barriers of disciplines like the current studies at Egyptian sites in Nubia. The work at Sai, Amara West, Tombos and Sesebi can influence a new era of settlement archaeology also in Egypt proper. Because of excellent working conditions with permission for scientific analyses and export of samples and thanks to a very good state of preservation of the monuments, settlement archaeology in Northern Sudan can generate a modern interdisciplinary archaeology with a strong focus on archaeological sciences. This modern archaeology will allow a more realistic understanding of past worlds in Northeast Africa. Much progress has already been made in recent years, but further research addressing general aspects of living conditions and the specific coexistence of various cultural groups is required. In Northeast Africa, the architecture and structure of the Egyptian towns established in Upper Nubia during the New Kingdom, their social stratification, the local relations of Nubians and Egyptians and the specific material culture are of chief interest. These well-preserved but still not completely explored sites in modern Sudan hold much potential for direct comparisons with already excavated sites located in Egypt. There is the need to strengthen future collaborative research between missions working at settlement sites throughout Egypt and Sudan with a strong focus on interdisciplinary methods.

The AcrossBorders project and its approach

The international age of the New Kingdom in Pharaonic Egypt resulted in the foundation of several Egyptian towns and settlements in the area known today as Upper Nubia in Sudan. Some of these are well preserved and offer the unique chance to explore domestic life in an ancient Egyptian settlement outside of Egypt proper. One of the most promising examples of such "colonial sites" is the town on Sai Island because of its long occupation period and its attested history as important site of the African Kingdom of Kerma. Prior to the New Kingdom, Sai was the northernmost stronghold of the Kerma Kingdom with a significant strategic role, well attested by archaeological remains.

As is the case with other Egyptian colonial sites, the archaeological evidence of Sai strongly hints at it originally being an Egyptian foundation. However, similar to other sites, indigenous Nubian elements are also present (cf. Smith 2003, 188-206) and from the beginning of the project it was clear that they have to be carefully assessed for the period of the New Kingdom. In order to achieve a better understanding of the situation on Sai, a bottom-up approach to the investigation of the society in the New Kingdom temple town was introduced.

Back in 2012, little was known about the setting of New Kingdom Sai within the landscape, of its evolution and history, its internal structure and occupants. Considering the current status of Nubian settlement archaeology as described above, AcrossBorders followed the classical approach for the investigation of settlements developed by Herbert Jankuhn (1977, 75-76, fig. 24; see also Budka 2015, 41). The topographical, environmental and cultural situation of Sai and its occupants during the New Kingdom were the key questions.

- The environmental conditions/the setting on Sai Island. The first task was to investigate the landscape of the island in New Kingdom times in order to understand the location of the Pharaonic town. Of prime interest were the course of the Nile and the ancient shape of the sandstone cliff towards the east of the site (fig. 2).
- 2. The internal structure of the town. Following on from the above, the focus lay on the size and shape of the Pharaonic town. Aspects of its social organisation were addressed as were the microhistories of individual building units (see Doyen 2017). In order to do so, stratigraphic investigations and new excavations within the town were necessary (see Budka SAV1 in this volume).
- 3. The outer settlement structure. To understand Sai in the macrocosm of New Kingdom Egypt and Kush, the integration of the site in regional settlement patterns, its rural hinterland and its facilities plus cemeteries were explored. Of special interest is the development over time and potential differences between the 18th Dynasty and the Ramesside era (see Budka 2017b, 57-58; 2017d, 18-19).

These research questions were tackled not only by fieldwork on Sai, but also by a close comparison with the contemporaneous town of Elephantine in Egypt. In cooperation with the Swiss Institute for Architectural and Archaeological Research on Ancient Egypt, Cairo, directed by Cornelius von Pilgrim, AcrossBorders has studied the material culture from 18th Dynasty buildings on this important site at the southern border of Egypt. In the last years the focus lay on House 55, a very special mudbrick structure of significant size and a remarkable state of preservation (von Pilgrim 2015; in press). Of particular interest was the common appearance of both Nubian and Egyptian cooking wares, providing very close parallels for the situation on Sai Island.



Figure 2. Digital Elevation Model of the New Kingdom town of Sai with the location of AcrossBorders excavation areas.



Such a comparative approach has already been applied for other sites within Egypt (see Shaw 1998; cf. also Moeller and Marouard in this volume) and promises in our case new data for assessing aspects of the function and social fabric of an exemplary Nubian temple town. In respect to AcrossBorders' major aim to reconstruct "standards of living" on Sai to allow the comparison with Abydos and Elephantine, a special focus was placed on the material culture and here on the question of the lifestyle. Whether objects refer to the cultural identities of their users or reflect more complicated processes was investigated and will be tackled below and in other papers of this volume (see also Budka Ceramics in this volume).

Archaeological excavations by the AcrossBorders project in the New Kingdom town and cemetery of Sai were complemented with kite aerial photography, structure from motion approaches and terrestrial 3D laser scans. To investigate Sai as Egyptian microcosm,¹ various aspects of archaeometry were conducted. Geoarchaeological and interdisciplinary applications like soil sampling, Instrumental Neutron Activation Analysis of soil and ceramics and Strontium isotope analysis of animal bones, human remains, soil and water were important additions to the archaeological fieldwork (Budka 2015; 2017a).

Figure 3 (left). Section within the New Kingdom town of Sai where block samples were taken for soil micromorphology. © *AcrossBorders.*



Figure 4 (above). Microphoto of a thin section of a block sample from the New Kingdom town of Sai. © *AcrossBorders.*

A micromorphological sampling programme was implemented to explore aspects of social practice within the community on Sai from a multifaceted perspective (Budka 2017c, 173-174). The application of soil micromorphology is a technique that takes intact block samples of sediment and analyses them in thin section under a petrological microscope (figs. 3-4). A detailed understanding of site formation processes and a contextualised knowledge of the material culture can be achieved through careful and systematic observation of the changing facies (see Dalton 2017).

The major findings by applying micromorphology at Sai are that soil and sedimentary information can provide valuable insights to the use of space and also of the abandonment phases of the town. Formation processes of various cultural depositional sequences in all areas of AcrossBorders' excavation were examined, providing new information on how daily life activities contributed to the creation and use of space in the town, e.g. the disposal of garbage and the stabling of animals (Budka 2017c, 174 with references).

The 2017 AcrossBorders conference

This edited volume comprises the proceedings of a conference also entitled "From Microcosm to Macrocosm: Individual households and cities in Ancient Egypt and Nubia". This conference represented the closing event of

¹ Note the seminal work by Kemp on Amarna, here especially chapter "Egypt in microcosm: the city of El-Amarna" in Kemp 2002, 261-317; see also Kemp 1977a.

the European Research Council funded project Across-Borders and was held from 1-3 September, 2017, hosted in Munich by the Ludwig-Maximilians-University. Archaeologists from Germany, Austria, Switzerland, the UK, the US and Italy presented their current work associated with settlement archaeology, households, cities and urban patterns in Egypt and Sudan. Because of the aims of the AcrossBorders project, the focus was on recent fieldwork in Northern Sudan, highlighting latest results from the New Kingdom sites of Amara West, Sai, Tombos, Kerma (Dokki Gel) and Sesebi.

The conference focused on 1) individual households of selected sites in Egypt and Nubia (for example Tell el-Daba, Amarna, Elephantine, Amara West, Sesebi, Tombos, Kerma). Here, architectural studies as well as analyses of material culture, in particular of ceramics, were presented, featuring up-to-date applications of archaeometry (cf. D'Ercole and Sterba in this volume).

In addition to this micro-approach, introducing microhistories of individual sites according to recent archaeological fieldwork incorporating interdisciplinary methods, the event also discussed 2) general patterns and regional developments – thus, the macrocosm of New Kingdom Nubia (cf. Auenmüller in this volume; Vieth in this volume). Aspects of urbanism in earlier periods were tackled as well (see Moeller and Marouard in this volume). Comparative approaches were also useful on this large scale. Therefore, the role of foreigners in Egyptian towns were discussed from a broad perspective and aspects of the "cultural entanglement" of Asiatics compared with those of Nubians (cf. Bietak 2016; in this volume).

Combining research questions on the micro-level with the macro-level promises in general new information about cities and households in Ancient Egypt and Nubia. The AcrossBorders conference therefore represented a case study for the current status of modern Egyptian settlement archaeology which is characterised by a strong interdisciplinary focus. The rich potential of well-preserved but still not completely explored sites in modern Sudan, especially as direct comparison for already excavated sites located in Egypt, was highlighted.

Entanglement of cultures in Bronze Age Nubia

'The idea of entanglement has been announced recently in archaeology as a remedy of a host of interpretive problems' (Silliman 2016, 31). Since recent theoretical approaches to Nubian material culture in the New Kingdom were also tackled during the conference, "entanglement" and its significance for the area of Northern Sudan was also discussed. For about five years now, the concept of "Egyptianisation", well established in earlier discussions of Nubian culture, has been subject to criticism on the grounds that it projects a one-dimensional and static view of culture (see also Williams in this volume; Smith and Buzon in this volume). In its stead, a model based on the notion of "cultural entanglement" has been suggested (van Pelt 2013, based on Stockhammer 2012; see also Dietler 2010, 55-74). Ongoing excavation work on New Kingdom sites has since expanded the material basis of the debate and has shown how central the dynamics of cultural entanglement really are (see Smith and Buzon 2014; Spencer 2014; Budka 2015; Budka 2017a; Spencer *et al.* 2017; see also the individual contributions in this volume).

Similar to research in North America and elsewhere, the use of "entanglement" in Sudanese archaeology is related to colonial and postcolonial studies ("colonial entanglement", see Silliman 2016, 33 with further references; cf. also Dietler 2010; see Hodder 2012, 88-112 for various approaches to entanglement). What until now has not been touched in detail is the question, whether entanglement for Nubia is used as a model or as a metaphor (cf. Silliman 2016). Its relation to the concept of "Egyptianisation" might suggest that it is regarded as a model (cf. van Pelt 2013) which could cause several problems, similar to the concept of hybridity (cf. Stockhammer 2012). Following Silliman (2016) it seems more plausible to use it as metaphor: cultural entanglement stands for the redirection of the archaeological interpretation of finds in Northern Sudan, but should not be regarded as the one and only solution.

Within the material studies, small finds, ceramics and other objects can be seen as evidence of "material entanglement", following Stockhammer's (2012, 49-51) categories. The concept of hybridity has been discussed in a number of recent papers on Nubian New Kingdom sites (see Budka Ceramics in this volume).

Biologic entanglement is another theme recently discussed in Nubian archaeology (Smith and Buzon 2017). Especially the funerary evidence suggests that the individuals buried at the New Kingdom sites were both Egyptians and Nubians and therefore represent a complex community (Smith and Buzon 2017, 618). Here, in the last decade the analysis of systematic variation in the isotopic composition of Sr in the environment and in dental enamel of ancient skeletons was used in Nubian archaeology for tracing human migration. The isotope signals can be used as basis for the further interpretation of the autochthony or allochthony of the skeletal remains of the excavated individuals. Whereas the analyses conducted within the framework of the Across-Borders project are still ongoing (see Budka Tomb 26 in this volume), the project working at Tombos has already published data which suggest a 'culturally and biologically mixed group of people living at Tombos' (Smith and Buzon 2017, 619).

Current developments in Egyptian and Nubian settlement archaeology

To summarise the above, there are two major developments in the study of urban patterns and individual households in ancient Egypt and Nubia in the last decade. The first is specific for New Kingdom Nubia and concerns the above-mentioned advances regarding the concept of "Egyptianisation" which is now replaced by approaches using theories of cultural entanglement and appropriation (van Pelt 2013); new within this approach is also the notion of the importance of indigenous people (see already Morkot 2013). The AcrossBorders project and its interpretation of Sai illustrate this development. Other than drawing artificial border lines between Egyptians and Nubians, AcrossBorders' multi-faceted research illustrates that at the local level social, economic and cultural identities were changing, interacting and merging with each other. Sai can, therefore, be regarded as an example for the dynamic and situational character of past societies (Budka 2017c, 177). With this focus on the importance of the microhistories and individuals of specific sites, the "entanglement" advance developed in the last years in Nubia is also of relevance for sites located in Egypt (see, e.g., the corresponding research by Bader 2013 and Bietak 2016).

The second development in the study of urban patterns and individual households in ancient Egypt and Nubia in the last decade concerns the application of archaeometric analyses and scientific methods during the actual fieldwork. Within this category, settlement archaeology in modern Sudan is much more advanced than in Egypt. I would suggest that this new development is crucial for the now established research of households; especially analyses conducted at the micro-scale like micromorphology and petrography (see D'Ercole and Sterba in this volume) allow the investigation of specific aspects of individual households and rooms within houses. This archaeometric/scientific achievement also includes digital landscape models (see fig. 2, also Fera and Geiger in this volume) and GIS applications (see Vieth in this volume).

Altogether, the current developments represent major footsteps forward in the field of settlement archaeology in Northeast Africa in the last years, especially for the Bronze Age.

From macro- to microcosm in Northeast Africa

Previously, settlement sites in Northern Sudan were primarily touched upon within studies of urbanism and colonialism (*e.g.* O'Connor 1993). Sites like Sai and Sesebi were studied on the basis of textual references and were interpreted within the administrative matrix (which was again reconstructed by means of texts and inscribed

records). This approach from the macro perspective allowed assessments within the larger historical picture, but had clear shortcomings on the micro-level of individual sites. These shortcomings have been addressed by the recent boom of settlement archaeology in Northern Sudan. Thanks to new fieldwork with a bottom-up approach, detailed information on selected sites is now available and their analysis is still ongoing. Sai may again serve as a case study, illustrating how much information can be added with detailed excavation records in combination with the analysis of the material culture, textual records and architecture (Budka 2017c). First of all, the "planned" appearance of Sai is not as uniform as previously thought - AcrossBorders' excavation unearthed diverse areas within the orthogonal settlement which have much in common, but also depict unique features, most likely the results of a number of dynamic factors characterising a social fabric which is more complex than the macro approach towards an "Egyptian town" would suggest (see Budka 2017c).

Evidence from both Amara West and Sai Island indicates that real developments within Egyptian towns in Nubia may differ significantly from theoretical urban planning (Spencer 2015, 201-202; Budka 2017d, 17). Although a hierarchy of different sizes of houses is present at these state foundations, a dissonance of houses from "standard layouts" seems to have actually been common and integral parts of very dynamic worlds.

Another example illustrating the potential of the micro-scale for settlement sites is Elephantine (cf. von Pilgrim 1996). House 55 (von Pilgrim 2015; in press) was meticulously studied – building phases, floor levels, abandonment phases and activities related to crafts and other activities within the building are currently being reconstructed by means of an integrated approach, considering the complete archaeological stratigraphy (fig. 5) and finds as well as the architecture. Micromorphological samples were taken in House 55 and their analysis is still pending, but exemplifies the potential of the use of micro-archaeology also in Egypt.

As was mentioned above, micromorphology offers new data about the maintenance of floors, pavements and wall plaster (Dalton 2017). The technique also allows a better understanding of spaces used for animal husbandry in towns, as midden or in connection with the general waste management (cf. Arnold 2015).

On the micro-level, also installations within Egyptian houses are of interest. Examples have been discussed for the New Kingdom from Amarna (Spence 2007; see also Steadman 2015, 265) in connection with the use of space and the general aspect of ritual and sacred activities within the domestic sphere (cf. Stevens 2006). Sector SAV1 North of the New Kingdom town of Sai yielded several installations in 18th Dynasty houses, *e.g.* storage bins,



Figure 5. Section within House 55. © Cornelius von Pilgrim, Swiss Institute Cairo.

grinding emplacements and miscellaneous installations (Doyen 2017). Staircases and mastabas are other types of installations well known from larger buildings in Amarna and elsewhere (Kemp and Stevens 2010, 492-496).

A recent example where the micro-level investigation of Egyptian settlements and towns was combined with a meso- and macro approach is the study on 'Technology and Urbanism in Late Bronze Age Egypt' by Anna Hodgkinson (2018). Detailed studies on crafts and workshops on individual sites were combined with GIS analysis, distribution patterns and a consideration of the historical framework (cf. also Vieth in this volume).

Sai Island can serve as another case study for the fruitful combination of investigation on both the micro- and the macro-level. In 2015, I have proposed that the three main phases of the evolution of the New Kingdom town of Sai reflect general settlement patterns for the region of Kush (Budka 2015). For example, Phase B on Sai with the erection of the town wall, the stone temple and administrative buildings mirrors the installation of a permanent Egyptian administration. This indicated that the Egyptian temple towns flourished and dominated the landscape of Upper Nubia only after the defeat of the Kerma Kingdom and were integral parts of the Egyptian administration as installed by Thutmose III. Although their layout was planned, the specific sites show evidence of dynamic sides and local features in regard of both architecture and material culture – aspects which are also well traceable in New Kingdom towns in Egypt proper, but have often been overlooked because of a macro-scale approach.

The results by Smith (2003) and Spencer (2015) that "cultural entanglement" is almost not traceable within the domestic record, but appears clearer in the mortuary culture of Egyptian sites in Nubia, were also confirmed by AcrossBorders' research. Case studies like Tomb 26 on Sai (Budka Tomb 26 in this volume) allow tracing not only individuals on the micro-scale, but also allow projections about the social fabric on Sai and in Upper Nubia on the macro-scale (cf. Auenmüller in this volume).

To conclude, the complex whereabouts of New Kingdom sites in Nubia have to be further assessed from a micro and also a macro perspective, the latter in particular with considering the corresponding historical and political situation and the relationship and networks of the individual sites with other sites. For Sai, much new information about the town's role in the Egyptian "re-conquest" were gained by a joint analysis of archaeological and textual sources in the last years (see Doyen and Gabolde 2017, 149-150).

Outlook

The 2017 conference has both demonstrated recent advances and highlighted blank areas in our knowledge of settlement archaeology in Egypt and Nubia during the New Kingdom.

The occupation of the Egyptian sites in Nubia and the social stratification of their population still represent many open questions. In terms of architecture, mainly the fortified towns have been investigated so far; new research should also include architecture outside the town wall. As recent work at Sesebi (Spence *et al.* 2011; Spence 2017) has shown, extra-mural settlements existed obviously already in the 18th Dynasty (other than originally proposed by Kemp 1972). Of similar importance would be more in depth integrated approaches considering also the hinterland of the main sites; surveys in these areas should also be of high priority (see already Stevens and Garnett 2017).

The end of the occupation of the New Kingdom sites still poses several questions, as is the dating of the respective abandonment. The latter also still raises problems in understanding why sites were actually abandoned (cf. Spencer *et al.* 2012). At some sites, cemeteries seem to have a longer duration than the town areas (see Binder 2012; cf. also my comments on the use of SAC5, Budka 2017a).

Assessments of the material culture of New Kingdom sites will have to continue in the next years and require more data and additional comparative approaches. Information about the production of faience, pottery and leather as well as activities like weaving and metal working is also still quite limited (Spencer *et al.* 2017). The subject of gold exploitation in Nubia (Klemm and Klemm 2013; in this volume) has been addressed by all missions in the last years and therefore still awaits an updated synthesis considering all new data.

Assessements of the agriculture, animal husbandry and food production are at most sites still ongoing (*e.g.*, Cartwright and Ryan 2017). Various scientific analyses contribute to the micro-archaeology of Egyptian sites in Nubia, including the study of pigments which also allow addressing questions on the macro level (see Fulcher 2017).

All in all, the 2017 conference was an outcome of the new age of settlement archaeology in Egypt and Nubia, which is characterised by archaeometric approaches and a strong focus on bioarchaeology, but also by new theoretical approaches (Spencer *et al.* 2017). With a continued focus on settlement archaeology, a more realistic understanding of ancient Egypt, including its "colonial" phases in northern Sudan, different from elite-biased and idealised projections deriving from the mortuary record only, can be established. Communication between the individual disciplines engaged in settlement archaeology nowadays and collaborative research between teams investigating settlement sites throughout Egypt and Sudan promise further advances in the near future.

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References

- Adenstedt, I. 2016. *Reconstructing Pharaonic Architecture in Nubia: The Case Study of SAV1, Sai Island.* Contributions to the Archaeology of Egypt and Nubia 3. Vienna: Austrian Academy of Sciences Press.
- Arnold, F. 1989. A Study of Egyptian Domestic Buildings. *Varia Aegyptiaca* 5, 75-93.
- Arnold, F. 2015. Clean and Unclean Space. Domestic Waste Management at Elephantine, in: Müller, M. (ed.), *Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches*. Oriental Institute Seminars 10. Chicago: Oriental Institute, 151-167.
- Azim, M. 1975. Quatre campagnes de fouilles sur la Forteresse de Saï, 1970-1973. 1^{ère} partie: l'installation pharaonique. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 3, 91-125.
- Bader, B. 2013. Cultural Mixing in Egyptian Archaeology: The 'Hyksos' as a Case Study. Archaeological Review from Cambridge Issue 28.1: Archaeology and Cultural Mixing, 257-286.
- Bard, K.A. 2008. An Introduction to the Archaeology of Ancient Egypt. Malden, MA, Oxford and Carlton: Blackwell Publishing.
- Bietak, M. 1979. Urban Archaeology and the "Town Problem", in: Weeks, K.R. (ed.), *Egyptology and the Social Sciences, Five Studies.* Cairo: American University in Cairo Press, 97-144.
- Bietak, M. 1996a. Zum Raumprogramm ägyptischer Wohnhäuser des Mittleren und Neuen Reiches, in: Bietak, M. (ed.), *Haus und Palast im alten Ägypten. Internationales Symposium 8. bis 11. April 1992 in Kairo.* Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 14. Vienna: Austrian Academy of Sciences Press, 23-43.
- Bietak, M. 1996b. Avaris: The Capital of the Hyksos. Recent Excavations at Tell el-Dab'a. The First Raymond and Beverly Sackler Foundation Distinguished Lecture in Egyptology. London: British Museum Publications.
- Bietak, M. 2016. The Egyptian Community at Avaris during the Hyksos Period. *Egypt and the Levant* 26, 263-274.
- Bietak, M., Czerny, E. and Forstner-Müller, I. 2010 (eds.). *Cities and Urbanism in Ancient Egypt*. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 35. Vienna: Austrian Academy of Sciences Press.
- Bonnet, C. 1996. Habitat et palais dans l'ancienne Nubie, in: Bietak, M. (ed.), *Haus und Palast im alten Ägypten. Internationales Symposium 8. bis 11. April 1992 in Kairo*. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 14. Vienna: Austrian Academy of Sciences Press, 45-52.
- Bonnet, C. 2017. From the Nubian temples and palaces of Dokki Gel to an Egyptian *mnnw* during the

beginning of Dynasty 18, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 107-121.

- Brather, S. 2004. Ethnische Interpretationen in der frühgeschichtlichen Archäologie. Geschichte, Grundlagen und Alternativen. Berlin: Walter de Gruyter.
- Budka, J. 2014. The New Kingdom in Nubia: New results from current excavations on Sai Island. *Egitto e Vicino Oriente* 37, 55-87.
- Budka, J. 2015. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2017a. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Budka, J. 2017b. The Egyptian Town on Sai Island, in: Fantusati, E. and Baldi, M. (eds.), *Proceedings of the Fifth Day for Nubian Studies*. Serie Orientale Roma 9. Rome: Scienze e Lettere, 45-60.
- Budka, J. 2017c (ed.). AcrossBorders I. The New Kingdom Town of Sai Island, Sector SAV1 North. Contributions to the Archaeology of Egypt, Nubia and the Levant 4. Vienna: Austrian Academy of Sciences Press.
- Budka, J. 2017d. Crossing Borders. Settlement Archaeology in Egypt and Sudan. *Near Eastern Archaeology* 80.1, 14-21.
- Budka, J. and Doyen, F. 2013. Living in New Kingdom towns in Upper Nubia – New evidence from recent excavations on Sai Island. *Egypt and the Levant* 22/23, 2012/2013, 167-208.
- Bunbury, J., Tavares, A., Pennington, B. and Gonçalves, P. 2017. Development of the Memphite Floodplain: Landscape and Settlement Symbiosis in the Egyptian Capital Zone, in: Willems, H. and Dahms, J.-M. (eds.), *The Nile: Natural and Cultural Landscape in Egypt.* Mainzer Historische Kulturwissenschaften 36. Bielefeld: transcript, 71-96.
- Cartwright, C.R. and Ryan, P. 2017. Archaeobotanical research at Amara West in New Kingdom Nubia, in: Spencer, N., Stevens, A. and Binder, M. (eds.), Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 271-286.
- Dalton, M. 2017. Reconstructing lived experiences of domestic space at Amara West: Some preliminary interpretations of ancient floor deposits using ethnoarchaeological and micromorphological analyses, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 357-388.

Dietler, M. 2010. Archaeologies of Colonialism: Consumption, Entanglement, and Violence in Ancient Mediterranean France. Berkeley: University of California Press.

Doyen, F. 2009. The New Kingdom Town on Sai Island (Northern Sudan). Sudan & Nubia 13, 17-20.

Doyen, F. 2014. Sai Island New Kingdom Town (Northern Sudan): 3rd and 4th Seasons (2009–2010), in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 367-375.

- Doyen, F. 2017. II. The Architecture of SAV1 North, in: Budka, J. (ed.), AcrossBorders I. The New Kingdom Town of Sai Island, Sector SAV1 North. Contributions to the Archaeology of Egypt, Nubia and the Levant 4. Vienna: Austrian Academy of Sciences Press, 23-118.
- Doyen, F. and Gabolde, L., Egyptian versus Kushites: The cultural question of writing or not, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 149-158.
- Edwards, D.N. 2012. The Third-Second Millennia BC. Kerma and New Kingdom Settlements, in: Osman, A. and Edwards, D.N. (eds.), *Archaeology of a Nubian Frontier. Survey on the Nile Third Cataract, Sudan*. Leicester: Mauhaus Publishing, 59-87.
- Fulcher, K. 2017. Evidence of the use of madder as a pigment in Nubia. *Sudan & Nubia* 21, 113-116.
- Gramsch, A. 2009. Die Gleichzeitigkeit des Ungleichzeitigen: Überlegungen zum Kulturwandel, in: Zeeb-Lanz, A. (ed.), Krisen Kulturwandel Kontinuitäten. Zum Ende der Bandkeramik in Mitteleuropa. Beiträge der internationalen Tagung in Herxheim bei Landau (Pfalz) vom 14.-17. 06. 2007. Internationale Archäologie. Arbeitsgemeinschaft, Symposium, Tagung, Kongress 10. Rahden/Westf.: Marie Leidorf, 9-25.
- Gratien, B. 1995. Gism el-Arba, un habitat Kerma. Les niveaux tardifs. Actes de la VIII^e conférence internationale des études nubiennes. Lille 11-17 Septembre 1994, Vol. II – Découvertes archéologiques. Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille 17.2, 55-65.
- Gratien, B., Marchi, S., Thuriot, O. and Willot, J.-M. 2003. Gism el-Arba, habitat 2. Rapport préliminaire sur un centre de stockage Kerma au bord du Nil. *Cahiers de Recherches de l'Institut de Papyrologie et* d'Égyptologie de Lille 23, 29-43.
- Gratien, B., Marchi, S., Sys, D. and Dissaux, R.-P. 2008. Gism el-Arba, habitat 2. Campagne 2005-2006. *Kush* 19 (2003-2008), 21-35.
- Graves, C. 2011. *Egyptian imperialism in Nubia c. 2009 1191 BC*. MPhil thesis, University of Birmingham. Birmingham.

- Graves-Brown, P., Jones, S. and Gamble, C. (eds.) 1996. Cultural Identity and Archaeology: The Construction of European Communities. London: Routledge.
- Hodder, I. 2012. Entangled. An Archaeology of the Relationships between Human and Things. Malden, MA: Wiley-Blackwell.
- Hodgkinson, A. 2018. *Technology and Urbanism in Late Bronze Age Egypt*. Oxford Studies in Egyptian Archaeology. Oxford: Oxford University Press.
- Jahnkuhn, H. 1977. *Einführung in die Siedlungsarchäologie*. Berlin: Walter de Gruyter.
- Jones, S. 1997. *The Archaeology of Ethnicity. Constructing Identities in the Past and Present.* London: Routledge.
- Kemp, B.J. 1972. Fortified towns in Nubia, in: Ucko, P.J., Tringham, R. and Dimbleby, G.W. (eds.), Man, Settlement and Urbanism. Proceedings of a Meeting of the Research Seminar in Archaeology and Related Subjects Held at the Institute of Archaeology, London University. London: Duckworth, 651-656.
- Kemp, B.J. 1977a. The city of el-Amarna as a source for the study of urban society in ancient Egypt. World Archaeology 9 (2), 123-139.
- Kemp, B.J. 1977b. The Early Development of Towns in Egypt. *Antiquity* 51, 185-200.
- Kemp, B.J. 1978. Imperialism and Empire in New Kingdom Egypt (c. 1575-1087 B.C.), in: Garnsey, P. and Whittaker, C.R. (eds.), *Imperialism in the Ancient World*. Cambridge Classical Studies. Cambridge: Cambridge University Press, 7-57.
- Kemp, B.J. 1987. The Amarna Workmen's Village in Retrospect. Journal of Egyptian Archaeology 73, 21-50.
- Kemp, B.J. 2002. Ancient Egypt. Anatomy of a Civilization. Paperback reprinted edition (first published in paperback 1991). London: Routledge.
- Kemp, B.J. and Garfi, S. 1993. A Survey of the Ancient City of El-Amarna. Egypt Exploration Society Occasional Publication. London: Egypt Exploration Society.
- Kemp, B.J. and Stevens, A. 2010. Busy Lives at Amarna: Excavations in the Main City (Grid 12 and the House of Ranefer, N49.18), Vol. I. Egypt Exploration Society Excavation Memoir 90. London: Egypt Exploration Society.
- Klemm, R. and Klemm, D. 2013. Gold and Gold Mining in Ancient Egypt and Nubia. Geoarchaeology of the Ancient Gold Mining Sites in the Egyptian and Sudanese Eastern Deserts. Natural Science in Archaeology. Heidelberg: Springer.
- Koltsida, A. 2007. *Social Aspects of Ancient Egyptian Domestic Architecture*. British Archaeological Reports, International Series 1608. Oxford: Archaeopress.
- Lehner, M. 2010. Villages and the Old Kingdom, in: Wendrich, W. (ed.), *Egyptian Archaeology*. Malden, MA and Oxford: Wiley-Blackwell, 85-101.
- Moeller, N. 2015. Multifunctionality and Hybrid Households: The Case of Ancient Egypt, in: Müller, M. (ed.),

Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, 447-462.

- Moeller, N. 2016. The Archaeology of Urbanism in Ancient Egypt. From the Prehistoric Period to the End of the Middle Kingdom. Cambridge: Cambridge University Press.
- Morkot, R. 2013. From Conquered to Conqueror: The Organization of Nubia in the New Kingdom and the Kushite Administration of Egypt, in: Moreno García, J.C. (ed.), *The Administration of Egypt.* Handbuch der Orientalistik 104. Leiden: Brill, 911-963.
- Morris, E.F. 2005. The Architecture of Imperialism. Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom. Probleme der Ägyptologie 22. Leiden: Brill.
- Müller, I. 2013. *Die Verwaltung Nubiens im Neuen Reich*. Meroitica – Schriften zur altsudanesischen Geschichte und Archäologie 18. Wiesbaden: Harrassowitz.
- Müller, M. 2015a. Introduction: Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches, in: Müller, M. (ed.), Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, xiii-xliii.
- Müller, M. 2015b. Late Middle Kingdom Society in a Neighborhood of Tell el-Dabaa/Avaris, in: Müller, M. (ed.), *Household Studies in Complex Societies: (Micro)* Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, 339-370.
- Müller, M. 2015 (ed.). Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, University of Chicago.
- O'Connor, D. 1972. The Geography of Settlement in Ancient Egypt, in: Ucko, P.J., Tringham, R. and Dimbleby, G.W. (eds.), Man, Settlement and Urbanism. Proceedings of a Meeting of the Research Seminar in Archaeology and Related Subjects Held at the Institute of Archaeology, London University. London: Duckworth, 681-698.
- O'Connor, D. 1993. Urbanism in bronze age Egypt and northeast Africa, in: Shaw, T., Sinclair, P., Andah, B. and Okpoko, A. (eds.), *The Archaeology of Africa. Food, metals and towns*. One World Archaeology 20. London: Routledge, 570-586.
- Rose, P. 2017. Sesebi: Ceramics, chronology and society, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in* the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 465-473.
- Ross, T.I. 2014. El-Eided Mohamadein (H25): A Kerma, New Kingdom and Napatan settlement on the Alfreda Nile. *Sudan & Nubia* 18, 58-68.

- Säve-Söderbergh, T. 1987. Temples and Tombs of Ancient Nubia: The International Rescue Campaign at Abu Simbel, Philae, and Other Sites. New York and Paris: Thames and Hudson; UNESCO.
- Shaw, I. 1998. Egyptian Patterns of Urbanism. A Comparison of Three New Kingdom Settlement Sites, in: Eyre, C.J. (ed.), *Proceedings of the Seventh International Congress of Egyptologists, Cambridge, 3-9 September* 1995. Orientalia Lovaniensia Analecta 82. Leuven: Peeters, 1049-1060.
- Shaw, I. 2004. Identity and occupation: how did individuals define themselves and their work in the Egyptian New Kingdom?, in: Bourriau, J. and Phillips, J. (eds.), *Invention and Innovation: The Social Context of Technological Change*. Oxford: Oxbow Books, 12-24.
- Silliman, S.W. 2016. Disentangling the Archaeology of Colonialism and Indigeneity, in: Der, L. and Fernandini, F. (eds.), *Archaeology of Entanglement*. Walnut Creek, CA: Left Coast Press, 31-48.
- Smith, S.T. 1995. Askut in Nubia. The Economics and Ideology of Egyptian Imperialism in the Second Millennium B.C. London: Kegan Paul International.
- Smith, S.T. 2003. Wretched Kush. Ethnic identities and boundaries in Egypt's Nubian Empire. London: Routledge.
- Smith, S.T. and Buzon, M. 2014. Colonial Entanglements: "Egyptianization" in Egypt's Nubian Empire and the Nubian Dynasty, in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies*, British Museum Publications on Egypt and Sudan 1, Leuven: Peeters, 431-442.
- Smith, S.T. and Buzon, M. 2017. Colonial encounters at New Kingdom Tombos: Cultural entanglements and hybrid identity, in: Spencer, N., Stevens, A. and Binder, M. (eds.), Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 615-630.
- Snape, S. 2014. *The complete cities of ancient Egypt.* London: Thames & Hudson.
- Spataro, M., Millet, M. and Spencer, N. 2015. The New Kingdom settlement of Amara West (Nubia, Sudan): mineralogical and chemical investigation of the ceramics. *Archaeological and Anthropological Sciences* 7.4, 399-421.
- Spence, K. 2007. A Contextual Approach to Ancient Domestic Cult: The Case of the "Lustration Slabs" at El-Amarna, in: Barrowclough, D.A. and Malone, C. (eds.), *Cult in Context: Reconsidering Ritual in Archaeology*. Oxford: Oxbow, 285-292.
- Spence, K. 2010. Settlement Structure and Social Interaction at El-Amarna, in: Bietak, M., Czerny, E. and Forstner-Müller, I. (eds.), *Cities and Urbanism in*

Ancient Egypt. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 35. Vienna: Austrian Academy of Sciences Press, 289-298.

- Spence, K. 2015. Ancient Egyptian Houses and Households: Architecture, Artifacts, Conceptualization, and Interpretation, in: Müller, M. (ed.), *Household Studies* in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, 83-99.
- Spence, K. 2017. Sesebi before Akhenaten, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 449-463.
- Spence, K. and Rose, P.J. 2009. Fieldwork at Sesebi, 2009. Sudan & Nubia 13, 38-46.
- Spence, K., Rose, P.J., Bradshaw, R., Collet, P., Hassan, A., MacGinnis, J., Masson, A. and van Pelt, W.P. 2011. Sesebi 2011. Sudan & Nubia 15, 34-39.
- Spencer, N. 2010. Nubian architecture in an Egyptian town? Building E12.11 at Amara West. Sudan & Nubia 14, 15-24.
- Spencer, N. 2014. Creating and Re-Shaping Egypt in Kush: Responses at Amara West. *Journal of Ancient Egyptian Interconnections* 6:1, 42-61.
- Spencer, N. 2015. Creating a Neighborhood within a Changing Town: Household and other Agencies at Amara West in Nubia, in: Müller, M. (ed.), Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, 169-209.
- Spencer, N. 2017. Building on new ground: The foundation of a colonial town at Amara West, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 323-355.
- Spencer, N., Macklin, M. and Woodward, J. 2012. Re-assessing the abandonment of Amara West: The impact of a changing Nile? *Sudan & Nubia* 16, 37-47.
- Spencer, N., Stevens, A. and Binder M. (eds.) 2014. Amara West. Living in Egyptian Nubia. London: Trustees of the British Museum.
- Spencer, N., Stevens, A. and Binder, M. 2017. Introduction: History and historiography of a colonial entanglement, and the shaping of new archaeologies for Nubia in the New Kingdom, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 1-61.
- Steadman, S.R. 2015. Archaeology of Domestic Architecture and the Human Use of Space. Walnut Creek, CA: Left Coast Press.

- Stevens, A. 2006. *Private Religion at Amarna*. British Archaeological Reports International Series 1587. Oxford: Archaeopress.
- Stevens, A. 2012. Akhenaten's Workers. The Amarna Stone Village Survey, 2005-2009. Volume II: The Faunal and Botanical Remains, and Objects. London: Egypt Exploration Society and Amarna Trust.
- Stevens, A. and Garnett, A. 2017. Surveying the Pharaonic desert hinterland of Amara West, in: Spencer, N., Stevens, A. and Binder, M. (eds.), Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 287-306.
- Stockhammer, P.W. 2012. Conceptualizing Cultural Hybridization in Archaeology, in: Stockhammer, P.W. (ed.), Conceptualizing Cultural Hybridization. A Transdisciplinary Approach, Berlin: Springer, 43-58.
- Stockhammer, P.W. 2013. From Hybridity to Entanglement, From Essentialism to Practice. Archaeological Review from Cambridge Issue 28.1: Archaeology and Cultural Mixing, 11-28.
- Török, L. 2009. Between Two Worlds: The Frontier Region between Ancient Nubia and Egypt 3700 BC – 500 AD. Probleme der Ägyptologie 29. Leiden: Brill.
- Trigger, B.G. 1967. Settlement Archaeology its Goals and Promise. *American Antiquity* 32/2, 149-160.
- Trigger, B.G. 1979. Egyptology and Anthropology, in: Weeks, K.R. (ed.), *Egyptology and the Social Sciences*, *Five Studies*. Cairo: American University in Cairo Press, 21-53.
- Tringham, R. 1995. Archaeological Houses, Households, Housework and the Home, in: Benjamin, D.N. (ed.), *The Home: Words, Interpretations, Meanings, and Environments.* Aldershot: Avebury, 79-107.
- Van Pelt, W.P. 2013. Revising Egypto-Nubian Relations in New Kingdom Lower Nubia: From Egyptianization to Cultural Entanglement. *Cambridge Archaeological Journal* 23.3, 523-550.
- Von Pilgrim, C. 1996. Elephantine XVIII. Untersuchungen in der Stadt des Mittleren Reiches und des Zweiten Zwischenzeit. Archäologische Veröffentlichungen des Deutschen Archäologischen Instituts, Abteilung Kairo 91. Mainz am Rhein: Philipp von Zabern.
- Von Pilgrim, C. 2015. Excavation of House 55, in: Seidlmayer, S.J. et al., Report on the Excavations at Elephantine by the German Archaeological Institute and the Swiss Institute from autumn 2014 to spring 2015, 10-12 [www.dainst.org/projekt/-/project-display/25953].
- Von Pilgrim, C. in press. House 55: A workshop of the late 17th and early 18th Dynasty (Area VIII), in: Seidlmayer, S.J. *et al.*, Report on the 46th season of the Excavations at Elephantine by the German Archaeologi-

cal Institute and the Swiss Institute. *Annales du Service des Antiquités de l'Égypte.*

- Woodward, J., Macklin, M., Fielding, L., Millar, I., Spencer, N., Welsby, D. and Williams, M. 2015. Shifting sediment sources in the world's longest river: A strontium isotope record for the Holocene Nile. *Quaternary Science Reviews* 130, 124-140.
- Woodward, J., Macklin, M., Spencer, N., Binder, M., Dalton, M., Hay, S. and Hardy, A. 2017. Living with a changing river and desert landscape at Amara West, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 227-257.

Notes on the contributor

Julia Budka studied Egyptology and Classical Archaeology at the University of Vienna and received her PhD in Egyptology, University of Vienna in 2007. She held a researcher position at Humboldt University Berlin (2004-2012) and was a temporary replacement Assistant Professor at the University of Vienna (2011-2012). With a START Prize 2012 and ERC Starting Grant 2012 she implemented her project AcrossBorders at the Austrian Academy of Sciences. Since 2015, Julia Budka is Professor of Egyptian Archaeology and Art, LMU Munich (and transferred her ERC project to LMU). Her specialty fields are Egyptian archaeology and ceramics; she conducts excavations in Sudan and Egypt, both at funerary and settlement sites, especially at Luxor (Thebes), Elephantine, Abydos and Sai Island.

The Development of Two Early Urban Centres in Upper Egypt During the 3rd Millennium BC

The examples of Edfu and Dendara

Nadine Moeller^{*} and Gregory Marouard^{**}

Abstract

Recent fieldwork at the two major settlement sites in southern Egypt have provided new data concerning their respective foundations and long-term developments during the 3rd millennium BC. While both towns gained the status of provincial capitals during the early Old Kingdom, their initial settlement and long-term evolution show some interesting differences but also share many commonalties. Those developments seem to be related to significant changes in the floodplain regime and the course of the Nile river but there are also indications that more general trends, for example a population increase linked to the establishment of a local elite and a dynamic and sustainable regional economy, played a role in the sudden expansion of these sites at the end of the Old Kingdom. The archaeological fieldwork conducted by the Oriental Institute, University of Chicago, has focused on specific areas of these two settlements that had been founded directly on the natural bedrock constituting newly established settlement quarters at different stages of their development. At Tell Edfu, the Old Kingdom town gradually expanded northwards and westwards during the Old Kingdom making use of the increasingly flood-free zone, which can be seen by the newly excavated settlement quarter dating to the late 5^{th} Dynasty that was situated less than 20m to the much later Ptolemaic temple. Further expansion of the town occurred during the very end of the Old Kingdom / early First Intermediate Period (c. 2200 BC), a time that has usually been associated with political and economic crises which might have been triggered by the effects of a short time climate change. By this time, the town had reached its maximum northern and western limits, which remained relatively stable for centuries to come. The ancient city at Dendara has much older roots dating back at least to the late Predynastic period but it also saw a major expansion to the east of the Roman temple enclosure during the late Old Kingdom/First Intermediate Period transition, which was inhabited until the early Middle Kingdom. The new fieldwork conducted at both sites offers a glimpse of the organisation of the new town quarters in previously unsettled areas. These two examples of growing urban centres at the end of the 3^{nd} millennium BC are especially interesting since this particular time frame corresponds to a politically troubled period that led to a fragmented state with multiple power centres. However, from an urban perspective, cities in southern Egypt seem to demonstrate a true resilience in a time of relative prosperity and expansion.

*Associate Professor of Egyptian Archaeology, The Oriental Institute, Near Eastern Languages and Civilizations Department, University of Chicago; nmoeller@uchicago.edu

> **Research Associate in Egyptian Archaeology, The Oriental Institute, University of Chicago; marouardg@uchicago.edu

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Introduction

The ancient cities of Edfu and Dendara, which are situated within the Nile floodplain of southern Egypt (fig. 1), share an intricate connection that is clearly expressed through the last phases of their prominent temple complexes dating to the Ptolemaic and Roman periods. These two sites are famously complementary for having shared a tight religious bond through their respective tutelary deities, the goddess Hathor of Dendara and the god Horus of Edfu, the statue of the first making an annual visit to the second during a major procession on the Nile and a festival which was held mainly in Edfu. However, this is only the last phase in their histories and their long-term evolution over several thousand years since their origins date back to the early 3rd millennium BC. From the Early Dynastic period onwards at least, both towns gradually evolved into urban centres acquiring the status of provincial capitals already by the late 3rd Dynasty (*c.* 2690-2615 BC) and became during the course of the Old Kingdom the place where members of the local elite settled and created elaborate tombs in addition to the emergence of local administrative complexes and major sanctuaries that were the focal point of these communities.

These cities were part of a much more complex settlement system of which only a small fraction still survives today for archeological fieldwork. The comparative approach has the advantage of investigating the similarities and differences in their respective evolution in order to determine when possible the decisive factors that influenced their long-term development. By combining these two complementary and sister-sites, Edfu and Dendara comprise ideal case studies to shed new light on the role and evolution of these urban centres in Egypt for the early part of Pharaonic period history.



Figure 1. Map of Egypt with marked locations of Tell Edfu and Dendara (plan G. Marouard, after Moeller 2016, fig. 5.1).

The origins of Edfu and Dendara that were known prior to recent fieldwork

Over the past few seasons of archaeological fieldwork, since 2012 at Tell Edfu¹ and during the last three seasons at Dendara (2014-2016),² one of the main research objectives has been to identify the earliest traces for settlement activity at both locations. The ancient city of Edfu is situated on the West Bank of the Nile, halfway between Aswan and Luxor. In ancient times Edfu was the capital of the 2nd Upper Egyptian nome and it formed an important regional centre in the south of country. Concerning the origins and the period of foundation of this ancient town, only scant traces remain and some indirect evidence. During the Franco-Polish excavations conducted in the 1930s and then later by the members of the local inspectorate, several traces for a late Predynastic and Early Dynastic occupation have been unearthed, mainly in the form of burials and associated grave goods, some were found in secondary contexts on the tell (Aksamit 2004). A sizable number of these objects, which consist mainly of stone vessels, mace heads and palettes are now kept in the National Museum at Warsaw.3 The provenance of the stone vessels is problematic since most of them do not have a known archaeological context but were bought on the antiquities market and are believed to have come from Edfu (Aksamit 2004, 530). In this regard, it is important to keep in mind that there are several Predynastic and Early Dynastic cemeteries in the vicinity of Edfu such as el-Adwa (Abu Zeid 2004) and at el-Ghonameya (Needler 1984, 55) from which these objects could have also originated. Nevertheless, several of the presented objects have a provenance and were excavated near the Old and Middle Kingdom cemetery area along the south-west side of the tell (fig. 2). The presence of such early tombs and associated grave goods makes it very plausible that a permanent establishment already existed in the immediate vicinity, at least for the Early Dynastic period. So far, no settlement remains for this early stage have been discovered during the recent fieldwork at Edfu, which is most likely related to the fact that the archaeological *tell* and the Ptolemaic temples cover a large area that might have held the earliest traces of occupation which are now inaccessible for any further investigation.

Evidence for the presence of an early shrine or small temple at Edfu comes from the reliefs located in the corridors of the South Tomb at the Djoser pyramid complex at Saggara where one scene depicts the king as 'standing in front of the shrine of Behdet' (Gardiner 1944, pl. 3, no. 4). Another indication that the town might have already existed during the late 3rd / early 4th Dynasty is linked to the small step pyramid, which is situated near the modern village of el-Ghonameva about 5km southwest of Edfu. This provincial pyramid was part of a series of comparable monuments, constructed by the same king (Huni or most likely Snofru) since they all show almost identical architectural features and size, which have been found in different locations along the Nile Valley (Marouard and Papazian 2012). They usually stand close to early urban centres such as Elephantine, Edfu, Nekhen, Nubt, Abydos, which became at the same period capitals of the newly created system of administrative nomes (Dreyer and Kaiser 1980; Seidlmayer 1996).

For Dendara the evidence is a bit more complex since it is located within a region that has yielded much archaeological data and sites dating to Egypt's prehistory. Dendara is situated on the southern bank of the Nile, about 10km south of the modern city of Oena and 55km north of Luxor. This is the only part of the Egyptian Nile valley where the river forms a large bend and therefore flows east-west instead of the usual north-south direction. Sites such as El-Gozeriya, near Qena (Fischer 1968, 189-194), or Mahgar Dendera 2 about 5km to the west, where seasonal habitats were excavated in the late 1980s (Hendrickx et al. 2001), included significant traces from the Badarian period (Nagada IA-B, c. 4400-4000 BC). In the early 1990s excavations at Taramsa Hill, located 2.5km to the south-east of Dendara, revealed the oldest human burial known in Egypt so far, dating back to the Middle Paleolithic period (c. 50,000-80,000 BC). The region of Abydos, one of the centres linked to early Egyptian kingship, is not far either, in addition to the dense set of Predynastic and Early Dynastic cemeteries found in the vast Nubt/Naqada/Abu Ballas area to the south-east. It is therefore not an exaggeration to recognise Dendara as being located in the midst of the cradle of early Egypt. From the site itself archaeological data for the origins of the ancient town has been relatively limited until the recent fieldwork conducted since 2014 by the Oriental

¹ The Tell Edfu Project has been supported by the Oriental Institute, University of Chicago since 2007. We would like to thank the director, the FIRE fund and all the members of the Oriental Institute for their ongoing support. Several preliminary reports of the Oriental Institute mission at Tell Edfu are available online: https://telledfu.uchicago.edu/page/tell-edfu-preliminary-reports.

² Focused on urban archaeology, this University of Chicago project is welcomed on the 80-year-old archaeological concession of the French Archaeological Institute in Cairo (IFAO), which allowed the Oriental Institute team to excavate the settlement remains inside and outside of the main sanctuary enclosure wall. We would like to thank the Director of the IFAO, Laurent Bavay, and the director of the IFAO mission at Dendara, Pierre Zignani (CNRS) for their welcome on the site and their support of our research work. For a first overview of this project see Marouard 2016. Several preliminary reports of the Oriental Institute mission at Dendara are available online: https://oi.uchicago.edu/sites/oi.uchicago.edu/ files/uploads/shared/docs/ar/11-20/15-16/ar2016_Dendara.pdf.

³ Several Early Dynastic pieces have been found more recently by Ministry of Antiquities rescue excavations conducted in an area south of the mastaba of Izi, during the intervention of the USAID funded dewatering project.



Figure 2. Schematic plan of Tell Edfu showing excavation areas, sections of enclosure walls and an attempt to reconstruct the evolution of the settlement between the Old Kingdom and the First Intermediate Period (plan G. Marouard, Tell Edfu Project).

Institute (Marouard 2017). Up to then an early occupation at the site was assumed mainly through an isolated group of about a dozen of Early Dynastic burials that were excavated *c*. 1915-1918 in the vast necropolis area (fig. 15) by Clarence S. Fisher for the University of Pennsylvania Museum (Fischer 1968, 1-2, 16; Marouard 2017, 170-171).⁴ A group of early Old Kingdom mastabas, the so-called *Abu Suten* group, which was named by W.M. Flinders Petrie after the owner of the main tomb called Ni-Ibu-Nisut (Petrie 1900, 4-5, pl. 2, 28; Fischer 1968, 14-18), a local priest of the goddess Hathor, provided first evidence for the existence of a functional temple complex probably created at the turn of the 4th Dynasty. An inscription of king Snofru's son, Netjeraperef, from his burial at Dahshur makes it clear that Dendara had already acquired the status of a provincial capital during this time, since Netjeraperef held the title of 'Overseer of commissions of the nomes of Coptos, Hiu and Dendara' (Fischer 1968, 8-12; Alexanian 1999, 76-77). Some indirect evidence for even earlier origins can be found in the Western Crypt 3 of the Hathor temple which records a legend about the sanctuary's 'great charter of the foundation of Iunet/Dendara, copied on a leather roll in the time of the followers of Horus' (Daumas 1973, 18-19; Cauville 2004, 64, 463), who are usually associated with the first rulers of Early Dynastic Egypt. It underlines the apparent desire of the much later kings to link their intervention at Dendara to this legendary lineage and it would seem that, in some way, it had preserved the memory of a first sanctuary, at least of a first ritual or important festivities dating back to the Early Dynastic period (Daumas 1973,

⁴ It seems very possible that Flinders Petrie had occasionally uncovered some burials from the Naqada II and Naqada III periods at the site according to several objects brought back from his single season at Dendara in 1898.

19-20; von Beckerath 1980). Finally, another inscription in the same Western Crypt 3 records the creation of a first sanctuary – '*the great charter of foundation of lunet*' – under the reign of Khufu (Mariette 1870, 55-56; Fischer 1968, 37; Slater 1974, 6, 21-22; Cauville 2004, 64).

As will be outlined below, the recent Oriental Institute excavations within the area of the Late Period and Roman enclosure wall have revealed much new archaeological evidence for the beginnings of Dendara as a small farming village dating back to the Naqada II period. It then continued to grow into a major regional centre by the early Old Kingdom with evidence for a continuously expanding town until the early Middle Kingdom.

Tell Edfu during the Old Kingdom and First Intermediate Period

The ex-nihilo foundation of the 5th Dynasty in Zone 2

Over the past few seasons at Tell Edfu much of the archaeological fieldwork has concentrated on two particular areas, which yielded settlement remains dating to the 3rd millennium BC. The main objective has been to investigate an area on the north-eastern side close to the Ptolemaic temple (Zone 2), which corresponds to the only parts of the site where the archaeological strata dating to the Old Kingdom are still accessible (fig. 3). Before the excavations started here much of the remains had been covered by several metres of unstratified debris which originated from the clearance of the so-called 'plain Barsanti', an open area several metres to the north of Zone 2 that was first dug into by sebbakh diggers and which was then cleared down to bedrock in order to allow for the temporary placement of large stone blocks that belong to the eastern temple enclosure wall during the restauration of its foundations (Barsanti 1906, pl. 2). After several seasons that involved the removal of this thick deposition of mudbrick rubble and debris, archaeological layers which were still in situ were finally reached in 2012. They had also suffered to some extent from sebbakh digging which left deep holes cutting through the ancient stratigraphy. Over the past three seasons it has been possible to reach the natural bedrock in two areas, one situated along the northern and the other along the south-western limit of Zone 2 (the central part is still being excavated). It has been possible to follow the overall development of this settlement quarter, from the oldest layers of occupation founded directly onto the natural ground to the last preserved remains here which date to the First Intermediate Period (c. 2100 BC). It is now evident that this town quarter saw several phases of drastic transformations over time.

The oldest remains so far unearthed are part of an *ex-nihilo* foundation, which is probably the result of the

gradual westward expansion of the town from the southeast. The currently available archaeological evidence and preliminary geo-morphological observations suggest that there was a steady expansion from east to west, with the origins of the town that would have first been settled on a sandstone island delimited by a significant cliff on the eastern side. This probably marks the position of the course of the Nile for a period that is not yet determined. A GPR survey conducted as part of the groundwater lowering project at the temple has shown that this cliff is now covered by the much later Ptolemaic temple. The results from the latter work indicate that the eastern half of the *tell* might have once formed an island in the Nile and over time the river gradually moved eastwards away from the temple and providing an increasingly flood-free environment for settlement expansion.

The bedrock formation underlying the settlement is not uniform, and during the excavations in different locations of the site both Nile sand deposits and a sandstone outcrop were reached. This indicates that as the settlement site gradually expanded, by the end of the 3^{rd} millennium BC, it was occupying the totality of this natural rock terrace, which forms a slight slope from north-west to south-east.

In Zone 2, the oldest buildings belong to a settlement phase that has been provisionally termed 'monumental' because of the large walls and sizeable buildings that do not show any of the characteristics of domestic architecture. So far only small parts of this phase have been excavated. On the northern side of Zone 2 (fig. 4), which corresponds to the limits of preserved remains that have not been completely destroyed by sebbakh digging, four large rooms have been excavated (fig. 5). The central room (A) measures 2.76m wide and 3.8m long. It had two doorways, one linking it on the eastern side to an open courtyard, and another door on its northern side probably leading into a kind of corridor (G). Two stones with door sockets have been found at both doors which further confirms that the central room once was a closed room with two entrances. Much of its eastern half has been marked by layers of ash on the floor from a massive fireplace used for a relatively long period. In the north-western corner a small round bin made of single mudbricks was found. The large room (\mathbf{B}) to the east of the central room was a courtyard according to its dimensions and the numerous traces for fireplaces. It measures 3.8m in length and 3.06m in width, and it was always used as an open space throughout the occupation of this area. Adjacent on its eastern side some thinner walls are present, only one mudbrick wide, which belong to several small rooms (D, E, F) without a direct connection to the courtyard. Their full extent is, however, not visible further to the east and south since the later enclosure wall is covering these remains. A corridor (G)

can be seen on the northern side, stretching along the full length of both the central room and the courtyard. Again, this space is also incomplete since further north the archaeological remains were destroyed by the *sebbakhin*. The last space exposed is a narrow room (\mathbf{C}) to the western side of the central room (\mathbf{A}). Its width is only 1.46m while its length is 3.80m, and it must have connected to the corridor on the northern side.

Several layers of occupation covering the corresponding floor levels have been excavated within these spaces containing traces of numerous fire places with ash deposits (fig. 4) in addition to important quantities of bread moulds and beer jars. In the courtyard the archaeological contexts were the richest and the only ones that contained, in several successive layers, a large amount of broken clay sealings from jar stoppers and other commodities such as bags, baskets and boxes. Some of them show traces of seal impressions and the best-preserved sealing (fig. 6) is marked by a cylinder seal impression naming the titles of a priest and the Horus name of king Djedkare-Isesi, Djed-Khaw, the penultimate ruler of the 5th Dynasty (*c.* 2400-2375 BC). Along the eastern wall, fragments of two small limestone figurines have been found (fig. 7). The two pieces belong to two standing male figures, one



Figure 3. General view of the southern part of Zone 2 with the large mudbrick buildings (end of the 5th Dynasty) emerging from later reoccupation levels (photo G. Marouard, Tell Edfu Project).



Figure 4. View of the workshop installations in the northern part of Zone 2 from the east (photo G. Marouard, Tell Edfu Project).


Figure 5. Orthophotograph of the workshop installations along the northern limit of Zone 2 (orthophotograph N. Moeller, Tell Edfu Project).

of which had a small back pillar, with residues of yellow and red colour, but no inscriptions were present. Also associated with the occupation of these rooms are several traces of metallurgical activities such as crushed slag pieces, fragments of copper ore (malachite) and pieces of crucibles covered with green copper splashes.

These installations along the northern limit of Zone 2 indicate the presence of important workshops linked to official and administrative contexts as can be seen by the presence of broken clay sealings, the statue fragments and the traces of copper smelting which are typically carried out by highly skilled craftsmen, who were working for the elite and higher officials, and which were usually not part of domestic household activities. The processing of copper in particular during the Old Kingdom was almost exclusively conducted under the supervision of official institutions, and the exploitation of this kind of raw material was exclusively organised by the central state under the charge of a high official personage sent by the king (Williams 1995; Labib 1995). As mentioned previously, these structures can be considered the first installations in this part of the settlement and they were founded ex-nihilo, directly on the natural Nile sand deposits.⁵ Based on the discovered activity areas, it can be considered a workshop area dating exclusively to the late 5th Dynasty, which has close parallels to the larger installation of workshops at the town of Elephantine in the First Cataract region (Raue 2005, 14-18; Dreyer et al. 2008, 72-74). During the excavations of the Old Kingdom settlement remains along the eastern side of Elephantine island, a phase with

multiple workshops has been found which date to the same period as the one at Edfu. Larger buildings with thin walls and open courtyards were excavated there that provide evidence for numerous manufacturing activities such as the processing of hippopotamus ivory in addition to kilns for pottery making. Discarded broken clay sealings linking these installations to administrative and official institutions were also recovered, among them one naming Djedkare-Isesi. The excavators have linked the foundation of these workshops on a massively levelled area to the major re-organisation of the provincial administration under Djedkare during which most of the later 4^{th} and early 5^{th} Dynasty occupation was removed in order to make space for the new workshops (Raue 2015, 206).

Also underlining the non-domestic character of the *ex-nihilo* foundation at Edfu in Zone 2 during the later 5th Dynasty are two large buildings situated along the western side of the zone stretching southwards. So far, only a limited portion of these buildings has been excavated due to the later remains lying above them on the eastern side and due to the removal of archaeological layers by the *sebbakh* diggers on the western side of Zone 2.

Back in 2012, the massive exterior walls and the main eastern entrance of an important mudbrick building (**Northern Building 1**) had been discovered along the western edge of Zone 2 (fig. 3). A small portion of these walls had already been exposed prior to the fieldwork in the almost vertical cuts left by the *sebbakhin*. The eastern, northern and southern outer walls have been preserved only to a small extent but on a significant elevation of about 2.20m above the functioning floor level. Their unusual architectural features became apparent very quickly. Northern Building 1 is orientated east-west and only its eastern façade including the main entrance door is preserved, which consists of the wooden lintel and door still *in situ* (fig. 8) (Moeller and Marouard 2013, 118-119).

⁵ Only a few light installations, small trash pits, occasional fireplaces and postholes were observed on the surface of the natural sand. However, the pottery assemblages of these older levels are not chronologically different from the workshop facilities and might correspond to the immediately preceding construction phase.



Figure 6. Clay sealing with a cylinder seal impression showing the serekh of Djedkare-Isesi (photo N. Moeller, Tell Edfu Project).

Figure 7. Drawing of one of the two limestone figures found in the workshop area (drawing C. Lemoine, Tell

Edfu Project).

The majority of the interior in the west was destroyed by the sebbakh diggers but it seems very likely that the now lost part of this construction was still visible and noticed by French archaeologist Maurice Alliot during his excavation of the upper part of the tell circa 1932-1933 (Alliot 1933, pl. 36; 1935, pl. 20).⁶ The northern and southern walls have a width of 2.3 and 2.8m respectively. The eastern exterior facade stretches 9.20m from north to south and probably more than 10m at its base which has not been reached yet. On the three sides of this building the façade exhibits a fairly steep slope (fig. 9). A phase of renovation was noted on the southern wall during the excavations in form of a second mudbrick layer built against the original wall covering its lower courses, with a stone foundation at the south-east corner. As has been the case with the workshop area, Building 1 was also founded directly on the natural sand and therefore constitutes the first planned installation here, which seems to be contemporary to the workshop area. In 2014, a trench was dug

along the interior of the entrance in order to reach the corresponding floor level, which is situated 1.80m below the lintel (Moeller and Marouard 2015, 158-159, fig. 8). This permitted to observe a system of an entry room in the south-east corner that led to two rooms to the west and the north. The only activity recognised in this small room was a fireplace used for smelting copper which was installed a short time before the building was abandoned (fig. 10). The massive trash layers that had covered the small entrance space seems to have filled up quickly with debris containing late 5th Dynasty and early 6th Dynasty pottery but also pieces of copper slag and crucible fragments attesting again metallurgical activities in the area even after the abandonment of the structure. As the archaeological evidence stands right now, no object that would provide any precise indication about the function of Building 1 has come to light. The architectural features are rather unusual and have no parallels in the currently known archaeological record. A purely funerary function, such as a mastaba tomb, can also be excluded because of the location on site (the cemetery during this period is attested to the south-west of the tell, more than 150m from Zone 2) and the lack of finds that would be typical for mortuary cult activities (i.e. offering and model vessels, stone elements such as stelae or offering table fragments).

1 cm

⁶ On these two plans, he delineates with dotted lines to the west of Zone 2 the boundaries of two great monuments which he designates as "*vestiges de deux mastabas*". However, based on our recent results we can now discard his hypothesis of the funerary nature of these two structures.





Figure 8. Entrance area of Northern Building 1 with wooden door and lintel in situ (photo G. Marouard, Tell Edfu Project).

Figure 9. South-eastern corner of Northern Building 1 showing the façade with the distinctive slope (photo G. Marouard, Tell Edfu Project).

Furthermore, it was possible during the excavations in the 2016 Fall season to uncover a 1.00m thick perimeter wall (W 1210) that is located to the south of this building, once again built directly on natural sand deposits. This well-built wall also has faces with a slight slope and it runs east-west for about 12.50m along the southern side of Building 1 (fig. 3). It is then linked on the east to a second wall of identical dimensions (W 1170) which runs northsouth. It can be followed over a distance of at least 9m. Another portion of this wall has been discovered running further north and disappearing underneath later settlement remains and several phases of enclosure walls. These two long walls were used as a delimitation for a very large space which covers an area of at least $100m^2$ on the eastern side of Building 1.

The excavation of this outer zone that occupies most of the central part of Zone 2 will be the focus of excavations in the next season. The multiple *sebbakh* holes dug rather deeply into the ground here show the presence of a densely stratified accumulation that consists of alternating layers of fine organic materials (such as animal bedding) and grey ash deposits with a thickness of 40 to 60cm without any significant wall remains. This further indicates the existence of a larger open area here, possibly a vast courtyard.



Another massive mudbrick building (Southern Building 2) was discovered in 2016 on the south side of perimeter wall W 1210, which seems to have separated these two large constructions from each other. Walls W 1210 and W 1170 thus formed the northern and eastern boundaries of this Building 2 complex, which also had a large courtyard area to the east (fig. 11). No door nor any direct connection to the area of Building 1 or any opening to the east has been discovered so far. Building 2 is also incomplete in its preservation and most of its interior, which would have stretched towards the west, has disappeared due to sebbakh digging. Only the north-eastern corner of Building 2 has been unearthed so far and its opposite angle to the south is still masked by more than 8.00m of in situ stratigraphy. The northern face is preserved for 4.10m in length and its eastern façade stretches along a distance of 6.40m, its preserved elevation exceeds 1.90m.

Figure 10 (left). Test trench in the entrance area of Northern Building 1, view from the south, showing the fireplaces and traces of copper smelting in the lower part of the image (photo G. Marouard, Tell Edfu Project).

Figure 11 (below). General view of the courtyard east of Southern Building 1, from the south, showing some of the smaller walls that were added later to this initially open space (photo G. Marouard, Tell Edfu Project).



Although its brick materials and modules are the same, it differs architecturally from Building 1 since its exterior walls are less thick (only about 0.90 to 1.00m in width) and they do not exhibit the same pronounced slope but a completely vertical face. No entrance has been identified for the moment. Internal spaces were only briefly explored with a test trench that has not yet reached the internal floor level. Nevertheless, the external levels show us once more that this construction was built directly onto the natural sand substratum.

It is interesting to note that both of the large Buildings 1 and 2 are also perfectly aligned and separated by the same perimeter wall W1210 that divides the area into two large square spaces. They clearly belong to the same construction project and all the components belong to the same contemporaneous building complex, despite the fact that for the moment both buildings appear isolated from each other due to the current state of preservation.

In the narrow space (1.75m) preserved between wall W1210 and the northern exterior wall of Building 2, a test trench revealed the presence of a thick layer consisting of brightly red burnt debris, which marks a destruction level here, but which seems to be restricted in its extension and was followed for less than 50cm to the east. However, the entire southern part of Zone 2 shows very significant traces of fire and reddening soil / bricks before excavation.

In Fall 2017, the entire exterior of Building 2 was excavated (fig. 11), revealing intense cooking activities (bread and maybe beer production) and the presence of storage facilities (one granary and multiple large storage jars) mainly associated with several secondary rooms that

were gradually installed in the vast space that had been marked originally by an open area to the eastern side, similar to the open courtvard east of Building 1. During the very first phase of occupation, this area was a single open space, which was characterised by a thick brown organic layer (animal bedding) with multiple fireplaces and deep trash pits often containing complete beer jars and bread moulds. More importantly, a large number of broken clay sealings was excavated in this open area east of Building 2, which were mainly found in one of the pits that had been cut into the first phase of occupation when this area was still an open courtyard, and prior to the installation of the various smaller rooms since they were found to be under the respective floor levels of these slightly later additions. These sealings show again multiple impressions mentioning the cartouche and Horus name of Djedkare-Isesi, which confirms the contemporaneity to the workshop area and associated sealing finds along the northern side of Zone 2 (fig. 12). Furthermore, it confirms that administrative activities formed an important component here, at the time when this area was first settled and Building 2 was built. The backtypes of the sealings show evidence for papyrus fibres, woodgrain, basket and tissue fibre imprints pertaining to the multitude of commodities (letters, boxes, baskets and bags) that were opened here. The extremely fine imprints of the cylinder seals attest to the use of high quality seals that are usually associated with activities of high officials in the Memphite region who received particular tasks assigned to them by the king (Kaplony 1977, 11-12). Most interesting is the fact that on a number of sealings a particular group of prospec-



Figure 12. Three sealings showing the serekh and cartouche of Djedkare-Isesi in addition to the sementiu (photos N. Moeller, Tell Edfu Project).

tors is mentioned, the so-called *sementiu*, who are usually associated with official expeditions and mining activities (gold, copper and precious stones) in the Eastern Desert (Yoyotte 1975; Fischer 1985; Eichler 1993, 188-192; Espinel 2014, 38-43).

As the evidence stands right now, it seems that the king might have sent an important official from Memphis to Edfu with the task to oversee mining expeditions into the Eastern Desert. This also fits to Edfu's location with a direct access to the route through Wadi Baramiya towards the Red Sea. More excavations in Zone 2 are certainly necessary to confirm this current working hypothesis and the aim for the future fieldwork is to find out more about the precise function of these late 5th Dynasty complexes, which belong to the earliest phases of occupation in the city's history so far uncovered at Tell Edfu. The discovery of more than 200 official sealings and the architectural features exclude a domestic context here. The various characteristics that mark both buildings, such as the ex-nihilo construction, the presence of monumental mudbrick architecture, a common perimeter wall and the adjacent large open courtyards and workshops, make the presence of some kind of official and administrative complex the most plausible interpretation with regard to their function at this current stage of research.

The two buildings remained quite important features in the area even after they had fallen out of use, which can be seen to the north of Zone 2 by a sequence of three phases of massive enclosure walls (fig. 13). Based on the stratigraphic evidence, these early 6th Dynasty walls clearly post-date the earlier settlement phase (they cover the workshop installation along the northern limit of Zone 2) and seem to have been deliberately avoiding Building 1 by constructing the walls in a peculiar way that make them turn in several right angles towards the north and east. The older structures, Buildings 1 and 2, were thus deliberately included inside this newly enclosed area that 'faithfully' preserved their main orientations (fig. 14). This might further attest to a likely symbolic importance for this complex and a close connection to the temple of the Old Kingdom cannot be excluded, traces of which are probably situated right underneath the later Ptolemaic temple of Horus, that is situated only 20m to the east.

If we take into account their particularly well-preserved elevation and any anecdotal detail such as the *in situ* wooden door at the entrance of Building 1, it appears that the two structures were not levelled or dismantled after their abandonment, which is significant since most structures at *tell* settlements were taken apart and levelled after they had fallen out of use. The entire area clearly served as a large open dump and, only after Building 1 and 2 began to be covered up and were no longer visible in the urban landscape, the space was gradually colonised by various smaller courtyard spaces whose character is clearly of domestic nature (fig. 3).



This key period, which dates to the turn of the mid-6th Dynasty until the early First Intermediate Period marks a rather radical change in function within this settlement quarter in Zone 2 from large well-built buildings of monumental and official character – with apparently a quite limited lifetime – to light domestic installations. Despite the fact that the *sebbakhin* have destroyed many of the later levels that are characterised by dissociated and scattered fragments of walls and underground silos, it seems that this sector has subsequently kept an exclusively domestic function for quite a significant time throughout the First Intermediate Period.



Figure 13 (left). General view of the three phases of enclosure walls of the 6th Dynasty, which enclosed the buildings of the late 5th Dynasty and covered the workshop installation (photo G. Marouard, Tell Edfu Project).

Figure 14 (right). The successive phases of enclosure walls dating to the end of the Old Kingdom and the First Intermediate Period, which are located to the west of Zone 2. The three first phases (see also fig. 13) turn towards the east in order to include the buildings of the late 5th Dynasty (photo G. Marouard, Tell Edfu Project).

The development of Edfu at the end of the 3rd millennium BC

As far as the overall chronological development goes, the foundations of the first *ex-nihilo* installations in the Zone 2 area date to the end of the 5th Dynasty, which indicates that this was the result of the gradual expansion of the ancient town of Edfu from its initial foundation further south-east, to the north-west. This might be linked to the gradual lowering of Nile flood levels during the Old Kingdom (Seidlmayer 2001, 81-92), in addition to making the best use of the available flood-free area that extended to the west, away from the river. Both possibilities could be related to a continuous growth in the number of inhabitants with the increasingly important status of Edfu as a regional urban centre.

From the cemetery it is evident that an important local elite had established itself at Edfu during the 6^{th} Dynasty and was building elaborate mudbrick mastaba tombs in the nearby cemetery. The earliest tombs date to the beginning of the 6^{th} Dynasty. So far, no earlier tombs have been found and there is also no archaeological evidence outside of Zone 2 for a settlement prior to the 5^{th} Dynasty. The construction of the latest Horus temple complex and its sacred precinct at Edfu clearly resulted in the disappearance of older settlement remains, which make further archaeological investigations into Edfu's origins difficult.

In addition to the new settlement quarter founded during the late 5th Dynasty in Zone 2, the agglomeration seems to grow rapidly at the end of the 3rd millennium BC and gradually takes possession of the entire surface available on the sandstone terrace/island. A major phase of settlement growth and expansion at Edfu occurred at the very end of the Old Kingdom and transition into the First Intermediate Period (c. 2200 BC), which marks the maximum extension at Edfu ever reached in the northern and western directions. It is noteworthy that these are the only currently known limits, on the northern and western side, that did not considerably change during the remainder of the occupation of the town until the early Islamic period (10th century AD) when the tell was finally abandoned for settlement and occupied by a cemetery (Henne 1924, 20).

During this transitional period, the ancient town had thus expanded to almost double its size in comparison to the earlier Old Kingdom and moved significantly further to the north and west (fig. 2). Recent fieldwork in Zone 3, which constitutes the northern limit of the *tell*, has shown that the first evidence for settlement including the construction of a thick enclosure wall occurred at the end of the 6th Dynasty / early First Intermediate Period transition (Moeller 2016, 226-231). This wall consists of two phases that comprise two different 'wall-layers' that were subsequently built against each other reaching a total thickness of about 3m. Smaller domestic structures and storage installations were then constructed against it using the interior facade of the enclosure as rear wall (Moeller and Marouard 2013, 119-120). During the Middle Kingdom, the older enclosure was replaced by a new massive construction of a single enclosure wall built with large bricks that had a width of 3.00m and was leaning directly against it, increasing the overall thickness to about 6.00m. From the way the Middle Kingdom town was built, partially sitting on top of the older one and replacing its upper part, suggests that the First Intermediate Period wall had in parts fallen into disrepair by that time. These remains clearly demonstrate that at the end of the 3rd millennium BC, the inhabitants of Edfu had settled in a much larger area and invested much effort into a strong fortification system that lasted well into the 12th Dynasty. These northern and western limits, as mentioned above, were never expanded during the lifetime of the ancient city, which is most likely related to the limits of the sandstone outcrop terminating here and making any further advancement prone to flooding.7

The results from recent fieldwork at Dendara

Since the preliminary survey conducted in 2012 and the resumption of the excavation in the settlement areas in 2014, the main goal of the current project by the Oriental Institute team has been to highlight, through targeted operations such as tests trenches and extensive excavations at various points of the site, the progressive urban development on a wider scale (fig. 15). In contrast to Edfu, which is extremely well-preserved in stratigraphy and elevation but on a rather limited proportion of its original surface (a large part is currently beneath the modern city), Dendara has the advantage of an open site without modern installations that could hinder the archaeological investigation. Of course, like most settlements in Egypt, it was also much affected by sebbakh diggers and the quite expeditious clearance work undertaken by the Antiquities Service in c. 1910-1920, but the actual preservation of the site allows to reconstruct a broader vision of its evolution throughout the 3rd millennium BC (Zignani and Laisney 2001, 415-447).

⁷ During three test trenches dug along the interior of the First Intermediate Period enclosure walls, the natural sand and bedrock was reached which showed furthest to west a thick layer of sandstone that had been broken into sizeable slabs by much older water activity while further east thick layers of alluvial sand and gravel deposits were covering the underlying rock, suggesting a slope of the natural terrain towards the east.





Figure 15. General plan of the archaeological zone at Dendara and a reconstruction of the evolution of the settlement from the Predynastic Period until the end of the First Intermediate Period (plan G. Marouard, after Zignani and Laisney 2001, fig. 1).

The development of the ancient town inside the Late Period and Roman temple enclosure wall from the late Predynastic Period to the late Old Kingdom

One of the main areas (Zone 1) chosen for the new fieldwork by the Oriental Institute is situated on the eastern side of the temple dedicated to Isis (Trenches 1 and 2), which is a smaller temple complex located at the rear of the Hathor temple. Two other operations (Trenches 3 and 4) were excavated east of the Hathor temple, on both sides of a massive mudbrick enclosure wall, which has been very recently dated to the early Middle Kingdom (fig. 16). It was in this area that Barry Kemp had already hypothesised, after a short pottery survey conducted in the late 1970s, the location of the late Old Kingdom town (Kemp 1985, 89-98). This assumption was quickly confirmed and even further complemented since the occupation begins at least at the end of the Naqada II period.

Near the eastern entrance of the temple of Isis, the initial aim had been to investigate the angle of a large mudbrick wall that was noted during cleaning operations conducted in the 1990s by the IFAO (Zignani and Laisney 2001, 429-430, figs. 26-28). It was considered at that point as the oldest phase of the precinct for the Hathor temple. Several trenches dug here made it clear that this wall is in fact the mudbrick foundation for a massive construction of an early Middle Kingdom date. The new findings highlight the presence of an early 12th Dynasty sanctuary here, underlying the much later Ptolemaic and Roman stone temple of Isis, which is visible today. This is not really surprising since multiple blocks of fine white limestone, several with the cartouche of king Amenemhat I, have turned up in the area and have also been reused in the foundations of the Isis temple (Cauville 1992, 35, fig. 4; Cauville and Lecler 2007, XVIII-XIX, 61, pl. 62; 2009, 3).8

However, more archaeological evidence and for a much earlier period came to light underneath the early Middle Kingdom remains. A thick layer of aeolian sand was noticed by the previous excavators which did not belong to the sterile

natural bedrock as initially assumed but in fact covers significantly older remains and layers dating to the late Predynastic Period. These layers reach a thickness between 60 and 90cm in this small test area (of about 200m²) and indicate an important and continuously stratified occupation, which according to the pottery and lithic material dates to the Naqada IIC-D period (Marouard 2017, 171-172, figs. 7-9). It was possible to recognise three successive phases of floor and walking levels (fig. 17), which are characterised by fire places, concentration of ashes, faunal remains and small flint flakes that attest to the sharpening of larger blades. The associated ceramics are in majority Rough Ware sherds with a few pieces of Black-Topped Ware, Red Polished ware and open forms in Marl clay (fig. 18). In addition, numerous fragments of so-called firebars were discovered (fig. 17). Those were exclusively used to support deep vats used for beer production and attest to some brewing activities in the area. These kinds of technical elements are very well-known from sites such as Hierakonpolis where larger industrial scale food production areas have been found that involved the brewing of beer (Geller 1989, 41-47; 1992, 94-97; Baba 2008, 18-19; 2009, 23-24).9

The exact location and size of these brewing activities at Dendara are hard to estimate at this point since mainly pieces of firebars have been found but not the complete installation. Nevertheless, another sondage (Trench 3) that was opened between the eastern side of the temple of Hathor and the Middle Kingdom precinct revealed a 1.30m thick production dump containing in situ successive levels of ashes, charcoals, organic remains (barley and emmer wheat, plants, macro faunal remains) and voluminous quantities of ceramics and firebar fragments. This evidence clearly supports a large-scale beer production activity at Dendara dating to the same period of Naqada IIC-D. As far as the current investigation stands, which is still in its preliminary stages, those levels are the oldest remains ever evidenced at Dendara and the first concrete indications for the presence of a quite permanent settlement occupation during late Predynastic times (c. 3600-3350 BC).

⁸ Sylvie Cauville already hypothesised an early Middle Kingdom phase for the Isis temple as evidenced by several limestone elements still *in situ*. A least another block bearing the cartouche of Amenemhat I has been found reused in the foundation on the north side of the monument. So far, no archaeological evidence has been recorded for a New Kingdom Ramesside sanctuary here, as assumed in Cauville 1992, 41-42. It is also important to note that the large mudbrick wall mentioned above has been dated during the recent work of the Oriental Institute to the beginning of the Middle Kingdom. Both enclosure wall and possible sanctuary prior to the temple of Isis would obviously belong to the same project of restructuration and extension of the sanctuaries of Hathor and/or Isis between the end of the 11th and the beginning of the 12th Dynasty.

⁹ Beer production activities have been recognised only at very few Egyptian sites to-date. The most important and probably oldest traces that have been preserved and studied in Upper Egypt are from Hierakonpolis where several massive cooking structures, some still standing, were excavated in Sectors HK 24B, HK29, and HK 11C. Important elements of beer production were also discovered in Abydos at the beginning of the 20th century dating to the Naqada III period (Peet 1914, 2, figs. 4-5; 1915, 1-7, figs. 1-2) and traces also appeared in Upper Egypt at the North Town (Naqada II) at Naqada (Petrie and Quibell 1896, 2; Geller 1989, 46; 1992, 135) and Mahasna (Garstang 1902, 38; 1903, 6; Geller 1989, 46-47). More recently, excavations in the Nile Delta at Tell Farkha (Chlodnicki and Cialowicz 2000, 91-94, fig. 6-8; 2005, 145-147, figs. 3-4; 2007, 170-171, fig. 11) and Buto (Hartung et al. 2016, 82-84, figs. 12-13) revealed similar brewery installations or components.

The rise of a community at Dendara and the gradual transition from a possibly seasonal occupation to a small "farming village" continued during the Early Dynastic period for which it was also possible to locate remains in Trench 3 and 4 (fig. 16). The excavated features are

situated directly above the thick production dump and are clearly differentiated from the previous phase by a long *hiatus* of windblown sand (possibly marking a chronological gap?). They revealed evidence for at least four to five phases of successive mud floor levels and narrow



Figure 16. Aerial view of the intra muros area of the excavations by the Oriental Institute at Dendara (photo G. Marouard).



Figure 17. Occupation floor level from the Naqada IIC-D period in Trench 1, south of the Isis temple, and detail of the firebar fragments dumped in a pit (photo G. Marouard).



Figure 18. Selection of Naqada IIC-D pottery vessels from Trench 1: A. Black-Topped and Red Polished wares. B. Rough Ware, open and closed forms (photo G. Marouard).

walls (fig. 19), which constitute a significant change to the earlier Predynastic levels and mark the appearance of mudbrick construction at Dendara.

The rapid succession of the installations highlights the dynamics and the permanence of this occupation, but all those levels are still marked by domestic and "rural" activities with the aim to protect the agricultural products (storage pots inserted in the floor) and especially the livestock. Furthermore, the last phase is characterised by a rare example for a pig-pen attesting to the existence of pig husbandry. Partially preserved underneath the early Middle Kingdom mudbrick wall, the pen was delimited to the north by a light fence with postholes and it was equipped with a small trough placed at the inner corner of the southern and western mudbrick walls (fig. 20). The floor still preserved the imprints of the swine's feet at different stages of growth, including juveniles.

In those contexts, bread moulds and beer jars now dominate the pottery assemblage and make it possible to situate this horizon within the Naqada IIIC-D period (c. 3100-2685 BC) and more likely towards the end of this period.

During a preliminary survey conducted in 2012, other larger concentrations of ceramics dating to the first two Dynasties have been discovered *in situ* between the heaps of *sebbakh* debris and sherds in the south-eastern corner of the sanctuary, both on the interior and exterior of the main precinct (fig. 15). Those areas are all distinguished by a highly sandy substratum and significant quantities of large beer jars and large bread mould fragments. Some craft and food-production activities can be detected, such as the production of beer (as witnessed by a regular presence of firebars) in addition to the fabrication of stone-vessels, as evidenced by numerous fragments and several hard-stone borer heads.

This spread of ceramic evidence in an area stretching about 150m in length (east-west) by 100m in width (north-south) indicates the existence of a significant settlement during this period, which is probably in close connection with the synchronous Early Dynastic tombs found in the cemetery area by Clarence S. Fisher (Fischer 1968, 1-2; Slater 1974, 21, 224-225; Marouard 2017, 170-171, figs. 5-6).¹⁰ This late Protodynastic phase

¹⁰ It is also interesting to observe that the Early Dynastic cemetery is located at least 250m in the desert zone but exactly behind the area with the concentration of Early Dynastic ceramics (fig. 15), which gives a strong coherence to all these scattered elements. It is probably no coincidence that, at the beginning of the Old Kingdom, the first mastabas (the *Abu Suten* group with the tomb of Ni-Ibu-Nesut) are situated slightly to the south of this first burial area.



Figure 19. Successive phases of narrow walls and mud floors in Trench 3, which mark the appearance of mudbrick architecture at Dendara during the Early Dynastic period (photo G. Marouard).



Figure 20. Level of the late Naqada III pig-pen in Trench 3 preserved under the foundation level of an early phase of the mudbrick enclosure wall (photo G. Marouard).



Figure 21. Stratigraphic profile in Trench 4 showing a succession of late Early Dynastic, early Old Kingdom and late Old Kingdom occupations under the foundation of the early Middle Kingdom enclosure wall (photo G. Marouard).

seems to mark the increase of a more sustainable architecture with a progressive structuration of the available space, which designates a growing and more permanent community, and announcing another phase of important developments in the history of Dendara.

Despite important destructions by sebbakh diggers, the stratigraphic cleaning undertaken in Trench 3, on the western side of the Middle Kingdom enclosure wall, highlights another previously massive wall directly built on the top of the pig-pen levels (fig. 20). It is well-constructed with quite small and sandy mudbricks and it measures about 2.20m in thickness with a very slight slope of its southern face. More significantly, it forms a right angle here. This wall originally ran towards the west and to the north, right under the Middle Kingdom precinct, which seems to have kept this main north-south orientation. That would indicate that here we are at the south-east corner of an earlier enclosure wall, delineating a vast space now situated underneath the Roman temple of Hathor. Although its precise date is still being investigated, it presumably dates to the transition from the late Early Dynastic to the early Old Kingdom period, probably at a turning point between the early Third

Dynasty and, at the latest, at the very beginning of the Fourth Dynasty.¹¹

The presence of this wall could be a first sign for a radical change in the function of the area and the appearance of some monumental installations for the first time at Dendara, which would be tempting to consider as a very first phase of the Hathor sanctuary.

On the eastern side of the Middle Kingdom wall, in Trench 4, an extensive stratigraphic profile demonstrates that the area immediately outside of the earlier enclosure wall subsequently received the dumps and residual products from administrative or even ritual activities (fig. 21).

There is no longer evidence for any domestic installations here and the archaeological levels are mainly characterised by an extensive sequence of successive trash dumps, perhaps resulting from an increase in official activities. These deposits contain important quantities of bread moulds (with a bulbous base) and beer jars

¹¹ Several pieces of pottery which provide some evidence for a 4th Dynasty occupation have been found in small trenches conducted by the IFAO on the west side of the Hathor temple, see Zignani *et al.* 1998, 480-482, fig. 18.

in equivalent proportions. They are regularly marked before firing and some of them appear in giant format, which is known from other late Early Dynastic and early Old Kingdom sites linked to the central administration (Hendrickx *et al.* 2002, 291-297, figs. 4-5). Numerous jar stoppers have also been found and some of them show the faint traces of a cylinder seal impression, one with a large *serekh* giving the Horus name of an unidentified ruler (fig. 22). Unfortunately, the state of preservation was not good enough and the name of the king has almost completely vanished. Nevertheless, the presence of such a marked jar stopper suggests close links to the early state and its central administration, particularly on an economic/administrative level.

What is evident from these preliminary results is the growing complexity of the occupation at the site that saw a rapid increase towards the very end of the Early Dynastic period, which seems to coincide with Dendara evolving into an important administrative and religious centre and then to the provincial capital of the 6th Upper Egyptian nome around the reign of King Snofru. These contexts give for the first time a true archaeological credibility to the data previously known such as the Netjeraperef stela from Dahshur, which first mentions Dendara in relation to the newly established system of nomes (see above). The dynamics of the *tell* site formation and the enlargement of the settlement seems well in progress at that point. In 2014, a stratigraphic trench excavated in Zone 3 (fig. 23), right outside the main enclosure wall, has revealed important levels still in situ for the periods of the end of the 3rd Dynasty and the beginning of the 4th Dynasty, situated at least 120m east of the Hathor Temple.

However, what happens to Dendara during the later 4th and the 5th Dynasty is still relatively unknown (Slater 1974, 21-23) and the lack of data after the first half of the 4th Dynasty could underline a significant slowdown in the occupation during this period.

After Khufu (Mariette 1870, 55-56; Daumas 1952, 165; 1973, 19-20; Cauville 2004, 64), Pepi I Merire is the other Old Kingdom ruler to be regularly recorded (Fischer 1968, 37-46; Slater 1974, 23-24).¹² In addition to the attestation already reported in Western Crypt 3 (Fischer 1968, 146, 168; Cauville 2004, 64) and on several other parts of the Ptolemaic and Roman temple (Daumas 1952, 170-171), a limestone statue of Pepi I, found in two pieces during different occasions in the temple area (Daumas 1952; 1960), underlines the national interest that he probably brought to the worship of Hathor, mistress of Dendara. It seems that Pepi I had a significant involvement in the overall development of the sanctuary



Figure 22. Mud jar stopper showing faint traces of a seal impression with a serekh (photo G. Marouard).

which was maybe enlarged or restructured under his long reign (*c*. 2300-2250 BC) and which also marks a period of growth of the regional power of nomarchs and increased activity in all of the known Upper Egyptian provincial centres (Moeller 2016, 214-246).

Even before the study of the urban areas, older excavations conducted in the necropolis illustrate quite well this phenomenon for a development of more independent local elites (mastabas of Meni and the three Idu) and a real demographic explosion at the end of the Old Kingdom (Fischer 1968, 55-65; Slater 1974, 417-421).

The survey of the 6^{th} Dynasty settlement remains at Dendara revealed a development closely mirroring that of the funerary zone, which extends over a large surface that has no equivalent at other sites in Upper Egypt so far.

In Trench 4, dump deposits from the beginning of the 4^{th} Dynasty seem to be directly covered by modest mudbrick walls and trash levels whose ceramic material dates back mainly to the first half of the 6^{th} Dynasty, without a period of transition being really perceptible. In this area, buildings and occupation levels appear to ac-

¹² An inscription of Pepi II from Dendara is reported by Porter and Moss 1939, 109 (after Johannes Dümichen), but its find spot remains questionable.



Figure 23. Profile of the Old Kingdom tell to the east of the main enclosure wall in Zone 3 showing a succession of early Old Kingdom and late Old Kingdom occupation levels under the foundation of the Late Period enclosure wall (photo G. Marouard).

cumulate in an accelerated manner throughout the late 6th Dynasty. There is also a trend towards a development of the agglomeration towards the north of this sector, as illustrated by the foundation level of the Middle Kingdom enclosure wall, which seems to follow the upper profile of the late Old Kingdom *tell*. East of the main enclosure wall, the same phenomenon can be recorded in the profile in Zone 3 (fig. 23) where the late 3rd and early 4th Dynasties levels are directly covered by much later layers of the 6th Dynasty. Finally, important levels of the same period, spared by *sebbakhin* excavations, can be observed about 50m further north but also 150m further to the east, which would emphasise an evolution of the settlement site northwards, towards the boundary of the Nile Valley, before starting a development eastward.

After a possible slowdown or a temporary break of the occupation between the 4th and 5th Dynasties, this period of the mid-6th Dynasty initiated at Dendara the beginning of a strong development of the agglomeration that continued throughout the First Intermediate Period until the very beginning of the 12th Dynasty, which probably marks the maximum extension that the town ever reached before a clear withdrawal and retraction of the urban occupation.

The First Intermediate Period domestic area near the Eastern Sanctuary (Zone 4)

The significant expansion of the ancient town eastward is also attested during the transition of the First Intermediate Period (*c*. 2200-2100 BC), especially in the vicinity of the Eastern Sanctuary, at the extremity of an extensive urban area which stretches for about 350m east beyond the Hathor temple main enclosure wall (fig. 24).¹³

Since 2016 the fieldwork conducted by the Oriental Institute team has continued the earlier excavations carried out by the IFAO mission led by François Leclère, who focused during several seasons, from 2000 to 2004, on a large domestic building complex (Marchand 2000, 264-265, figs. 1, 3; 2004, 212, pls. 1-2; 2012, 273-275; Moeller 2016, 235-239, figs. 7/18-7/20).

The excavation area now covers a sizeable portion of the ancient town and measures 60 by 45m (*c*. $2700m^2$). The main phase of occupation in this part of the settlement is characterised by household units with a group of core rooms around which further installations in the form of

¹³ This area, which is sometimes very degraded on the surface, was already visible on the map of the site published in 1870 by Auguste Mariette (1870, vol. 1, t.1, pl. 1).



Figure 24. Aerial view of the extramural First Intermediate Period and early Middle Kingdom settlement area (Zone 4) from the east (photo G. Marouard).

outbuildings, courtyard spaces and storage facilities were added (fig. 25). The general character of the layouts of these houses is still very reminiscent of the Old Kingdom domestic tradition, especially in view of the arrangements of the core rooms at the centre (Moeller 2016, 192-212).

These structures were founded directly on a natural virgin sand level, which consists of an aeolian sand substratum, probably a kind of sandy dune formation related to the lower desert fringe. It seems to have been considered as an advantageous place for settlement, being high enough to avoid threats by rising floodwaters and far enough from the area of the necropolis, which had been installed on a very irregular terrace of Nilotic deposits composed of large pebbles. The precise location of the river at the end of the 3rd millennium BC is still unclear. However, core drillings undertaken in 2016 by geologist Tim Ralph (Macquarie University, Sydney) have shown a significant slope less than 20m to the north of the urban area, where the same aeolian sand level is situated more than 7.00m below the surface. This slope would mark here the beginning of the flood zone and could indicate that the urban area did not develop further north (no urban vestige should then remain in the area currently cultivated).

The first major phase of occupation is characterised by larger building complexes with courtyards and outbuildings (fig. 25). According to the ceramic evidence it can be dated to the second half of the First Intermediate Period. At least about six to eight of these domestic units or groups of installations have been identified separated by smaller streets and pathways. The street network is not pre-established and does not follow any regular pattern, the units are sometimes contiguous with no lane in between and many circulation areas have a dead end.

Prior to those houses, this sector was occupied only by light installations, fireplaces and small gardens, indicating here an *ex-nihilo* installation and a progressive expansion during the course of the First Intermediate Period. This zone would comprise the fringe part of the town, close to its eastern extremity, and in an area that seems to be little effected at that time by any urban pressure. It is therefore a pioneering habitat quarter that



Figure 25. Orthophotograph of the excavated First Intermediate Period and early Middle Kingdom settlement area (Zone 4) at the end of the 2016 season (orthophotography G. Marouard).

had colonised in a short time an area never previously settled. The dwellings have been developed over quite large surfaces on the ground and are surrounded by long delineating walls, in order to preserve vast open spaces inside with the domestic unit in a more or less centered position. Primarily used as multifunctional adjacent courtyards, these large unbuilt spaces around the main unit would be reserved in order to insure the long-term extension of the household.

In an area better preserved in elevation in the north-western part of the excavation, a later phase that dates to the early Middle Kingdom (mid-11th to early 12th Dynasty) has been discovered. By that time,

the larger buildings of the previous First Intermediate Period phase had been replaced by much smaller units built closer next to each other along the same street axis (fig. 25). Remains of at least three of such houses have been excavated. They show a precursor form to the typical three-row house type which is well-known from the settlement of Elephantine (von Pilgrim 1996). They also resemble Type IIIa of the so-called Tell el-Amarna house within the typology established by Manfred Bietak for the Middle and New Kingdom houses (Bietak 1996). From the main entrance on the street a small vestibule was entered, which offered further access into the interior of the house (fig. 26). The second row of



Figure 26. Orthophotograph of a domestic building unit dating to the early Middle Kingdom from Dendara in comparison to the layout of the three-row house after Manfred Bietak's typology (orthophotography G. Marouard, Type IIIA and IIIB after Bietak 1996, fig. 2).

rooms at Dendara is marked by the presence of a straight section of stairs, which led up to the roof. No evidence for the existence of a second floor (i.e. thick demolition fills from the collapse or any particular architectural elements such as column bases or plaster fragments) have been found. The third and fourth row are comprised of larger rooms that take up the full width of the house. This is the last significant phase of settlement in this area, there seems to be no more evidence for any traces of occupation later than the early Middle Kingdom, which indicates that the town might have retracted from this location.

This seems to be further corroborated by the synchronous evolution of the cemetery area. Here, the latest mastaba tombs date to the early Middle Kingdom, *c*. late 11th to early 12th Dynasty (Fischer 1968, 177-184; Slater 1974, 24-26), after which there seems to be a significant hiatus in burials (Fischer 1968, 177-184; Slater 1974, 24-26). This last phase would also match with the only activities recognised to date for the sanctuary area, where the Middle Kingdom constructions are quite limited and attested by Mentuhotep II's chapel,¹⁴ and under the reigns of Amenemhat I¹⁵ and Senwosret I¹⁶ by several limestone or red granite blocks in addition to the recent archaeological data near the Isis temple mentioned above (Daressy 1917, 226-236; Habachi 1962, 19-28; Cauville and Gasse 1988, 30).

There is currently no significant data available for the settlement or the cemetery for the second half of the Middle Kingdom or the New Kingdom at Dendara.

Conclusions and discussion: The common denominators in the development of the towns at Edfu and Dendara

The recent archaeological fieldwork conducted at both of these early urban centres has offered a much more nuanced insight into their respective developments as provincial capitals, from their original foundation until the early Middle Kingdom. It is noteworthy that, in the present state of discoveries, the available data from Dendara for the earliest phases of occupation which date the first evidence for settlement at this site back to the Predynastic Period, is much more complex from an archaeological perspective than at Tell Edfu, where these earliest phases are not really present and any settlement activity can only be indirectly inferred from textual references and indirect sources such as the pyramid at el-Ghonameya. In this respect it is also important to take into consideration the different location of these two sites, Tell Edfu originally founded on a quite limited space sheltered from the Nile flood and today located under a fast-growing modern city, which has limited the accessibility of the archaeological remains, in contrast to Dendara, which lies in a much more open

area on the lower desert and edge of the floodplain. There might also be the factor of the nature of archaeological preservation in conjunction with the overall evolution of these two settlements in relation to their monumental temple precincts dating to the last phases in their respective histories. At Tell Edfu there is much evidence that the ancient town developed from east to west, which is linked to the geological formation of the underlying bedrock and the possible sandstone island formation with a steep cliff now situated under the eastern side of the Ptolemaic temple according to the ground penetrating radar results. Almost no data is available for the remainder of the *tell* that is currently covered by the modern settlement along the eastern and south-eastern sides (with the exception of a brief survey, see Gascoigne 2005).

The situation at Dendara is quite different because the archaeological site is situated close to the desert edge. The actual visitor centre north of the Hathor temple, some open fields and occasional houses are situated along the northern and eastern limits and they surround the archaeological site but for the most part they are not covering any major parts of the ancient remains with the exception of the so-far unexcavated Eastern temple precinct of Horus and Horsomtus. The oldest settlement remains are visible mainly along the eastern side of the Roman Hathor and Isis temples and stretch for a considerable distance eastward. At this point, the ancient maps of Dendara produced by the Description de l'Égypte (1809) and especially by Mariette (1870) give us an excellent idea of the extension of the original settlement site before the dramatic intervention of the sebbakhin. It is evident that the environmental parameters at Dendara were to some extent less restrictive than at Edfu and it remains to be seen where the ancient river once was in relation to this site, somewhere along the north since the Nile is flowing from east to west at Dendara. The availability of more space can also be seen in relation to the ancient cemetery, which stretches over a wide flat desert surface at the southern exterior of the temple precinct. This stands in stark contrast to Edfu, where the high density of funerary installations in the south and west part of the sandstone terrace indicates a growing urban pressure and a lack of space. This is even further demonstrated by the First Intermediate Period town wall that was built directly onto the superstructures of some of the mastabas from the late Old Kingdom and thereby cutting the cemetery into half, with one portion now included in the enclosed settlement zone.

These parameters have evidently impacted the current possibilities for exploring these two sites and the situation at Dendara is certainly more advantageous for investigating the earliest remains in comparison to Edfu. While both sites have suffered an important amount of destruction from fertiliser extraction (*sebbakh* digging) at the turn of

¹⁴ A red granite offering table naming Mentuhotep II was also discovered during excavations undertaken by the IFAO in 1988, Cauville and Gasse 1988, 26-28. Porter and Moss 1940, 116 also mention a cylinder seal with the name of Mentuhotep III published by Arthur E.P. Weigall.

¹⁵ A reused sandstone block from a statue naming Amenemhat I is located in the ceiling of the eastern staircase of the Hathor temple (Mariette 1870, 53-54; 1874, pl. H/e). Amenemhat I is also mentioned on one limestone block (Cauville 1992, 35) and two red granite blocks. These latter two were found on the floor of the *pronaos* of the temple of Hathor but only one, a lintel broken in two parts, was briefly published by Mariette (1875, pl. H/f). In January 2017, they have been relocated by the Oriental Institute mission in the open air museum opposite of the Roman *mammisi*.

¹⁶ Several limestone blocs bearing the name of Senwosret I have also been discovered in 1988.

last century, at Dendara lucky circumstances in the form of clean sand deposits, which caused the *sebbakhin* to stop and to consider it as having reached the natural bedrock surface, have resulted in a particularly good preservation of the Early Dynastic and Predynastic phases.

After having established the different settings and the current situation concerning the preservation of the archaeological remains at both sites, there are nonetheless several important parallels that can be observed, which suggest common parameters influencing the long-term development of these two provincial capitals.

It is evident from the recent fieldwork that there was a first growth in size and complexity during the transition from the Early Dynastic Period (2nd Dynasty) to the early Old Kingdom (3rd Dynasty). At this point in time, the character of the domestic settlement at Dendara evolves into something more structured and more official with stronger ties to the central administration and, not surprisingly, those changes are seen in the immediate vicinity of the main sanctuary, which has clearly retained its position since the origin of the site. At Edfu this can only be indirectly deduced from the mention of Edfu's shrine at the Djoser complex and the small step pyramid as marker of the royal power and cult at el-Ghonameya, one among a number of almost identical monuments, which were set up near important early urban centres throughout the country. This dynamic evolution seems to come to an almost complete halt after the early 4th Dynasty, for which secure evidence is currently lacking for any more significant occupation at both Dendara and Edfu. It corresponds to a general trend that saw major developments and a concentration of resources in the Memphite region at the expense of building activities and royal presence in Upper Egypt.

By the reign of Djedkare-Isesi and then at the beginning of the 6th Dynasty the interest of the central government turns back its attention towards provincial sites and their temples, which culminates in the installation of powerful local elites at these now flourishing towns.

This can be witnessed in particular at the adjacent cemeteries with larger elite tombs that provide information of the prominent titles of these officials, led by the nomarch. Furthermore, this development can also be seen at Edfu with the foundation of the new settlement quarter dating to the late 5th Dynasty and with the presence of early to mid-6th Dynasty mudbrick mastaba tombs made by the members of the local elite along the south-west side of the *tell*. At Dendara this can be witnessed by the large mastaba tombs spreading over the low desert surface south of the temple precinct after the reign of Pepi I and Pepi II.

In both cases, at Edfu and Dendara, the most significant expansion occurs at the end of the 6th Dynasty / early First Intermediate Period transition when these towns grow to more than double their original size. The exact reason for this expansion, such as an important growth in the population in general or the nucleation of the settlement system attracting more people to live in these regional urban centres remains speculative.

Furthermore, during the following early Middle Kingdom, these established limits remain and no more expansion seems to have occurred. At Dendara, there seems to have been a retraction of the settlement after the early 12th Dynasty, while at Edfu we still have not much data for this particular time but a lot of remains dating the late Middle Kingdom. Nevertheless, it is clear that the ancient town did not spread any further to the west or north.

Thus, these first results from recent fieldwork have opened up many new questions and will hopefully stimulate future discussions and research into the various factors that were decisive for the overall development of early urban centres in Upper Egypt, which for the moment seem to be much more complex than previously assumed. Climate change has frequently been cited as one cause for the demise of life in the provinces, particularly during the First Intermediate Period but the existing data proves that this cannot be correct. A combination of political, economic and social changes seems much more relevant for the short-term development than climate change invoked alone as the main reason.

References

- Abu Zeid, F. 2004. The Predynastic Cemetery of el-Adwa, in: Hendrickx, S., Friedman, R.F., Cialowicz, K.M. and Chlodnicki, M. (eds.), Egypt at its Origins. Studies in Memory of Barbara Adams. Proceedings of the International Conference "Origin of the State. Predynastic and Early Dynastic Egypt", Krakow, 28th August-1st September 2002. Orientalia Lovaniensia Analecta 138. Leuven: Peeters, 199-211.
- Aksamit, J. 2004. Predynastic and Early Dynastic Antiquities from Edfu in the National Museum at Warsaw, in: Hendrickx, S., Friedman, R.F., Cialowicz, K.M. and Chlodnicki, M. (eds.), Egypt at its Origins. Studies in Memory of Barbara Adams. Proceedings of the International Conference "Origin of the State. Predynastic and Early Dynastic Egypt", Krakow, 28th August-1st September 2002. Orientalia Lovaniensia Analecta 138. Leuven: Peeters, 521-533.
- Alexanian, N. 1999. Dahschur II: Das Grab des Prinzen Netjer-aperef. Die Mastaba II/1 in Dahschur. Archäologische Veröffentlichungen des Deutschen Archäologischen Instituts, Abteilung Kairo 56. Mainz: Philipp von Zabern.
- Alliot, M. 1933. Rapport sur les fouilles de Tell Edfou (1932). Fouilles de l'Institut français d'archéologie orientale 9.2. Cairo: Institut français d'archéologie orientale.
- Alliot, M. 1935. Rapport sur les fouilles de Tell Edfou (1933). Fouilles de l'Institut français d'archéologie orientale 10.2. Cairo: Institut français d'archéologie orientale.
- Baba, M. 2008. More Big Pots: HK 11C Square B5 in 2008. Nekhen News 20, 18-19. [online: http:// www.hierakonpolis-online.org/nekhennews/nn-20-2008.pdf]
- Baba, M. 2009. One More Big Pot: HK 11C Operation in 2009. Nekhen News 21, 23-24. [online: http://www.hierakonpolis-online.org/nekhennews/nn-21-2009.pdf]
- Barsanti, A. 1906. Sur les travaux exécutés à Edfou en 1902-1905 (réparations et consolidations). *Annales du Service des antiquités de l'Égypte* 7, 97-109.
- Bietak, M. 1996. Zum Raumprogramm ägyptischer Wohnhäuser des Mittleren und Neuen Reiches, in: Bietak, M. (ed.), *Haus und Palast im alten Ägypten. Internationales Symposium 8. bis 11. April 1992 in Kairo.* Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 14. Vienna: Austrian Academy of Sciences Press, 23-43.
- Cauville, S. 1992. Le temple d'Isis à Dendera. Bulletin de Societé Française d'Égyptologie 123, 31-48.
- Cauville, S. 2004. *Dendara V VI. Les cryptes du temple d'Hathor. Volume 1. Traductions.* Orientalia Lovaniensia Analecta 131. Leuven: Peeters.
- Cauville, S. and Gasse, A. 1988. Fouilles de Dendera. Premiers résultats. *Bulletin de l'Institut français d'archéologie orientale* 88, 25-35.

- Cauville, S. and Lecler, A. 2007. *Dendara. Le temple d'Isis.* Cairo: Institut français d'archéologie orientale.
- Cauville, S. and Lecler, A. 2009. *Dendara. Le Temple d'Isis. Volume II. Analyses à lumière du temple d'Hathor.* Orientalia Lovaniensia Analecta 179, Leuven: Peeters.
- Chlodnicki, M. and Cialowicz, K. 2000. Tell el-Farkha, Interim Report, 2000. *Polish Archaeology in the Mediterranean* 12, 85-98.
- Chlodnicki, M. and Cialowicz, K. 2005. Tell El-Farkha (Ghazala) Season 2005. *Polish Archaeology in the Mediterranean* 17, 143-154.
- Chlodnicki, M. and Cialowicz, K. 2007. Tell El-Farkha: Preliminary Report, 2007. *Polish Archaeology in the Mediterranean* 17, 161-178.
- Daressy, M.G. 1917. La Chapelle de Mentouhotep III à Dendérah. Annales du Service des antiquités de l'Égypte 17, 226-236.
- Daumas, F. 1952. Le trône d'une statuette de Pepi I^{er} trouvé à Dendara. *Bulletin de l'Institut français d'archéologie orientale* 52, 173-172.
- Daumas, F. 1973. Derechef Pepi I^{er} à Dendara. *Revue d'Égyptologie* 25, 7-20.
- Dreyer, G., Arnold, F., Budka, J., Franke, D., Hoffmann, F., Keller, D., Kopp, P., Lippert, S., von Pilgrim, B., von Pilgrim, C. and Raue, D. 2008. Stadt und Tempel von Elephantine, 33./34./35. Grabungsbericht. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 64, 63-151.
- Dreyer, G. and Kaiser, W. 1980. Zu den kleinen Stufenpyramiden Ober- und Mittelägyptens. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 36, 43-60.
- Eichler, E. 1993. Untersuchungen zum Expeditionswesen des ägyptischen Alten Reiches. Göttinger Orientforschungen IV.26. Wiesbaden: Harrassowitz.
- Espinel, A. 2014. Surveyors, guides and other officials in the Egyptian and Nubian deserts. *Revue d'Égyptologie* 65, 29-48.
- Fischer, H.G. 1968. Dendera in the Third Millennium B.C. down to the Theban domination of Upper Egypt. New York: J.J. Augustin.
- Fischer, H.G. 1985. More about the Smntjw. *Göttinger Miszellen* 84, 25-32.
- Gardiner, A.H. 1944. Horus the Behdetite. *Journal of Egyptian Archaeology* 30, 23-60.
- Garstang, J. 1902. A Predynastic Pot-kiln recently discovered at Mahasna, in Egypt. *Man* 2, 38-40.
- Garstang, J. 1903. *Mahasna and Bêt-Khallâf*. British School of Archaeology in Egypt, Egyptian Research Account 7. London: Quaritch.
- Gascoigne, A.L. 2005. Dislocation and Continuity in Early Islamic Provincial Urban Centres: The Example of Tell Edfu. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 61, 153-190.

- Geller, J.R. 1989. Recent Excavations at Hierakonpolis and their Relevance to Predynastic Production and Settlement. *Cahiers de Recherches de l'Institut de Papyr*ologie et d'Égyptologie de Lille 11, 41-52.
- Geller, J.R. 1992. Predynastic beer production at Hierakonpolis, Upper Egypt. Archaeological Evidence and Anthropological Implications. PhD dissertation, Washington University. Ann Arbor: UMI.
- Habachi, L. 1962. King Nebhepetre Mentuhotp: His Monuments, Place in History, Deification and Unusual Representations in the Form of Gods. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 18, 16-52.
- Hartung, U., Hartmann, R., Kindermann, K., Riemer, H. and Stähle, W. 2016. Tell el-Fara'in – Buto. 12. Vorbericht. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 72, 73-126.
- Hendrickx, S., Midant-Reynes, B. and van Neer, W., 2001. Maghar Dendera 2 (Haute Égypte), un site d'occupation badarien. Egyptian Prehistory Monographs 3. Leuven: Leuven University Press.
- Hendrickx, S., Faltings, D., Op De Beeck, L., Raue, D. and Michiels, C. 2002. Milk, Beer and Bread Technology during the Early Dynastic Period. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 58, 277-304.
- Henne, H. 1924. Rapport sur les Fouilles de Tell Edfou (1921-1922). Fouilles de l'Institut français d'archéologie orientale 1:2. Cairo: Institut français d'archéologie orientale du Caire.
- Kaplony, P. 1977. Die Rollsiegel des Alten Reiches I. Allgemeiner Teil mit Studien zum Königtum des Alten Reichs. Monumenta Aegyptiaca 2. Brussels: Fondation Égyptologique Reine Élisabeth.
- Kemp, B.J. 1985. The Location of the Early Town at Dendara. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 41, 89-98.
- Labib, S. 1995. Mine Workers in Pharaonic Times (English summary), in: Esmael, F.A. (ed.), Proceedings of the First International Conference on Ancient Egyptian Mining and Metallurgy and Conservation of Metallic Artifacts, Cairo Egypt 10-12 April 1995. Cairo: Egyptian Antiquities Organization Press, 403-415.
- Marchand, S. 2000. Le survey de Dendara (1996-1997). *Cahiers de la céramique égyptienne* 6, 261-298.
- Marchand, S. 2004. Fouilles récentes dans la zone urbaine de Dendara: la céramique de la fin de l'Ancien Empire au début de la XII^e Dynastie. *Cahiers de la céramique* égyptienne 7, 211-238.
- Marchand, S. 2012. Dendara, in: Schiestl, R. and Seiler, A. (eds.), Handbook of Pottery of the Egyptian Middle Kingdom. Volume 2: The Regional Volume. Contributions to the Chronology of the Eastern Mediterra-

nean 31.2. Vienna: Austrian Academy of Sciences Press, 273-297.

- Mariette, A. 1870. *Dendérah. Description générale du grand temple de cette ville* (vol. 1, planches). Paris: Franck.
- Mariette, A. 1875. *Dendérah. Description générale du grand temple de cette ville. Supplément aux planches.* Paris: Franck.
- Marouard, G. 2016. Excavating in the shadow of Hathor, Mistress of Dendera: Overview of the site and preliminary results of the 2015 Oriental Institute mission. *Oriental Institute News & Notes* 229, 4-16.
- Marouard, G. 2017. Dendara at Its Origins: New evidence for a Pre- and Early Dynastic Settlement Site in Upper Egypt. *Near Eastern Archaeology* 80, 166-175.
- Marouard, G. and Papazian, H. 2012. The Edfu Pryamid Project. Recent Investigation at the Last Provincial Step Pyramid. *Oriental Institute News & Notes* 213, 3-9.
- Moeller, N. 2016. The Archaeology of Urbanism in Ancient Egypt. From the Predynastic Period to the End of the Middle Kingdom. Cambridge: Cambridge University Press.
- Moeller, N. and Marouard, G. 2013. Tell Edfu. *The Oriental Institute Annual Report* 2012-2013, 113-125.
- Moeller, N. and Marouard, G. 2015. Tell Edfu. *The Oriental Institute Annual Report* 2014-2015, 153-165.
- Needler, W. 1984. *Predynastic and Archaic Egypt in the Brooklyn Museum*. Wilbour Monographs 9. Brooklyn, NY: Brooklyn Museum.
- Raue, D. 2005. Éléphantine: Cinq campagnes de fouilles dans la ville du III^e millénaire avant J.-C. *Bulletin de Societé Française d'Égyptologie* 163, 8-26.
- Raue, D. 2015. *Elephantine und Nubien vom 4.-2. Jtd. v. Chr.* Unpublished habilitation thesis. Leipzig: Universität Leipzig.
- Peet, T.E. 1914. The Cemeteries of Abydos II (1911-1912). Egypt Exploration Society Excavation Memoirs 34. London: Egypt Exploration Society.
- Peet, T.E. 1915. The Cemeteries of Abydos III (1912-1913). Egypt Exploration Society Excavation Memoirs 35. London: Egypt Exploration Society.
- Petrie, W.M.F. 1900. *Dendereh 1898*. Egypt Exploration Society Excavation Memoirs 17. London: Egypt Exploration Society.
- Petrie, W.M.F. and Quibell, J.E. 1896. *Naqada and Ballas*. British School of Archaeology in Egypt, Egyptian Research Account 1. London: Quaritch.
- Porter, B. and Moss, R.L.B. 1939. Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Statues, Reliefs and Paintings (IV). Upper Egypt: Chief Temples (excluding Thebes): Abydos, Dendera, Esna, Efu, Kom Ombo, and Philae. Oxford: Griffith Institute.
- Porter, B. and Moss, R.L.B. 1940. Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Statues, Reliefs and Paintings (V). Upper Egypt: Sites (Deir Rifa to Aswan,

excluding Thebes and the Temples of Abydos, Dendera, Esna, Edfu, Kom Ombo and Philae). Oxford: Griffith Institute.

- Seidlmayer, S.J. 1996. Die staatliche Anlage der 3. Dynastie in der Nordweststadt von Elephantine. Archäologische und historische Probleme, in: Bietak, M. (ed.), Haus und Palast im Alten Ägypten. Internationales Symposium 8. bis 11. April 1992 in Kairo. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 14. Vienna: Austrian Academy of Sciences Press, 195-214.
- Seidlmayer, S.J. 2001. *Historische und moderne Nilstände:* Untersuchungen zu den Pegelablesungen des Nils von der Frühzeit bis in die Gegenwart. Berlin: Achet.
- Slater, R.A. 1974. The Archaeology of Dendereh in the First Intermediate Period. PhD dissertation, University of Pennsylvania. Ann Arbor: UMI.
- Vermeersch, P., Paulissen, E., Stokes, S., Charlier, C., van Peer, P., Stinger, C. and Lindsay, W. 1998. A Middle Palaeolithic burial of a modern human at Taramsa Hill, Egypt. *Antiquity* 72, 475-484.
- Von Beckerath, J. 1980. Horusgeleit, in: Helck, W. and Westendorf, W. (eds.), *Lexikon der Ägyptologie*, *Band* 3. Wiesbaden: Harrassowitz, 51-52.
- Von Pilgrim, C. 1996. Elephantine im Mittleren Reich: Bemerkungen zur Wohnarchitektur in einer 'gewachsenen' Stadt, in: Bietak, M. (ed.), *Haus und Palast im alten* Ägypten. Internationales Symposium 8. bis 11. April 1992 in Kairo. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 14. Vienna: Austrian Academy of Sciences Press, 253-264.
- Williams, B. 1995. Industrial metallurgy in Egypt and Sudan, in: Esmael, F.A. (ed.), Proceedings of the First International Conference on Ancient Egyptian Mining and Metallurgy and Conservation of Metallic Artifacts, Cairo Egypt 10-12 April 1995. Cairo: Egyptian Antiquities Organization Press, 201-206.
- Yoyotte, J. 1975. Les sementiou et l'exploitation des regions minières à l'Ancien Empire. Bulletin de Societé Française d'Égyptologie 73, 44-55.
- Zignani, P., Marchand, S., Morisot, C. and Laisney, D. 1998. Deux sondages sur les fondations du temple d'Hathor à Dendera. *Bulletin de l'Institut français d'archéologie* orientale 98, 463-496.
- Zignani, P. and Laisney, D. 2001. Cartographie de Dendara, remarques sur l'urbanisme du site. *Bulletin de l'Institut français d'archéologie orientale* 101, 415-447.

Notes on the contributors

Nadine Moeller is Associate Professor of Egyptian Archaeology at the Oriental Institute, University of Chicago. She received her PhD from the University of Cambridge in 2004, and held the Lady Wallis Budge Junior Research Fellowship at University College, Oxford from 2004-2007.

Her primary research interests are settlement archaeology and urbanism in ancient Egypt. Her recently published book is entitled 'The Archaeology of Urbanism in Ancient Egypt. From the Predynastic Period to the End of the Middle Kingdom' (published in April 2016 with Cambridge University Press) which brings together the latest archaeological data and presents a new in depth study setting the parameters for Egypt as an early urban society.

She has been directing the Tell Edfu Project since 2001, and co-directing this project with Gregory Marouard since 2008. She is also involved in the new fieldwork project of the Oriental Institute at Dendara, which started in 2014. Apart from Tell Edfu and Dendara, she has also participated in numerous excavations in Egypt at the sites of Abu Rawash, Memphis, Zawiet Sultan (Zawiet el-Meitin), the Theban necropolis, the Valley of the Kings, and Elephantine.

Gregory Marouard has been a Research Associate in Egyptian Archaeology at the Oriental Institute - University of Chicago since 2010. He received a PhD in Art History and Archaeology from the University of Poitiers, France. He is a specialist for urban, domestic and harbour archaeology. Trained in Classical archeology before coming to Egyptian archaeology in 2000, he has been participating as archaeologist and ceramicist in eighteen fieldwork projects in Egypt, dating from the Predynastic to the early Islamic times.

Co-director of the Tell Edfu Project (The Oriental Institute, University of Chicago) with Nadine Moeller, he also directed, from 2010 to 2013, the South Edfu Pyramid Project which focused on the survey and rescue protection programme of the last unexplored provincial pyramid at El-Ghonameya. Since 2013, he has been leading the Oriental Institute team at Dendara, a joint project welcomed by the French Institute (IFAO) mission directed by Pierre Zignani (IFAO-CNRS).

Ancient Gold Mining Settlements in the Eastern Deserts of Egypt and Nubia

Dietrich Klemm* and Rosemarie Klemm**

Abstract

Settlements and single huts related to ancient gold mining sites in both the Egyptian and the Nubian Eastern Desert are archaeologically virtually unexplored. Only recently – probably caused by a new "gold rush" – it was begun to examine individual places closer. As gold mining operations in Egypt and Nubia were limited to periods of strong governmental power, mining settlements were only temporarily occupied, reflecting the strengths of the ruling authorities.

Each group forced to mine in the desert needed appropriate accommodation. The resulting ancient settlement structures have changed in the course of time according to the mining methods and ethnical groups involved with gold mining.

In respect of the various historical periods and artefacts, we may distinguish settlements from the Old and Middle Kingdoms, and a multitude from the New Kingdom. In the Eastern Desert of Egypt (without the Wadi Allaqi) quite a large number of mining settlements from Ptolemaic times occur, mainly reworked older New Kingdom sites. In Nubia, the reoccupation of New Kingdom mining sites took place presumably during Kushite times.

Finally, the entire Eastern Desert in Egypt and predominantly in Nubia is overcrowded by Early Arab mining exertions from the 9th to the 13th century AD. Whereas the many Early Arab settlements are always associated with recognisable gold production sites, one finds in these desert regions quite many village structures with no direct relation to gold mining, but more or less within a larger gold mining region. Until now no convincing utilisation of these structures is known. However, these might have been depository ware houses and distribution centres to aliment men and the numerous camels.

Keywords: Settlements, gold mining, Egyptian Eastern Desert, Nubian Eastern Desert

Introduction

In Egypt, gold mining can be traced back to the 4th millennium BC. According to analyses of early gold objects (Ogden 1976) these may often contain inclusions of platinoids and on average higher gold fines, suggesting the use or processing of gold nuggets collected by nomadic groups in wadi beds of the Eastern Desert. These nomadic people, however, did not live in organised stone hut settlements as they do today, and in any case, rock drawings of the type "Earliest Hunters" bear witness to their existence already in the 4th millennium BC (Winkler 1938).

*.**Buzallee 32, 86911 Diessen, Germany; *dietrichklemm@t-online.de **rosemarieklemm@t-online.de



Figure 1. Lightly brownish tinted gold containing quartz. A tiny gold flake is to be seen in the encircled middle part (arrow).

Before specifying the different settlement types, we will briefly describe the methods of gold mining and gold processing in the Eastern Deserts of Egypt and Nubia, as both are in close connection.

With the beginning of the New Kingdom, the most productive mining method in both regions is what we call "wadi working" (see fig. 4). Here, gold bearing quartz lumps were collected in wadi grounds, where they are deposited by erosion in the course of time. These workings are confined to wadis, which cut through a gold bearing mountain range, whose gold-containing quartz-ore chunks were transported into the debris of the wadi sediments. Here, the potential gold-containing quartz chunks can be separated from the barren by systematic selection, as the mineralised gold bearing chunks show a light grey or brownish colouration in contrast to milky white barren quartz pieces (fig.1).

Compared to the narrow underground mining of solid quartz veins the mining method of ore collecting in wadis has the big advantage that an arbitrarily large workforce (men power) could be engaged, which eventually resulted in a significantly higher yield of gold. Of course, this exerts influence on the architectural layout of the associated settlements.

In contrast to this method of mining in suitable wadi beds, only a very limited number of workers can be employed to do the mining in trenches or in gold-containing quartz veins occurring in the mountains. Correspondingly, in the vicinity of such mines, cluster-like contiguous hut units are found, which also point to a certain protective function in these remote desert regions.

The gold-bearing quartz ore pieces, mined in deep mines in the mountains or collected as erosion products in wadis, were first reduced to about pea size on anvil stones with stone hammers (pounders), in order to be ground on a stone mill to a powder-fine fraction. This



Figure 2. Remains of a small Old/Middle Kingdom settlement in the vicinity of a deep mine to be seen in the background at the left. Abu Mureiwat/Egypt.

potentially gold-containing quartz powder is subsequently stirred with water to form a suspension. The following mechanical separation of the fine gold flakes from the quartz powder suspension is carried out on inclined washing tables, where the tiny gold flakes are kept on the coating of the table while the suspension runs down into a small basin at the foot of the table. This procedure was repeated continuously until potentially all gold flitters were kept.

In the ancient saga of the Argonauts, the Golden Fleece was most probably a sheep's skin as coating, in which the sharp-edged gold flakes are concentrated either by wool filament or by lanolin grease. Consequently, the sheep's skin must be burnt to gain the gold content in the ash. Unfortunately, this method of gold concentration has so far eluded archaeological evidence, as well as in ancient Egypt and Nubia.

Agricola (1978 [1546]) shows a method for medieval German mining and gold beneficiation where coarse woven fabrics were shown on the so-called "herd" (washing tables) on which the sharp-edged gold flakes are held back. In contemporary African gold mines, sack cloths are laid on oblique wood surfaces to catch the gold particles.

The mining and processing techniques can be reliably documented for the New Kingdom by means of the surface inventory, such as rock crushers, the characteristic oval-shaped stone mills, rubber stones, and relicts of washing tables. The real separation and concentration of gold must yet be proven, as archaeological clues are missing. One can only deductively approach the process.

A prerequisite for both mining and processing methods is a sufficient availability of water, both for the workers and animals and for the water-based beneficiation process. The necessary water supply was organised by excavating relatively deep wells until the ground water level was reached. Today, they are in most cases



Figure 3. New Kingdom mining settlement. Usually they consist of closely connected room units when associated to underground mining. Wadi Ward Miriyam/Nubia.

dry or contain only brackish water. In quite a number of cases the former well may be recognised in the field either by a circular waste dam or by round sink holes within the wadi grounds.

The mined gold occurrences were mostly surrounded, or, in case of wadi workings, flanked by settlements along the wadi edges. Today, they are mostly badly preserved and filled in with windblown sand. As a whole, they are archaeologically only poorly investigated or only minimally excavated. This may be due to the difficult logistics to reach these sites deeply in the desert. Nevertheless, a complete new chapter on ancient Egyptian or Nubian social structures, which are also displayed in those settlements, awaits a comprehensive treatment.

The first sparse settlements,¹ most only as stone lined features, associated with gold mining are found in the Egyptian Eastern Desert around Bokari,² Abu Mureiwat,³ Higalig⁴ and Wadi Dara,⁵ and at Umm Fahm,⁶ Duweishat,⁷ Sokar-Tinari,⁸ and Abu Sari⁹ along the Nile in Northern Sudan. All these places date back to the Old and Middle Kingdoms, but have been mostly superimposed or even disturbed by later mining activities (fig. 2). In some cases, the dating was only made by identifying remaining mining tools. This fits also for other gold mining sites in

1 For further information on all mentioned sites, see Klemm and Klemm 2013.

- 5 27°54'53"N, 32°51'02"E.
- 6 21°17'09"N, 31°07'14"E.
- 7 21°22'04"N, 30°58'21"E.
- 8 20°19'23"N, 30°29'49"E.
- 9 20°17'00"N, 30°37'41"E.

both Egypt and Northern Sudan, where no signs of those old settlements were found.

Still clearly recognisable "mining settlements" are found in both desert regions, the Eastern Deserts in Egypt and Nubia, at the beginning of the New Kingdom. In the entire Egyptian and Nubian gold working zones only the locally occurring rock was used for their constructions. Mudbrick buildings could not be recognised anywhere.

A first heyday of New Kingdom gold mining in Nubia appears to date into the time of Thutmose III. It is clearly related to the dominant Egyptian presence in Nubia. From this time on, extensive Egyptian prospecting activities can be demonstrated with the opening of numerous mining projects, which in intensively worked areas led to corresponding settlements. They are, however, generally hardly preserved in unambiguous structures and therefore cannot be reconstructed properly.

Nevertheless, in Egypt as well as in Nubia two fundamentally different types of settlement are related to the respectively performed gold mining methods: these are on the one hand settlements which lie in close proximity to primary gold-containing quartz veins, which were either mined in underground mining or in opencast operations. Here, the productive "gold ore" was broken exhaustingly with stone hammers and stone axes. One has to consider that the real gold content in such quartz veins is very low and varies in the range between about 10 to 30g per ton and only rarely richer.

The adjoining settlements are mostly of limited dimensions and cluster in close compounds with adhesive room units. Often one can find mills and stone hammers pointing to ore processing inside their living quarters (fig. 3).

^{2 25°15&#}x27;54"N, 33°45'05"E.

^{3 26°31&#}x27;02"N, 33°38'41"E.

^{4 24°41&#}x27;41"N, 34°07'35"E.



Figure 4. New Kingdom houses set in a row along wadi workings in Wadi Mueilha/Egypt.

On the other hand, there are settlements of single huts like a string of pearls along the wadi edges which owe their existence to wadi workings (fig. 4). This is due to an arbitrarily large workforce, which consequently led to characteristic long rows of houses alongside the wadi edges of activity areas. It is understandable that this method gains a significant higher yield of gold ore and, after processing, of gold.

One may presume that systematic gold mining in the Eastern Nubian Desert started only under Thutmose III. However, this initially required an intensive ore prospection, which could only be carried out in the extensive area by highly qualified prospectors. But also these needed a sufficient and well organised supply with food and water. Until today there is no single gold mine in the Nubian Eastern Desert (with the exception of the modern mining activity at Ariab¹⁰), which is not due to the discovery by ancient Egyptian prospectors of the New Kingdom. This extremely high success rate shows a detailed knowledge of the geological and tectonic conditions that have led to the formation of gold-containing quartz veins. After the step by step withdrawal of the Egyptians from Nubia in the mid-Ramesside period, a Kushite elite arose, which in the course of time became powerful enough to send larger crews to the gold mining sites in the Eastern Nubian desert, logistically equipped and supplied. These new gold explorers now found the entire New Kingdom mining infrastructure with special tools for gold ore crushing and grinding, and gold and quartz sand separation tables, wells and dwellings. They learned to carry on with the existing equipment and methods of the orphaned gold mining technique. However, now they did not have to do the maltreating job for the Egyptian invaders anymore, but for their own profit.

Only the technique of rock grinding changed as the still existing flat oval New Kingdom mills were reused, resulting in secondary smaller and much deeper excavated grinding swales.

The question of the temporal and ethnic classification of this New Kingdom succession in the Nubian gold mining industry cannot be answered satisfyingly until now. Only the sparse ceramic shards show characteristic patterns of Nubian origin.

Since the organised posting and supply of larger work contingents into the distant deserts requires a central power, the hypothesis of a Kushite background

^{10 18°41&#}x27;52"N, 35°23'34"E.



Figure 5. Typical Ptolemaic house installation. All rectangular rooms are inside an enclosing wall. Hamash/Egypt.



Figure 6. Ptolemaic fort with an included well, reused in Roman times. Fatira (Abu Zabal)/Egypt.

presented here is obvious. In this case, it must be noted again that systematic excavation activities which could confirm these hypotheses have not yet taken place in any single mining site.

In the Ptolemaic era, gold mining is exclusively confined to the Egyptian Eastern Desert and mainly located near desert roads and fortified wells, which also served to supply mines in the surrounding area, e.g. Ghozza,¹¹ Daghbag,¹² Bokari,¹³ Samut¹⁴ and Hamash.¹⁵ The settlements assigned to this period show large buildings with rectangular ground plans with room units leaning uniformly against the inner walls (fig. 5). It is not clarified whether they lived only in these large house structures, or if they also dwelled in the New Kingdom hut remains, since the Ptolemies usurped almost exclusively the old New Kingdom mining sites. On the other hand, the Ptolemies transferred their great experience of Hellenistic mining and ore processing to the Egyptian mining sites, which, however, were reduced to a limited desert sector of the central Eastern Desert.

Only a few Roman sites can be found in the Eastern Desert of Egypt, *e.g.* in El Sid,¹⁶ Bokari¹⁷ and the Wadi el Hudi.¹⁸ This is all the more astonishing, since with the circular mills (querns) a new, much more efficient ore processing method was introduced during the Roman occupation. Housing and settlements were concentrated around massive forts, most of them including a well in the vicinity of the gold mines (*e.g.* at Barramiya,¹⁹

- 11 26°52'08"N, 33°06'29"E.
- 12 25°23'52"N, 33°49'07"E.
- 13 25°15'08"N, 33°45'22"E.
- 14 24°50'57"N, 33°54'54"E.
- 15 24°40'55"N, 34°05'41"E.
- 16 26°00'36"N, 33°36'27"E.
- 17 25°15'08"N, 33°45'22"E.
- 18 23°57'27"N, 33°11'18"E.
- 19 25°04'10"N, 33°47'35"E.

Fawakhir²⁰ and Fatira²¹) (fig. 6). The Roman gold mining industry, however, could hardly develop on account of the permanent incursions of the Blemmyes, a very aggressive nomad tribe. It was not possible to protect the distant mines militarily (Sidebotham *et al.* 2008).

After almost a thousand years of underused gold mining activity, the period of Ibn Tulun in the 9th century AD saw the revival of systematic gold production in Egypt and especially in the Nubian Eastern Desert. Apparently, the danger of Blemmyes' raids had largely disappeared in the Early Arab period. During this time, the Nubian Eastern Desert is littered with gold mining sites, in which the wadi working method was preferred. Accordingly, the early Arab settlements are located, often not very well arranged, on the edge of the wadi grounds, but also as loose huts slightly hidden in the hillside. Besides numerous, mostly broken, circular mills inside and outside the early Arab lodges, Mecca-oriented prayer places are characteristic elements. Depending on the dimension of the settlement, there may be several of them. Furthermore, in close vicinity of these sites partly large cemetery grounds could be found. Equally striking for this epoch of gold mining is the type of large houses with roundish ground plan built with double-shell walls filled with small fragments or rock boulders (fig. 7). The washing tables are mostly still well preserved.

The numerous cemeteries in the vicinity of early Arab gold processing stations are typical in contrast to the settlements of the New Kingdom, where we could only find few, partly many, superficial structures to be clearly identified as tombs. Here, careful excavations and accompanying investigations into the social structure and work organisation of the local people could provide important insights.

^{20 26°00&#}x27;48"N, 33°36'10"E.

^{21 26°40&#}x27;32"N, 33°14'33"E.



Figure 7. Early Arab double faced walls, which served equally as massive protection. Wadi Allaqi/Egypt.



Figure 8. Large building installation used as supply and lodging station for men and camels in Early Arab time. Uar/Nubia.



Figure 9. Positions of large supply stations (red squares) in Nubia.

A hitherto also widely unexplored type of Early Arab settlement, mainly occurring in Nubia (with the exception of Umm Eleiga²² and Bitam²³ in the southern Egyptian Eastern Desert), is a tight and stretched housing complex consisting of cohered rooms along both sides of a relatively wide central road: Derahib,²⁴ Uar (Alaar),²⁵ near Bir Kiaw,²⁶ Terfawi²⁷ and Omar Kabash²⁸ (fig. 8). These compounds are obviously concerned with gold mining, but no mining tools or processing equipment could be found in their interior. It seems highly likely that a better constructed and preserved part on one side

- 22 24°37'06"N, 34°59'16"E.
- 23 22°16'42"N, 34°30'35"E.
- 24 27°57'02"N, 35°08'27"E.
- 25 21°41'42"N, 35°08'16"E.
- 26 20°50'43"N, 35°01'31"E.
- 27 20°17'21"N, 33°17'37"E.
- 28 20°17'21"N, 33°17'37"E.

of the road served for housing, whereas the other, less carefully constructed part opposite the central road may have served as animal stables and food storage rooms for men and animals (fig. 9).

Those villages could be supply stations and caravanserais as well. In this regard, they are part of the organisational structure of the widely-distributed gold mining and gold processing sites in the Early Arab period, where around 60.000 camels are reported to have supplied the many scattered mining sites (Hasan 1962).

References

- Agricola, G. 1978 (1546). *De re metallica libri XII. Zwölf Bücher vom Berg- und Hüttenwesen*. Translated by C. Schiffer. Düsseldorf: VDI-Verlag.
- Hasan, Y.F. 1962. *The Arabs and the Sudan*. Edinburgh: University Press.
- Klemm, R. and Klemm, D. 2013. Gold and Gold Mining in Ancient Egypt and Nubia. Geoarchaeology of the Ancient Gold Mining Sites in the Egyptian and Sudanese Eastern Deserts. Natural Science in Archaeology. Heidelberg: Springer.
- Ogden, J.M. 1976. The So-Called 'Platinum' Inclusions in Egyptian Goldwork. *Journal of Egyptian Archaeology* 62, 138-144.
- Sidebotham, S.E., Hense, M. and Nouwens, H.M. 2008. The Red Land. The Illustrated Archaeology

of Egypt's Eastern Desert. Cairo: American University Press.

Winkler, H.A. 1938. Rock-drawings of Southern Upper Egypt II. Sir Robert Mond Desert Expedition Season 1937-1938 Preliminary Report. Archaeological Survey of Egypt Memoirs 25. London: Egypt Exploration Society.

Notes on contributors

Dietrich Klemm is Professor emeritus for Geochemistry and Economic Geology at the Ludwig Maximilians University Munich. Rosemarie Klemm is an Egyptologist based at Ludwig Maximilians University Munich. They have worked and published on stones, quarries and gold mining in Egypt and Nubia since the 1980s.

Kerma and Dokki Gel

Evidence of impressive changes in the urban architecture at the beginning of the New Kingdom in Nubia¹

Charles Bonnet^{*}

Abstract

The city of Kerma, overlooked by the main temple and its religious area, can be considered the capital of Nubia. Less than one kilometer to the north, the recent discovery of a second metropolis at Dokki Gel suggests the presence of a powerful fortified ensemble where military alliances would stop the advance of Egyptian armies. This ceremonial city is probably related to other countries of Central Sudan, as we find there an architecture unseen elsewhere in the 3^{rd} and 2^{ud} millennia BC. Its impressive monuments display an oval or circular plan, and the urbanization seems very complex. During the occupation started by Thutmose I in the early New Kingdom, a menenu replaced the huge agglomeration. This gives us a chance to consider the response of the Egyptians to an architectural complex which threatened their empire.

Keywords: Kerma, Dokki Gel, Thutmose I, Thutmose II, Hatshepsut, menenu

The study of the ancient city of Kerma enabled the identification of an architecture which can be attributed to the Nubian populations since around 2400 BC. The urban topography is organised all along a main north-south road, on both sides of which the main monuments of the kingdom were built: a temple and its religious area, a ceremonial palace, a residential palace and a royal courtroom rebuilt many times on the same spot (Bonnet 2014). Moreover, a secondary urban area isolated from the city by a deep ditch seems to pertain to an institution similar to the Egyptian *hwt-ka*, comprising numerous chapels which workshops would supply with bread, beer and meat as offerings for the cult of deceased kings. Other workshops would produce artefacts probably meant as tomb furniture (fig. 1).

The dimensions of the city, the proportions of its buildings, as well as the size of the large tombs of the necropolis, suggest that this built ensemble was the capital of a kingdom which was independent from Egypt. Its complex organisation and the material gathered enabled to show that this kingdom would stretch over a considerable surface of more than 1500km along the Nile. Very early, the kings could unify their territory and develop exchanges between central Africa and Egypt. The remains of fortified walls

*Mission suisse-francosoudanaise de Kerma-Doukki Gel; cbonnet@iprolink.ch

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¹ Translated from French to English by Pierre Meyrat.





show that during nearly a millennium, Nubians could rely on a solid defence system which was apparently inspired by some Pharaonic military structures like the Middle Kingdom fortresses of the Second Cataract (fig. 2). However, the unusual features of several structures suggest other influences from southern countries.

Nubia was organised with a network of localities spread all over the vast farming plains and regulating the production. In the urban core of Kerma lived the elite, whose spacious dwellings comprised locations for the sealing of goods and for making the inventory of several products. The urban organisation suggests an administration protected by the army, which was in charge of monitoring all activities. The similarities with Egypt are striking, and one can consider that this northern neighbour played an important part on the institutional and probably on the religious level. However, the local populations kept their distinctive features: the funerary customs, for instance, pertain to a tradition which is very different from the Egyptian one.

Some 700m away from this capital, a second city is attested by an ensemble of extraordinary constructions



Figure 2. The avant-corps of the southern gate of the Nubian capital (photo Ch. Bonnet).

which, in the current state of the researches, has no equivalent. Huge buildings of oval or circular plan cover large areas, and strong fortifications make the urban core impregnable (Bonnet 2013b; 2016). Excavations are ongoing, and we have not reached the earliest levels yet (fig. 3), but it seems clear that the ancient city of Kerma and this neighbouring site called Dokki Gel are contem-

porary since at least 2000 BC. The coexistence of the two centres might be due to a federation of troops of several countries meant to prevent the advance of the pharaoh's armies who wanted to control the exchange of goods which were vital to Egypt. This puzzling architecture seems to come from central Africa, where the monuments of this period are unfortunately totally unknown.





The site of Dokki Gel displays a first 6m thick precinct surrounding an area of about 90 to 100m by 180m, to which one must add the area covered by a second precinct, corresponding to an area of about 10 hectares. This is considerable, and one can compare it to the other fortresses of Mirgissa or Buhen, which played an important part on the Egyptian border. The gates of the inner precinct are elevated with double towers leaving a narrow passage. The outer gates are much more developed, under the form of unusual colonnaded vestibules of oval or circular plan, 50 to 70m in diameter. They were preceded by a large fortified space where the arrival of the goods in transit was monitored. Although on a smaller scale, these entrance vestibules can still be observed today in recent compounds (Denyer 1978, 145; Seignobos 1982; 2017, 46, 50). In this place, visitors can wait before meeting the owner to present him with their goods. Places of worship or sacred trees are also found in front of these modern entrances.

On the perimeter of the city, between the two precincts, were found several palaces of huge proportions, with very closely grouped columns giving it the look of a true "forest". Pathways enabled to reach thrones which were preserved well enough to show that they were preceded by a semi-circular staircase (fig. 4). These seats were meant for ceremonies which elude us, but in which several rulers or war chieftains must have been involved. During our last field seasons, we also uncovered religious buildings. Their architecture shows an extensive use of wooden beams and of massive mudbrick masonries. The rounded plans integrated within the urban pathways were constantly modified. Near the doors of these worship places, which were sometimes identified between two towers, wooden platforms were discovered, the support-


Figure 4. Aerial view of the archaeological site of Dokki Gel (photo B.-N. Chagny).

Figure 5. Aerial view of one of the temples to the north of the African city (photo B.-N. Chagny).

ing beams of which were kept in place by circular mounds of silt. In front of the entrance, perfectly round surfaces surrounded by small buttresses were used as pedestals for offering tables made of soil.

When entering these kinds of temples, one would walk over the mentioned floor, followed by a door between two large columns representing a first limit (fig. 5). The following space would extend in front of other massive columns, giving access to a second wooden door for which pivot holes made of soil and a device for the closing of the panels were still preserved. The curved pathway led to a new door with pivot holes, which opened onto a rectangular room where a round pedestal was probably meant to support a naos or a divine statue. The curved pathway was following the plan of the building, and the successive doors represented different stages before reaching the holy of holies (fig. 6). The Egyptian temples installed later in the city also have closing systems, but they are organised with a rectilinear central axis, and in the sanctuary a circular base is similar to the local installations.





We did not yet find any dwellings corresponding to this African city of Dokki Gel, only the worship, ceremonial or military structures bring us first information. We also lack precise chronological data, as these late Classic Kerma constructions were partly occupied until the Napatan or Meroitic periods. Moreover, the most ancient layers are still unknown for want of larger and deeper trenches. The archaeological material is also lacking, except for a few ensembles pertaining to the Classic Kerma cultures (1750-1450 BC), the New Kingdom or later periods. The overall topography is, however, of great interest. Of course, the central urban core was transformed at the arrival of the Egyptians, but one can suppose that religious or royal buildings were previously built there. One can also mention, next to the two large sacred wells, a bronze-smith's workshop which must have benefitted from the protection of the precincts and of the lands devoted to the cult. To the north-west, another cult

spot, and excavations are ongoing in this sector as well. The situation is totally modified in Egypt's early New Kingdom, when the indigenous city of Dokki Gel is totally razed and the Nubian capital of Kerma is abandoned (Bonnet 2013a). On the arrival of the Pharaonic troops, Thutmose I founded a *menenu* in Dokki Gel (Somaglino 2017). This institution was planned according to a new fortified precinct with monumental gates and walls defended by huge connected bastions (fig. 7). Three temples are erected in the centre

building was apparently rebuilt many times over the same

Figure 6. Napatan reuse of one of the temples to the north of the city of Dokki Gel (drawings M. Berti, S. Marchi).

of the architectural ensemble: they were associated with palaces, one of which, to the north-east, had ceremonial functions. Curiously, the local places of worship are preserved, as well as a circular palace. These rounded buildings integrated within the *menenu* kept their unusual architecture, which clearly differed from the Egyptian urbanism. From afar, one could probably see the conical roofs of palm fibres or reed as well as the more or less protruding buttresses around the mudbrick walls. Secondary precincts segregated entire religious African areas during the New Kingdom.

In this period, the urban core was equipped with a huge ensemble of circular silos used as food storage, notably cereals. We also discovered hundreds of bovine hoof prints as well as troughs, which shows that important herds were kept within the walls, as implied by the rock-cut stela of Thutmose II in Aswan. One can also mention the presence of a potter workshop covering a wide area. But what characterises the Egyptian urbanisation is above all the two north entrances to the city, of which we could study the remains over a large area. It is in reaction to the indigenous entrance vestibules that the architects of Thutmose I established massive doors and notably foregates which extend towards the outside, ahead of the precinct. This type of architecture was observed by W. Emery in Buhen, where the 'West Barbican' of the north gate protects the outer precinct of the fortress (Emery et al. 1979, 99-105). Also in Mirgissa, the main gate displays an outer gateway several dozen metres long.



Figure 7. Schematic plan of the menenu of Thutmose I (drawings M. Berti, I. Matter-Horisberger, S. Marchi, A. Peillex).

In Dokki Gel, the foregate of Thutmose I to the northwest extends for about 80m, to reach more than 100m of length by 40m during the reign of Hatshepsut, probably in order to erase the large African entrance vestibules. These dimensions reflect a disturbed regional situation, and these fortified devices were meant to impress the Nubian populations and their allies. The foregates display three parallel passages flanked by connected bastions or walls. The north-east front is made of thick masonries separating hypostyle rooms, which could also be reached by a transverse circulation axis. A second front was added later under Hatshepsut. Series of poles reinforced the walls along the passages. From the northern gates, several watching posts seem to block narrow accesses equipped with thrones. Moreover, one of the accesses still showed the base of an altar, with a circular pedestal which had

been covered by a canopy. The installation was restored, and it faces a monumental seat.

The three access ways were equipped with columns on both sides, which suggests that these entrances had a ceremonial function. Judging by the doors in the alignment of the precinct and the outer bastions, a complex defence system was designed for the army. In the northern central door, we found several wooden closing devices in the three passages and in the transverse axis. Everywhere, there were spaces for the soldiers. The foundations of an altar also suggest a place of worship inside the defence system. As to the rooms which were constantly developed, compared to the previous periods, one can assume that they could be used for the trade of specific goods.

Only the northern part of the city of Dokki Gel could be cleared, and it is obvious that the entrances were par-



Figure 8. The northern door and the hypostyle hall of the central Egyptian temple (photo B.-N. Chagny).



Figure 9. The remains overlap each other in the thin layers of silt (photo B.-N. Chagny).

ticularly important on this side (fig. 8). One can still see it on the inside, towards the urban core, from the central gate where a huge hypostyle hall, with some 150 and later 300 columns, enabled to reach the main temple devoted to the god Amun. There again, the Egyptian architecture apparently responds to the former African monuments by increasing the number of columns as in the palaces or the entrance vestibules. It is likely that ceremonial pathways linked Dokki Gel to the Nubian capital a few hundred metres away. Large-size indigenous palaces could be the reason for these connecting pathways, and we found some remains of buildings which still have to be cleared. As to the fortified precincts, they can be identified all around the *menenu*.

The situation thus described enables the study of three different contemporary architectures. One can see that the Nubians were in contact with Egypt, and that they adapted their constructions according to this model. However, the oval or circular structured buildings pertain to a very different way of building, the origin of which must certainly be searched in central Africa. The rapid abandonment of the Nubian capital gives the impression that this neighbouring African city became more important, and that the Egyptians kept a memory of it,



Figure 10. The fortifications of an indigenous coalition (drawings M. Berti, O. Dewitte, S. Marchi, J.-M. Willot).

as rounded temples are maintained in the new urbanisation. But for some of them, the constructions of the *menenu* have a character rather close to some former constructions, since the fortified structures also show features which are not found in Egypt. One can therefore assume that a local workforce was working for the Egyptian delegations, which came with the quadrangular architectural plans to which they were used to.

Step by step, we were able to identify the mudbrick foundations, the state of conservation of which varies according to the floods witnessed along the Nile. The superimposition of the remains being often seen in thin layers, their clearing requires a thorough and long-term endeavour (fig. 9). This type of construction is constantly modified, and one is surprised by the many modifications in the plans. We also had to take into account the use of wood, as post holes are still visible between the soil structures or in the structures, as a means of consolidation. These circular cavities appear in mudbrick masonries, at the foot of walls which could thus reach several metres high. The African architecture is mixed, wood is used more systematically and mudbricks were replaced by clumps of hardened silt known in Sudan as *galoos*.

Taking advantage of the three architectures gathered around 1500 BC in Kerma and Dokki Gel, we could

identify techniques displaying the inputs of several populations. The turmoiled period of the early New Kingdom stimulates deep changes. The cities are razed and replaced by an urbanisation directly associated with the newcomers. Thutmose I, who broke through the barrier of Kerma, put an end to a very old occupation of the territory where the Nubian and African kingdoms had organised the exploitation of raw materials and the gathering of exotic products. They could thus provide goods which were transported all the way north to the Mediterranean Sea. However, one must also admit that the evolution of these different countries is real, and that developments give their armies more efficient means, which oblige the Egyptians to improve their own defences. One can also note that original places of worship appear, which can be identified as such by their architecture.

In response to the arrival of Thutmose I, an indigenous coalition soon resumed power and destroyed the pharaoh's *menenu* (Gabolde 2004). Once again, we can make an archaeological appraisal of the buildings destroyed during the conflict. The coalition, led by three war chieftains, built fortifications destined to better preserve the urban core, and the central temples were then defended by large connected bastions (fig. 10). The African places of worship were also protected, as they were encircled by



Figure 11. Schematic plan of the menenu under Thutmose II and Hatshepsut (drawing M. Berti, I. Matter-Horisberger, A. Peillex).



Figure 12. General view of the site of Dokki Gel (photo B.-N. Chagny).

narrow bastioned walls which were often rebuilt. This defence thus shaped parallel fortifications around the structures. One can estimate that the heart of the battle was concentrated on the spot of the eastern Egyptian temple, where piles of ashes and reddened soil were still visible. The temple itself was also razed. An important effort was also devoted to the precincts of the city, which were doubled, and the gates were enlarged.

Under the reign of Thutmose II and Hatshepsut, the city was again taken over by the Egyptians. Direct offspring of Thutmose I, these sovereigns rebuilt the *menenu* by giving more importance to the architectural programme (fig. 11). The mudbrick columns of the temples were replaced by decorated stone pillars. The dimensions of the fortifications became even more important. The north-east palace kept the same plan, but the first hypostyle hall was extended. The processional ways were equipped with colonnades on both sides. However, one must note that the constructions took into account the original plan, as the walls follow almost the same plan as the one planned by the architects of Thutmose I. The impression we get is that the foundations were uncovered for the works of his successors, who really wanted to preserve the foundations of their father.

The architectural choices vary during these few decades, as they depend on the traditions linked with Egypt, but also with Nubia, whose kingdom developed over more than a millennium. As to Dokki Gel, the analysis of the different monuments represents many problems. We proposed to associate the city with coalitions coming from the southern countries (Valbelle 2005; 2012). The architecture which we discover step by step is not known, but the technical details or the general layout of the buildings give the impression of a sophisticated way of building (fig. 12). Far from being crude, this architecture rather marks the end of a long evolution. It also seems to extend up to the current central African structures, although with clear changes. After less than ten years, our investigation is still in its early stages, and one will need to better understand the territories of the continent to be able to explain the unique character of our discoveries, which go back to the origins of the African cultures.

References

- Bonnet, Ch. 2013a. Découverte d'une nouvelle ville cérémonielle nubienne et le ménénou de Thoutmosis I^{er} (Doukki Gel, Soudan). Comptes rendus des Séances de l'Académie des Inscriptions et Belles-Lettres 2013.2, 807-823.
- Bonnet, Ch. 2013b. Les grands monuments égyptiens et nubiens du début de la XVIII^e dynastie sur le site de Doukki Gel (Kerma). *Bulletin de l'Institut français d'archéologie orientale* 112, 67-74.
- Bonnet, Ch. 2014. *La ville de Kerma, une capitale nubienne au sud de l'Egypte*. Lausanne: Favre.
- Bonnet, Ch. 2016. Une ville cérémonielle africaine du début du Nouvel Empire égyptien. *Bulletin de l'Institut français d'archéologie orientale* 115, 5-13.
- Denyer, S. 1978. African Traditional Architecture: An Historical and Geographical Perspective. London: Heinemann.
- Emery, W.B., Smith, H.S. and Millard, A. 1979. The Fortress of Buhen: The Archaeological Report. Excavations at Buhen 1. Egypt Exploration Society Excavation Memoir 49. London: Egypt Exploration Society.
- Gabolde, L. 2004. La stèle de Thoutmosis II à Assouan, témoin historique et archétype littéraire, in: Gasse, A. and Rondot, V. (eds.), Séhel entre Égypte et Nubie. Inscriptions rupestres et graffiti de l'époque pharaonique Actes du colloque international 31 mai – 1er juin 2002, Université Paul Valéry. Orientalia Monspeliensia 14. Montpellier: Université Paul-Valéry, 129-148.
- Seignobos, Chr. 1982. Nord Cameroun, Montagnes et Hautes Terres. Collection Architectures traditionnelles. Marseille: Edition Parenthèses.

- Seignobos, Chr. 2017. *Des mondes oubliés, carnets d'Afrique*. Marseille: Edition Parenthèses.
- Somaglino, Cl. 2017. La toponymie égyptienne en territoires conquis: les noms-programmes des *menenou*, in: Favry, N., Ragazzoli, C., Somaglino, Cl. and Tallet, P. (eds.), *Du Sinaï au Soudan. Itinéraire d'une égyptologue (Mélanges offerts à Dominique Valbelle*). Orient et Méditerranée 23. Paris: Boccard, 229-242.
- Valbelle, D. 2005. Hatchepsout en Nubie. *Bulletin de la Société française d'égyptologie* 167, 33-50.
- Valbelle, D. 2012. Comment les Egyptiens du début de la XVIII^e dynastie désignaient les Kouchites et leurs alliés. *Bulletin de l'Institut français d'archéologie* orientale 112, 447-464.

Notes on the contributor

Charles Bonnet was chief of the Archaeological Department of the Canton of Geneva from 1972 to 1998. He became professor at the University of Geneva in 1988. Member of the Institut de France since 1990, he takes part in the works of the Académie des Inscriptions et Belles-Lettres as Foreign Associate. A leading expert on many sites, mainly in Geneva and in Italy, France, Spain and Belgium, he plays an important part in European archaeology. He is mostly famous for his work in Egypt and Sudan, where he has been directing works for more than 50 years in the Sinai as well as in Tabo, Kerma and Dokki Gel. He was awarded a Doctorate Honoris Causa by the Universities of Khartoum, Dongola, Leuven and Paris-Sorbonne.

The Many Ethnicities in Avaris

Evidence from the northern borderland of Egypt

Manfred Bietak*

Abstract

In modern towns with multi-ethnic population and congregations of different religions and variations of religion one can notice the tendency of people of the same background to flock together, forming districts within such communities. This seems to have been also the case in towns of Ancient Egypt, especially in settlements situated near the borders. This article presents data of different communities which lived in Avaris during the late Middle Kingdom, the Hyksos Period and the early New Kingdom. Besides the original Egyptians, immigrants from different parts of the Ancient Near East settled down in the eastern Delta from the late 12th Dynasty onwards. They left the Egyptian community intact within the oldest part of the town. It was a surprise to find also vestiges of Nubians of different cultural background and origin within Avaris. In the time of the 14th Dynasty there is evidence of Kerma people, in the Hyksos Period one encountered mainly other Nubians who seem to have been related to the Pan-Grave Culture and after the conquest of Avaris by the victorious 18th Dynasty, ceramics and arrow tips of the Kerma Culture appeared again. For the Nubians of the Hyksos Period, no specific quarter of the town could be found except that they seem to have lived in symbiosis with palaces where they may have served as mercenaries and in the New Kingdom perhaps as regular part of the army. Their pottery fragments could, however, also be found in the regular parts of the town and a special quarter could be expected for them, but it was not yet discovered. Besides Egyptians and people from Asia and Nubia, it seems that there was also a Cypriot community producing Cypriot ware with Cypriot technology but of Egyptian clay. In the Thutmoside Period, when the site became most likely the major naval base of Peru-nefer, it seems that for some time a Minoan community established itself near a palatial compound which was furnished with Minoan wall paintings. This was in a time when "Keftiu" delegations appear depicted in noble tombs in Thebes.

Keywords: Tell el-Dab'a, Avaris, Hyksos, New Kingdom, Thutmoside, Kerma, Nubians, Ethnicities

Introduction

*ERC Advanced Grant 'The Hyksos Enigma', Austrian Academy of Sciences; manfred.bietak@univie.ac.at When studying the mapping of ethnicities in modern cities one realises that even our modern society is not an open one and that there is the tendency of people to flock together with kin folk. In New York, Chicago (figs. 1-2) and many other cities people not only congregate into white, black, Hispanic and Chinese communities, but even Afro-Americans from the Caribbean Islands live separately from Afro-American



Figure 1. Recent clusters of ethnicities in New York. Source: 2010 U.S. Census, socialexplorer.com https://www.nytimes.com/ interactive/2015/07/08/us/census-race-map.html.

communities of local history. Italians, Greeks, Latinos, Chinese and others have their own neighbourhoods. Expatriate communities celebrate cults of the saints of their settlements of origin and even festivities with processions are performed in the same way as in the towns from which they came from.¹

One may also observe a similar kind of development of segregation in medieval towns, for example in Europe with its ghettos, and especially in multicultural Venice, or in the Orient in towns such as Jerusalem with its Christian, Jewish, Armenian and Muslim quarters, or in Aleppo. Today in the eastern Nile Delta most of the villages are divided between *fellaheen* and Arabs (former Bedouins), who observe strict marriage barriers until today (Ammar 1944, 37). Villages in Upper Egypt are also not uniform in ethnicity. Communities are divided between *fellaheen*, Arabs of sedentary tribes, Ababda, Ashraf (considering themselves as descendants of the prophet), Amir (descendants of former ruling classes) besides Coptic Christians. There, as well, marriage barriers exist until today. West of the Nile in Middle Egypt and in the Fayum one may find descendants of immigrants from the oases whilst in the Bahriya oasis one can now observe in a recent development large communities of Salafists who had moved there from the Nile Valley to escape the control of the government in Cairo and the cities of the Nile Valley. It reminds us of Coptic Christians who went into the desert and to the oases to escape taxation and control of the Islamic government. We may call it religious segregation but to some extent religion may go with ethnicities. The largely Islamic government after the conquest of Egypt by 'Amr Ibn el-'As was controlled by the Arab conquerors while the Copts were indigenous Egyptians. Only afterwards the ethnicity boundaries faded when parts of the Copts converted.

It seems that also towns in Ancient Egypt, especially communities near the borderland, received population groups from beyond the borders, from across deserts or even unexpectedly from far away. As an example for the immigration of carriers of the Pan-Grave Culture, the so-called *Md3yw*, to Lower Nubia and Upper Egypt during the late

¹ As example, I would like to mention the festival of the "Little Italy community" in Manhattan of the patron Saint of Naples San Gennaro every year from the 16th-19th of September since 1926. A statue of the saint is carried in procession through Mullberry Street (https://en.wikipedia.org/wiki/Feast_of_San_Gennaro). Another saint whose cult is even 128 years old is celebrated annually on the 21st of August in New York is San Rocco di Potenza (https://www.facebook.com/StRoccoSociety/). His cult was introduced by immigrants from Potenza in southern Italy.

His statues originally imported from Italy and candle shrines are carried in procession through the streets and ex-votos of limbs of wax, or silver and gold of people supposedly healed by the saint, are deposited at his shrine or if of silver and gold on the statue itself. His main church is in Venice, but his cult is spread all over the world, also in Lower Manhattan in the St. Joseph's Church. Another saint whose statue is carried in procession every year is Santa Fortunata in Brooklyn. These cults give the communities identity and keep them alive. We can expect similar cult transfers in antiquity.





Middle Kingdom and the Second Intermediate Period, one can study the position of Pan-Grave clusters at the edge of the Nile Valley and at the rim of C-Group cemeteries in Lower Nubia (Säve-Söderbergh 1941, 135-140, fig. 13; Bietak 1968, 43-78, figs. 5-6). As a contrast to the mostly fortified settlements/towns founded by the Egyptian state in Nubia, I would like to try to elucidate the multi-ethnicity in the north-eastern borderland of Egypt at the example of Tell el-Dab'a, a harbour town, later capital of the Hyksos Avaris and finally most likely the major Egyptian naval stronghold Peru-nefer.

The Egyptian community in Avaris

In an attempt to curb the infiltration of immigrants of the Near East during the First Intermediate Period, the nascent Egyptian state of the early 12th Dynasty founded planned settlements in the eastern Nile Delta to colonise a land which seemed to have not been sufficiently settled. This kind of policy is already known from literary texts of the Middle Kingdom, reflecting situations in the First Intermediate Period, known as the 'Teachings for

King Merykare' in which the foundation of new towns in the Delta is propagated. Not every foundation was a success. In Tell el-Dab'a a planned settlement (Czerny 1999) was built west of a probably originally natural harbour basin. Only a part of this settlement with regular blocks of small apartments was excavated. It dates to the beginning of the reign of Amenemhat I and lasted probably only for two generations. The settlement was then abandoned except for squatter activity, and a new planned settlement was built east of the harbour basin at 'Ezbet Rushdi, probably under Amenemhat II (Czerny 2016). One may expect that the Ka-Temple of Amenemhat I at 'Ezbet Rushdi (Bietak and Dorner 1998; Czerny 2016) was built originally within the first settlement and rebuilt by Sesostris III within this new planned settlement at 'Ezbet Rushdi which dates according to ceramic evidence approximately from this time. It can be also expected that a granite portal of a Djadjaut (Szafranski 1998), a columned hall as a part of an official building, was also transferred and rebuilt within this new planned settlement as a renewal inscription by Sesostris III on this portal seems to indicate.



Figure 3. The Middle Kingdom closed settlement at 'Ezbet Rushdi (after Bietak 2016a, fig. 5).

During the late Middle Kingdom this new site, enclosed by a rectangular mudbrick wall (fig. 3), was surrounded by a settlement of numerous immigrants from the Levant. Nevertheless, the Egyptian community was not only able to survive throughout the Hyksos Period, they were even able to enlarge their settlement at the expense of already settled Canaanites (Bietak 2016a). How is it possible to prove this?

The settlers from the Near East introduced the habit of intramural burials, either within houses or courtyards or within cemeteries surrounding their temple precinct which was also surrounded by a settlement. The settlement of the Middle Kingdom at 'Ezbet Rushdi was void of intramural burials (Bietak 2016a). Even if the strata of the Hyksos Period on top of the planned settlement were razed away by agricultural levelling, the tombs would have cut into the older Middle Kingdom settlement, which, however, did not happen. Strata of the Hyksos Period survived south of the Middle Kingdom settlement (Forstner-Müller *et* al. 2015). A street which runs in prolongation of the eastern enclosure of the Middle Kingdom town, but already further south, outside of this town, divides a quarter without intramural burials from a quarter with such burials to the east of the street (fig. 4) (Bietak 2016a, figs. 5-6). Also, toggle pins, which held together the garment at the shoulder, are an important ethnical marker for people of Western Asiatic origin in the Middle Bronze Age. These pins were found in the same area from where one has evidence of intramural burials (fig. 5). This is a sign that the Egyptian community which obviously buried their dead outside their settling ground was able to expand south of the old core of the town at 'Ezbet Rushdi during the Hyksos Period. This should not surprise us since it was the Egyptians who, with their learned scribes, were the carriers of literature and science, and we may expect administrational skills, throughout the Hyksos Period as the Rhind mathematical papyrus, dated to the 33rd year of the Hyksos Apophis, and literary papyri show.



of the Hyksos Period in Area R/III near 'Ezbet Rushdi, yellow the Egyptian quarter, with white background the settlement of the Western Asiatic community (after Forstner-Müller et al. 2015, fig. 3, redrawn,

The Canaanites/Amorites

A Western Asiatic population started to settle around the enclosed Egyptian Middle Kingdom town at 'Ezbet Rushdi. It seems that they arrived in several waves and it is highly unlikely that they all came from the same place of origin. The oldest graves were clustered in a cemetery south of a loose settlement (fig. 6, Bietak 1996, 10-21, figs. 7, 8; 2010e, 17-18, fig. 12; Schiestl 2009, 29-30, plan). The tombs were small and despite heavy plundering 50% of the male burials still contained weapons of Western Asiatic Middle Bronze Age typology, such as javelins, daggers and a duckbill-axe (Schiestl 2009, 101-117). They seem to have been employed as soldiers such as depicted on a contemporary obelisk shaped stela at Serabit el-Khadem (Gardiner *et* *al.* 1955, pl. 58, stela 163) and on representations of Asiatic mercenaries in tomb paintings at Beni Hassan (literature and overview in Bietak 1996, 16-21, figs. 12-15; Mourad 2015, 81-85, figs. 4.45-4.50).

With the harbour function of the town other people moved in, most likely sailors, merchants, craftsmen of different kinds and by and by the immigrants gained the majority among the inhabitants. Only the first phase of immigrants (Phase H) built their own types of houses, such as the Syrian Middle-Room- and the Broad Room house (overview in Eigner 1986, 20; Bietak 2010e). In the following phases, they took over Egyptian house architecture, most likely because the builders in this town were Egyptians. That the inhabitants were, however, Canaanites/



Figure 6. The oldest evidence of settlements of Western Asiatic population and its adjoining cemetery (after Bietak 2010e, fig. 12).



Figure 7. Child burial in an amphora (Tell el-Dab'a Archives, Austrian Academy of Sciences).

Amorites, can be recognised from the material culture of the Middle Bronze Age, especially from the pottery and the bronzes. Ethnic markers are, however, customs completely foreign to Egypt such as intramural burials and the already mentioned toggle pins, found at the left shoulder of burials (fig. 5) but also in settlement contexts when they have been lost by their owners. The bodies were interred mainly in contracted positions, which became more rare in Egyptian burials at that time (Van den Brink 1982, 46; Kopetzky 1993, 175, fig. 52; Schiestl 2009, 67-70). Children were buried mainly in Middle Bronze Age amphorae instead of the much more breakage resistant Marl C zirs (fig. 7). Most of them were interred under the floors of houses. Western Asiatic influx can also be seen in the donkey, sheep and goat burials in front of tomb entrances, especially the pairwise burials of these animals (fig. 8).²

This Western Asiatic community continued to settle at Tell el-Dab'a until the end of the Hyksos Period, altogether covering approximately 300 years. Of course, their material culture changed over this long timespan. A special change can be noticed with the beginning of the Hyksos Period (between phases E/2 and E/1, c. 1640 BC) when the town expanded quickly from c. 100ha to 250ha (fig. 9), more than 2.5 times bigger than the largest Syrian towns such as Qatna, Tweini, Ebla, Ugarit and probably also Aleppo. While the imports decreased during the Hyksos Period and were replaced by local products of Middle Bronze Age typology, more and more Egyptian pottery was used in the households. But for burials the Asiatic Middle Bronze Age repertoire had a bigger representation.

In the domestic architecture, Egyptian house types (among them the so-called Kahun House) were taken over after one generation, most probably because the builders were Egyptians. In sacred architecture, however, one remained conservative. One finds, therefore, Near Eastern types of temples such as the Broad-Room temple and a Bent-Axis temple besides Egyptian chapel types (fig. 10) which signal a religious syncretism (Bietak 2009c; 2016b) with parallel prototypes especially in northernmost Syria and in Mesopotamia (Bietak 2018b).

^{For donkey burials in the Near East in general, see Way 2011.} For Tell el-Dab'a, see Boessneck 1976, 21-24; pls. 2-9a; Bietak 1981, 287; van den Brink 1982, 74-83; Bietak 1991, figs. 25; 75, 139; Boessneck and Von den Driesch 1992, 23-24, pls. 1-9; Kopetzky 1993, 23 (area F/I: tombs j/22-no. 29, m/18- no. 13, n/20-no 5, c-b/3, o/17-no 4, most of them phases G/1-3 or F); Forstner-Müller 2009, figs. 101a, 180; Schiestl 2009, 179, figs. 174, 189, 257, 280, 257, 289, 292, 313, 319, 332, 343, 354, 359, 372, 400, 406, 423.



2009, fig. 332).

This shows the spiritual background of the Hyksos elite. Palatial architecture is not Egyptian and seems to point towards the same region of origin (Bietak 2010a; 2010d; 2010e, 19-23, pls. 50-52; Bietak et al. 2013a).

The Near Eastern community practised ritual meals which were consumed within the sacred precincts. Their remains, such as intentionally broken pottery and animal bones, were interred within circular pits in front of temples (Müller 1998; 2001; 2008, 19-237). Intramural burials continued until the end of the Hyksos Period. More ceramic forms of the Levant were used for tomb offerings than within the normal household pottery. Most of these containers were produced, however, locally in the eastern Delta. By and by imports declined (Kopetzky 2010, 175, fig. 52) which could be considered as a sign of the downfall of the Hyksos.

The Western Asiatic population in the eastern Delta was not driven out of Egypt into the southern Levant as one can read until today nearly in any textbook. Avaris seems to have been largely abandoned and the tombs in the houses looted. Its population must have been largely distributed over the country by the victorious new overlords of Egypt, the 18th Dynasty of Thebes. A new military and naval stronghold was built in the north-western part of the former town and became in all likelihood Peru-nefer, the naval stronghold of the Thutmoside kings (Spiegelberg 1927, 217; Daressy 1929, 225, 322-326; Habachi 2001, 106-107, Bietak 2009a; 2009b; 2010b; 2010c, 167-168; general literature and discussion in Bietak 2010e, 31-35.). It seems that part of the Western Asiatic population which caused the Hyksos rule was allowed to stay and to pursue their Canaanite cults. The major temple precinct continued to function and received its typical offering pits. It is also known that Canaanite cults, such as the ones of Ba'al Zephon, Astarte, Qudshu and other divinities were performed at Peru-nefer (Stadelmann 1967; Tazawa 2009; Zivie-Coche 2011) and it



Figure 9. Plan of the site of Avaris/Tell el-Dab'a (Archives of the Austrian Academy of Sciences and the Austrian Archaeological Institute).

looks as if this had been a persistence of the religious practices performed at Avaris (Helck 1971, 446-473; Stadelmann 1967, 148; Bietak 2010b, 18-20; 2010c, 170-171). The practical archaeological evidence of a continuum of Asiatic people in Avaris is provided by the excavations at Tell el-Dab'a which revealed that besides the cult continuation at the temple site at area A/II, the pottery production with its hybrid Near Eastern and Egyptian forms carried on continuously into the New Kingdom until the times of Thutmose III (Bietak 2010c, 169-171, pl. 25). Scarab glyptic also continued at this site with the same technique and the same motives and back types after the fall of Avaris. The impact of the Hyksos on the culture of the New Kingdom can be discovered by and by in motives in Egyptian literature, religion and also in political practices such as the long-distance cuneiform letter diplomacy found in Amarna. It was already introduced to Egypt by the Hyksos, as a fragment of an Akkadian letter written in southern Mesopotamian style found in a well of the Hyksos Palace proves (Van Koppen and Radner 2009; Bietak 2010a, 986-988, fig. 14).

Cypriots in Avaris

In a period, early in the Second Intermediate Period (Phases F, E/3-2), when pottery imports from Cyprus were minimal for an unknown reason, juglets inspired by the Cypriot type of Black Slip III Ware were produced locally of Nile clay in Cypriot technology (Vilain in preparation) (fig. 11). The juglets were handmade and the handle was stuck through the wall as Cypriot potters would do (Maguire 1995, fig. 11; 2009, 24-25, fig. 3). Outside Cyprus this technique is only known in Minoan pottery, but as the juglets belong to the Cypriot typology it is likely that Cypriot potters living in Avaris produced them in order to fill a local market demand. Unfortunately, we do not yet know what these juglets contained. This should be investigated with the help of residue analysis. It cannot be explained why this product did not reach Avaris from Cyprus before the local production began. As Cypriot products were only rarely represented during the 13th Dynasty in Phase G/1-3, it could be that genuine Cypriot juglets were missed in the excavation. What reached Avaris before this period of interruption of trade was White Painted III-IV Ware from



Figure 10. The temple precinct of Area A/II (after Bietak 2010e, fig. 34).



Figure 11. Juglets inspired by the Black Slip III Ware of Cyprus, produced of Egyptian clay (after Maguire 2009, fig. 3).

the time of the 13th Dynasty onwards. It is, therefore, no coincidence that a series of such jugs of Pendent Line Style were found in the conflagration of the palace of the 14th Dynasty (Phase E/3-2). They were, however, produced on a speedily rotating wheel, a technology introduced to Avaris from the Near East. Again, one could claim that a product not available in imports was finished locally, together with its accustomed container. We are unable, however, to specify in which part of Avaris these Cypriots lived. The high percentage of Middle and early Late Cypriot Ware at the eastern fringes of the town in Area A/V (Hein and Jánosi 2004, 224-230, 237-238) may be a hint that in the late Hyksos Period, Cypriots could have lived there but this we cannot prove.

The final question is: why were Cypriots possibly in Avaris? In connection with seafaring and the real or fake Cypriot products, one could only think of merchantmen.

Nubians in Avaris

Not only people from the north, but also people from the south, from Nubia, had an impact on Egyptian life and culture since the beginning of Egyptian history. Nevertheless, it was a surprise to have evidence of Nubians also living in Avaris. That they were physically there can be proved by the presence of pottery of different Nubian groups. As only open forms, such as cups and cooking pots covered with soot, were found, one could exclude containers for imported ware. These were vessels for daily use, and not suitable as packing material.

During the early Second Intermediate Period some sherds of Kerma pottery were retrieved in a palace of the 14th Dynasty which ended in a conflagration (Aston and Bietak 2017, 496-497, 510, fig. 13a). That the habit of attendant burials (Bietak 1989) had been introduced at that time at Tell el-Dab'a from the Kerma Culture (Aston and Bietak 2017, 495-496) can now be dismissed, since similar burials with female attendants recently appeared in a Middle Bronze Age context at Tell Arbid in the Khabur region in northernmost Syria (Wygnańska 2014, 42-43, fig. 4).

During the Hyksos Period Nubians must have lived in Avaris. Sherds of cooking pots and fragments of Nubian pottery with incised design have been found in offering deposits within the Hyksos palace (fig. 12) and within a palatial precinct of the late Hyksos Period (Aston 2012, 160-169; Aston and Bietak 2017, 509-514, figs. 13-14; Hein 2001; Fuscaldo 2002; 2004; 2008), in small quantities also in the settlement (Forstner-Müller and Rose



Figure 12. Fragments of Nubian pottery from the offering pit L81 from the Hyksos Palace in Avaris (Excavation Bietak, Tell el-Dab'a Archive, Austrian Academy of Sciences).





Figure 13. Fragments of Nubian pottery from the palace precinct of the New Kingdom (Tell el-Dab'a Archive, Austrian Academy of Sciences).

2012, 201/1-5).³ It is surprising, however, that no clear evidence of Kerma people could be found, since we know from the Second Stela of Kamose that the Hyksos had connections with the Kingdom of Kush and seem to have conspired with them (Habachi 1972; Davies 2003a; 2003b, 2003c; 2010).

Of the Nubian pottery from the Hyksos Period only very few sherds can be associated with the Kerma Culture and even these are doubtful. The bulk of the material cannot be attributed to any Nubian culture known to us. The closest relationship can be established with rounded bowls with criss-cross incisions to the Pan-Grave Culture, but they lack the typical Pan Grave forms with ledged rims, a nearly vertical profile and a deep position of the maximum diameter (Bietak 1966, 53-54; 1968, 186; Nordström 1972, pl. 23, type A8; Giuliani 2006). Since such Pan-Grave-related pottery was also found in the Kharga Oasis west of the Nile valley (Manassa 2012, 132-139, figs. 4-8), one may assume that it was from there that the Nubians in Avaris immigrated during the Hyksos Period. The location of this ware in the Hyksos palace suggests that they were employed at the court, probably as mercenaries, the traditional field of employment of Nubians in Egypt. We cannot assign a specific district in Avaris as a living quarter of Nubians. Since there is a concentration of their relics in palace quarters, they may have very well lived there.

It is no surprise that besides Pan-Grave Ware (Säve-Söderbergh 1941, 135-140, fig. 13; Bietak 1966, 53-56, pls. 25-32; Gallorini and Giuliani 2012; Gatto *et al.* 2012; Manassa 2012, figs. 3, 5/b), Nubian pottery of less distinct, but Pan-Grave-related character appears also in other places in Egypt, such as Memphis, El-Lahun, Deir el-Ballas, Thebes, Edfu, Aswan and Elephantine (Bourriau 1981; 1997; 2012; Ayers and Moeller 2012, 107-111).⁴

In the New Kingdom, after the abandonment of Avaris, the 18th Dynasty constructed big storage facilities with numerous round silos set up in a regular fashion near the Nile (Phase D/1.2) (Bietak et al. 2001, 59-67). Under a wall of a magazine was a kind of foundation deposit consisting of three skulls and three cut right hands (Bietak et al. 2001, 60, 64, fig. 21). At least one of the skulls shows strong prognatious macrodont features, which points to an Upper Nubian origin.⁵ Later on, a camp was erected at this site in Area H/III near 'Ezbet Helmi (Phase D/1.1). Deposits of ash, fireplaces, big bread ovens, postholes, and metallurgical installations, such as a melting battery and a mould for a New Kingdom type of battle axe, are some of the remains of this site from the early 18th Dynasty (Bietak et al. 2001, 67-74; Aston and Bietak 2017, 503, n. 17). The northern part of the camp was used as a cemetery. It was enclosed by a substantial wall with mostly single male burials without any offerings (Bietak et al. 2001, 67-74). It was interpreted as burial ground for soldiers because of the sex and age of most of the burials and the metallurgical finds. To this identification fits also the burial of four horses and a mule within the same burial ground (Von den Driesch and Peters 2001). Ceramic evidence of Nubian origin from these layers is very scanty and not diagnostic. More abundant was Nubian ceramic material from the palatial precinct of the Thutmoside Period with distinct features of the Kerma Culture, especially with fragments of Kerma beakers and cooking pots (fig. 13, Aston and Bietak 2017, 514-519). Besides fragments of scaled armour, also arrow tips of bone and bifacially flaked arrow tips of flint were found in the cellar of the major Thutmoside Palace G, the latter can be diagnosed as belonging to the Kerma Culture (Tillmann 1994).

³ All the other Nubian ceramic material presented there was published illegally, without the permission of the excavator.

⁴ Kerma cooking pots appear in the late Second Intermediate Period in Edfu, but no beakers (Ayers and Moeller 2012, 111-115).

⁵ According to a still unpublished result of the anthropologist Karl Grossschmidt, Medical University of Vienna, Institute of Pathology.

Minoans in Avaris/Peru-nefer

After the takeover of Avaris by the victorious 18th Dynasty, the town was to a large part deserted. The Western Asiatic Population which caused the Hyksos rule was, however, not expelled to the southern Levant as one could read in nearly every textbook covering this period. Most likely the inhabitants of Avaris were distributed all over the country to serve the new overlords with their skills. A part stayed at the site, which we can recognise by different kinds of evidence. The major temple precinct at A/II seems to have continued in its function as sacred space and could explain the continuum between the cult of Seth of

Avaris of the Hyksos and the cult of Seth in the time of Horemheb and the Ramessides (Habachi 1974; Bietak 1985, 271-272, 278). The ceramic production at Tell el-Dab'a with its hybrid corpus incorporating Near Eastern Middle Bronze Age and Egyptian forms was carried on continuously into the Thutmoside Period. The same is true for the production of scarabs, which continued to carry motifs and glyptic technique taken over from the Hyksos Period (Bietak 2010c, 164-171, pls. 25-26). One could add many more features which prove some kind of continuation in order to claim that a part of the Hyksos population was allowed to stay somewhere in New Kingdom Avaris.



Figure 14. Plan of the Thutmoside palace of Tell el-Dab'a (after Bietak 2010e, fig. 3 with additions).



Figure 15. Examples of Minoan wall paintings from the Thutmoside Palace F (after Morgan 2010b, 305, fig. 1; Marinatos 2010, 344, fig. 27).

In the Thutmoside Period, most likely in the reign of Hatshepsut and Thutmose III, an enormous palace precinct of 5.5ha (13 acres) was constructed (fig. 14), incorporating three palaces and a big administrative building, besides workshops and magazines (Bietak *et al.* 2007, 13-43; Bietak 2005, 141-160; 2018a, 224-246). The palaces were all constructed on top of platforms of considerable height. They were accessible by ramps. Between the two bigger palaces was an artificial rectangular lake. The whole precinct was surrounded by a wall with an entrance endowed with pylons in the north-east.

Palace G with a length of over 160m (300 x 150 cubits) is one of the biggest in Egypt and it certainly contained the biggest hitherto found throne room of 28.9 x 28.9m (55 x 55 cubits). This kind of monumental palatial architecture proves the presence of a king or royalty at this site, which is remote from the residence

but situated at the most important navigable Nile branches of that time within a site which was according to all historical and geophysical records a harbour town (Tronchère *et al.* 2008; Tronchère 2010). The function of the site and the presence of this big Thutmoside palace, which according to glyptic evidence was used until the reign of Amenhotep II, endorse strongly its identification as *Peru-nefer*, the famous naval base of the Thutmoside kings (Spiegelberg 1927, 217; Daressy 1928-29, 225, 322-326; Habachi 2001, 106-107, Bietak 2009a; 2009b; 2010b; 2010c, 167-168).

Two of the palaces were embellished with Minoan wall paintings, which according to the technology of production, its motifs, iconography and style were executed by Minoan master painters (fig. 15). The paintings were not found on the walls anymore, but had flaked off, and were gathered and dumped near the entrances to the palaces. Only *c*. 10% of the original wall programme has survived. The rest was destroyed by recent brick pits and agricultural activity. The paintings have to be pieced together and reconstructed in a laborious process. Some of the panels have already been published (Bietak *et al.* 2007; Marinatos 2010; Morgan 2010a; 2010b).⁶

The motifs were bull leaping and bull grappling scenes on several panels, acrobatic scenes with men walking on their hands in palm groves, lions chasing bulls and leopards stalking fallow deer, hunters with dogs chasing ungulates, and other scenes which have not yet been identified. There were also large-scale representations of men, of women in flounced skirts and of bulls in the wilderness. Besides paintings, also plaster relief of bulls and possibly of Minoan divinities were found. The recognisable landscape with rivers, hilly middle ground of mountains and the depicted flora are definitely Cretan. One has also to mention representations of a big sized griffin and a leopard of the same size. They may have been heraldic beasts painted in the throne room. No Egyptian influence beyond of what is known in Minoan art was found nor Egyptian inscriptions which could be expected, given the Egyptian environment and the kind of architecture in which these paintings were found. The big bull leaping frieze, however, contained icons to be associated with the court of Knossos, such as the half-rosette frieze and the maze motif as background of the bull leaping scenes. They are symbolic for the Palace of Knossos, from where in all likelihood the artists were sent from. It should also be mentioned that wall paintings with bull leaping scenes are known only from Knossos and seem to have been exclusive for this palace before the Mycenaean palaces. It is astonishing to have these frescos in Egypt in a time which should be assigned to the Late Minoan Ib Period. In the same period, during the reign of Hatshepsut and Thutmose III, representations of delegations of Minoans appear in wall paintings of noble tombs in Thebes (Vercoutter 1954; 1956; Wachsmann 1987; Helck 1995, 50-62; Matthäus 1995; Rehak 1998; Duhoux 2003; Panagiotopoulos 2001; 2006).7 It is also the time when in Egyptian art Minoan influence such as the flying gallop appears in animal representations of tomb paintings.8 It seems that this was the zenith in the relationship of the Minoans and Egyptians, which in the later reign of Thutmose III was transferred to the Mycenaeans.

The paintings require the presence of Minoans at the site of Tell el-Dab'a at least for some time. This would fall into place with the presence of Keftiu ships in the dockyards of Peru-nefer at the time of Thutmose III (Glanville 1932, 14, 22),⁹ if this naval base is to be identified with Tell el-Dab'a. The understanding of the Keftiu ships should be changed from ships sailing to and from Crete (cf. Erman and Grapow 1931, 122; Säve-Söderbergh 1946, 49-50) to ships originating from Minoan Crete. Since this term was used only in the time of Thutmose III, it could not have become a customary name for ships, like the "China clippers" in the 19th century. It means that during the reign of Thutmose III Minoans were at this place in connection with seafaring, for which Egypt was in demand at that time when it, after the victory over the Hyksos, was still a land power and only under Thutmose III once again built up a seagoing fleet.

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⁹ The dating of the British Museum papyrus BM 10056 to the time of Thutmose III by Glanville was reconfirmed recently in a new autopsy by Gundacker (2017); Wente and Van Siclen III 1986 had dated the papyrus to the reign of Amenhotep II.

⁶ Most of the literature is cited in Bietak et al. 2013b, 145-147.

⁷ For recent discussions about the understanding of the terms "Keftiu" and "The islands in the midst of Wadj-wer", cf. Duhoux 2008, 21-25, and Matić 2014.

⁸ The first time in the tomb of User (Thutmose I till early in the reign of Hatshepsut), Morgan 2004, 292-293, fig. 15.

References

- Ammar, A.M. 1944. The People of Sharqiya: Their Racial History, Serology, Physical Characters, Demography and Conditions of Life, Vol. I. Cairo: Société Royal de Géographie d'Égypte.
- Aston, D.A. 2012. From the Deep South to the Far North: Nubian sherds from Khatan'a and 'Ezbet Helmi (Tell el-Dab'a), in: Forstner-Müller, I. and Rose, P. (eds.), Nubian Pottery from Egyptian Cultural Contexts of the Middle Kingdom and Early New Kingdom. Proceedings of a Workshop held at the Austrian Archaeological Institute at Cairo, 1-12 December 2010. Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Instituts 13. Vienna: Phoibos, 159-79.
- Aston, D.A. and Bietak, M. 2017. Nubians in the Nile Delta: À propos Avaris and Peru-nefer, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 491-524.
- Ayers, N. and Moeller, N. 2012. Nubian Pottery Traditions during the 2nd Millennium BC at Tell Edfu, in: Forstner-Müller, I. and Rose, P. (eds.), Nubian Pottery from Egyptian Cultural Contexts of the Middle Kingdom and Early New Kingdom: Proceedings of a Workshop Held at the Austrian Archaeological Institute at Cairo, 1-12 December 2010. Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Instituts 13. Vienna: Phoibos, 103-127.
- Bietak, M. 1966. Ausgrabungen in Sayala-Nubien 1961-1965. Denkmäler der C-Gruppe und der Pan-Gräber-Kultur. Berichte des Österreichischen Nationalkomitees der UNESCO-Aktion für die Rettung der Nubischen Altertümer 3. Denkschriften der Philosophisch-historischen Klasse der Österreichischen Akademie der Wissenschaften 92. Vienna: Böhlau.
- Bietak, M. 1981. Avaris and Piramesse, Archaeological Exploration in the Eastern Nile Delta. Ninth Mortimer Wheeler Archaeological Lecture. The British Academy. Proceedings of the British Academy London 6. Oxford: Oxford University Press.
- Bietak, M. 1985. Ein altägyptischer Weingarten in einem Tempelbezirk (Tell el-Dab'a 1. März bis 10. Juni 1985). Anzeiger der Österreichischen Akademie der Wissenschaften 122, 267-278.
- Bietak, M. 1989. Servant Burials in the Middle Bronze Age Culture of the Eastern Nile Delta. *Eretz-Israel* 20 (*The Yigael Yadin Memorial Volume*), 30-43.
- Bietak, M. 1991. Tell el-Dab'a V. Ein Friedhofsbezirk mit Totentempel der Mittleren Bronzezeit im östlichen Nildelta. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 8. Vienna: Austrian Academy of Sciences Press.

- Bietak, M. 1996. Avaris: The Capital of the Hyksos. Recent Excavations at Tell el-Dab'a. The First Raymond and Beverly Sackler Foundation Distinguished Lecture in Egyptology. London: British Museum Publications.
- Bietak, M. 2005. Neue Paläste aus der 18. Dynastie, in: Jánosi, P. (ed.), Structure and Significance. Thoughts on Ancient Egyptian Architecture (Festschrift for Dieter Arnold). Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 25. Vienna: Austrian Academy of Sciences Press, 131-168.
- Bietak, M. 2009a. Peru-nefer: The Principal New Kingdom Naval Base. *Egyptian Archaeology* 34, 15-17.
- Bietak, M. 2009b. Peru-nefer: An Update. *Egyptian Archaeology* 35, 16-17.
- Bietak, M. 2009c. Near Eastern Sanctuaries in the Eastern Nile Delta. *BAAL, Hors-Série* 6, 209-228.
- Bietak, M. 2010a. Le Hyksos Khayan, son palais et une lettre en cuneiforme. *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres* 154.2, 973-990.
- Bietak, M. 2010b. Minoan Presence in the Pharaonic Naval Base of Peru-nefer, in: Krzyszkowska, O. (ed.), *Cretan Offerings: Studies in Honour of Peter Warren*. British School in Athens Studies 18. London: British School at Athens, 11-24.
- Bietak, M. 2010c. From where came the Hyksos and where did they go, in: Marée, M. (ed.), *The Second In*termediate Period (*Thirteenth – Seventeenth Dynasties*): Current Research, Future Prospects, Orientalia Lovanensia Analacta 192, Leuven: Peeters, 139-181.
- Bietak, M. 2010d. A Palace of the Hyksos Khayan at Avaris, in: Matthiae, P., Pinnock, F., Nigro, L. and Marchetti, N. (eds.), Proceedings of the 6th International Congress of the Archaeology of the Ancient Near East, 5 May – 10 May 2008, »Sapienza«, Università di Roma, Vol. 2: Excavations, Surveys and Restorations: Reports on Recent Field Archaeology in the Near East. Wiesbaden: Harrassowitz, 99-109.
- Bietak, M. 2010e. Houses, Palaces and Development of Social Structure in Avaris, in: Bietak, M., Czerny, E. and Forstner-Müller, I. (eds.), *Cities and Urbanism, International Workshop in November 2006 at the Austrian Academy of Sciences Vienna*. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 35. Vienna: Austrian Academy of Sciences Press, 11-68.
- Bietak, M. 2016a. The Egyptian Community at Avaris during the Hyksos Period. *Egypt and the Levant* 26, 263-274.
- Bietak, M. 2016b. Les sanctuaires cananéens dans le delta oriental du Nil, in: Matthiae, P. and d'Andrea, M. (eds.), L'archeologia del sacro e l'archeologia del culto. Sabratha, Ebla, Ardea, Lanuvio. Ebla e la Siria dall'età del bronzo all'età del ferro, Atti dei Convegni Lincei 304. Rome 2016: Accademia Nationale dei Lincei, 223-256.

- Bietak, M. 2018a. A Thutmosid Palace Precinct at Peru-nefer (Tell el-Dab'a), in: Bietak, M. and Prell, S. (eds.), *Palaces in Ancient Egypt and the Ancient Near East vol. I: Egypt.* Contributions to the Archaeology of Egypt, Nubia and the Levant 5. Vienna: Austrian Academy of Sciences Press, 231-257.
- Bietak, M. 2018b. The Giparu of Ur as a Paradigm for Gender-Related Temple Types in the Ancient Near East. *Eretz Israel* 33 (*The Lawrence E. Stager Volume*), 9*-24*.
- Bietak, M., Dorner J. and Jánosi P. 2001. Ausgrabungen in dem Palastbezirk von Avaris, Vorbericht Tell el-Dab^ca/^cEzbet Helmi 1993-2000. *Egypt and the Levant* 11, 27-119.
- Bietak M., Marinatos N. and Palyvou C. with a contribution of A. Brysbaert. 2007. *Taureador Scenes in Tell el-Dab'a (Avaris) and Knossos*. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 27. Vienna: Austrian Academy of Sciences Press.
- Bietak, M., Math, N., Müller, V. and Jurman C. 2013a. Report on the Excavations of a Hyksos Palace at Tell el-Dab'a/Avaris (23rd August-15th November 2011). *Egypt and the Levant* 22/23, 2012/2013, 17-53.
- Bietak, M., von Rüden, C., Becker, J., Jungfleisch, J., Morgan, L. and Peintner, E. 2013b. Preliminary Report of the Tell el-Dab'a Wall Painting Project – Season 2011/2012. *Egypt and the Levant* 22/23, 2012/2013, 131-147.
- Boessneck, J. 1976. *Tell el-Dab'a III. Die Tierknochenfunde* 1966-1969. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 3, Wien: Austrian Academy of Sciences Press.
- Boessneck, J. and Von den Driesch, A. 1992. Tell Dab'a VII. Tiere und historische Umwelt im Nordost-Delta im 2. Jahrtausend v. Chr. anhand der Knochenfunde der Ausgrabungen 1975-1986. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 10. Vienna: Austrian Academy of Sciences Press.
- Bourriau, J. 1981. Nubians in Egypt during the Second Intermediate Period: An Interpretation based on the Egyptian Ceramic Evidence, in: Arnold, Do. (ed.), *Studien zur altägyptischen Keramik*. Sonderschriften des Deutschen Archäologischen Instituts, Abteilung Kairo. Mainz: von Zabern, 25-41.
- Bourriau, J. 1990. 4. The Pottery, in: Lacovara, P. (ed.), Deir el-Ballas: Preliminary Report on the Deir el Ballas Expedition, 1980-1986. American Research Center in Egypt Reports 12, Winona Lake: Eisenbrauns, 15-22.
- Bourriau, J. 1991. Relations between Egypt and Kerma during the Middle and New Kingdoms, in: Davies, W.V. (ed.), *Egypt and Africa. Nubia from Prehistory to Islam.* London: The British Museum, 129-144.

- Bourriau, J. 1997. Beyond Avaris: The Second Intermediate Period in Egypt outside the Eastern Delta, in: Oren, E. (ed.), *The Hyksos: New Historical and Archaeological Perspectives*. University Museum Symposium Series 8. University Museum Monograph 96. Philadelphia: University of Pennsylvania, 159-182.
- Bourriau, J. 2012. Nubian Pottery from Memphis, Kom Rabia, in: Forstner-Müller, I. and Rose, P. (eds.), Nubian Pottery from Egyptian Cultural Contexts of the Middle Kingdom and Early New Kingdom: Proceedings of a Workshop Held at the Austrian Archaeological Institute at Cairo, 1-12 December 2010. Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Instituts 13. Vienna: Phoibos, 149-158.
- Daressy, G. 1929. Les branches du Nil dans la XVIII^c dynastie. *Bulletin de la Société de Géographie d'Égypte* 16, [1928-29], 225-254, 293-329.
- Davies, W.V. 2003a. Koush en Égypte: Une nouvelle inscription historique à Elkab. *Bulletin* de la Société française d'Égyptologie 157, 38-44.
- Davies, W.V. 2003b. Kush in Egypt: A New Historical Inscription. *Sudan & Nubia* 7, 52-54.
- Davies, W.V. 2003c. Sobeknakht of Elkab and the Coming of Kush. *Egyptian Archaeology* 23, 3-6.
- Davies, W.V. 2010. Renseneb and Sobeknakht of Elkab: The genealogical data, in: Marée, M. (ed.), The Second Intermediate Period (Thirteenth – Seventeenth Dynasties). Current Research, Future Perspectives. Orientalia Loveniensia Analecta 192. Leuven: Peeters, 223-240.
- Duhoux, Y. 2003. *Des Minoens en Égypte? "Keftiou" et "les îles au milieu du Grand Vert"*. Publications de l'Institut Orientaliste de Louvain 52. Leuven: Peeters.
- Duhoux, Y. 2008. Les relations égypto-égéennes au Nouvel Empire: que nous apprend la toponymie ?, in: Adrom, F., Schlüter, K. and Schlüter, A. (eds.), Altägyptische Weltsichten: Akten des Symposiums zur historischen Topographie und Toponymie Altägyptens vom 12.-14. Mai 2006 in München. Ägypten und Altes Testament 68, Wiesbaden: Harrassowitz, 19-34.
- Eigner, D. 1986. Der ägyptische Palast eines asiatischen Königs. *Jahreshefte des Österreichischen Archäologischen Institutes* (FS Hermann Vetters) 56, 19-25.
- Erman, A. and Grapow, H. 1931. Wörterbuch der ägyptischen Sprache. Vol. 5. Leipzig: J.C. Hinrichs.
- Forstner-Müller, I. and Rose, P. 2012. Nubian Pottery at Avaris in the Second Intermediate Period and the New Kingdom: Some Remarks, in: Forstner-Müller, I. and Rose, P. (eds.), Nubian Pottery from Egyptian Cultural Contexts of the Middle Kingdom and Early New Kingdom. Proceedings of a Workshop held at the Austrian Archaeological Institute at Cairo, 1-12 December 2010. Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Instituts 13. Vienna: Phoibos, 181-212.

- Forstner-Müller, I., Jeuthe, C., Michel, V. and Prell, S. 2015. Grabungen des Österreichischen Archäologischen Instituts in Tell el-Dab'a/Avaris. *Egypt and the Levant* 25, 17-71.
- Fuscaldo, P. 2002. The Nubian Pottery from the Palace District of Avaris at Ezbet Helmi, Areas H/III and H/VI, Part I: The "Classic" Kerma Pottery of the 18th Dynasty. *Egypt and the Levant* 12, 167-186.
- Fuscaldo, P. 2004. The Nubian Pottery from the Palace District of Avaris at Ezbet Helmi, Areas H/III and H/VI, Part II: The "Classic" Kerma Pottery from the Second Intermediate Period and the 18th Dynasty. *Egypt and the Levant* 14, 111-119.
- Fuscaldo, P. 2008. The Nubian Pottery from the Palace District of Avaris at Ezbet Helmi, Areas H/III and H/ VI, Part III: The "Classic" Kerma Pottery from the Second Intermediate Period and the 18th Dynasty. *Egypt and the Levant* 18, 107-127.
- Gardiner, A.H., Peet, E. and Černý, J. 1955. The Inscriptions of Sinai. I-II. Egypt Exploration Society Excavation Memoir 45. London: Egypt Exploration Society.
- Gatto, M.C., Gallorini, C. and Roma, S. 2012. Pan-Grave Pottery from Nag el-Qarmila and Sheikh Mohamed Cemeteries in Gharb Aswan, in: Forstner-Müller, I. and Rose, R. (eds.), Nubian Pottery from Egyptian Cultural Contexts of the Middle Kingdom and Early New Kingdom. Proceedings of a Workshop held at the Austrian Archaeological Institute at Cairo, 1-12 December 2010. Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Instituts 13. Vienna: Phoibos, Austrian Archaeological Institute, 83-102.
- Gallorini, C. and Giuliani, S. 2012. Pottery from the Pan-Grave Cemetery at Nag el Qarmila, in: Schiestl, R. and Seiler, A. (eds.), *Handbook of Pottery of the Egyptian Middle Kingdom II: The Regional Volume*. Contributions to the Chronology of the Eastern Mediterranean 31.2. Vienna: Austrian Academy of Sciences Press, 321-328.
- Giuliani, S. 2006. Defining Pan-Grave Pottery, in: Kroeper, K., Chłodnicky, M. and Kobusiewiecz, M. (eds.), Archaeology of Early North Eastern Africa. In memoriam of Lech Krzyzaniak. Proceedings of the International Symposium Poznan July 14th-18th 2003. Studies in African Archaeology 9. Poznan: Polish Academy of Sciences, 647-658.
- Glanville, S.R.K. 1932. Records of a Royal Dockyard of the Time of Thuthmosis III: Papyrus British Museum 10056. Zeitschrift für Ägyptische Sprache und Altertumskunde 68, 7-41.
- Gundacker, R. 2017. Papyrus British Museum 10056: Ergebnisse einer Neukollationierung und Anmerkungen zur inhaltlichen Auswertung im Rahmen der militärischen Ausbildung Amenophis' II. *Egypt and the Levant* 27, 281-334.

- Habachi, L. 1972. The Second Stela of Kamose and his Struggle against the Hyksos Ruler and his Capital. Abhandlungen des Deutschen Archäologischen Instituts Kairo, Ägyptologische Reihe 8. Glückstadt: J.J. Augustin.
- Habachi, L. 1974. Sethos I's Devotion to Seth and Avaris. Zeitschrift für Ägyptische Sprache und Altertumskunde 100, 95-102.
- Habachi, L. 2001. *Tell el-Dab'a I. Tell el-Dab'a and Qantir: The Site and its Connection with Avaris and Piramesse,* ed. by E.-M. Engel, P. Jánosi and C. Mlinar. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 2, Vienna: Austrian Academy of Sciences Press.
- Hein, I. 2001. Kerma in Auaris, in: Arnst, C.-B., Hafemann, I. and Lohwasser, A. (eds.), Begegnungen – Antike Kulturen im Niltal. Festgabe für Erika Endesfelder, Karl-Heinz Priese, Walter F. Reineke und Steffen Wenig. Leipzig: Wodtke und Stegbauer, 199-212.
- Hein, I. and Jánosi, P. 2004. Tell el-Dab'a XI. Areal A/V. Siedlungsrelikte der späten Hyksoszeit. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 17. Vienna: Austrian Academy of Sciences Press.
- Helck, W. 1971. Die Beziehungen Ägyptens zu Vorderasien im 3. und 2. Jahrtausend v. Chr. 2nd edition. Ägyptologische Abhandlungen 5. Wiesbaden: Harrassowitz.
- Helck, W. 1995. Die Beziehungen Ägyptens und Vorderasiens zur Ägäis bis ins 7. Jahrhundert v. Chr. 2nd edition. Darmstadt: Wissenschaftliche Buchgemeinschaft.
- Kopetzky, K. 1993. Datierung der Gräber der Grabungsfläche F/I von Tell el-Dab'a anhand der Keramik. Unpublished Master's thesis, University of Vienna. Vienna (publication in preparation).
- Kopetzky, K. 2010. Tell el-Dab'a XX. Die Chronologie der Siedlungskeramik der Zweiten Zwischenzeit aus Tell el-Dab'a. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 32. Vienna: Austrian Academy of Sciences Press
- Maguire, L.C. 1995. Tell el-Dab'a, The Cypriot Connection, in: Davis, W.V. and Schofield, L. (eds.), *Egypt, The Aegean and the Levant. Interconnections in the Second Millennium BC.* London: British Museum Press, 54-65.
- Maguire, L.C. 2009. *Tell el-Dab'a XXI. The Circulation of Cypriot Pottery in the Middle Bronze Age.* Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 33. Vienna: Austrian Academy of Sciences Press.
- Manassa, C. 2012. Middle Nubian Ceramics from Umm Mawagir, Kharga Oasis, in: Forstner-Müller, I. and Rose, P. (eds.), Nubian Pottery from Egyptian Cultural Contexts of the Middle Kingdom and Early New Kingdom. Proceedings of a Workshop held at

the Austrian Archaeological Institute at Cairo, 1-12 December 2010. Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Instituts 13. Vienna: Phoibos, 129-148.

- Marinatos, N. 2010. Lions from Tell el-Dab'a. *Egypt and the Levant* 20, 325-355.
- Matić, U. 2014. "Minoans", *kftjw* and the "Islands in the Middle of *w3d wr*" Beyond Ethnicity. *Egypt and the Levant* 24, 277-294.
- Matthäus, H. 1995. Representations of Keftiu in Egyptian Tombs and the Absolute Chronology of the Aegean late Bronze Age. *Bulletin of the Institute of Classical Studies* 40, 177-194.
- Morgan, L. 2010a. A Pride of Leopards: A Unique Aspect of the Hunt Frieze from Tell el-Dab'a. *Egypt and the Levant* 20, 263-301.
- Morgan, L. 2010b. An Aegean Griffin in Egypt: The Hunt Frieze at Tell el-Dab'a. *Egypt and the Levant* 20, 303-323.
- Morgan, L. 2014. Feline Hunters in the Tell el-Dab'a Paintings: Iconography and Dating, *Egypt and the Levant* 24, 285-298.
- Mourad, A.L. 2015. The Rise of the Hyksos: Egypt and the Levant from the Middle Kingdom to the Early Second Intermediate Period. Archaeopress Egyptology 11, Oxford: Archaeopress.
- Müller, V. 1998. Offering Deposits at Tell el-Dab'a, in: Eyre, C.J. (ed.), Proceedings of the Seventh International Congress of Egyptologists, Cambridge, 3-9 September 1995. Orientalia Loveniensia Analecta 82. Leuven: Peeters, 793-803.
- Müller, V. 2001. Bestand und Deutung der Opferdepots bei Tempeln in Wohnbereichen und Gräbern der zweiten Zwischenzeit in Tell el-Dab'a, in: Willems, H. (ed.), Social Aspects of Funerary Culture in the Egyptian Old and Middle Kingdoms. Proceedings of the International Symposium held at Leiden University 6-7 June 1996. Orientalia Lovaniensia Analecta 103. Leuven: Peeters, 175-204.
- Müller, V. 2008. Tell el-Dab'a XVII. Opferdeponierungen in der Hyksoshauptstadt Auaris (Tell el-Dab'a) vom späten Mittleren Reich bis zum frühen Neuen Reich. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 29. Vienna: Austrian Academy of Sciences Press.
- Nordström, H-Å. 1972. *Neolithic and A-Group Sites*. Scandinavian Joint Expedition to Sudanese Nubia 3.2. Copenhagen: Munksgaard.
- Panagiotopoulos, D. 2001. Keftiu in Context: Theban Tomb-Paintings as a Historical Source. Oxford Journal of Archaeology 20, 263-283.
- Panagiotopoulos, D. 2006. Foreigners in Egypt in the Time of Hatshepsut and Thutmose III, in: Cline, E.H. and O'Connor, D.B. (eds.), *Thutmose III. A*

New Biography. Ann Arbor: University of Michigan Press, 370-412.

- Rehak, P. 1998. Aegean Natives in the Theban Tomb Paintings, in: Cline, E.H. and Harris Cline, D. (eds.), *The Aegean and the Orient in the Second Millennium. Proceedings of the 50th Anniversary Symposium, Cincinnati, 18-20 April 1997.* Aegaeum – Annales d'archéologie égéenne de l'Université de Liège et UT-PASP 18. Eupen: Kliemo, 39-49.
- Säve-Söderbergh, T. 1941. Ägypten und Nubien: Ein Beitrag zur Geschichte altägyptischer Außenpolitik. Lund: Ohlsson.
- Säve-Söderbergh, T. 1946. *The Navy of the Eighteenth Egyptian Dynasty.* Uppsala Universitets årsskrift 1946.6. Uppsala: Lundequistska.
- Säve-Söderbergh, T. 1989. *Middle Nubian Sites*. Scandinavian Joint Expedition to Sudanese Nubia 3.2. Copenhagen: Munksgaard.
- Schiestl, R., 2009. Tell el-Dab'a XVIII. Die Palastnekropole von Tell el-Dab'a: Die Gr\u00e4ber des Areals F/I der Straten d/2 und d/1. Untersuchungen der Zweigstelle Kairo des Österreichischen Arch\u00e4ologischen Instituts 30. Vienna: Austrian Academy of Sciences Press.
- Spiegelberg, W. 1927. La ville de Prw-nfr dans le Delta. *Revue de l'Égypte ancienne* 1, 215-217.
- Stadelmann, R. 1967. Syrisch-palästinensische Gottheiten in Ägypten. Probleme der Ägyptologie 5. Leiden: Brill.
- Tazawa, K. 2009. Syro-Palestinian Deities in New Kingdom Egypt: The Hermeneutics of Their Existence. British Archaeological Reports International Series 1965. Oxford: Archaeopress.
- Tillmann, A. 1994. Die Steinartefakte, Kat. Nr. 348-349, in: Bietak, M. and Hein, I. (eds.), *Pharaonen und Fremde. Dynastien im Dunkel.* 194. Sonderausstellung des Historischen Museums der Stadt Wien in Zusammenarbeit mit dem Ägyptologischen Institut der Universität Wien und dem Österreichischen Archäologischen Institut Kairo, Rathaus Wien, Volkshalle 8. September-23. Oktober 1994. Vienna: Museen der Stadt Wien, 105-109, 257.
- Tronchère, H. 2010. Approche paléoenvironnementale de deux sites archéologiques dans le delta du Nil: Avaris et la branche Pélusiaque, Taposiris et le lac Mariout. Thèse présentée à l'Université Lyon 2 le 3 septembre 2010 en vue d'obtenir le grade de Docteur en Géographie, Lyon 2010: Université Lyon 2, UMR 5133.
- Tronchère, H., Salomon, F., Callot, J., Goiran, J.-Ph., Schmitt, L.L., Forstner-Müller, I. and Bietak, M. 2008. Geoarchaeology of Avaris: First Results. *Egypt* and the Levant 18, 339-352.
- Van den Brink, E.C.M. 1982. Tombs and Burial Customs at Tell el-Dab'a and their Cultural Relationship to Syria-Palestine during the Second Intermediate Period. Beiträge zur Ägyptologie 3. Vienna: Afropub.

- Van Koppen, F. and Radner, K. 2009. Ein Tontafelfragment aus der diplomatischen Korrespondenz der Hyksosherrscher mit Babylonien. *Egypt and the Levant* 19, 115-119.
- Vercoutter, J. 1954. *Essai sur les relations entre Égyptiens et Préhellènes.* L'Orient ancien illustré publié sous la direction de Charles Virolleaud 6. Paris: Maisonneuve.
- Vercoutter, J. 1956. L'Égypte et le monde égéen préhellénique. Etude des sources égyptiennes au début de la XIII^e et à la fin de la XIX^e dynastie. Bibliothèque d'Étude 22. Cairo: Institut français d'archéologie orientale.
- Vilain, S. in preparation. Imitations et productions locales influencées par la céramique cypriote *White Painted Pendent Line Style* à Tell el-Dab'a. *Egypt and the Levant* 28.
- Von den Driesch, A. and Peters, J. 2001. Frühe Pferde und Maultierskelette aus Avaris. *Egypt and the Levant* 11, 301-310.
- Wachsman, S. 1987. *Aegeans in the Theban Tombs*. Orientalia Lovaniensia Analecta 20. Leuven: Peeters.
- Way, K.C. 2011. *Donkeys in the Biblical World: Ceremony and Symbol.* History, Archaeology and Culture of the Levant 2. Winona Lake: Eisenbrauns.
- Wente, E.F. and Van Siclen III, C.C. 1976. A Chronology of the New Kingdom, in: Johnson, J.H. and Wente, E.F. (eds.), *Studies in Honor of George R. Hughes*. Studies in Ancient Oriental Civilisation 39. Chicago: Oriental Institute, 217-261.
- Wygnańska, Z. 2014. The Ancestor Cult in the Middle Bronze Age at Tell Arbid, Syria, in: Pfälzner, P., Niehr,

H., Pernicka, E., Lange, S. and Köster, T. (eds.), Contextualising Grave Inventories in the Ancient Near East. Proceedings of a Workshop at the London 7th ICAANE in April 2010 and an International Symposium in Tübingen in November 2010, both organised by the Tübingen Post-Graduate School "Symbols of the Dead". Qatna Studien. Supplementa 3. Wiesbaden: Harrassowitz, 39-49.

Zivie-Coche, C. 2011. Foreign Deities in Egypt, in: Dieleman, J. and Wendrich, W. (eds.), UCLA Encyclopedia of Egyptology, Los Angeles. [online: http:// digital2.library.ucla.edu/viewItem.do?ark=21198/ zz0027fcpg]

Notes on the contributor

Manfred Bietak studied Egyptology and Prehistory at University of Vienna (PhD 1964). Since 1964 he directs annually excavations in Egypt: Nubia (1961-1965); Tell el-Dab'a: discovery of Auaris, capital of the Hyksos and famous harbour Peru-nefer (1966-2011); Luxor (1969-1978) and Bubastis (2013-2015). Bietak is the founder of the Austrian Archaeological Institute Cairo (director 1973-2009), had the chair of Egyptology at the University of Vienna (1989-2009) and was the chairman of the Commission of Egypt and the Levant at the Austrian Academy of Sciences (1993-2013). Since 2016 he is the Principal Investigator of the ERC Advanced Grant "The Hyksos Enigma" (2016-2020), hosted at the Austrian Academy of Sciences.

Egyptians and Nubians in the Early New Kingdom and the Kushite Background

Bruce Williams*

Abstract

As Egyptian power extended upstream in Nubia in the early New Kingdom, Egyptian customs appeared in places and ways not seen before, becoming so dominant that cemeteries and known settlements do not differ substantially from their provincial counterparts in Egypt itself. This Egyptianisation has been affirmed and denied, or at least disparaged, and variously attributed to conversion or immigration from Egypt. While the depth to which Egyptian culture penetrated northern Nubia is fairly clear, the transition has been a matter of some confusion, partly due to the misdating of some contexts and probable misidentification of others. Some transitional contexts can be identified, for example at Serra East, where rulers of Teh-Khet were first located, and at Adindan, where New Kingdom burials continued a C-Group cemetery. These serve as pointers to identify continuing Nubian sites, Nubian sites that may have belonged to new Nubian immigrants, and sites belonging to Egyptians and Nubians who more thoroughly adopted Egyptian culture. The origin of this geopolitical and geo-social change is traceable in the preceding Kerma or Second Intermediate Period that actually began the rapid cultural changes usually associated with the Egyptian conquest.

Keywords: Nubia, Second Intermediate Period, New Kingdom, Kerma, C-Group

Egypt's New Kingdom and the transformation of Nubia

Both Egyptology and Nubian Studies have had problems interpreting the relations between Egypt and its southern neighbours. These problems are particularly acute in periods when Egyptian culture, especially religious culture, appears in the Middle Nile. Sometimes the problems are ideological and imbedded in the assumptions of modern cultures, imperialism, colonialism, racism, Marxism, anti-colonialism, and nationalism, for example, and very often, there is a kind of reactive revisionism. The current discussion is intended to stand apart from the problem of disentangling the threads of academic argument and instead to focus on parsing specific evidence for actual events.

The *historia* of this conference is the phenomenon of the New Kingdom in Nubia, and my part will be played in the transition from the time before.¹ I will be primarily

* Research Associate, Polish Center of Mediterranean Archaeology, University of Warsaw; Associate, The Oriental Institute, University of Chicago; bbwillia@uchicago.edu

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¹ The appearance of Egyptian culture in Nubia has long been a topic of academic discussion; see Smith and Buzon in this volume for a comparative approach and literature and Smith and Buzon 2017, more focused on Tombos. For other scholarly treatments, see Bietak 1968; 1982; Säve-Söderbergh 1949; 1991.

concerned with certain questions: When do definitive Egyptian cultural objects and practices appear and are there patterns in the appearance? Among what cultures do they appear? Are there class differences in the appearance? (In fact, among what peoples *are* there classes?) Was adoption rapid or progressive? Finally, what does the change mean?

Egyptian culture and symbolism abroad

Taken at an extremely high level, it might seem difficult to detect the difference between a cultural or religious conversion and incidental borrowing. For example, between the thoroughgoing religious cultures of Christianity and Islam some non-essential elements have been traded back and forth, sometimes under pressure of conformity, and sometimes not, such as Freemasonry's selective adoption of Islamic symbolism and ideas. Looked at more closely, there are borrowings of Egyptian cultural motifs, and there are Egyptian images and practices that betray the presence of the Egyptian religious and cultural complex, as asserted by Frankfort (1978, 6) and modified and expanded by others.²

Borrowing

The Egyptianising style of the Late Bronze stelae of Ugarit (Schaeffer 1949, pls. 22-23, esp. pl. 22a) is familiar as is the Hittite use of a winged sun disk (for example Schaeffer 1956, figs. 2-4), both adoptions of a motif or a style from Egypt without Egyptian theological implications. Earlier, there is an interesting example from the early Middle Bronze Age of a mould that shows a kneeling man holding a fenestrated axe of Byblos deposit type (MB I), but wearing the Egyptian double crown (Dunand 1938, pl. 107: 6557). This is also an incoherent usage, perhaps essentially sportive.

Adoption-conversion

Distinguishing an adoption from a genuine conversion might seem more difficult if we rely on isolated details. However, there are cultural 'instrumental complexes' that are coherent and meaningful. In language, or art, Egyptian gods and religious texts are important; names invoking deities are also significant. For Egyptian culture as expressed in practices traceable in archaeology, the burial complex is particularly telling (Smith 2003, 159; Török 2009, 276) as it directly expressed the relation between the human and divine worlds. Burials are also particularly useful because the evidence can be traced among poorer social groups than generally examined for such purposes, using simple, but distinctive features that were available widely, not limited by wealth or class. Moreover, they are present to us in coherent groups of discrete contexts, cemeteries that can span transitions.

By the middle of the 18th Dynasty, burials in Nubia, from the far north to Tombos at the head of the Third Cataract, at least, were generally indistinguishable from burials in the country cemeteries of Upper Egypt, for example at Qau (Smith 2003, 159). We do not know if that meant so thorough an adoption of Egyptian culture that the inhabitants of Nubia spoke Egyptian in the home. We can observe whether the relationship was oppressively exploitative: the lack of difference between Nubia and Upper Egypt is strongly against a strictly extractive 'model' and some of the relatively ordinary burials are even rich. For example, a burial in the west chamber of V48 at Qustul, possibly the original, probably belonged to a person of middling standing. It had a substantial cache of metal vessels, including a fine pseudo-import jug (imitation Aegean apparently), and by far the finest caryatid mirror ever found (see, for example, Derriks 2001, cats. 5 [Semna], 18 [Aniba], 25 [Buhen], 46 [Aniba], 70 [Buhen], and 74 [Buhen]).³ I doubt that any of the burials in this tomb would qualify for membership in the vague and elastic class of 'elite'.

Officials

At the top of the social pyramid were officials, possessors of monumental tombs and substantial inscribed memorials. These include the oft-cited rulers of Teh-Khet buried at Debeira on either side of the river just south of Serra East, Djehutyhetep and Amenemhat (for Amenemhat, see Säve-Söderbergh and Troy 1991, 182-190; for Djehutyhetep, see Säve-Söderbergh and Troy 1991, 190, 197-201, and works cited. For the princes, Säve-Söderbergh and Troy 1991, 190-211).⁴ We can probably also add Sa-Ibshek, whose stela, recovered at Qustul, was actually

² This literature is vast. For discussions of the meaning of funerary culture, see, for example, Assmann 1996; 2001. For archaeological problems, especially of class, see Baines and Lacovara 2002. For a discussion of Egyptian culture in the context of interrelations, see Schneider 1990.

³ Compare Derriks 2001, cat. 12, the Qustul Mirror, which is from V48 (Williams 1992, 272-290), with metal vessels with early burials in the west chamber (Williams 1992, fig. 105, and 106-107). Pottery includes slender-necked jars of types found in the tomb of Kha (Williams 1992, fig. 111a-b) and a pilgrim bottle (fig. 110f) found near the group; the tomb dates about to Amenhotep III, consistent with the unequalled mastery and grace of the mirror (pls. 40-43).

⁴ From the mention of God's Wife, Säve-Söderbergh and Troy 1991 date them starting in the time of Hatshepsut, although the title continued. Their father Rwiw was also *wr* of Teh-khet, but his burial place is unknown. Their grandfather was not a *wr*. Their relationship with the series of great tombs at Serra East is unknown, but if Serra East was in Teh-khet, there was an earlier dynasty, possibly explaining the location of the new tombs at Debeira. Note that Rwiw, Djehuty-hetep, and Amenemhet were all scribes.

well-executed, in hard stone, and fairly large despite his modest title (Williams 1992, 133-137).⁵

Summary

By about the time of Amenhotep II, Egyptian culture was in place overwhelmingly among high, low, and all in between, with occasional exceptions, which we will deal with below.

Early adoption

Egyptian pharaonic culture appears in Nubia in coherent ways before the New Kingdom, beginning with the A-Group Qustul Dynasty (Williams 1986). Just as interesting was a brief dynasty of three rulers during the early Middle Kingdom (Williams 2013), the last a Nubian, whom I believe were die-hard supporters of the 11th Dynasty regime against the usurper Amenemhat. Otherwise, the C-Group (see in general Steindorff 1935; Bietak 1968)⁶ and earlier Kerma (see generally Gratien 1978; 1986; Dunham 1982) cultures showed no interest in Egyptian culture, despite a continuous stream of trade and migration to Egypt for service in its armies and at its court – among other occupations (Bietak 1985; Meurer 1996, 125-127).

There are interesting exceptions. One example is a Medja, ruler of Awshek, brother of the ruler of Webet Sepat with the Egyptian name Wah-ib (Sethe 1926, 36-38). He appears in two phases of the Middle Kingdom Execration Texts, which I date at least as late as the 18th Century BC, which would also fit roughly his name as a contraction of the 13th Dynasty name Wahib-Re', although such a date would require that we date them even later, into the next century.⁷

Date of conversion

It is well known that the first century of the 18th Dynasty completely transformed the middle Nile Valley, possibly as far as the Fourth Cataract⁸ and much of the Eastern Desert

or Atbai. Old Egyptian military infrastructure was renewed, and new temples added. New towns were planted, while the forms of burial, the surest sign of profound religious conversion, were transformed in an Egyptian way among all the areas and cultures that had existed there before (for example Zibelius-Chen 2013). Instances there were of new immigration, bringing cultures from elsewhere in the region (Säve-Söderbergh 1989, 159-165),9 and occasional burials in the flexed style of Nubia (but also elsewhere) were made from time to time (see Smith 2007, 5-6, pl. 6),¹⁰ but on the whole Egyptian culture, which I will assert was a thoroughgoing religious culture, appears everywhere from the First to the Fourth Cataract where datable remains were found (see Vincentelli 2006).11 This is not to assert that it was not viewed from a local perspective, but it is to assert the depth and persistence of what amounted to a religious conversion.

What is probably not widely recognised is that the first steps in this transformation were taken before the first Egyptian armies marched into Wawat under Kamose. As Kushite power spread beyond the heartland (Second Cataract to beyond Kerma) under rulers later buried in tumuli KX and KIV, probably Nedjeh and perhaps Terereh, we find the title Ruler of Kush enclosed in the Egyptian royal cartouche paralleled by a Hyksos title and cartouche from Avaris (see von Pilgrim 2015).¹² It should be clear, given the long history of contact and struggle between

⁵ See also Klemm and Eichler 1998, 252 for a scribe of the gold count by this name. He may not be the same person as the priest and overseer of the estate of Hathor, Lady of Ibshek.

⁶ But note four fragments of inscribed stelae (Steindorff 1935, 40-41, pl. 16) and offering tables (Williams 1983, *passim*, and Williams 1993, 23-120). Despite the Anderson dissertation (1996), where imports are considered, when only cultural adoptions are considered, only the funerary objects, especially those inscribed from Aniba could be viewed in this way.

⁷ Ryholt 1997, 197 dates Wahibre Ibiaw to 1712-1701 BC, one of the longer reigns of the 13th Dynasty, and one of the few attested by scarabs. See Williams 2014, note 71.

⁸ Despite Thutmose I's inscription at Kurgus, the earliest structural remains at Gebel Barkal date to Tutankhamun and there is a dearth of datable remains upstream of Kawa (founded Amenhotep III). All this despite an inscription of Thutmose III and the record of a fortress where an Asiatic prisoner was suspended.

⁹ The publication did not present Cemetery 35 as one of new immigrants from elsewhere in Nubia, but as a transitional site, despite the fact that the structures are sharply distinguished from the C-Group, Pan Grave, and Kerma burials found in the vicinity. See Welsby 2006, pl. 5, a monument believed not to be a grave, also pl. 4.

¹⁰ This burial is flexed, but with the hands pressed tightly over the skull in the manner of a "live burial". Smith 2007, color plate V was similarly buried, but with the upper arm displaced (see also Smith and Buzon 2017, figs. 14-15). At Fadrus (Säve-Söderbergh and Troy 1991), burial 95 was on the side, with the knees slightly bent, also 260, 407, 466, 609. Burial 409 was in a bag (Säve-Söderbergh and Troy 1991, 275), therefore not arranged as contracted; 685 (Säve-Söderbergh and Troy 1991, 293) was fully contracted, in an oval pit with no grave goods; a secondary burial in 115 had the knees up, approximately in the Nubian flexed position; 473, two burials with bent knees, possibly because the chamber was small. From Qustul, S7 shaft had one burial with the legs bent under (Williams 1992, fig. 196). For Upper Egyptian burial postures, see Brunton 1930, pl. 3, Second Intermediate Period burials had a range of postures (pls. 6-8, register).

¹¹ Hillat el-Arab, dated to the later New Kingdom, was heavily reused in Napatan times. Despite surveys, the area between Napata and Kawa is practically a blank in the period. See Phillips 2003, 394-396.

¹² See Smith 1976, 41 (Khartoum 18) for Nedjeh, and 55-56 (Phil E10984) for Sopd-Hor, who built (or repaired?) the temple of Horus for the satisfaction of the Ruler of Kush. Enclosing the title Ruler of Kush in a cartouche parallels the cartouche from Tell el-Dab'a with the title Ruler of Foreign Countries before it (Bietak 1996, fig. 52).

Egypt and Kush, that these rulers knew exactly what the cartouche meant and intended exactly that meaning. In a second, monumental expression, the Kushites installed a lintel of native Tombos stone with a winged sun disk above the door of the funerary chapel, KII, of the last great tumulus, KIII (Bonnet 2000, figs. 85-87). The commandant of Buhen built (in) the temple of Horus of Buhen on behalf of the Ruler of Kush (Smith 1976, 55-56, for Sopd-Hor; see also Säve-Söderbergh 1949).

Pharaonic art is nothing if not monumental, and public art is expected, in addition to the immense monuments. For this purpose, I will cite three examples.

A stela from Buhen carved in a recessed silhouette style, like much Nubian rock art and the Qustul Incense Burner, shows a male figure holding a bow reversed with arrows in one hand and a mace in the other. He wears a white crown with uraeus and is clearly a pharaonic ruler. The style is so close to the panel described next that a different date is quite unlikely (*pace* Knoblauch 2012).¹³ It would be difficult to justify identifying it as anything but a representation of the ruler of Kush at this period.

Another critical piece of evidence is a complex of rock scenes from Nag Kolorodna in Lower Nubia (Almagro Basch and Almagro Gorbea 1968, fig. 16, pl. 3). Cut in a recessed silhouette style, like the much earlier Qustul Incense Burner and the Buhen stela discussed just above, these scenes, closely related by style, include, roughly above the centre, a man seated on a chair within an enclosure holding a bird. In front of him is a woman who presents something to him or gestures. A file of men on a line with arms pinioned behind their backs proceeds to the enclosure or building, followed by a man who holds a bow reversed, possibly with a feather on his head.

Below, a striking scene appears to date the complex. A male figure on a frame-chariot, shown not from the side but with both wheels and axle visible has one foot on the axle and kneels on the tree between the horses (Almagro Basch and Almagro Gorbea 1968, fig. 16; see also Lhote 1982, figs. 34, 38, 47).¹⁴ He holds the reins and a stick, and his head is elongated as though crowned. In front of him is a man with his arms upraised at the elbows. He holds an axe in his right hand with a head that is shaped like the axes from the Ahhotep treasure (Bissing 1900, pls. 1, 3, esp. 3). This axe is specific to only this period and the simple elongated style of the figures as well as

the chariot are entirely non-Egyptian, as is the Buhen stela cited above. I take it that this and associated similar figures on this rock face, a seated man holding a reversed bow, a curious standard that may be part of the building, wrestlers, a second figure (crowned?) holding bows and an axe, a sheep, a man leading a quadruped and a man behind are Kushite, and belong to this period.¹⁵

A representation in hard stone was found at Tombos near Kerma. It shows a number of figures wearing the feather on their heads, and two may be part of a smiting scene of this period (Williams 2007, figs. 1-3, and 404-405).

The adoption of a public, almost national art – different from that of Egypt – was perhaps a symptom of the kinds of changes taking place in the first empire of Kush.

Although few, these pieces of evidence were accompanied by some objects and representations that indicate that aspects of Egyptian culture had spread fairly widely into at least the courtier echelon of society, with at least some representations, for example vultures and Taoueris (Reisner 1923, vol. 4, pl. 54.4). We also see faience hippos, there to be symbolically slain, and special Kerma mirrors with the disk flanked by falcons (Reisner 1923, vol. 4, pl. 48.1), a creative adaptation.

There was also some flow northward, with the appearance of a Kerma-type dagger and golden flies in the treasure of Ahhotep, mother of Ahmose (Bissing 1900, pls. 3.5 [dagger] and 6.2 [flies]), and with the appearance of Ahmose Nefertari, there is more meaning still (Lepsius 1849, vol. 3, pl. 1).

In Nubia, Egyptianisation has most customarily been exemplified by great tombs, mostly later, such as those of Djehuty-hetep and Amenemhat at Debeira (Säve-Söderbergh and Troy 1991, 192-211).

Since all writing was in Egyptian we are mostly blinded philologically, although some names may be non-Egyptian, such as Sa-Ibshek (Zibelius-Chen 2011, 9-282, notably p. 18).¹⁶ We do know that locals worshipped Egyptian gods, for example from this stela of Sa-Ibshek who offers a hymn to Horus Lord of Buhen. We return to the official culture of Teh-khet and Ibshek.

Now that is all at the official end of the social order and it's also rather later. What happened to the rest of society and when did it occur?

¹³ The style of the representation cannot remotely be assigned to any phase of Egyptian monumental art, while it is consistent with the Nag Kolorodna (and other) Nubian rock art, even the much earlier Qustul Incense Burner.

¹⁴ The chariot is shown with eight-spoke wheels, unlike other early Egyptian and Aegean chariots which have four (from the Amarna Period onward they have six) and from this and the drawing perspective, it is not canonical. See Lhote 1982, fig. 15, for example with eight-spoke wheels, for structure, 72-76.

Note also the chariot drawn by bovines shown in Huy's tomb (Davies 1926, pl. 28), which has been discussed in detail with varying results (for bovine-drawn chariots, see Lhote 1982, 160-171, Muzzolini 1990), but the combined features of the particular Saharan type (chariot structure, dressage, bovines) noted above indicate that the technology of the chariot, as well as dressage and the use of bovines probably derived from Kush by way of the rainlands.

¹⁵ A cow and calf below are apparently C-Group.

¹⁶ Hathor, Lady of Ibshek, from the small temple of Abu Simbel.

First, we need some chronological benchmarks: Meritamun, once dated to the mid-18th Dynasty by Winlock (1932, 57-65) actually was the contemporary and wife of Amenhotep I and was buried during his reign or that of his successor (Williams and Logan 1978). Maiherperi, Child of the Court and Fanbearer in the reign of Thutmose III marks a midpoint, with objects beginning in Hatshepsut's reign, but probably mostly later (Lakomy 2016, esp. 54-55).¹⁷ Still later, buried in the reign of Amenhotep III was the architect Kha (Schiaparelli 1927). Finally, extremely important for our purposes, is the context of Amarna, the largest site of limited date (Rose 2007).

Northern Nubia at the transition

During the later C-Group, the culture adopted certain Kerma practices, such as bed burial and caprid placed with the burial (Bietak 1968, IIb3, pl. 9 [bed]; IIb11, pl. 11 [caprid burial]).¹⁸ In late C-Group, the tumulus itself loosened; note, for example, U1 at Adindan, which dates to early C-Group III, with a Kerma-style caprid companion; its superstructure was a ring of loosely-piled stones (Williams 1983).

At this point we have to deal with evidence from local funerary contexts that is not complete; none of them were outstandingly wealthy, so they do not contain large amounts of grave goods, or even any grave goods.¹⁹ Some were entirely plundered. We have to make use of specific practices to deal with this change.

Nearby, Cemetery K continued through Pan Grave, Kerma, C-Group III into the New Kingdom (Williams 1983, pl. 2, 202-229; Williams 1992, 361-378). What we see here is first a change in shafts to rectangular for extended burial from the ovaloid shape used for flexed burials on the side,²⁰ but with local pottery, notably presentation pottery (see Williams 1983, fig. 44.f).²¹ From there, the next stage, by the time of Meritamun, the full New Kingdom panoply is visible (Winlock 1932, figs. 16-17; for the date, see Williams and Logan 1978). There are some distinctively Nubian continuations, such as a Pan-Grave type small tray (see Williams 1993, fig. 81, Williams 1983, fig. 41).²² Note also, however, as Egyptianisation progressed, burials got richer, such as K65.

Elsewhere, signs of conversion are even more telling. C-Group Cemetery 189, for example, continued from south to north in a natural flow of distribution and with a complete change of burial (Emery and Kirwan 1935, pl. 49). Tombs 94 and 98 (Emery and Kirwan 1935, 226, figs. 240-241, 189: 94 and 98) are quite early New Kingdom, if not slightly earlier, especially 94; 142 and 144 (Emery and Kirwan 1935, 232, figs. 247-248, 189: 142 and 144) were coffin burials, perhaps slightly later. From their position in the cemetery I have to conclude that the process of adoption of Egyptian beliefs and customs began before the re-conquest.

Cemetery 201 (Emery and Kirwan 1935, pl. 52) belonged to the Pan Grave culture.²³ Here, we see an early adoption of changes to the superstructure, with rectangular brick buildings replacing the sand and loose stone of Pan Graves, simple structures not detected by Emery and Kirwan. Burials 14 and 15 show changes toward the Egyptian burial, but contained Pan Grave presentation pottery, with Egyptian cosmetics, scarabs and beads, all slightly later. Burials 22 and 25 had Pan Grave vessels, and 25 was flexed, but both had rectangular brick superstructures. The Egyptian pots with 22 seem to predate the 18th Dynasty. Burials 53 and 58 belong to the earlier 18th Dynasty, with the black globular juglet and scarabs in the new style. The deceased now had a coffin. Burial 86 dates well into the dynasty, Amenhotep II or Thutmose IV, and it also contained sub-rectangular bowl-trays.

Further south, a substantial Pan Grave cemetery, SJE 47, had some New Kingdom tombs interspersed, like 201, with brick superstructures (Säve-Söderbergh 1989, pls. 80-87).²⁴ One of them contained an axe of the radical shape dating to the end of the 17th or beginning of the 18th Dynasty. One of them, 77, had a row of caprid

¹⁷ He dates the tomb to the early years of Thutmose III, based most clearly on the name of Hatshepsut from a linen. I believe, on the other hand, that the tomb contained materials accumulated from the early stage of Maiherpri's career and that some of them date late in his life, most notably the pottery. This would parallel the tomb group of Kha, for example.

¹⁸ Bucrania were also deposited outside the tumulus earlier (Williams 1993, 31-32).

¹⁹ The approach here requires that distinctions of culture or class be immediately clear to the observer rather than detected using limited quantitative data. For the opposite approach, see Anderson 1996, most useful for detecting variations within cultures or classes.

²⁰ See Bourriau 1991, figs. 5-6 for a tomb at Saqqara that resembles some of the transitional New Kingdom burials reviewed here, with three Kerma-style beakers of a very late shape. Bourriau 1991, 140 dated it to about the time of Amenhotep I, and, based on comparisons with Meritamun, this seems to be about right.

²¹ For the New Kingdom proper, see Williams 1992, figs. 175-176 and 186-190.

²² For later examples, see Emery and Kirwan 1935, 327, fig. 322, 201: 86.

²³ See Emery and Kirwan 1935, 314, grave 13; 315, grave 15; 316, graves 20-21; 317 grave 25. See Bietak 1968, pl. 18.

²⁴ Note the rectangular superstructures (Säve-Söderbergh 1989, pl. 86), coffin (pl. 83) and axe (pl. 55:6). Although it has been asserted that Pan Graves in Nubia do not contain weapons (Cooper and Barnard 2017, 5; Liszka 2012, 495-496), there is also a dagger from a Pan Grave at Toshka (Simpson 1962, 45, unnumbered ill.). Note here that an attempt to exclude Pan Graves from the Eastern Desert (Cooper and Barnard 2017, 5) is based on a virtually complete vacuum of systematic archaeological excavation in the region; there are important Pan Grave relations with materials elsewhere in the Atbai (Manzo 2012) and the Fourth Cataract (Emberling and

skulls, exactly the Pan Grave practice. Site 170 made a similar transition, but with Kerma graves (Säve-Söderbergh 1989, pls. 99-101, 34:4).

Following on the more convincing and complex evidence from 201, Serra East Cemetery C – really a plot – is of special interest because it was in the desert, looking outward rather than inward toward the river, rather like recent nomad burial plots that dot the high desert edge in the Dongola Reach. Cemetery C began as a normal Pan Grave cemetery with four tombs, C 3 being typical, for example. C 4 on the other hand, was transitional, with a rectangular shaft for an extended burial, but also the row of caprid skulls, and the elongated bowl or tray we saw farther north. So this Egyptianising phenomenon was apparently not confined to valley folk (Williams 1993, 124-132; see Cooper and Barnard 2017, 10).²⁵

I maintain that Serra Fortress was the heart of Teh-khet and that the four great tombs immediately to the east, Cemetery A, were the direct precursors to those of Amenemhat and Djehutyhetep found a short distance to the south (see Williams 2017, fig. 1). Here we see a transition from tumulus to pyramid that not only predated the el-Kurru transition by 800 years, it occurred essentially *at the same time as the first non-royal pyramids appeared in Egypt* (Williams 1993, pl. 3; see Dziobek 1989, esp. 131-132).

The first, A2, had an irregular brick court and chapel to the East with a tumulus ringed by leaning stone slabs, a structure that is really hard to place among the Nubian cultures. The substructure is exactly Egyptian, but with its best parallels in Egyptian tombs at Buhen, including the alterations and attempted alterations. It was repeatedly reused and plundered, so the remains from it and the others are mixed and mostly later (Williams 1993, fig. 141; 162-167; Williams 2017, fig. 8a).²⁶

A18 was later the site of a shrine to a Moslem holy man known as Sheikh Nur and it was the site of reuse in times between, itself an interesting study in continuities. Originally, it, too, was a tumulus, with a simple rectangular chapel to the east. The tumulus, in a striking development, was ringed with brick, again, an astonishing preview of the progressive development at el-Kurru. Again, the substructure was, exactly, Egyptian and, again, with its best parallels from Buhen, and quite different from A2. The contents, like A2, were mixed, at least through the late 18th Dynasty, but containing some definitely early material, notably red burnished bowls or cups (Williams 1993, 188-193, figs. 113-114, 142; Williams 2017, fig. 8b).

A3 was the first rectangular brick tomb structure at Serra East, although it recalls early 18th Dynasty tombs in lesser cemeteries. Again, it had a chapel, here detached, to the east and at an angle. The structure was a rectangle rather than a square, with a pavement around it. With such poor preservation, it is hard to say what the superstructure actually was. The substructure was, as can be seen, made along the same lines as before, with the typical alterations and attempted alterations and, absolutely Egyptian from Nubia and again, pointed directly at Buhen. The contents in Egyptian pottery were, perhaps, slightly less distinguished than A18, but there were pieces of handmade Nubian cookpots, by this time not of a separable tradition (Williams 1993, 168-173, fig. 143; Williams 2017, fig. 8c).

If any structure at Soleb or Tombos was a pyramid, then so was A4. Surrounded by a brick court-enclosure, the fully axial and disciplined structure is Egyptian, as is the surprisingly simple substructure – which was not reused as much as the others. The contents, fragmentary and indeterminate to some extent, nevertheless contain early 18th Dynasty material, such as red burnished bottles with flared necks and red burnished cups or bowls (Williams 1993, 173-181, fig. 144; Williams 2017, fig. 8d).

It is clear that there was a transitional sequence at Serra East beginning at about the start of the New Kingdom or even before. Its outward symbols at the beginning were Nubian, at the end, Egyptian, and the transition took place at the same time that the pyramid appeared in Egypt in comparable circumstances. As will be clear with the publication of Williams (forthc.), the fortress was occupied during the Second Intermediate Period, as shown by such time-bound items as Tell el-Yehudiya Ware.

South of the Second Cataract

South of Serra East, the Second Cataract region is very complex and the simplistic designation 'Middle Nubian' is entirely inadequate. The dates of the sites ranged as late as early Napatan and the burial styles indicate the presence not just of C-Group, Pan Grave and Kerma cultures, but others as well, including connections with

Williams 2010, 29). Säve-Söderbergh's (see also 1989, 15) comment that the Pan Grave Culture was unlikely to be uniform should be taken as an observation now supported by excavations in the Fourth Cataract. See Emberling *et al.* 2014, 330-335. See also Manzo 2012. Cooper and Barnard's discussion is complicated by an inconclusive reading of the name or title (plus name?) on the Mostagedda bucranium that includes comparisons with Coptic but not the Gebelein documents (Cooper and Barnard 2017, 5-6; if not *ksk^cnt*, *ksnht^cnt*) and is obfuscated by comparisons with numerous names for peoples (Cooper and Barnard 2017, 4) that were not used in the specific situations of the Second Intermediate Period, notably the Execration Texts and the El Kab graffito.

²⁵ Despite assumptions of debate, the makers of the Pan Graves did not disappear with the start of the New Kingdom, but adopted New Kingdom culture gradually into the mid-18th Dynasty.

²⁶ See Williams 2017, 314-318 for a general discussion of the cemetery.

the Fourth Cataract (for Cemetery 35, see Säve-Söderbergh 1989, 159-165).²⁷

South of the Second Cataract, a number of enclosed towns, widely referred to as temple towns²⁸ were planted in the early New Kingdom: Sai, Sesebi, and Dokki Gel, probably Tombos by the mid-18th Dynasty, later Soleb and Amara West. The transitional phases are more difficult to trace because we cannot observe the progressive changes adopted by the populace as well as in the cemeteries of the north (Lacovara 1987, 57, fig. 7). In addition, while Nubian pottery certainly appears in the New Kingdom, finer dating criteria have yet to be established (see Raue 2017).²⁹

Sai (Gratien 2002, esp. figs. 1-2) SAC4.³⁰ While early New Kingdom (called Kerma recent or Late Kerma) burials are found at Sai, their location, in SAC4, does not provide a clear transition from the later Classic Kerma tombs of SKC2 (see generally Gratien 1986, 288-337, with late imports EIII and IV fig. 300, for example, and Minault-Gout and Thill 2012, esp. pls. 130-167 for New Kingdom and later pottery from SAC5).³¹ The burials in SAC4 were in roughly rectangular shafts, extended on the side or the back, with arms crossed at the chest or hands on the pelvic/pubic area. Some were without grave goods or had only one vessel. One burial had seven vessels, an early bowl, three simple elongated beaker-jars, two jars with incised bands below the neck and rib or roll-rims of Meritamun type (Winlock 1932, figs. 16-18)³² and a biconical jar. In this area, then, the New Kingdom transition was complete by about the time of Thutmose I. None of the published pottery is Nubian, which indicates only that the pottery was not used in the burial at that time and place, unlike, for example the almost contemporary burial at Saqqara noted above (see Budka 2017, figs. 13: 5-7 for Nubian pottery from the town at Sai).33

Distinctive remains as far as Gism el-Arb'a have yet to be published (Gratien *et al.* 2002, 11-12).³⁴ Both Soleb (Cavallier 2014) and Amara West (Spencer 2014; 2017, esp. 327-329 for the temple) were later, but relatively early pottery was excavated in 2010 outside the enclosure at Sesebi (Spence and Rose 2014, 411-412).³⁵ The relationship with the enclosure itself was not clear at that time, but it indicates that some activity occurred there. Their figs. 1.1 and 1.4 indicate an early date, while fig. 1.5 probably belongs to the mid-18th Dynasty (Spence and Rose 2014).

Major temples and ancillary structures at Dokki Gel have been dated to the period before Thutmose III presumably closed the precinct. Some of the pottery is early 18th Dynasty, notably red burnished bowls and red burnished bowls with black rims. However, largescale remains of local structures are reported in this locality and Egyptian pottery is found at Sai at this period (Bonnet 2007, 187-188, for example, structures otherwise not well known).³⁶

Tombos had a double-wall enclosure, but less massive than that of Sesebi. Pottery from the cemetery and the settlement dates mainly to the New Kingdom, possibly from Thutmose III onward, but distinctively early types are lacking. There is considerably more in the way of marl imports than reported for Dokki Gel, and the cemetery burials are overwhelmingly Egyptianised. Nubian pottery there belongs to the simple cooking wares found at Sesebi, for example, and is not a development of Kerma beaker pottery. Two burials of women from the time of Amenhotep III or later were found in a Kerma-like pose, the one, undisturbed, had the legs bent outward at the hips, with the knees tightly contracted, the right foot underneath the left leg. The right hand was under the head and the left, above, was clasped tightly against the back of the head with the elbow over the face (Smith 2007, pl. 6).37 A second, which I take to be disturbed, was much like the first except that the left arm had been raised, probably moved in search of valuables (Smith 2007, colour plate V).³⁸ I take these burials, especially the first, to be a revival of the Kerma practice of sacrifice or companion burial, possibly of unfree persons, rather than normal Nubian burials of the earlier style, which would have been made in a looser sleeping posture with hands in front of the face.

²⁷ The superstructures, stones laid flat, surrounded by a circle of orthostats, belong to a strongly-marked type that also occurs in the Fourth Cataract, but in other contexts (see above note 9). For cemetery 176, see Säve-Söderbergh 1989, 200-205; pilgrim flasks (AP 1, pl. 36) include high-necked types with broad rims that occur in the First Millennium and squat, deeply grooved jars (H5L, pl. 36) that occur at Serra East in a late plot and at el-Kurru.

²⁸ Accurately for Soleb and Dokki Gel, which were major temples in their own right.

²⁹ Where several successive contexts are presented, although the earliest should be somewhat later than proposed.

³⁰ SAC4 is separated from the great Kerma cemetery, Gratien 2002, 220.

³¹ Pottery from SAC5 ranges mostly from mid-18th Dynasty to Napatan, with a little Meroitic. The Kerma cemetery (Gratien 1986, fig. 2) does not continue to the New Kingdom. However, from the examples farther north, it seems probable that an early transition took place at Sai.

³² See Williams and Logan 1978 for the date.

³³ Budka 2017, 431-432 indicates that the town began with the New Kingdom, and had Nubian pottery from the beginning.

³⁴ The extent of the town in New Kingdom times is unknown.

³⁵ The pottery is therein compared with Memphis (Kom Rabia) IV, which Bourriau dated to the period down to Hatshepsut/ Thutmose III or into the mid-18th Dynasty.

³⁶ Ruffieux 2014, 509-512 discusses Egyptian pottery. On page 507 he mentions 10-15 per cent Nubian pottery in the early 18th Dynasty levels, but this does not make a clear cultural transition.

³⁷ She had a scarab of Amenhotep III.

³⁸ Two amulets were found behind the neck, so the theft was of limited success. The upper (left) leg and pelvis were likewise disturbed and the body turned upward somewhat.

As noted above, the transition in modern Sukkot, Mahas, and Dongola is complex, and made murky by the lack of continuous cemeteries. Nevertheless, the available evidence suggests that it began, at least in the northern part, very early, and possibly before the end of Classic Kerma at Kerma itself. Some remnants of Nubian culture remained, such as cooking wares, while the organisation of belief became overwhelmingly Egyptian by the mid-18th Dynasty. As will be noted below, a genuine Nubian continuity can be detected in the Fourth Cataract region and this reservoir, and possibly others were likely to have provided the impetus for such stark revivals as the Tombos sacrifices.

The Fourth Cataract

In the Fourth Cataract region, the local culture rapidly adopted Classic Kerma presentation pottery (Emberling and Williams 2010, fig. 27). Some was as fine as that from Kerma and was probably imported. Some was relatively clumsy, and equally probably made locally (Emberling and Williams 2010, 31). Burial customs also veered toward Kerma, with the adoption of the bed burial and a more or less rectangular shaft and loose superstructure (Emberling and Williams 2010, 26). A Polish team excavated two tombs in a cemetery at Gemamiya (19) on the left bank, one of which had New Kingdom sherds on the surface (Rzeuska 2007; see also Welsby n.d., 4.). The OINE also excavated tombs with New Kingdom pottery on Umm Gebir (UGS101). The former were typical Old Kush/Kerma graves, and earlier than the pots at the surface, but with an enclosure, and the latter were less organised, but somewhat similar. The few New Kingdom remains clearly do not indicate that the burial was organised in an Egyptian way,³⁹ and the Fourth Cataract region remained a reservoir of Nubian practice, and by extension, belief. However, it must be noted that the only datable remains in the area belong to the mid-18th Dynasty.

Coalescence

In northern Nubia, C-Group burials were sometimes made on beds at this time and there were a few chapels, but true Kerma customs were found only in Kerma burials (Bietak 1968, pl. 9, IIb 3). Slightly later, the C-Group and Pan-Grave cultures began to share more pottery shapes and some of the burials become difficult to distinguish in C-Group III (*e.g.* Bietak 1968, pl. 18). From Mograt to the First Cataract, what had been sharp divisions between the cultures became softer.

Summary: Conversion and conquest

First, we learn from the foregoing that the adoption of Egyptian religious culture, and thereby the massive panoply of its civilisation, in Nubia was not forced by Egypt. It began before the New Kingdom (suggested already by Säve-Söderbergh 1949, 57, but asserted only on grounds of the stelae and plausibility)⁴⁰ and, while perhaps led by its ruling circles it occurred through all classes⁴¹ and groups that we can identify, essentially simultaneously. As a firm statement, it was not an elite phenomenon. With Säve-Söderbergh and others, I propose that it began with the Egyptian colonies in and near the forts that served the ruler of Kush and spread from there as an adoption. Also, it is clear from the evidence of direct continuity in the Nubian cemeteries that the conquest was not particularly destructive in the north.⁴² Great struggles were further south, but even there, as the New Kingdom developed, policy, especially south of the Second Cataract, was investment, and, while extraction was boasted, the investment was large-scale and enduring (Adenstedt 2016; Budka 2017).

For those who need models, I will say we need a new model. The concepts of imperialism and colonialism drawn from the explosive age of steam and mass-media propaganda need to be replaced by concepts developed from the actual world in which Egyptian expansion occurred.⁴³ That world was the one of the Assyrian colonies in Anatolia (see, for example, Kuzuoğlu 2011, 25-26), and the Asiatic colony(ies) in Egypt that became the Hyksos dynasty (Bietak 1996, 10-36)⁴⁴ as well as wide communication now re-validated by cuneiform texts in the Delta (Bietak *et al.* 2013, fig. 7). The Egyptians experienced the colonisation – and well before the Hyksos dynasty, and they probably knew about the Assyrian colonies, even considering their own expatriates in Retjenu that had been ejected by Amenemhat I (Williams 2013, 4, fns. 27, 30).

³⁹ UGS 101 appeared to continue from Classic Kerma into the mid-18th Dynasty.

⁴⁰ It was discussed positively and in more detail by Morris (2005, 11-12). The ultimate higher officialdom established in Kush (Morris 2005, 13-14) did not mirror any current Egyptian administration and could have reflected the general structure of the Kushite state itself.

⁴¹ Classes visible in archaeology are here held to be discrete and phenomenological, that is easily identified by direct observation. While such differences would also be identifiable statistically, such processing would not be necessary, as the differences must be obvious for a class to exist (as an aside, processing may help clarify certain ranges within a class). See Anderson 1996, for example.

⁴² For example, Second Intermediate Period and Early New Kingdom material from Cemeteries H and J at Buhen (Randall-MacIver and Woolley 1911, various vessels on pls. 48 and 49); Second Intermediate Period from K (pl. 92). Aniba (Steindorff 1937, pls. 67-88) also has material that continues through the end of the Second Intermediate Period and into the New Kingdom.

⁴³ Followed at a distance by Phoenician and Greek colonisation built on similar lines.

⁴⁴ He generally traces the development of the colony.
This establishment of special-purpose colonies represented a social change that contributed to the condition of Nubia on the eve of the New Kingdom Egyptian conquest. While pharaonic symbolism and institutions had been found in Lower Nubia twice before, in A-Group and the early 12th Dynasty, and there had been an Egyptian post or factory at Buhen in the Old Kingdom, never, until the 13th Dynasty, had Egyptians settled there in compact groups or colonies, even when the state had established a strong chain of fortresses and robust regime of patrols for frontier security.⁴⁵ Now, in the 13th Dynasty, towns⁴⁶ formed in and near major fortresses, especially Kuban, Aniba, Buhen, Mirgissa, and Askut,⁴⁷ while other forts were apparently taken over by Medjay and Kushites.48 With the local Egyptians' acceptance of Kushite rule we see the foundation of a multi-ethnic imperial community, but in a Kushite, not an Egyptian, empire. Because the earliest signs of Egyptianisation among the Nubian groups away from the forts appear before the Egyptian conquest, not after, they therefore must have derived from these communities. Moreover, while certain records may have ceased at the beginning of the 18th Dynasty, the major cemeteries of Aniba, Buhen, and probably Mirgissa continued uninterrupted; Serra Cemeteries A and G also crossed the boundary.

It is the thesis of this paper that this imperial community laid the groundwork for the social, institutional and political phenomena we see in New Kingdom Nubia and that the Egyptians absorbed, extended, accelerated, and regularised what they found there, while the Nubians of various persuasions ultimately overwhelmingly accepted, and generally seized, Egyptian religious culture. In the event, they not only became very much like Egyptians (Egyptianised) although interesting localisms remained, they also became more like each other. What is also very clear, from cemeteries through the Second Cataract, at least, but also, say, at Tombos, is that Egyptianisation occurred among all classes that are visible to us and practically simultaneously and apparently, as said above, even before the conquest. I have cited some examples of cultural holdovers,⁴⁹ and there are discrete pockets of strictly Nubian-type burials, notably SJE 35 (Säve-Söderbergh 1989, 159-165), which I believe belonged to new immigrants, from the desert or the non-Egyptianised areas of the Fourth Cataract and above.⁵⁰

This change was accompanied by additional, major changes in Egyptian political and administrative installations, but little else. There was little visible interaction with the local C-Group culture. For their part, the C-Group people showed hardly any interest in Egyptian culture except for jewellery and a few pots (see, however, some inscribed objects at Aniba as exceptions Steindorff 1935, 40-41, pl. 16a). This separation was maintained also later by the Pan Grave Culture, and both remained separate as fortresses converted into Egyptian communities later in the period. During the Second Intermediate Period, the Ruler of Kush actually sponsored temple construction, making another change. In the early New Kingdom, Egyptians not only established a country-based administration, as is well known, they also began a policy of civil investment. North of the Second Cataract, this seems to have substantially taken the form of temple building, which involved production as well as structures and rituals (see Hein 1991 for an analysis of later New Kingdom installations and their placement). Some forts were renewed for a time, but now with more permanent residents. Some of these may not have lasted for long and the walls, for example at Buhen, may actually have been slighted.

South of the Second Cataract and north of the Third the investment was strongly marked and very different, since it did not reoccupy older installations. Except for Sai and Sesebi,⁵¹ it was mainly also, slightly later, in the mid-18th Dynasty. The New Kingdom town on Sai was large, some 240 x 120m, and surrounded and defined by a wall *c*. 5m thick with piers and simple gates. It was strong, but not primarily military (see Adenstedt in this volume). With a large quarter of magazines, it was clearly intended for the storage and shipping of materials.

⁴⁵ For commentary on the late Middle Kingdom burials at Mirgissa, see Knoblauch 2017. The early burials date to the late 12th Dynasty at the earliest. Note that most other fortress installations do not have burials this early.

⁴⁶ Partly identified by associated cemeteries, which indicate the presence of a resident population. For Kubban, see Firth 1927, 55-97, cemetery 110. For Aniba, see Steindorff 1937, pls. 67-88, pottery, which includes only Second Intermediate Period and New Kingdom material. For Buhen, see Randall-MacIver and Woolley 1911, pls. 45-52, 92-95, ranging from the 13th Dynasty to the New Kingdom. For Mirgissa, see Vercoutter 1975, figs. II.71, 77-79, 80-83, 87 late Middle Kingdom examples from the plateau cemetery, which continued, III.1, 4, 7, 9, 10, 13, 14, 16, 20, 22-42 from the eastern cemetery, which was late Middle Kingdom. For Askut, see Smith, S.T. 1995, 51-80 for the Middle Kingdom, but without cemeteries.

⁴⁷ By the end of the Second Intermediate period, Wawat was acknowledged to be under the control of Kush (Habachi 1972, 51, Gardiner 1916, 99-103, where Kush is said to hold part of Egypt and the boundary is Elephantine), and Kushite supremacy was acknowledged by commandants of Buhen and others there (Smith, H.S. 1976, 41 [I'ah-wesir], 55-56 [Sopd-Hor], 73-76 [Sobekemheb]) as well as implied by the Buhen Stela discussed above. See, however, Budka 2013, 56, and Smith, S.T. 2003, 80.

⁴⁸ Such as Serra East. After the quarry dumps, both Pan Grave and Kerma pottery are common in the fortress. The fortress structures were replaced in the New Kingdom, with new plans (Williams forthc.).

⁴⁹ See pp. 103-104 above, the transition in northern Nubia.

⁵⁰ Emberling and Williams 2008, 18-19, tumulus burials, and Welsby n.d., 669x, 670x, 654x, 673x, 656x, 661x, 666x, 675x, 657x, 658x. 261x pottery only. The latest of these date roughly to the middle of the 18th Dynasty.

⁵¹ See above, p. 105.

Despite these developments, Nilotic Nubia below the Fourth Cataract was not uniform and not Egyptian on the eve of the conquest, but it was a political unit, one created for the first time by Kush, and that experience must have paved the way for the inhabitants to accept the conquest as a whole.

Why? I assert that this is a time-bound, and above all, culture-bound question. A quarter-century ago, I published a distillation of recursive change in Nubian culture (Williams 1991) that was linked with concepts developed by Henri Frankfort (1978), latterly expanded by Lázló Török (1997).52 The forward maintenance of right in this world, reflexively empowering the regular universe rests with an incarnation. As threats to right emerge the personae and even shapes of their expressions change in a holding power, dynasty. This pharaonic dynamic was part of the "great East African Substratum" that included Egypt, Kush and many peoples beyond. This holding power affected all aspects of life. When it was Kush, the bed burial proliferated. As Kush moved toward Egypt, so did the symbolism, even among commoners in all communities. As Egypt galvanised into a pharaonic upsurge, so followed the others in an entirely natural progression, and it lasted half a millennium, in fact never entirely extinguished in Nubia until the conversion to Christianity two thousand years later.

References

- Adenstedt, I. 2016. *Reconstructing Pharaonic Architecture in Nubia: The Case Study of SAV1, Sai Island.* Contributions to the Archaeology of Egypt, Nubia and the Levant 3. Vienna: Austrian Academy of Sciences.
- Almagro Basch, M. and Almagro Gorbea, M. 1968. Estudios de arte rupestre nubio, I. Yacimentos situados en la orilla oriental del Nilo entre Nag Kolorodna y Kars Ibrim (Nubia egipcia). Memorias de la Misión Arqueológica en Nubia 10. Madrid: Ministerio de Asuntos Exteriores, Ministerio de Educación Nacional.
- Anderson, W. 1996. The Significance of Middle Nubian C-Group Mortuary Variability, ca. 2200 B.C. to ca. 1500 B.C., Dissertation, McGill University.
- Assmann, J. 1996. Ägypten: Eine Sinngeschichte. Munich: Carl Hanser.
- Assmann, J. 2001. *Tod und Jenseits im Alten Ägypten*. Munich: C.H. Beck.
- Baines, J. and Lacovara, P. 2002. Burial and the dead in ancient Egyptian society: Respect, formalism, neglect. *Journal of Social Archaeology* 2, 5-36.
- Bietak, M. 1968. Studien zur Chronologie der Nubischen C-Gruppe: Ein Beitrag zur Frühgeschichte Unternubiens zwischen 2200 und 1550 vor Chr. Berichte des Österreichischen Nationalkomitees der UNESCO-Aktion für die Rettung der Nubischen Altertümer 5. Österreichische Akademie der Wissenschaften, phil.hist. Klasse, Denkschriften 97. Vienna: Hermann Böhlaus Nachf.
- Bietak, M. 1982. Pfannengräber, in: Helck, W. and Westendorf, W. (eds.), *Lexikon der Ägyptologie Band* IV. Wiesbaden: Harrassowitz, 999-1004.
- Bietak, M. 1985. Zu den Nubischen Bogenschützen aus Assiut. Ein Beitrag zur Geschichte der ersten Zwischenzeit, in: Posener-Kriéger, P. (ed.), *Mélanges Gamal Eddin Mokhtar* Vol. 1. Bibliothèque d'Étude de l'Institut Français d'Archéologie Orientale du Caire 97. Cairo: Institut Français d'Archéologie Orientale du Caire, 87-97.
- Bietak, M. 1996. *Avaris: The Capital of the Hyksos.* London: British Museum Press.
- Bietak, M., Math, N., Müller, V. and Jurman, C. 2013. Report on the excavations of a Hyksos Palace at Tell el-Dab'a/Avaris (23rd August-15th November 2011). *Egypt and the Levant* 22/23, 2012/2013, 17-53.
- Bissing, F.W. Freiherr von 1900. *Ein Thebanischer Grabfund aus dem Anfang des neuen Reiches.* Berlin: Alexander Duncker.
- Bonnet, C. 2000. *Edifices et rites funéraires à Kerma*. Mission archéologique de l'Université de Genève à Kerma (Soudan). Paris: Éditions Errance.
- Bonnet, C. 2007. La ville de Doukki Gel après les derniers chantiers archéologiques. *Genava* 55, 187-200.

⁵² Török 1997, 215-216 touches on the Kushite myth of the state as being native, although it was certainly shared with Egypt, also 99-101; taken from a more materialistic point of view, also Geus 1991. Note that the changes observed here were far from being restricted to wealth, power, or special skill; note that also in later texts. See, for example, the election stela of Aspelta (Eide *et al.* 1994, 235 document 37, where members of the army say 'our lord is here with us, (but) we do not know him.' And then: 'There is no one that knows him, excepting it is Re himself.' Clearly the fundamental principles of pharaonic belief were well embedded in the ordinary population.

- Bourriau, J. 1991. Relations between Egypt and Kerma during the Middle and New Kingdoms, in: Davies, W.V. (ed.), *Egypt and Africa. Nubia from Prehistory to Islam.* London: British Museum Press, 129-144.
- Brunton, G. 1930. *Qau and Badari III*. British School of Archaeology in Egypt. Egyptian Research Account 50. London: Bernard Quaritch.
- Budka, J. 2014. The New Kingdom in Nubia: New Result from Current Excavations on Sai Island. *Egitto e Vicino Oriente* 37, 55-87.
- Budka, J. 2015. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2017. Life in the New Kingdom town of Sai Island: Some new perspectives, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 429-447.
- Cavallier, G. 2014. Soleb 2010 Project: Amenhotep III's Fortified Complex Research, in: Anderson, J.D. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 393-398.
- Cooper, J. and Barnard, H. 2017. New Insights on the Inscription on a Painted Pan-Grave Bucranium, Grave 3252 at Cemetery 3100/3200, Mostagedda (Middle Egypt). *African Archaelogical Review* 34, 1-14.
- Davies, N. de Garis 1926. The Tomb of Huy, Viceroy of Nubia in the Reign of Tutankhamun. Theban Tomb Series 3. London: Egypt Exploration Society.
- Derriks, C. 2001. *Les miroirs cariatides Egyptiens en bronze. Typologie, chronologie et symbolique.* Münchner Ägyptologische Studien 51. Mainz: Philipp von Zabern.
- Dunand, M. 1938. Fouilles de Byblos. Tome Ier, 1926-1932.
 République Libanaise, Directions de l'Instruction et du Beaux-Arts. Études et Documents d'Archéologie 1.
 Paris: Librarie Orientaliste Paul Geuthner.
- Dunham, D. 1982. *Excavations at Kerma. Part VI*. Boston: Museum of Fine Arts.
- Dziobek, E. 1989. Eine Grabpyramide des frühen Neuen Reiches in Theben. Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo 45, 109-132.
- Eide, T., Hägg, T., Pierce, R.H. and Török, L. 1994 (eds.), Fontes Historiae Nubiorum. Textual Sources for the History of the Middle Nile Region between the Eighth Century BC and the Sixth Century AD. Vol. I. From the Eighth to the Mid-Fifth Century BC. Bergen: Grieg.
- Emberling, G. and Williams, B. 2008. The Oriental Institute Nubian Expedition, Field Operations, 2008. *The Oriental Institute News and Notes* No. 198, 15-20.

- Emberling, G. and Williams, B. 2010. The Kingdom of Kush in the 4th Cataract: Archaeological Salvage of the Oriental Institute Nubian Expedition 2007 Season. Part 1. Preliminary Report on the Sites of Hosh el-Geruf and El-Widay. *Gdansk Archaeological Museum African Reports* 7, 17-38.
- Emberling, G., Williams, B., Involstad, M. and James, T. 2014. Peripheral Vision: Identity at the Margins of the Early Kingdom of Kush, in: Anderson, J.D. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 329-336.
- Emery, W.B. and Kirwan, L.P. 1935. *The Excavations* and Survey between Wadi es-Sebua and Adindan 1929-1931. Service des antiquités de l'Égypte. Mission archéologique de Nubie 1929-1934. Cairo: Government Press, Bulaq.
- Firth, C.M. 1912. *The Archaeological Survey of Nubia, Report for 1908-1909.* Cairo: Government Press.
- Firth, C.M. 1915. *The Archaeological Survey of Nubia*, *Report for 1909-1910.* Cairo: Government Press.
- Firth, C.M. 1927. *The Archaeological Survey of Nubia, Report for 1910-1911.* Cairo: Government Press.
- Frankfort, H. 1978. *Kingship and the Gods*. 2nd edition. Chicago: The University of Chicago Press.
- Gardiner, A.H. 1916. The Defeat of the Hyksos by Kamose: The Carnarvon Tablet No. I. *Journal of Egyptian Archaeology* 3, 95-110.
- Geus, F. 1991. Burial Customs on the Upper Main Nile: An Overview, in: Davies, W.V. (ed.), *Egypt and Africa. Nubia from Prehistory to Islam.* London: British Museum Press, 57-73.
- Gratien, B. 1978. Les Cultures Kerma. Essai de classification. Lille: Publications de l'Université de Lille III.
- Gratien, B. 1986. *Saï I. La nécropole Kerma*. Paris: Éditions du Centre National de la Recherche Scientifique.
- Gratien, B. 2002. La fin du royaume Kerma la situation dans l'arriere-pays, in: Jennerstraße 8 (ed.), Tides of the Desert – Gezeiten der Wüste. Contributions to the Archaeology and Environmental History of Africa in Honour of Rudolph Kuper. Africa Praehistorica 14. Köln: Heinrich Barth Institut, 219-230.
- Gratien, B., Marchi, S., Sys, D. and Dissaux, R.-P. 2002. Gism el-Arba, habitat 2. Rapport préliminaire sur un centre de stockage Kerma au bord du Nil. *Cahier de Recherche de l'Institut de Papyrologie et d'Égyptologie de Lille* 23, 29-43.
- Habachi, L. 1972. *The Second Stela of Kamose and his Struggle against the Hyksos Ruler and his Capital.* Abhandlungen des Deutschen Archäologischen Instituts, Abteilung Kairo, Ägyptologische Reihe 8. Glückstadt: J.J. Augustin.

- Hein, I. 1991. *Die Ramessidische Bautätigkeit in Nubien.* Göttinger Orientforschungen IV.22. Wiesbaden: Harrassowitz.
- Hornung, E. 1982. Conceptions of God in Ancient Egypt: The One and the Many. Translated by John Baines. Ithaca: Cornell University Press.
- Klemm, R. and Eichler, E. 1998. Neue Expeditionsinschriften aus der Ostwüste Ägyptens. *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 54, 237-266.
- Knoblauch, C. 2012. The Ruler of Kush (Kerma) at Buhen during the Second Intermediate Period: A Reinterpretation of Buhen Stela 691 and Related Objects, in: Knoblauch, C. and Gill, J. (eds.), *Egyptology in Australia and New Zealand 2009. Proceedings* of the Conference held in Melbourne, September 4th-6th. British Archaeological Reports International Series 2355. Oxford: Archaeopress, 85-96.
- Knoblauch, C. 2017. The burial customs of Middle Kingdom colonial communities in Nubia: Possibilities and Problems, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 575-590.
- Kuzuoğlu, R. 2011. Three Kültepe Texts concerning Rebellions. *Journal of Near Eastern Studies* 70, 25-33.
- Lacovara, P. 1987. The Internal Chronology of Kerma. Beiträge zur Sudanforschung 2, 51-74.
- Lakomy, K.C. 2016. Der Löwe auf dem Schlachtfeld: Das Grab KV 36 und die Bestattung des Maiherperi im Tal der Könige. Wiesbaden: Reichert.
- Lepsius, R. 1849. *Denkmäler aus Ägypten und Äthiopien*. 13 Vols. Berlin: Nicolaische Buchhandlung.
- Lhote, H. 1982. *Les chars rupestres sahariens, des Syrtes au Niger, par le pays des Garamantes et des Atlantes.* Toulouse: Editions des Hespérides.
- Manzo, A. 2012. From the sea to the deserts and back: New research in Eastern Sudan. *British Museum Studies in Ancient Egypt and Sudan* 18, 75-106.
- Meurer, G. 1996. Nubier in Ägypten bis zum Beginn des Neuen Reiches. Zur Bedeutung der Stele Berlin 14753. Abhandlungen des Deutschen Archäologischen Instituts, Abteilung Kairo. Ägyptologische Reihe 13. Berlin: Achet.
- Minault-Gout, A. and Thill, F. 2012. *Saï II. Le cimetière des tombes hypogées du Nouvel Empire SAC5*. Fouilles de l'Institut Français d'Archéologie Orientale 69. Paris: Institut français d'archéologie orientale du Caire.
- Morris, E. 2005. The Architecture of Imperialism. Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom. Leiden: Brill.
- Muzzolini, A. 1990. Au sujet de la datation des chars au "gallop volant." *Sahara* 3, 115-118.

- Phillips, J. 2003. VII. An Overview of the Ceramics, in: Żurawski, B. (ed.), *Southern Dongola Reach Survey 1*. Nubia II. Warsaw: Editions Neriton, 387-437.
- Posener, G. 1940. Princes et pays d'Asie et de Nubie. Textes hiératiques sur des figurines d'envoûutement du Moyen Empire. Bruxelles: Fondation Égyptologique Reine Élisabeth.
- Randall-MacIver, D. and Woolley, C.L. 1911. *Buhen*. Eckley B. Coxe Junior Expedition to Nubia 8. Philadelphia: University Museum.
- Raue, D. 2017. Nubian pottery on Elephantine Island in the New Kingdom, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 525-603.
- Reisner, G.A. 1923. *Excavations at Kerma, Parts I-V.* Harvard African Studies 5-6. Cambridge: Peabody Museum of Harvard University.
- Rose, P. 2007. The Eighteenth Dynasty Pottery Corpus from Amarna. Egypt Exploration Society Excavation Memoir 83. London: Egypt Exploration Society.
- Rose, P. 2012. Early Eighteenth Dynasty Nubian Pottery from the Site of Sesebi, Sudan, in: Forstner-Müller, I. and Rose, P. (eds.), Nubian Pottery from Egyptian Cultural Contexts of the Middle and Early New Kingdom: Proceedings of a Workshop held at the Austrian Archaeological Institute at Cairo, 1-12 December 2010. Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Institutes 13. Vienna: Phoibos, 13-29.
- Ruffieux, P. 2014. Early 18th Dynasty Pottery Found in Kerma (Dokki Gel), in: Anderson, J.D. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 419-429.
- Ruffieux, P. 2016. Pottery of the 18th Dynasty at Dukki Gel (Kerma): Classical Repertoire and Local Style, in: Bader, B., Knoblauch, C. and Köhler, E.C. (eds.), Vienna 2 – Ancient Egyptian Ceramics in the 21st Century. Orientalia Lovaniensia Analecta 245. Leuven: Peeters, 507-525.
- Ryholt, K. 1997. *The Political Situation in Egypt during the Second Intermediate Period c. 1800-1500 B.C.* Carsten Niebuhr Institute Publications 20. Copenhagen: Museum Tusculanum Press.
- Rzeuska, T.I. 2007. Appendix, Egyptian Pottery from the Cemetery at el-Gamamiya. *Polish Archaeology in the Mediterranean* 19, 415-419.
- Säve-Söderbergh, T. 1949. A Buhen Stela from the Second Intermediate Period (Khartum No. 18). *Journal of Egyptian Archaeology* 35, 50-58.

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- Säve-Söderbergh, T. 1989 (ed.), *Middle Nubian Sites*. The Scandinavian Joint Expedition to Sudanese Nubia 4. Stockholm: Paul Åstrom Editions.
- Säve-Söderbergh, T. 1991. Teh-Khet, the Cultural and Sociopolitical Structure of a Nubian Princedom in Tuthmoside Times, in: Davies, W.V. (ed.), *Egypt and Africa. Nubia from Prehistory to Islam.* London: British Museum Press, 186-204.
- Säve-Söderbergh, T. and Troy, L. 1991. *New Kingdom Pharaonic Sites. The Finds and the Sites.* The Scandinavian Joint Expedition to Sudanese Nubia 5:3. Uppsala: Almqvist and Wiksell Tryckeri.
- Schaeffer, C. 1949. Ugaritica II. Nouvelles études relatives aux découvertes de Ras Shamra. Mission de Ras Shamra 5. Paris: Geuthner.
- Schaeffer, C. 1956. Ugaritica III. Sceaux et cylindres Hittites, épée grave du cartouche de Mineptah, tablettes chypro-minoennes et autre découvertes novelles de Ras Shamra. Mission de Ras Shamra 8. Paris: Geuthner.
- Schiaparelli, E. 1927. La Tomba intatta del'architetto Kha nella necropoli di Tebe. Relazione sui Lavori della Missione Archeologica Italiana in Egitto (anni 1903-1920), Volume Secondo. Turin: Giovanni Chiantore.
- Schneider, T. 1990. Foreign Egypt: Egyptology and the Concept of Cultural Appropriation. *Egypt and the Levant* 1, 155-161.
- Sethe, K. 1926. Die Ächtung feindlicher Fürsten, Völker und Dinge auf altägyptischen Tongefässscherben des mittleren Reiches. Abhandlungen der preußischen Akademie der Wissenschaften Jahrgang 1926.5. Berlin: De Gruyter.
- Simpson, W.K. 1962. Nubia 1962 Excavations at Toshka and Arminna. *Expedition* 4, 36-46.
- Smith, H.S. 1976. Excavations at Buhen II. The Fortress of Buhen: The Inscriptions. Egypt Exploration Society Excavation Memoir 48. London: Egypt Exploration Society.
- Smith, S.T. 1995. Askut in Nubia. The Economics and Ideology of Egyptian Imperialism in the Second Millenium B.C. Studies in Egyptology. London: Kegan Paul International.
- Smith, S.T. 2003. Wretched Kush: Ethnic Identities and Boundaries in Egypt's Nubian Empire. London: Routledge.
- Smith, S.T. 2007. Death at Tombos: Pyramids, Iron, and the Rise of the Napatan Dynasty. *Sudan & Nubia* 11, 2-14.
- Smith, S.T. and Buzon, M. 2017. Colonial encounters at New Kingdom Tombos: Cultural entanglements and hybrid identity, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 615-630.

- Spence, K. and Rose, P. 2014. Fieldwork at Sesebi 2010, in: Anderson, J.A. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Studies on Egypt and Sudan 1. Leuven: Peeters, 409-415.
- Spencer, N. 2014. Amara West: Considerations on Urban Life in Colonial Kush, in: Anderson, J.D. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies*. British Museum Studies on Egypt and Sudan 1. Leuven: Peeters, 457-485.
- Spencer, N. 2017. Building on new ground: The foundation of a colonial town at Amara West, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 525-603.
- Steindorff, G. 1935. Aniba I. Service des Antiquités de l'Egypte. Mission Archéologique de Nubie 1929-1934. Glückstadt: J.J. Augustin.
- Steindorff, G. 1937. Aniba II. Service des Antiquités de l'Egypte. Mission Archéologique de Nubie 1929-1934. Glückstadt: J.J. Augustin.
- Török, L. 1997. *The Kingdom of Kush. Handbook of the Napatan-Meroitic Civilization*. Handbuch der Orientalistik 1.31. Leiden: Brill.
- Török, L. 2009. *Between Two Worlds. The Frontier Region between Ancient Nubia and Egypt 3700 BC – AD 500.* Probleme der Ägyptologie 29. Leiden: Brill.
- Vercoutter, J. 1975. *Mirgissa II. Les Nécropoles.* Mission Archéologique Française au Soudan sous la direction de Jean Vercoutter 2. Paris: Direction Général des Relations Culturelles, Scientifiques et Techniques, Ministère des Affaires Étrangères avec le concours du Centre National de la Recherche Scientifique.
- Vila, A. 1976. La prospection archéologique de la vallée du Nil au sud de la cataracte de Dal (Nubie soudanaise). Fascicule 4: District de Mograkka (Est et Ouest), District de Kosha (Est et Ouest). Paris: Centre Nationale de la Recherche Scientifique.
- Vincentelli, I. 2006. Hillat El-Arab. The Joint Sudanese-Italian Expedition in the Napatan Region, Sudan. Sudan Archaeological Research Society Publication 15. British Archaeological Reports International Series 1570. Oxford: Archaeopress.
- Von Pilgrim, C. 2015. An Authentication Sealing of the "Ruler of Kush" from Elephantine, in: Jimenez-Serrano, A. and von Pilgrim, C. (eds.), From the Delta to the Cataract: Studies Dedicated to Mohamed el-Bialy. Culture and History of the Ancient Near East 76. Leiden: Brill, 218-226.
- Welsby D.A. 2006. Excavations in the vicinity of ed-Doma (AKSE), 2005-2006. Sudan & Nubia 10, 15-19.

- Welsby, D.A. n.d. Corpus of Pottery from the Fourth Cataract. Informal publication for Merowe Dam Archaeological Salvage Project.
- Williams, B. 1983. Excavations Between Abu Simbel and the Sudan Frontier, Part 5: C-Group, Pan Grave, and Kerma Remains at Adindan Cemeteries T, K, U, and J. The University of Chicago Oriental Institute Nubian Expedition 5. Chicago: The Oriental Institute.
- Williams, B. 1986. Excavations Between Abu Simbel and the Sudan Frontier, Part I: The A-Group Royal Cemetery at Qustul: Cemetery L. The University of Chicago Oriental Institute Nubian Expedition 3. Chicago: The Oriental Institute.
- Williams, B. 1991. A Prospectus for Exploring the Historical Essence of Ancient Nubia, in Davies, W.V. (ed.), *Egypt and Africa. Nubia from Prehistory to Islam*. London: British Museum Press, 74-91.
- Williams, B. 1992. Excavations Between Abu Simbel and the Sudan Frontier, Part 6: New Kingdom Remains from Cemeteries R, V, S, and W at Qustul and Cemetery K at Adindan. The University of Chicago Oriental Institute Nubian Expedition 6. Chicago: The Oriental Institute.
- Williams, B. 1993. Excavations at Serra East, Parts 1-5: A-Group, C-Group, Pan-Grave, New Kingdom, and X-Group Remains from Cemeteries A-G and Rock Shelters. The University of Chicago Oriental Institute Nubian Expedition 10. Chicago: The Oriental Institute.
- Williams, B. 2007. The Adoption and Rejection of Egyptian Symbolic Culture in Nubia. Mélanges offerts à Francis Geus. Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille 26, 2006-2007, 399-410.
- Williams, B. 2013. Three Rulers of Nubia and the Early Middle Kingdom in Egypt. *Journal of Near Eastern Studies* 72, 1-10.
- Williams, B. 2014. Some Geographical and Political Aspects to Relations between Egypt and Nubia and C-Group and Kerma Times, ca. 2500-1500 B.C. *Journal of Ancient Egyptian Interconnections* 6, 1-14.

- Williams, B. 2017. The New Kingdom Town at Serra East and its cemetery, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 309-321.
- Williams, B. forthc. Excavations at Serra East, George R. Hughes and James Knudstad, Directors. Part 6: Middle Kingdom and New Kingdom Remains from the Fortress. The University of Chicago Oriental Institute Nubian Expedition 11. Chicago: The Oriental Institute.
- Williams, B. and Logan, T. 1978. The Identity of the Meritamun found by Winlock at Deir el Bahri. *Serapis* 4, 23-29.
- Winlock, H.E. 1932. *The Tomb of Queen Meryet-Amun at Thebes*. Publications of the Metropolitan Museum of Art Egyptian Expedition VI. New York: The Metropolitan Museum of Art.
- Zibelius-Chen, K. 2011. »Nubisches« Sprachmaterial in hieroglyphischen und hieratischen Texten. Personennamen, Appellativa, Phrasen von Neuen Reich bis in die napatanische und meroitische Zeit. Mit einem demotischen Anhang. Meroitica – Schriften zur altsudanesischen Geschichte und Archäologie 25. Wiesbaden: Harrassowitz.
- Zibelius-Chen, K. 2013. Nubien wird ägyptische Kolonie, in: Zibelius-Chen, K. and Wenig, S. (eds.), Die Kulturen Nubiens – ein afrikanisches Vermächtnis. Dettelbach: J.H. Roll, 135-155.

Notes on the contributor

Bruce Williams studied ancient Egyptian and Near Eastern archaeology at the University of Chicago. He has had major responsibility for publishing the work of the Oriental Institute Nubian Expedition's excavations during the 1960's, a continuing effort. In the last twenty years he has spent many field seasons in Sudan, including two as co-director of the Oriental Institute Nubian Expedition operations in the Fourth Cataract salvage.

AcrossBorders

Five seasons of work in the Pharaonic town, Sai Island

Julia Budka*

Abstract

The European Research Council AcrossBorders project has conducted five seasons of archaeological fieldwork on Sai since 2013. New excavation areas within the town were opened and added important knowledge concerning the general layout of the town, its evolution and changing character. Based on the fresh data from AcrossBorders' excavations, this paper presents an outline of the current state of knowledge regarding the evolution of the Pharaonic town on Sai Island and its potential for reconstructing the urban landscape of New Kingdom Kush. As is shown in the following, the New Kingdom building activity on Sai can be understood as exemplary for settlement policy of Egypt during this period in Upper Nubia.

Keywords: Sudan, Sai, Nubia, Kush, town, settlement, New Kingdom

Introduction

Sai Island, located in a strategic position just south of the Batn el-Hajar and thus between the Second and Third Cataracts (fig. 1), has been the focus of the European Research Council project AcrossBorders since 2013. The project aimed to provide new insights on the lifestyle and the living conditions in New Kingdom Nubia based on new fieldwork and multi-layered research on the island. Sai is one of the key sites to understand the settlement policy of New Kingdom Egypt in Upper Nubia, being a "bridge head" into the realm of Kerma (Davies 2005, 51; Budka 2015b, 40). Its significant role derives from a strong Kerma presence on the island prior to the New Kingdom (see Gratien 1986; Vercoutter 1986) and that both the town and cemetery of the 18th Dynasty can be investigated (Budka 2015a; 2017a, 71).

Like the other major settlements in Upper Nubia (Kush), Sai Island falls into the category of the so-called Nubian temple towns – fortified towns built in the New Kingdom with an enclosure wall and a sandstone temple (Kemp 1972, 651-656; Morris 2005, 5, see also Vieth in this volume). Temples as key elements of Egyptian towns are especially prominent in the Abri-Delgo Reach (Sesebi, Soleb, Tombos and Sai) from Thutmoside times onwards and seem to be connected with the character of the area as a rich gold ore region (see Klemm and Klemm 2013, 9 and *passim*). A common feature for the specific urban layout of temple towns is the limited domestic space, with much of the room instead occupied by storage facilities and magazines, putting these sites into direct connection with the Egyptian administration of Kush (Budka 2017b, 45). Until recently, most studies on these towns have therefore focused on the temples and their economic aspects from a broad perspective, leaving aside

*Institute of Egyptology and Coptology, Ludwig-Maximilians-Universität München, Katharina-von-Bora-Str. 10, 80333 Munich, Germany; Julia.Budka@lmu.de



Figure 1. Location of Sai Island in Northern Sudan and map of the island with the location of the New Kingdom town.

the specific microhistories of the major sites. Essential questions like the character and density of occupation still remain unclear (Budka 2015b, 41). Current excavations, especially in combination with landscape archaeology and various applications of archaeometry (*e.g.* Spencer *et al.* 2012; Budka 2015b; Spataro *et al.* 2015; Woodward *et al.* 2015), have rich potential to answer some of these open questions.

The AcrossBorders project has conducted five seasons of archaeological fieldwork on Sai from 2013 to 2017. Three new excavation areas within the town were opened (SAV1 East, SAV1 West and SAV1 Northeast) and added important knowledge concerning the general layout of the town, its evolution and changing character which will be highlighted in the following. The archaeological excavations were complemented with kite aerial photography, structure from motion approaches, terrestrial 3D laser scans, geoarchaeological surveys, micromorphological soil sampling and various archaeometric analyses of diverse materials (Adenstedt 2016; Budka 2017d; see also Fera and Geiger in this volume) which allow some new insights on the layout and function of the site.

The Egyptian town of Sai

The fortified Egyptian town was built on the eastern bank of the large island of Sai in the New Kingdom (fig. 1). This was probably the perfect place on the island from a strategic perspective, especially for controlling river traffic and to facilitate the landing and loading of ships (see below on sector SAV1 Northeast). The eastern part of the town steeply drops off towards the Nile, in some areas with a height difference of about 8m. The sandstone cliff here was also used for quarrying purposes (Budka 2017b, 49).

The Egyptian town of Sai has the shape of a fortified settlement with an orthogonal layout in a south-north direction, measuring 238m north-south and *c*. 118m eastwest, with a total of 27,600m² (2.76ha) (Adenstedt 2016, 24, fig. 7; Budka 2017a, 71; see also Adenstedt in this volume). The main city gate was located on the western side, opening to a main east-west axis leading to the stone temple, Temple A. Despite of clear evidence of urban planning, there are several different sectors within the town, which contrast regarding their layout and dating (Budka 2015b; 2017b) and will be presented in the following.





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The southern part with a temple and a residential quarter datable to the mid-18th Dynasty, labelled as SAV1, was investigated by a French Mission in the 1950s and 1970s (Azim 1975; Adenstedt 2016). The following features were identified as being contemporaneous and from Thutmoside times (fig. 3): the so-called governor's residence (SAF2) with a large columned hall (15.3 x 16.2m) and mud-brick paving in the east; a central

the New Kingdom fortified town were unexcavated and a detailed assessment of the entire town's evolution was not possible (see Budka and Doyen 2013, 181-182). With new fieldwork in various sectors and a detailed re-investigation of the southern area, a concise account of finds in all excavated parts (fig. 2) highlights some of the significant aspects of this Egyptian temple town, which are also relevant on a comparative level for other sites.

Prior to AcrossBorders' fieldwork, almost two thirds of



Figure 3. Reconstructed plan of SAV1 by Ingrid Adenstedt (© AcrossBorders).

domestic quarter H comprising a cluster of five houses (H1-H5); and a western quarter (SAF5), consisting of several rectangular storage rooms and circular silos (Azim 1975, 98, pl. 4; for new details see Adenstedt 2016). Parallels for such a layout can be found at other New Kingdom temple towns, especially at Buhen, Amara West and Sesebi (Kemp 1972, 651-653; Morris 2005, 195-197). Domestic space is limited at all of these sites, whereas much room is occupied by storage facilities and magazines. At Sai, about one half of the area, the western side of SAV1, is designated as storage area with several rows of magazines; the residential area is restricted to the eastern part with the smaller houses H1-H5 and the so-called governor's palace SAF2 (Adenstedt 2016; Budka 2017b, 49).

The small sandstone temple of Sai, Temple A, with a width of *c*. 10m, finds close parallels on other Egyptian sites in Nubia (in particular Kumma). Several building phases under the reign of Thutmose III are attested by foundation deposits (Azim and Carlotti 2012, 39, 45) and a building inscription (S. 1) by viceroy Nehy (Davies 2014, 7-8, with references). Some additions were undertaken by viceroy Usersatet during the reign of Amenhotep II (Azim

and Carlotti 2012, 46-47; Gabolde 2012, 137; Davies 2017, 145). Amenhotep III was responsible for the final construction and decoration phase of Temple A (Azim and Carlotti 2012, 47, pl. XVI-b) which was primarily dedicated to Amun-Ra, but also to 'Horus the Bull, Lord of Ta-Seti'. The identity of 'Horus the Bull, Lord of Ta-Seti' has been a matter of divergent discussion among scholars. Florence Thill has argued that this deity is not a local Horus deity as commonly believed, but rather a manifestation of Thutmose III himself (Thill 2016, 263-304). Following this identification, Temple A illustrates a close connection of the temple cult on Sai to kingship and the living ruler (Budka 2017c, 34). The general invocation of divine royalty and the cult of royal ancestors are evident at Sai from the very beginning of the New Kingdom since two heb-sed statues of Ahmose Nebpehtyra (Khartoum SNM 3828 & 63/4/4) and Amenhotep I (Khartoum 63/4/5) were found on the island (see Gabolde 2012, 118-126; Budka and Doyen 2013, 170, with further references). The architectural context in which these royal statues were originally set up is still debated, but a small mudbrick chapel, probably a hwt-ka in the general temple area, seems the most likely (Budka 2015a, 76-80; 2017c).

Thanks to a new architectural study by Ingrid Adenstedt within the framework of AcrossBorders and based on a 3D laser scanning campaign conducted in 2014, the southern sector of the Egyptian town of Sai was recently published as representative Pharaonic architecture in Nubia (fig. 3, see Adenstedt 2016). Her reassessment of SAV1 has produced several new results, which are relevant for a better understanding of the town layout. Especially relevant are here (Adenstedt 2016, 69-70): a) the area SAF3 by Azim is not part of the original Pharaonic architecture but of later date (which is significant for the reconstruction of the eastern town enclosure, see Adenstedt in this volume); b) a clarification of the plan of the storage area SAF5 with some newly reconstructed magazines; c) a 3D reconstruction of the houses H1-H5 and the governor's residence SAF2. The 3D reconstruction of the bastioned enclosure wall is mainly based on comparative studies and still raises some questions (see Adenstedt in this volume).

Northern sector (SAV1 North)

From 2008-2012, fieldwork was conducted by the Sai Island Archaeological Mission of Lille 3 along the northern enclosure wall, at a site named SAV1 North. Several building phases from the early 18th Dynasty to Ramesside times and post-New Kingdom eras were documented (Doyen 2009, 17-20; Budka and Doyen 2013, 168-171; Doyen 2014, 367-375; Budka 2017d). The earliest strata at SAV1 North (Levels 5 and 4), which would be essential for identifying the founder of the town, are only scarce architectural remains and some occupational deposits. The initial sequence of Egyptian occupation on Sai is, therefore, hard to reconstruct in this area and mostly relies on the ceramic evidence which attests to an Egyptian presence already during the reigns of Ahmose Nebpehtyra and Amenhotep I (Budka 2016). Most important at SAV1 North was the discovery of remains of the enclosure wall at a length of 39.32m, being 4.26m thick and belonging to Level 3 of the area. No gate was discovered in this part of the town wall. Thanks to stratigraphic evidence and the pottery, this enclosure can be dated to the second half of the long reign of Thutmose III (Budka and Doyen 2013, 168-171; see also Adenstedt in this volume).

Interestingly, the architectural remains in sector SAV1 North adjacent to the town wall do not correspond to the general town planning visible in the southern sector (Budka 2017d, 171-175). The structures are markedly different, but find close parallels in the new excavation area SAV1 West (see below). The building units at SAV1 North include typical Egyptian tripartite houses, considerably smaller than the houses in SAV1, but similar to houses in Middle Kingdom Nubian fortresses (*e.g.* at Uronarti and Buhen). Other buildings units at SAV1 North do not find close parallels within Egyptian orthogonal settlements, distinct in both size and ground plan from the houses in SAV1. Thus, SAV1 North nicely illustrates that within the town of Sai there are several different sectors that contrast regarding their layout and presumably also concerning their function (Budka 2017d, 176-177).

Northeastern sector (SAV1 Northeast)

Of the fortification walls surrounding the town, remains on the north and south sides were known prior to Across-Borders fieldwork (see Adenstedt in this volume). In regard to the eastern side, it was assumed that this part of the former city wall had collapsed into the Nile (Geus 2004, 115, fig. 89, based on the reconstruction by Azim 1975, 94, pl. 2). Recent fieldwork and geological surveys of the sandstone cliff by AcrossBorders allowed a modification of this assessment (Budka 2014, 60; 2015b, 41), evaluating severe erosion in this part of the island as highly unlikely, based on the observation of the low incision rate of the Nile (Draganits 2014, 22). Additional arguments are the existence of a broad Nile terrace east of the Pharaonic site and the presence of Nubian sandstone without indications for slope failure below the town.1 In line with this, the steep cliff at the north-eastern corner of the town, site 8-B-522, clearly functioned as mooring area in Christian times, as is well attested by medieval graffiti and mooring rings carved out of the rock for tying ships' ropes at a very high level of the cliff (Hafsaas-Tsakos and Tsakos 2012, 85-87). This usage might go back as early as the New Kingdom (Budka 2017a, 71). A Pharaonic landing place at 8-B-522, presumably at a lower level than the Christian one,² is therefore likely, suggesting that the eastern perimeter wall was located further towards the west and might be traceable after all.

In this respect, "negative linear anomalies" visible on the geophysics survey map from 2011 (Budka 2017e, 429, fig. 1) and tentatively identified as a possible extension of the north-south street, Rue NS1 of Azim (Crabb and Hay 2011, 16_{13}^{3} on this street see most recently Adenstedt 2016, 32) were of interest. In 2016, a 15 x 3m test trench labelled Trench 1 of site SAV1 Northeast was opened by AcrossBorders above these anomalies on the slight slope of the east side close to the presumed north-eastern corner

¹ AcrossBorders' geoarchaeological research was conducted by Erich Draganits in 2014 and by Sayantani Neogi in 2015. Many thanks go to Dietrich and Rosemarie Klemm for helping with questions about the harbour and quarry sites in 2016.

² The Christian graffiti are commemorating '*exceptional high waters* of the Nile' (Hafsaas-Tsakos and Tsakos 2012, 86, with further references).

³ The magnetometer survey was conducted by Sophie Hay and Nicolas Crabb, British School at Rome and the University of Southampton; I would like to thank Didier Devauchelle as the responsible director of the Sai Island Archaeological Mission for the possibility to use these data.

of the town (see fig. 2). Although only scarce remains of brick work were found, Trench 1 indeed yielded the remains of the city wall of Sai, allowing the reconstruction of the eastern side with a width of c. 4.3m, corresponding to the previously unearthed parts of the town enclosure (see Adenstedt in this volume). Associated pottery suggests a dating of the remains in SAV1 Northeast to the mid-18th Dynasty (Thutmoside). Based on this new discovery, the fortified New Kingdom settlement measures 242m north-south and only between 118-120m east-west, giving a total town area of 27,600m² (2.76ha) (Adenstedt 2016, 24, fig. 7).

Eastern sector (SAV1 East)

Aiming to achieve a more complete understanding of the layout of the 18th Dynasty occupation at Sai, a new excavation area was opened in 2013 (SAV1 East), 30-50m north of Temple A at the eastern edge of the town (fig. 2). The squares are located where the outline of an orthogonal building was visible on the geophysical survey map from 2011 (see Crabb and Hay 2011). This structure seemed to be aligned with Temple A and the main north-south street, following the orientation of the buildings in the southern part of the town (SAV1) and suggesting an 18th Dynasty date (Budka 2013, 80-81). Fieldwork in SAV1 East was conducted from 2013 to 2017, opening four different squares with various extensions (fig. 4). The area provides essential new information on the city map of Sai.

The earliest remains at SAV1 East

Early occupation remains with a number of small huts, workshop-like structures and storage facilities were unearthed by Michel Azim in the zone between Temple A and the new site (SAV1 East). In his publication of the structures, Azim could show that the remains are earlier than the stone temple, thus pre-dating Thutmose III (Azim and Carlotti 2012, 34-36). Azim proposed a dating prior to the New Kingdom, based on Kerma ceramics found associated with the structures and through comparison with similar structures at the Kerma village of Gism el-Arba (see Gratien 1995, 5-65; Gratien *et al.* 2003, 29-43; 2008, 21-35 and Azim and Carlotti 2012, 35, note 59; see also Budka 2017e, 431-432).



Figure 4. Sector SAV1 East, status of 2017.



Figure 5. Overview of southern part of sector SAV1 East (status 2015) with Feature 57 in Squares 2A and 4A. Note its parallel alignment to the later foundation trenches of Building A visible on the top (photo: M. Fera, AcrossBorders project).

New evidence from SAV1 East allows linking the earliest levels there with this horizon around Temple A, thought to be of Kerma origin. A small plaster coated storage bin (Feature 14) still held two complete pottery vessels in situ, permitting a dating to the early 18th Dynasty, excluding the Second Intermediate Period (Budka 2013, 82; 2017e, 432-433, figs. 4-5). Several fragments of Kerma vessels have also been found. Based on the associated Egyptian material, these Kerma sherds can be dated to the early 18th Dynasty (maximum up to Thutmose III). Consequently, it has to be stressed that there is no evidence for pre-18th Dynasty occupation at SAV1 East or around the Temple A. In this part of the New Kingdom town, there is no Kerma level predating the Egyptian occupation (Budka 2017e, 432). The earliest remains in the as yet exposed parts of the town, comprising primarily workshop-like structures and storage facilities, date back to the time span of Ahmose Nebpehtyra up to Thutmose I.

As was already mentioned, these early remains around Temple A and in the southern part of SAV1 East yielded Egyptian material as well as a considerable amount of Nubian pottery, in particular Kerma Classique blacktopped wares. It is highly significant that this horizon of early New Kingdom Sai also seems to exhibit a mixture of different building techniques. As will be shown below, the

dominant features excavated in SAV1 East are of typical Egyptian architecture and compare well to SAV1, the southern part of the town, mainly comprising mudbrick walls, mud floors as well as schist pavements and large vaulted magazines and cellars. However, one fragmentary preserved part of a wall located in the southern part of SAV1 East raises several questions. Although the state of preservation is rather poor, a sequence of the walls and floors could be established in Square 4 and Square 4A. Feature 57 is a dry-stone terracing wall, measuring 5.40 x 0.60m, located in Squares 4A and Square 2A (fig. 4). Unfortunately, it disappears in the southern baulk of SAV1 East (Square 4A). It runs almost east-west and was set against the natural pebble which is sloping towards the south in this part if the site. Feature 57 is comprised of irregular stones, whereby mainly sandstone fragments were used (various sizes from 20 x 24 x 15cm to 50 x 25 x 20cm). On top of the stones, some mudbricks were laid in a row of headers. Only in the western part of Feature 57 two layers are preserved, suggesting the size of the bricks (33 x 15 x 10cm). Because some mud pavements are preserved and connected to the dry-stone wall, the relative dating of Feature 57 is secure: it is earlier than Building A (see below) and thus most probably dates to the early phase of SAV1 East, Ahmose Nebpehtyra up to Thutmose I (Budka 2014, 61-62).

The mudbricks on top of the stones of Feature 57 are badly preserved (fig. 5) – their appearance is very different from regular freestanding bricks, also well attested in SAV1 East. For me, a relation to the *galoos* technique of the Kerma culture is very likely. In no other parts of the New Kingdom town did we find any dry-stone walls in combination with mud. This building technique is, however, very well attested at Kerma itself (see Bonnet in this volume) and might represent the material evidence for cultural entanglement in the early 18th Dynasty on Sai.

To conclude, the earliest remains at SAV1 East date to the early 18th Dynasty, most likely to the reign of Ahmose Nebpehtyra (cf. Budka 2016). The Kerma sherds discovered at SAV1 East are associated with early 18th Dynasty material and they do not attest a pre-New Kingdom activity at the site. The area unearthed by AcrossBorders in the southern part of sector SAV1 East as well as the domestic zone excavated around Temple A by Azim can, therefore, be safely interpreted as part of the newly founded Egyptian town. Remarkable at this early stage of the town is the presence of Nubian pottery and maybe also a Nubian influence in building technique which are probably associated with Kerma Nubians living on the island and getting involved with the Egyptians from the very beginning of the new settlement onwards. It is furthermore striking that the general pattern of this early phase (e.g. Feature 57, but also Feature 15 in its early stage, see below) already mirror the east-west orientation of the walls of later buildings of purely Egyptian style.

Building A

In the northern area of SAV1 East, regular outlines filled with sand were revealed just below the surface. These are the negative outlines visible as anomalies on the magnetometer survey map (Budka 2017e, 429, fig. 1). The Pharaonic building material, once forming the walls, had been removed almost completely, destruction events that can be dated to medieval and Ottoman times. The upper levels of SAV1 East are dominated by a destruction layer with mudbrick fragments, charcoal, pottery and worked stones. This layer was up to 40-50cm thick and yielded abundant stone tools, lots of ceramics and other materials. The material is of a mixed character and the latest finds date to the Ottoman Period. A large percentage of 18th Dynasty ceramics indicates that the later destruction is situated directly on the Pharaonic remains.

Excavations in 2013 and 2014 confirmed the orthogonal outline, alignment and date of a large structure labelled Building A of the mid-18th Dynasty (Budka 2013, 78-87; 2014, 62-63). Since 2015 work at SAV1 East focused on the western side and the southwestern corner of this building as well as adjacent southern structures.

Building A is built on terraces with the lowest part in the east and much higher levels in the west. The entrance

rooms, of which only scarce traces have survived, were situated in the west, giving access from the main northsouth street NS 1. The key element of Building A is a large central courtyard ($12.4 \times 16.2m$) flanked by a lateral room or corridor towards the east and north. The most interesting find was a subterranean room, Feature 15, located in this courtyard (see below). Although the state of preservation is in general very fragmentary, the outline of Building A could be reconstructed and is similar to SAF2, the governor's residence (Budka 2013, 85, fig. 12; 2017e, 435).

Ceramics from the foundation trench of one of the walls of Building A allow a dating for the building into the 18th Dynasty, probably not earlier than Thutmose III and with several building phases (Budka 2013, 84). Building A at SAV1 East, therefore, belongs to the major remodelling of Sai during the reign of Thutmose III. It is contemporaneous with Temple A and the structures in the southern part of the town including SAF2.

Cellars and storage installations

Dug into the natural gravel deposit, several large New Kingdom storage installations of a rectangular shape with a vaulted roof were discovered in SAV1 East. One was excavated completely in 2016, situated in Building A: Feature 15 (5.6 x 2.2 x 1.2m) yielded a large quantity of seal impressions, complete pottery vessels and other finds (see Budka 2015b). Ashy deposits, large amounts of charcoal, hundreds of doum-palm fruits, abundant animal bones with traces of burning, more than 80 almost intact vessels and c. 200 remains of scarab seals on clay sealings make Feature 15 a context rich in information. The sealings are of special importance, being the first corpus of sealings ever found within the New Kingdom town of Sai and comprising a large number of royal names (Amenhotep I, Hatshepsut and Thutmose III) as well as various floral decorations in a style typical for the Second Intermediate Period (Budka 2015b, 45).

The excavations of Feature 15 were completed in 2016 and work subsequently focused on remains unearthed in Squares 4B, 4B1 and 4C, the westernmost area of SAV1 East. In the southwestern corner of Square 4C, a large sandstone block was found dumped between mudbrick debris. Adjacent to the east of this block, the last remains of a large mudbrick wall were unearthed, running almost north-south and thus with a similar alignment to Building A. Still attached to the small section of this wall was a plate of schist and large quantities of plaster, representing in situ remains of a large room with a schist pavement (Budka 2017a, 73). Because of its position in the southwestern corner and the baulk of Square 4C, these remains required an extension in order to be contextualised. This was the chief aim of the 2017 season at SAV1 East. A new Square 4D was added into the southwestern corner of Square 4C, comprising 6.5 x 9m and therefore including anomalies visible on the map of the geophysical survey from 2011 which also needed to be tested (Budka 2017a, 73-75).

The upper levels of the new Square 4D were dominated by a substantial amount of collapsed mudbricks and schist and plaster fragments. These are obviously the remains of a large area originally covered by a schist pavement, heavily disturbed during later times, as was already implied by the remains in Square 4C. Similar to other areas in SAV1 East, the material is of a mixed character and although most of the ceramics date to the 18th Dynasty, medieval and Ottoman material is also present. The large percentage of 18th Dynasty ceramics indicates that the later destruction is situated directly on the Pharaonic remains, as was clarified in other parts of SAV1 East. A sandy depression was soon noticed in the southern part of the new square. During excavation, it was identified as a large, rectangular cellar with an east-west alignment (Feature 83), filled with mixed material, especially mudbricks, worked stone and schist slabs in its upper part. The structure measures 3.3 x 1.8m and has a preserved height of 2m. Feature 83 was cut into the natural ground, which consists of pebble terraces. Its rectangular outline was lined with mudbricks, the roof was formed by a vault. Of the latter, the lower part and the negative of the eastern narrow side have survived. A substantial amount of collapsed bricks was found in large piles on top of the floor. Interestingly, most of the bricks show marks (parallel longitudinal grooves), known from other contexts in the New Kingdom town (Budka 2017a, 73). It is remarkable that these contexts with such brick marks (the northern enclosure wall, building units of Level 3 at SAV1 North and structures from the southern sector, see Azim 1975, 102, pl. 6; Budka 2017d, 24-26) can all be dated to Thutmoside times. Such a dating for Feature 83 is further supported by smashed pottery vessels which were found below the collapsed bricks on the floor. They clearly belong to the latest phase of use of the structure and can be dated to the mid-18th Dynasty (Budka 2017a, 73). Therefore, Feature 83 is comparable to the considerably larger Feature 15, also regarding its phases of use (see Budka 2015a, 43-45).

Another cellar, Feature 85, was discovered in 2017, situated in the northern part of Square 4D, next to Feature 83 (fig. 4). It is much better preserved than the southern cellar, and has the same east-west alignment, of similar dimensions $(3.7 \times 1.5 \times 2.05m)$ and the same building technique. Whereas the upper part of Feature 83 was extensively disturbed, Feature 85 is clearly situated below the schist pavement unearthed in Square 4C – a large amount of collapsed schist slabs was recovered in its eastern part, complementing the slabs still *in situ* within the pavement above. Its central part is still intact including the vault, but the eastern and western ends have collapsed, including the sidewalls. The corresponding mudbricks in particular filled the western part, again featuring the

parallel longitudinal grooves. Feature 85 is, according to the preliminary assessment of the pottery from its undisturbed lower fillings, contemporary with Feature 83 (and Feature 15), with material from the abandonment phase datable to the mid-18th Dynasty.

The large cellars and magazines at sector SAV1 East illustrate that, as is a common feature of the so-called temple towns, domestic space is quite limited, but much room is occupied by storage facilities, magazines and cellars (see Adenstedt 2016, 54, fig. 16). Located close to Temple A, the two new cellars (Feature 83 and 85) discovered below the schist floors of large rectangular magazines further support the functional interpretation of SAV1 East (Budka 2017a, 73-75). This part of the fortified town of Sai was clearly related to the storage and distribution of products, thus possibly in close connection with the temple. SAV1 East, therefore, nicely ties in with the southern sector and exemplifies the main characteristics of Sai as a planned Egyptian temple town. Parallels, presumably of a later date, can be found in the temple town of Sesebi (Blackman 1937, 149-150; Fairman 1938, 152) and at Qubban (Emery and Kirwan 1935, 36-37, fig. 12). The best preserved cellar at SAV1 East, Feature 15, illustrates furthermore the strong links between these storage installations and the local temple - the main phases of use of Feature 15 mirror the building phases of Temple A and its surroundings (Azim and Carlotti 2011-2012, 39-46; see Budka 2015b).

The main building levels of SAV1 East

Thanks to stratigraphic sequences, especially from Feature 15, several phases of use can be reconstructed for Building A and SAV1 East (Budka 2015b, 45). It is particularly significant that Feature 15 was integrated in Building A in a later phase – the cellar obviously already existed in an earlier phase and was well in use during the time of Hatshepsut. It is tempting to associate this early use of Feature 15 with the early strata in SAV1 East and around Temple A comprising storage facilities from the beginning of the 18th Dynasty. These installations might be directly related to the assumed landing place below the eastern side of the town and are relevant for understanding the nature of the Egyptian presence in Upper Nubia in the first half of the 18th Dynasty. The later phases of use at SAV1 East mainly comprise the mid and late 18th Dynasty - corresponding to the periods of building activity at Temple A and in the southern sector. Building A and the integration of Feature 15 into its courtyard as well as the large magazines and cellars Features 83 and 85 can be associated with the reign of Thutmose III.

Western sector (SAV1 West)

Searching for the town enclosure, its date, structure and stratigraphic position, a new site, SAV1 West was



Figure 6. Sector SAV1 West, status of 2017.

opened in line with the western town gate in 2014 (Budka 2014, 63-65). Two trenches were laid out, Square 1 (10 x 10m) and Square 2 (5 x 15m). A western (Square 1W, 5 x 10m) and north-western extension (Square 1NW, 2 x 5m) had to be added to Square 1 because of the discovery of brick work at the edge of the trench (Budka 2014). In 2015, a new southern extension to Square 1 was opened - Square 1S (10 x 10m). This Square was extended towards the southeast in 2016 with Square 1SE (6 x 10m). Finally, in 2017 a small eastern extension (3 x 5m) labelled as Square 1SE_E was added to Square 1SE (fig. 6). Both the New Kingdom town enclosure and the contemporaneous remains on the inner side of this wall were investigated in the four seasons of work at SAV1 West (fig. 6). Despite much ancient destruction and disturbance, the complete thickness of the town wall (Feature 100) is visible (4.3-4.5m) its alignment follows exactly the plan as assumed by previous surveying of French colleagues (see Azim 1975, 94, pl. 2, 120-122; also Adenstedt in this volume).

In the eastern half of both Squares 1 and 1S, *in situ* New Kingdom structures were exposed. The gap between the various north-south walls and the enclosure wall nicely corresponds to a suitable width for a "wall street" running along the enclosure wall. Such a small lane was already noted by Azim (1975, pl. 6) in the southern part and by Doyen (2014, 368, fig. 1) in the northern part. Several floor levels and ashy layers attest to a multi-period use of the small buildings in the eastern part of SAV1 West. According to the pottery, these date to the mid-18th Dynasty, staying in use until the late 18th Dynasty and possibly also until the early Ramesside period. The modest walls of half-brick thickness include open courtyard areas, enclosed small cellars and other installations, such as a quern emplacement.

In 2017, a building phase prior to the town wall was confirmed at SAV1 West: midden deposits below the "wall street" as well as scarce traces of simple mudbrick structures comparable to finds in SAV1 North are clearly earlier than the town wall. The limited exposed sections do not allow detailed information about this early building phase in the western town sector, but the comparison with SAV1 North suggests some simple style buildings for housing and workshop purposes (Budka 2017a, 73).

All in all, the remains of the 18^{th} Dynasty structures along the enclosure wall in SAV1 West are very similar

to findings in SAV1 North (Budka and Doyen 2013, 171-177). Both areas within the Pharaonic town are markedly different from SAV1 and SAV1 East – there are no large structures of a possible administrative function and no substantial magazines, but rather simple domestic buildings of small dimensions with oven installations, grindstone emplacements, small-sized cellars and storage bins.

To the west of the newly exposed section of the western town wall, a ditch was observed similar to findings at the main city gate by Azim (1975, 121-122). A sequence of augering transects, conducted in 2016 by Sayantani Neogi and Sean Taylor, confirmed a sand filled depression of at least 3.4m in depth. It is likely that the alluvium extracted to create this ditch was used as source of raw material for the mudbricks of the town (see Adenstedt in this volume). At present, it remains unclear whether this deep ditch in front of the western enclosure of Sai also had a defensive character (cf. Morris 2005, 98, for the otherwise non-defensive aspects of newly built New Kingdom temple towns in Nubia). Irrespective of this, the diverse environmental conditions of the two sites SAV1 West and SAV1 East, the latter being situated above the sandstone cliff, the former on top of an alluvial deposit, are very obvious.

Summary of fieldwork in the New Kingdom town

The Egyptian temple town of Sai can now be safely reconstructed as taking up a width of c. 120m, with traces of the eastern town wall located in sector SAV1 Northeast. Its urban planning and orthogonal layout is evident in the southern part and can also be traced in SAV1 East. However, a comparison of all excavated parts of the town area nicely illustrates that there are considerable differences between the individual sectors. Although this may partly be explained by a slight variance in dating, it seems to be a distinct feature of the site. Sai Island can, therefore, be taken as another example for an Egyptian walled town in which real developments may differ significantly from theoretical urban planning. A dissonance of houses from "standard types" was also recorded at the neighbouring site of Amara West and was in general probably actually common in Egyptian towns (Spencer 2014, 201-202). Sectors SAV1 North and SAV1 West of Sai particularly exemplify shortterm buildings and complicated processes within one complex town area which was part of a very dynamic world with remarkable changes during the New Kingdom.

The evolution of Sai Island in Pharaonic times and especially its development from the early 18th Dynasty to the Ramesside era can now be traced in its most important phases. As suggested by textual evidence and finds from the pyramid cemetery SAC5, Sai Island was the administrative centre of Upper Nubia (Kush) during the Thutmoside Period and the predecessor of Soleb and Amara West

(Minault-Gout and Thill 2012, 415, fn. 27; Budka 2013, 78-87; 2014, 57; 2015a, 74-81). Sector SAV1 East seems to markedly illustrate the change of occupation with the long-term installation of the Egyptian administration on Sai after the defeat of the Kerma Kingdom by Thutmose III. Whereas in the early levels the sector has parallels with SAV1 North, probably associated with the role of a simple landing place, the character of the site changed in Thutmoside times. Building A and large sized cellars testify a close connection to the stone temple and can only be explained by the function of the town itself as administrative headquarter of the Egyptian occupation in Kush (Budka 2017a, 80). For the understanding of the internal structure of the town, it is important that the remains at SAV1 East allow a reconstruction of the orthogonal layout known from the southern part of the town as extending further towards the north, beyond Temple A. As mentioned above, sectors SAV1 North and SAV1 West illustrate the dynamic elements within Egyptian town planning with slight alternations from standard plans of buildings.

An Egyptian microcosm in New Kingdom Kush

The new information from Sai seems to be highly relevant for understanding distinct phases of the Egyptian occupation in Upper Nubia. Evidence from Sai suggests that the Egyptian sites were largely depending on Egypt in the early 18th Dynasty – the region was centrally administered, and supplies were brought from Egypt (Budka 2016; 2017e). Besides the importance of seizing Sai, which was the northern stronghold of the Kerma empire, the Egyptians seem to have preferred the site also because of natural resources of the area. Egypt's strong interest in gold and sandstone is well known and both materials are available in the region of Sai. Nubian gold was among the main Egyptian economic interests during a long time span (cf. Müller 2013, 74-79).

Reconstructing life on Pharaonic Sai has made considerable progress in the last few years and there is new information for the complex evolution of the Pharaonic town thanks to the application of diverse methods and extended fieldwork in the town, as well as in the main pyramid cemetery, SAC5 (see Budka Tomb 26 in this volume). The following three main phases are proposed for the development of the town (see Budka 2015b; 2017a, 79-80):

Phase A. In the early 18th Dynasty, Sai was probably not much more than a simple landing place, a bridgehead and supply base for the Egyptians during the reigns of Ahmose Nebpehtyra, Amenhotep I and Thutmose I. This is supported by new archaeological evidence from SAV1 East and around Temple A. Scattered proof of Egyptian presence comes from the reign of Hatshepsut. The size and internal structure of the town at this early stage remains unclear; there is no sign of an enclosure wall, although occupation remains were discovered in 2017 at sector SAV1 West parallel to the town wall. One can only speculate that if an enclosure of this early phase existed, it probably had different dimensions like the one established in Phase B.

Phase B. The 240 x 120m large walled settlement with buttresses and the main city gate in the west was established (or maybe re-established?) during the time of Thutmose III, after the defeat of the Kerma Kingdom. The site turned into an important administrative centre with an Amun-Re temple, a governor's residence (SAF2) and an administrative building (Building A). The dating of the foundation of the town wall of this phase is now confirmed thanks to recent work in SAV1 West. The enlargement of the site goes hand in hand with an increasing complexity with varied lifestyles amongst the inhabitants, suggesting a complex social stratification. Sai Island was now the administrative headquarter of Upper Nubia and continued to flourish until the reign of Amenhotep III.

Phase C. New finds from both the town site and cemetery SAC5 stress the importance of Sai during the 19th Dynasty. The island was still used by high officials including one of the deputies of Kush as burial place. These fresh data add to our knowledge of events in early Ramesside times in Upper Nubia and illustrate that our present understanding is far from complete, especially concerning regional contacts between the Egyptian sites.

These phases based on the archaeological and textual evidence from Sai Island are of relevance in a broader context and will also allow a better understanding of the relations of Upper Nubia with Egypt. For example, Phase B mirrors – on the meso level – the installation of a permanent Egyptian administration for the region of Kush. At all major sites, Egyptian architecture and material culture testify to the presence of Egyptians during this period and to the appropriation of Egyptian style though indigenous elements, resulting in a complex material entanglement of cultures and a lifestyle that is very similar, but not completely identical to sites in Egypt proper (Budka 2017f).

Processing the data from the excavations of the Across-Borders project is still ongoing and will hopefully allow reconstructing additional aspects of the urban landscape of Kush in the near future. Much potential particularly lies in the contents of the large cellars of SAV1 East, Feature 15, Features 83 and 85, since they represent undisturbed contexts from the 18th Dynasty.

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References

- Adenstedt, I. 2016. Reconstructing Pharaonic Architecture in Nubia: The Case Study of SAV1, Sai Island. Contributions to the Archaeology of Egypt and Nubia 3. Vienna: Austrian Academy of Sciences Press.
- Azim, M. 1975. Quatre campagnes de fouilles sur la Forteresse de Saï, 1970-1973. 1^{ère} partie: l'installation pharaonique. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 3, 91-125.
- Azim, M. and J.-F. Carlotti 2012. Le temple à de l'île de Saï et ses abords. *Cahiers de Recherches de l'Institut de Papy*rologie et d'Égyptologie de Lille 29, 2011-2012, 11-63.
- Blackman, A.M. 1937. Preliminary Report on the Excavations at Sesebi, Northern Province, Anglo-Egyptian Sudan, 1936-1937. *Journal of Egyptian Archaeology* 23, 145-151.
- Bonnet, C. 2012. Les grands monuments égyptiens et nubiens du début de la XVIII^e dynastie sur le site de Doukki Gel (Kerma). *Bulletin de l'Institut français d'archéologie orientale* 112, 57-75.
- Budka, J. 2013. Die 18. Dynastie auf Sai Island (Nordsudan) – neue Puzzlesteine als Ergebnisse der Feldkampagne 2013. Sokar 26, 78-87.
- Budka, J. 2014. The New Kingdom in Nubia: New results from current excavations on Sai Island. *Egitto e Vicino Oriente* 37, 55-87.
- Budka, J. 2015a. The Egyptian "Re-conquest of Nubia" in the New Kingdom – Some Thoughts on the Legitimization of Pharaonic Power in the South, in: Coppens, F., Janák, J. and Vymazalová, H. (eds.), Royal versus Divine Authority. Acquisition, Legitimization and Renewal of Power, 7th Symposium on Egyptian Royal Ideology, Prague, June 26-28, 2013. Königtum, Staat und Gesellschaft früher Hochkulturen 4.4. Wiesbaden: Harrassowitz, 63-82.
- Budka, J. 2015b. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2016. The New Kingdom town on Sai Island establishing the date of its foundation: potential and limits of ceramic studies. *Cahier de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 30, 2013-2015, 45-63.
- Budka, J. 2017a. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Budka, J. 2017b. The Egyptian Town on Sai Island, in: Fantusati, E. and Baldi, M. (eds.), *Proceedings of the Fifth Day for Nubian Studies*. Serie Orientale Roma 9. Rome: Scienze e Lettere, 45-60.
- Budka, J. 2017c. Constructing Royal Authority in New Kingdom Towns in Nubia: Some Thoughts Based on Inscribed Monuments from Private Residences, in: Bács, T. and Beinlich, H. (eds.), *Constructing Authority. Prestige*,

Reputation and the Perception of Power in Egyptian Kingship. 8th Symposium on Egyptian Royal Ideology. Budapest, May 12-14, 2016. Königtum, Staat und Gesellschaft früher Hochkulturen 4.5. Wiesbaden: Harrassowitz, 29-45.

- Budka, J. 2017d (ed.). *AcrossBorders I. The New Kingdom Town of Sai Island, Sector SAV1 North.* Contributions to the Archaeology of Egypt, Nubia and the Levant 4. Vienna: Austrian Academy of Sciences Press.
- Budka, J. 2017e. Life in the New Kingdom town of Sai Island: some new perspectives, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 429-447.
- Budka, J. 2017f. Crossing Borders. Settlement Archaeology in Egypt and Sudan. *Near Eastern Archaeology* 80.1, 14-21.
- Budka, J. and Doyen, F. 2013. Living in New Kingdom towns in Upper Nubia – New evidence from recent excavations on Sai Island. *Egypt and the Levant* 22/23, 2012/2013, 167-208.
- Davies, W.V. 2005. Egypt and Nubia. Conflict with the Kingdom of Kush, in: Roehrig, C.H., Dreyfus, R. and Keller, C.A. (eds.), *Hatshepsut: From Queen to Pharaoh*. New York: Metropolitan Museum of Art, 49-56.
- Davies, W.V. 2014. From Halfa to Kareima: F. W. Green in Sudan. Sudan & Nubia 18, 2-19.
- Davies, W.V. 2017. A statue-cache from Sai: Putting the pieces together, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 133-148.
- Doyen, F. 2009. The New Kingdom Town on Sai Island (Northern Sudan). Sudan & Nubia 13, 17-20.
- Doyen, F. 2014. Sai Island New Kingdom Town (Northern Sudan): 3rd and 4th Seasons (2009–2010), in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 367-375.
- Draganits, E. 2014. Geoarchaeological Investigations on Sai Island, in: Budka, J. (ed.), AcrossBorders. Fieldwork 2014 on Sai Island (North Province, Sudan), 20-22. [online: http:// acrossborders.oeaw.ac.at/wp-content/uploads/2014/03/ AcrossBorders-Fieldwork-Report-2014.pdf]
- Emery, W.B. and Kirwan, L.P. 1935. *The Excavations* and Survey between Wadi es-Sebua and Adindan 1929-1931. Service des Antiquités de l'Egypte. Mission archéologique de Nubie 1929-1934. Cairo: Government Press, Bulâq.
- Geus, F. 1996. Les nouvelles fouilles de l'île de Saï. Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres 140.4, 1165-1195.

- Geus, F. 2004. Sai, in: Welsby, D.A. and Anderson, J.R. (eds.), Sudan – Ancient Treasures: An Exhibition of Recent Discoveries from the Sudan National Museum. London: British Museum Press, 114-117.
- Geus, F. 2012. Sai 2003-2004. Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille 29, 2011-2012, 151-172.
- Gratien, B. 1986. *Saï I. La nécropole Kerma*. Paris: Editions du Centre national de la recherche scientifique.
- Gratien, B. 1995. Gism el-Arba, un habitat Kerma. Les niveaux tardifs. Actes de la VIII^e conférence internationale des études nubiennes. Lille 11-17 Septembre 1994, Vol. II – Découvertes archéologiques. Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille 17.2, 55-65.
- Gratien, B., Marchi, S., Thuriot, O. and Willot, J.-M. 2003. Gism el-Arba, habitat 2. Rapport préliminaire sur un centre de stockage Kerma au bord du Nil. *Cahiers de Recherches de l'Institut de Papyrologie et* d'Égyptologie de Lille 23, 29-43.
- Gratien, B., Marchi, S., Sys, D. and Dissaux, R.-P. 2008. Gism el-Arba, habitat 2. Campagne 2005-2006. *Kush* 19, 2003-2008, 21-35.
- Hafsaas-Tsakos, H. and Tsakos, A. 2012. A Second Look into the Medieval Period on Sai Island. *Beiträge zur Sudanforschung* 11, 75-91.
- Kemp, B.J. 1972. Fortified towns in Nubia, in: Ucko, P.J., Tringham, R. and Dimbleby, G.W. (eds.), Man, Settlement and Urbanism. Proceedings of a Meeting of the Research Seminar in Archaeology and Related Subjects Held at the Institute of Archaeology, London University. London: Duckworth, 651-656.
- Klemm, R. and Klemm, D. 2013. Gold and Gold Mining in Ancient Egypt and Nubia. Geoarchaeology of the Ancient Gold Mining Sites in the Egyptian and Sudanese Eastern Deserts. Natural Science in Archaeology. Heidelberg: Springer.
- Minault-Gout, A. and Thill, F. 2012. Saï II. Le cimetière des tombes hypogées du Nouvel Empire (SAC5). Fouilles de l'Institut français d'archéologie orientale du Caire 69. Cairo: Institut français d'archéologie orientale du Caire.
- Morris, E.F. 2005. The Architecture of Imperialism. Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom. Probleme der Ägyptologie 22. Leiden: Brill.
- Müller, I. 2013. *Die Verwaltung Nubiens im Neuen Reich*. Meroitica – Schriften zur altsudanesischen Geschichte und Archäologie 18. Wiesbaden: Harrassowitz.
- Smith, S.T. 1995. Askut in Nubia. The Economics and Ideology of Egyptian Imperialism in the Second Millennium B.C. Studies in Egyptology. London: Kegan Paul International.
- Spataro, M., Millet, M. and Spencer, N. 2015. The New Kingdom settlement of Amara West (Nubia,

Sudan): mineralogical and chemical investigation of the ceramics. *Archaeological and Anthropological Sciences* 7.4, 399-421.

- Spencer, N. 2015. Creating a Neighborhood within a Changing Town: Household and other Agencies at Amara West in Nubia, in: Müller, M. (ed.), Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, 169-210.
- Spencer, N., Macklin, M. and Woodward, J. 2012. Re-assessing the abandonment of Amara West: the impact of a changing Nile? *Sudan & Nubia* 16, 37-47.
- Thill, F. 2016. Saï et Aniba: deux centres administratifs du vice-roi Nehy sous Thoutmosis III. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 30, 2013-2015, 263-304.
- Török, L. 2009. Between Two Worlds: The Frontier Region between Ancient Nubia and Egypt 3700 BC – 500 AD. Probleme der Ägyptologie 29. Leiden: Brill.
- Valbelle, D. 2014. International relations between Kerma and Egypt, in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 103-109.
- Vercoutter, J. 1986. Préface: l'archéologie de l'île de Saï, in: Gratien, B., Saï I. La nécropole Kerma. Paris: Centre National de la Recherche Scientifique, 7-17.
- Woodward, J., Macklin, M., Fielding, L., Millar, I., Spencer, N., Welsby, D. and Williams, M. 2015. Shifting sediment sources in the world's longest river: A strontium isotope record for the Holocene Nile. *Quaternary Science Reviews* 130, 124-140.
- Zibelius-Chen, K. 2013. Nubien wird ägyptische Kolonie, in: Wenig, S. and Zibelius-Chen, K. (eds.), *Die Kulturen Nubiens – ein afrikanisches Vermächtnis*. Dettelbach: Röll, 135-155.

Notes on the contributor

Julia Budka studied Egyptology and Classical Archaeology at the University of Vienna and received her PhD in Egyptology, University of Vienna in 2007. She held a researcher position at Humboldt University Berlin (2004–2012) and was a temporary replacement Assistant Professor at the University of Vienna (2011–2012). With a START Prize 2012 and ERC Starting Grant 2012 she implemented her project AcrossBorders at the Austrian Academy of Sciences. Since 2015, Julia Budka is Professor of Egyptian Archaeology and Art, LMU Munich (and transferred her ERC project to LMU). Her specialty fields are Egyptian archaeology and ceramics; she conducts excavations in Sudan and Egypt, both at funerary and settlement sites, especially at Luxor (Thebes), Elephantine, Abydos and Sai Island.

Image Based Modelling and Kite Aerial Photography on Sai Island

Martin Fera^{*} and Cajetan Geiger^{**}

Abstract

This article presents a GIS based system developed for the archaeological AcrossBorders project on Sai Island in Northern Sudan. The 3D documentation in the Pharaonic town and necropolis and their surrounding required a robust documentation and analysis tool well adapted to different environmental and find situations. Besides the augmentation of geometric accuracy and substantial time saving, the system brought advantages for the description and interpretation of the archaeological record in the daily work flow.

Keywords: GIS, 3D modelling, Structure from motion (SfM), Kite aerial photography (KAP), Integrated documentation systems

Introduction

In the last years, the implementation of new technologies and methods in archaeological field research increased for the investigation and documentation of archaeological sources. For the investigation of archaeological sites and their surroundings, 3D laser scanning and image- based 3D modelling showed their value for the three-dimensional documentation of preserved archaeological traces in landscape and architectural structures as well as complete excavations. Especially image-based methods derived from the "Structure from Motion" principle (SfM) are used more and more often (Doneus 2011; De Reu 2014).

To process the recorded spatial data during fieldwork, geographic information systems (GIS) (Neubauer 2004) are the most common and useful methods (Smith and Levy 2014). Beside the recording and visualisation of the data, spatial and statistical analyses are feasible, especially by integrating further information layers, such as e.g. results of geophysical prospection.

In the frame of the fieldwork of the European Research Council project AcrossBorders on Sai Island, Northern Sudan, a new form of documentation system was established and developed (Fera and Budka 2016). It is based on a geodetical survey by a total station and image-based 3D modelling via SfM. Thereby, the stratigraphical excavations of various areas in the Pharaonic settlement (see Budka 2017a; Budka SAV1 in this volume) and Tomb 26 (Budka 2017b) were recorded in 3D as well as their environment.

Beside the documentation, requirements for extreme climatic conditions and logistics, such as e.g. irregular electrical supply, had to be taken into consideration for a robust and flexible system, well adapted for the daily needs of an excavation.

*University of Vienna, Institute of Prehistoric and Historical Archaeology, Franz-Klein-Gasse 1, 1190 Vienna, Austria; martin.fera@univie.ac.at

**ERC Project AcrossBorders, Institute of Egyptology and Coptology, Ludwig-Maximilians-Universität München, Katharina-von-Bora-Str. 10, 80333 Munich, Germany; cajetan.geiger@lmu.de

The project

The main aim of the AcrossBorders project is the investigation of settlement structures in Egypt and Nubia (today's Northern Sudan) in the 2nd millennium BC. The architecture and structure of Egyptian settlements founded in Nubia during the New Kingdom (c. 1539-1077 BC) are, despite recent advances (see Budka Households in this volume), as insufficiently examined as the social stratigraphy and material culture of the sites. The island of Sai in Northern Sudan as a representative example for Egyptian settlement patterns is the focus of investigations (Budka 2015; Budka 2017a).

Sai is located in the Nile, roughly opposite of the modern town of Abri between the 3rd and 2nd Cataracts. The foundation of an Egyptian settlement (excavation spot SAV1) located on the north-eastern side of the island has to be seen as correlated with military campaigns of the early New Kingdom kings to the south, into the mainland of the Nubian Kerma kingdom. Therefore, the town, surrounded by a city wall, is situated at a strategically important place on the top of sandstone cliffs to oversee the shipping on the Nile river. A pyramid-necropolis with Egyptian-style tombs (SAC5) belonging to the city is located c. 800m to the south.

The landscape of Sai Island is mainly formed by flat terraces covered by Nile sediments. The only exception is an Inselberg to the south of the cemetery, Jebel Adou, consisting of Nubian sandstone. Pharaonic quarrying activities in the sandstone formations are traceable especially along the eastern coast of the island. Post-Pharaonic settlement activities – especially the erection of an Ottoman fortress – left their marks on today's landscape and influenced the conservation of the archaeological findings.

3D field documentation

Objectives of the fieldwork

Fieldwork of AcrossBorders on Sai Island with relevant 3D field documentation was conducted from 2014-2017 during the winter months January to March by an international team of archaeologists, Egyptologists and anthropologists with the help of local workmen.

In the Pharaonic town (SAV1) excavations were conducted in two areas in the eastern (SAV1E) and in the western (SAV1W) part of the city (see Budka 2015; Budka 2017a; SAV1 in this volume). Work focused on the documentation of architectural remains of the New Kingdom for a better understanding of the inner structure of a temple town and its evolution as well as for the exact localisation of the city wall. In the area of the associated necropolis (SAC5) research on the surface structures was conducted in 2015-2016, always during the second half of the campaign. In 2015-2017 another part of the excavation concentrated on a tomb complex with underground structures (Tomb 26, see Budka 2017b; Budka Tomb 26 in this volume). During the campaigns, aerial photography of the environment was conducted for topographical landscape recording in form of high resolution orthophotographs and digital elevation models (DEM) by kite aerial photography (KAP). Herewith, landscape formation processes can be recognised and evaluated on a larger scale.

Essential for the fieldwork was to process the recorded data as soon as possible for the further work flow. Therefore, the survey data was processed daily and visualised in the GIS as surface models, orthophotographs and maps of the excavation progress which could be used for the next day's work.

Methods, techniques and work flow

Basis of the applied documentation system is a GIS-based system for the documentation of stratigraphical excavations that has been developed at the University of Vienna since 2000. The stratigraphical unit (SU) is the fundamental entity of the conceptual model which can be differentiated and documented during the excavation. By removing SUs in the reversed order of their deposition, the three-dimensional volume of the unit is recorded by documenting the uncovered surfaces and surveying their contours. As an additional information level, single SUs are grouped to connected objects so that further information for entire findings (e.g. pits, building- and tomb-complexes, etc.) can be descriptively recorded. The geometry is captured in the documentation of the SU.

Due to the external circumstances, a dual system was needed. Beside the digital geodetic survey, paper forms were used for the descriptive documentation and recording of the findings in the field. They were continuously digitised and connected with the geometric data in the GIS as attribute tables, for which the open source platform QGIS was employed (QGIS 2.18). The descriptive find registration was done in an already existing File-Maker-database, from which queries can be reconnected to the GIS. For the geodetic survey, a digital total station (Leica TC1203) was used. Its recorded data was translated via a script into geometries which were saved in the form of shapefiles or in WKT-format to be further processed in the GIS. The photographic record was done with a digital camera (Ricoh GR, 16.2 MP APS-C-Sensor, fixed focal length f2.8/18.3mm [= 28mm full frame], horizontal field of view 45.4°) mounted on a 4m long handheld pole. For the generation of 3D models of individual surfaces, the recorded images were processed with the commercial software package Agisoft Photoscan together with the geodetic survey points.

The practical work consists in recognising the next stratigraphically younger SU, the measuring of its dimensions, the photographical documentation, its removal



with the registration of the finds and material samples, and the description of its consistence.

To use the full potential of the collected data already during the excavation in the field, data were processed directly after recording and visualised in the GIS (mobile work station with Intel Core i7, 16GB RAM). Therefore, the calculated models were exported as 2.5D surface models (GRID-raster, surface resolution 5mm) and a slope shade and/or hill shade model was calculated in the GIS application. Together with the recorded survey data, daily actual maps could be created and used as basis for drawings of field sketches and context descriptions (fig. 1).

Settlement archaeology

In the Pharaonic town, excavations were conducted in two trenches simultaneously. The investigated areas had the maximal dimensions of 22 x 31m (SAV1W) and 44 x 38m (SAV1E). The stratigraphical excavation was conducted starting at today's surface through a sequence of digital surface models and orthophotographs. The single stratigraphical units (SU) were documented by their uncovered top surface (TS) as well as their bottom surface (BS) by a bundle of c. 70-100 photos. After removing a stratigraphical unit, the whole area of the current excavation was scanned to catch the surfaces of the following SUs in their context.

This proceeding opened the possibility to search for the sometimes hardly definable outlines of the next SU by actively looking for transient areas. This helped a lot for





Figure 2. 2.5D slope shade model of cellars in SAV1 East and a section through a 3D model of the northern cellar.

clarifying stratigraphical relations. The geometry of the SU was drawn analogously on the prepared topical paper plan in a 1:50 scale. By doing this, the extent and volume of the deposit could be adapted during removal of the material. In many cases, structures were clearly visible so that it was not necessary to survey them by total station. By digitising the hand drawings and projecting them onto the surface models, a sufficiently accurate 3D documentation was received. In special cases, such as SUs with a very low thickness or surfaces with special functions (feature interfaces), the total station was, however, still used.

For geo-referencing the models, control points were set up on stable structures (walls, floor horizons, etc.) in the trenches. They were permanently installed and used during the whole period of excavation, as far as possible. To guarantee their stability they were checked by regular control measurement surveys.

In addition to the digital documentation, all architectural remains were also drawn by hand in the field. Therefore, the whole excavation area was recorded and a basic plan was created based on elevation models, slope shade models and orthophotographs in a 1:50 or, for details, 1:20 scale. By this basic plan with already correctly located and oriented features in the wanted scale, the measuring-technical expenditure was significantly reduced and focus could be laid on the interpretative mapping and illustration of the findings. For some cellars found in the town, 3D analyses were helpful for a better understanding of their geometry (cf. fig. 2).

Excavations in the cemetery

For the work task of cleaning the surfaces in pyramid cemetery SAC5, the recording of the stratigraphical sequences was conducted in the same way as in the Egyptian town SAV1. Adaptions to the system had to be made for the documentation of the underground findings in Tomb 26 (see Budka Tomb 26 in this volume). Its shaft was dug 5.2m deep into the sandstone bedrock. Northwards, a 4.2 x 4 x 1.8m large chamber adjoined, leading into a $3.2 \times 2.7 \times 1.8m$ large chamber to the west and a smaller $2.3 \times 1.1 \times 1.7m$ large chamber in a lower level to the north. Besides challenges for the geodetic survey by surveying narrow shafts and cavities, adaptions had to be made for the photographical documentation.

For the photographic work, the camera system was equipped with a dedicated wide-angle ancillary lens (focal length 13.2mm [= 20mm full frame], horizontal field of view 60°) and an external flash. Because of the cramped conditions, the camera was held and released by hand. For the control points, markers were painted on the rocks and repeatedly re-surveyed during the excavation. For the final documentation of the tomb, c. 700 images were taken with high overlap. For details, the floors of the chambers were covered by c. 70-100 photos (fig. 4). From the images, 3D models and high resolution orthophotographs (resolution 0.5mm) were calculated which were available during the excavation as a basis for interpretive drawings.



Figure 3. North-south section through a 3D model of Tomb 26.



Figure 4. Documentation of find situations: entrance chamber of Tomb 26, 2.5D DEM combined with an orthophotograph.

Landscape documentation

In addition to the excavation, data for a small-scale landscape analysis was recorded. Therefore, an area of 44ha along the east coast of the island (3.7km north-south expansion) was photographed by a kite-based system (KAP). During several days, different areas were covered by 1.200 to 1.500 images each session. At large, more than 10.000 photos were taken by using more than 80 ground control points to calculate a DEM. For the Pharaonic town, a Ground Sampling Distance (GSD) of 7cm could be achieved (fig. 5), for the surface model as well as for the orthophotographs.

Results and perspective

This example for a cost-efficient system assembled from conventional excavation equipment in the practical fieldwork on Sai Island – in different scopes – illustrates the advantages of a GIS-based integrated documentation technique even in logistically and climatic difficult places like Northern Sudan.

The aim of the documentation of the stratigraphical single-surface-excavation was to gain a complete volumetric 3D model of the excavated areas. The link between stratigraphical observations, which were visualised in form of a Harris-Matrix, and analysis of the find material as well as micromorphological samples allows perceptions about the formation processes of the site and different phases of occupation and settlement.

By the scalability of the system, high resolution virtual models of the underground tomb complex (cf. fig. 3) as well as orthophotographs could be achieved. These were important for the evaluation of the data for taphonomical analyses about the occupation and repeated re-use of the tomb. The suitability could already be shown elsewhere (Dell'Unto 2014; Aspöck and Fera 2015).

Also the embedding of the KAP-based landscape analyses brought new results for the superordinate questions of the AcrossBorders project about ancient settlement structures. This new data regarding settlement patterns and occupation periods leads to a better understanding of the site.

As future developments for the system are concerned, especially an acceleration of the digital recording process is aimed for by using field-suitable mobile devices. Also, a more effective handling of single data sources can be achieved by an automatisation of the work steps in the GIS.



Figure 5. Coloured surface model of town SAV1, created by KAP.

References

- Aspöck, E. and Fera, M. 2015. 3D-GIS für die taphonomische Auswertung eines wiedergeöffneten Körpergrabes. *AGIT – Journal für Angewandte Geoinformatik* 1, 2-8.
- Budka, J. 2015. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2017a. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Budka, J. 2017b. Pyramid cemetery SAC5, Sai Island, Northern Sudan: An Update Based on Fieldwork from 2015-2017. *Egypt and the Levant* 27, 107-130.
- De Reu, J., Plets, G., Verhoeven, G., De Smedt, P., Bats, M., Cherretté, B., De Maeyer, W., Deconynck, J., Herremans, D., Laloo, P., Van Meirvenne, M. and De Clercq, W. 2013. Towards a three-dimensional cost-effective registration of the archaeological heritage. *Journal of Archaeological Science* 40.2, 1108-1121.
- Dell'Unto, N. 2014. The Use of 3D Models for Intra-Site Investigation in Archaeology, in: Remondino, F. and Campana, S. (eds.), 3D Recording and Modelling in Archaeology and Cultural Heritage. Theory and best practices. British Archaeological Reports International Series 2598. Oxford: Archaeopress, 151-158.
- Doneus, M., Verhoeven, G., Fera, M., Briese, C., Kucera, M. and Neubauer, W. 2011. From Deposit to Point Cloud – a study of low-cost computer vision approaches for the straightforward documentation of archaeological excavations. *Geoinformatics FCE CTU Journal* 6, 81-88.

- Fera, M. and Budka, J. 2016. Leben und Tod auf der Nilinsel Sai – GIS-gestützte Untersuchungen zu einer pharaonischen Tempelstadt in Obernubien. AGIT – Journal für Angewandte Geoinformatik 2, 18-24.
- Neubauer, W. 2004. GIS in archaeology the interface between prospection and excavation. *Archaeological Prospection* 11.3, 159-166.
- Smith, N. and Levy, T. 2014. ArchField: a digital application for real-time acquisition and dissemination – from the field to the virtual museum. *Mediterranean Archaeology and Archaeometry* 14.4, 65-74.

Notes on the contributors

Martin Fera is an archaeologist with a Master in Prehistoric and Early Historic Archaeology from the University of Vienna. The focus of his research is on archaeological prospection, archaeological fieldwork, GIS and spatial data management and analysis for archaeological landscape research. He is lecturing at the University of Vienna and currently involved in a team of European researchers developing standards for Cultural Heritage investigation and management.

Cajetan Geiger is presently employed in the AcrossBorders Project for digital documentation, 3D-modelling, GIS and photography. He studied Ancient Near Eastern Studies and Archaeology at LMU in Munich and Geosciences at TUM and LMU, Munich. He is currently conducting master studies in Mining and Economic Archaeology at RUB, Bochum.

The Fortifications of the Pharaonic Town on Sai Island

A reinvestigation

Ingrid Adenstedt*

Abstract

Parts of the substantial mudbrick enclosure wall of the settlement on Sai Island have repeatedly been investigated in the past, beginning with Michel Azim's excavations in the 1970s up to the recent research by the AcrossBorders project in the last years. As one of the most important results of this research the exact outline of the settlement could be established, placing the eastern enclosure wall further to the west than originally assumed. In the course of the building research undertaken in 2013 and 2014, a 3D reconstruction of the Pharaonic settlement was carried out, presenting the fortifications of the town as a very strict structure, rectangular in shape and with protruding bastions at regular distances on all four sides of the wall.

Especially the most recent excavations at SAV1 West and SAV1 Northeast have, however, shown some discrepancies with this idealised reconstructed form that call for a more thorough investigation of all the evidence available for the enclosure wall. By taking a closer look at all the excavation results and also by comparing the fortifications to other sites in Nubia and Egypt, remaining open questions concerning the city wall shall be clarified, maybe resulting in a slightly differing reconstruction of the fortifications on Sai Island.

Keywords: Sai Island, fortifications, New Kingdom, Pharaonic architecture, 3D reconstruction

Introduction

In this paper, the research of the fortifications of the New Kingdom settlement on Sai Island shall be traced from its beginnings in the 1970s up to the most recent examinations conducted by the AcrossBorders team in the past five years. Thereby, the different steps of investigation will be outlined, also taking a closer look at the building technique of the enclosure wall. Different reconstruction suggestions that resulted from the uncovered structures will be presented as well.

The renewed interest in the research of the fortifications was triggered by the fact that after the first 3D reconstructions which were made by the author in 2015 and subsequently published in a monograph (Adenstedt 2016), new evidence turned up that cast doubt on these reconstructions. Therefore, it seems necessary to take another look at all the facts and features, in order to revise the picture that had previously been painted of the New Kingdom town on Sai Island. With this, it will hopefully be possible to show some new aspects that will further our understanding of the Pharaonic settlement on Sai.

*Lindgrabengasse 19b, 1230 Vienna, Austria; ingrid_adenstedt@hotmail.com

Preliminary Research

The orthogonally planned Pharaonic town on Sai Island, situated on a sandstone outcrop on the north-eastern side of the island (Budka 2014, 60; 2015a, 41; 2015b, 65-67; 2017b, 15), was in parts first excavated in the 1970s by a French mission, whereby the work concentrated on the southern part of the settlement, named SAV1. Here, the French team led by Michel Azim unearthed several structures from Pharaonic times set in a perpendicular grid, including a temple, storage facilities, domestic houses and the so-called governor's residence, which shaped the initial understanding of the town's layout in general (Azim 1975; for an in-depth reinvestigation of SAV1, see Adenstedt 2016).

Together with the buildings, Azim also uncovered remains of the former enclosure wall on the southern and western sides of the town (Azim 1975, 120-122). The remains in the south were thereby the most extensive and could be traced on a length of 41.8m and up to a height of 2.4m. To the west, the enclosure wall was overbuilt by the Ottoman fort, using the Pharaonic fortification as a substructure, while the eastern part of the southern city wall has completely deteriorated. The width of the fortification wall in the south is 4.40m and it consisted of mudbricks of the format 40 x 19 x 9cm. Concerning the building technique, Michel Azim notes that the wall had an 85cm wide outer shell, being two bricks wide and made of a cross bracing, while the interior mass consisted of bricks laid perpendicular to each other on every other layer (Azim 1975, 120).

However, during the re-examination of the remains in 2013, no such distinction between an outer shell and an interior part of the wall could be observed, but rather the alternating layers of headers reached throughout the wall and were only occasionally interrupted by bricks laid in various positions, presumably to adjust to irregularities (Adenstedt 2016, 25). Another observation in regard to the building technique of the wall is that features which are commonly mentioned in the literature (*e.g.* Lawrence 1965, 69; Smith 1991, 118; Vogel 2004, 120; 2010c, 19)



Figure 1. Plan of the remains of SAV1 (based on the 3D laser scan from 2013).

for the construction of the fortification walls of the Middle Kingdom fortresses, such as Buhen, are missing here: there is no indication for any timber reinforcements which were included transverse to the course of the brickwork. Also, the insertion of rush mats at regular intervals, according to Claudia Vogel (2010c, 19) most commonly added after six to seven rows of bricks as a measure to disperse the comprehensive force of the wall, apparently does not exist at the enclosure wall of the settlement on Sai Island. Azim also noted that no outer holes for affixing a scaffolding could be observed (Azim 1975, 120).

An opening existed in the southern side of the fortification which can be regarded as one of the city gates. It is situated directly to the south of the residential houses discovered in the southern part of the settlement. The opening is 1.68m wide and was closed off by secondary walls at a later date (Adenstedt 2016, 25). This gate seems to have been rather simple in its design and Azim addresses it as a so-called water gate (Azim 1975, 120). This can, however, not be confirmed, since no direct walkway to the Nile has so far been discovered.

Another notable feature on the southern fortification wall are the protrusions on the outer side of the wall. In Azim's plan, four of these projections are depicted (Azim 1975, 98, pl. IV). However, during the recent re-examination, only two of them could be verified (see fig. 1): a well-preserved protrusion directly to the east of the presumed gate, and sparse remains on floor level further to the east. They measure 2.2 x 2.3m and 2.5 x 2.3m respectively. The protrusions further to the west on Azim's plan could not be observed, but maybe they are completely covered by the rubble that is now situated on the southern side of the wall. The distance between the two existing protrusions measures about 12.00m. These projections will be discussed in more detail later, in regard to the reconstruction of the enclosure wall.

On the western side of the settlement Michel Azim uncovered the remains of a further city gate (Azim 1975, 120-122). These remains are preserved only at floor level, consisting of a few mudbricks and four sandstone thresholds, of which, however, only two seem to have belonged to the original Pharaonic structure. Even though these remains are sparse, it is still possible to reconstruct the original layout of the gate, as was already undertaken by Azim (Azim 1975, 121, pl. XIV). It is possible to roughly follow the course of the fortification wall on both sides of the gate, as well as the northern tower, protruding out for about 2.30m on the outer side of the wall. The inner width of the gate can be reconstructed at about 3.05m and the distance between the two thresholds was 6.90m. Furthermore, there were protrusions on the inner side of the wall as well, albeit smaller at about 60cm. Also preserved in this area is a corner of the interior structure of the settlement, leaving a narrow gap for the so-called

wall- street, which could also be observed on the southern side of the settlement between the enclosure wall and the buildings situated there (see fig. 1).

Other components of Azim's reconstruction are not so clear. He indicates the existence of a ditch and a terracing wall marking the interior limit of the ditch (Azim 1975, 120-122). The ditch is not visible anymore today, and the terracing wall seems to have been erected at a later date, according to the brick format and the building technique of the wall. It is also not exactly aligned with the enclosure wall, but is situated at a certain angle.

What needs to be highlighted is the position of the gate, which is located on the axis of the main east-west street EO1, which led from the gate to Temple A (see fig. 1). Therefore, the gate can be addressed as one, if not the main city gate. Also at the Nubian Middle Kingdom fortresses, the main gate was commonly situated facing the desert (cf. Vogel 2010b, 299). Compared to the other known fortified New Kingdom towns, Sesebi had four gates (one on each side) (cf. Spence *et. al.* 2011, 34, fig. 1) and Amara West had three (Spencer, P. 1997, pl. III). In Sai, no other gates than the two presented here are currently known.

In the north of the settlement Michel Azim was able to uncover another part of the enclosure wall (see fig. 3; Azim 1975, 122). These remains were then further examined during excavations in the years 2008 to 2012 by the Sai Island Archaeological Mission of Lille 3 under Didier Devauchelle and Florence Doyen (cf. Doyen 2009, 17-20; Budka and Doyen 2013, 167-208; Doyen 2014, 367-375; Budka 2017b, 20, fig. 3). The enclosure wall can be traced on a length of about 40m and is preserved up to a height of 2m. It is in some parts badly damaged by holes dug into it. All in all, the remains are comparable to those in the south. The wall is 4.26m wide and is composed of ten rows of mudbrick headers, alternating with layers of stretchers. Bricks laid in various positions existed as well, to adjust the masonry to the undulating natural gravel substratum (Budka and Doyen 2013, 178; Doyen 2017, 29). No gate was discovered here, but a protrusion was situated on the outer side of the wall, measuring 2.6 x 2.2m and therefore being of the same type and proportion as the ones on the south side (Budka and Doyen 2013, 178; Doyen 2017, 29-31).

On the eastern side of the protrusion, a wall curving westward was exposed which Florence Doyen (2017, 33) interprets as a rampart wall surrounding the original bastion of the town enclosure. Also, a larger brick-tower with the dimensions 7.8 x 5.3m superimposes the smaller original protrusion, enlarging the former structure significantly (Doyen 2017, 31-32). However, both of these structures are of a later date and do not belong to the original fortifications. For clarification, a trench through the tower was opened, showing that the original projection as well

as the curtain wall were levelled and used as a base for the foundation of the larger structure (Doyen 2017, 33).

Turning back to the actual enclosure wall, the observations made during the excavations in 2012 regarding the building technique shall be mentioned. Aiming to answer the question of the foundation of the town wall, three small sondages were carried out along the southern facing of the wall, in the area of the wall-street (Budka and Doyen 2013, 178). They revealed that the two to four lowest brick layers jut out for 6 to 8cm, forming a foundation step. Together with this step, a filling composed of a dense packing of mudbricks covering the projecting brick courses was observed. The filling goes up to the height of the brick layer above the projecting ones, matching precisely with the inferior limit of the plaster surface coating that covered the southern facing of the wall. Additionally, broken or

complete mudbricks were dumped into the foundation trench along the inner wall of the enclosure.

Before the AcrossBorders team started its examinations on Sai Island in 2013, following reconstruction of the town enclosure (fig. 2), first introduced by Michel Azim in the 1970s, was the prevalent assumption of the design and expansion of the settlement on Sai Island (Azim 1975, 94, pl. II). Due to his research, the southern, western and northern limits were clear, resulting in a north-south extension of the town of about 240m. Regarding the eastern side, Azim – and later also other scholars (*e.g.* Geus 2004, 115, fig. 89; Morris 2005, 86, fig. 13; 106; Doyen 2009, 18) – assumed that the cliffs on the eastern side of the island along the Nile had reached further to the east and had at some point collapsed, together with the eastern fortification wall. By assuming a rhythmic order of the projections on the southern side, Azim placed the eastern



Figure 2. Azim's reconstruction of the town layout (after Geus 2004, 115, fig. 89).

wall at a distance of 140m to the east of the western one, thus creating a town with a rectangular layout of 240 x 140m. Concerning the design of the fortifications, Azim reconstructs towers at the four corners of the enclosure wall. He also places small towers at a regular distance on the outer sides of the wall, following the rhythm created on the southern side. Both of these features are known from the Nubian Middle Kingdom fortresses (see *e.g.* Dunham 1960; 1967; Steiner 2008, 120; Williams 2012, 340-347), and also from the New Kingdom town of Amara West (Spencer, P. 1997, 15, pls. III and IV; for a reconstruction of the town enclosure of Amara West, see Spencer, N. *et al.* 2014, inside of the back cover).

The research of the AcrossBorders team

When the research re-commenced with the work of the AcrossBorders team in 2013, two major questions regarding the town enclosure stood out: first, the confirmation of the position of the western town wall, including clues to its exact dating and maybe more information on the structure of the fortifications. The second question was to find out more about the eastern enclosure wall and its location.

Focussing on the first question, in 2014 a new excavation site, labelled SAV1 West (see fig. 3), was opened to the north of the western city gate (see Budka SAV1 in this volume; cf. Budka 2014, 63-65; 2015a, 45-46, 2017a, 18), in order to pinpoint the exact stratigraphical position of the enclosure wall and to establish a dating. Despite much ancient destruction, the town wall could be uncovered in its entire thickness of 4.3-4.5m, in some parts the foundation level was reached. The alignment of the enclosure wall exactly follows the plan as assumed by Azim in 1975. Here, as in the south and the north, the wall is once again composed of 10 rows of mudbrick headers, alternating with layers of stretchers.

The excavations were continued in 2015 (Budka SAV1 in this volume, see also Budka 2017a, 18), by opening a new southern extension of 10 x 10m to the original site. Both the New Kingdom town enclosure and the contemporaneous remains of the inner side of the wall were investigated. All in all, the enclosure wall could be followed on a length of about 18m. As already observed in the north and the south, there was a so-called wall-street accompanying the enclosure wall on the inner side. Due to the finds, the construction of the wall can be dated to the reign of Thutmose III and no early 18th Dynasty activity was found. Thus, the enclosure wall was erected in Phase B of the settlement on Sai Island, when the town became an important administrative centre with a temple, a governor's residence and several storage facilities, lying in the southern part of the settlement (Budka 2015, 46; 2017a, 18-19).

As for structures on the outer side of the wall, a test trench to the west of the enclosure wall was opened in 2016 (Budka 2017a, 18). Here, underneath a layer of pottery of later date and 19th and 18th Dynasty levels, a solid, sloping mud surface that resembles a glacis was found. This "ditch" is similar to what Azim had recorded at the western city gate. A series of augering transects conducted by Sayantani Neogi and Sean Taylor confirmed a sand-filled depression of at least 3.4m in depth. It seems possible that the alluvium extracted to create this ditch was used a source of raw material for the mudbricks of the town enclosure (Budka 2017a, 18; Budka SAV1 in this volume). No contemporaneous parallel was found for this, but two ancient literary sources exist (cf. Fields 2004, 31): one by Herodotus (1.179), who writes that the Babylonians fashioned bricks for their city wall 'out of the earth which was thrown out of the fosse' and the second one by Thucydides (2.78.1) who notes that the Peleponnesians built a wall around Plataia, for which the clay for the bricks came from the ditches that they dug outside the enclosure. If the ditch at the Pharaonic settlement on Sai Island actually had a defensive character must remain unclear. No ditch was attested at other fortified temple towns in Nubia (cf. Kemp 1972, 651). According to the anomalies detected during the magnetometry survey carried out in 2011 (Crabb and Hay 2011, 13, fig. 16; 14), the ditch must have at least existed on the western as well as on the northern side of the settlement. What also must be noted is that on the entire length of the excavated enclosure wall no outer protrusion, *i.e.* no tower nor abutment was discovered.

Turning to the question of the eastern enclosure wall, in 2013, during the re-examination of the southern part of the settlement, first doubts concerning the reconstruction made by Azim came up. As a first clue, the area SAF3, situated to the east of the so-called governor's residence and which Azim had presumed to be part of the New Kingdom town (Azim 1975, 109-111), could be excluded from the original town layout, since due to their brick size, building technique and alignment, all the remaining walls detected here stem from post-Pharaonic periods (Adenstedt 2016, 64). The easternmost structure that can safely be placed into the framework of the Pharaonic town is a 1.86m thick wall that is assumed to have been the eastern outer wall of the so-called governor's residence SAF2 (Adenstedt 2016, 57). Geological surveys in 2014 and 2015 of the sandstone cliffs and the alluvial plain below showed that severe erosion in this part of the island is actually unlikely and that the cliffs and the water table of the Nile had not changed considerably since antiquity. In fact, the steep cliff at the north-eastern corner of the town probably sheltered an ancient landing ground (Budka 2017a, 15). This cliff continued to function as a mooring area until Christian

times, well attested by Medieval graffiti and buoys for tying ship ropes at a very high level (Hafsaas-Tsakos and Tsakos 2012, 85-87). These results made clear that the eastern enclosure wall must have been situated further to the west than previously assumed.

Erich Draganits, who carried out the geological survey in 2014, assumed that remains of a mudbrick wall directly to the east of Temple A belonged to the fortification wall (Draganits 2014, 22), which, however, could not be verified. Also, the 3D laser scan of the area yielded no results regarding the exact position of the eastern enclosure wall. In any case, the wall must have been situated close to the eastern side of Temple A and the so-called governor's palace SAF2, possibly only leaving a relatively narrow gap for a proposed wall-street. The location of SAF2 in the south-eastern corner of the settlement further consolidates the new position of the eastern enclosure wall, since also in Nubian Middle Kingdom fortresses the headquarters and/or commander's residence are commonly placed in a corner of the fortress, occasionally even with direct access to the ramparts (cf. Vogel 2010a, 423; 2012, 152-158; Budka 2018).

Finally, in 2016 a 15 x 3m test trench (SAV1 Northeast) was opened in the north-eastern corner of the site, just above the cliff (see fig. 3; cf. Budka 2017a, 15-16; SAV1 in this volume). Despite a high degree of erosion and post-Pharaonic remains close to the surface, some mudbricks associated with mid-18th Dynasty pottery can be interpreted as the sparse remains of the eastern enclosure wall. This finally allowed to pinpoint the exact position of the eastern wall, establishing the actual size of the town with a 238m north-south extension and 118m east-west, for a total of 27.600 sqm. By reconstructing the wall at this location, the presumed wall-street at SAF2 would have been about 1.05m wide.



Figure 3. Plan of the remains and new excavations of the town on Sai Island.

Reconstruction of the town enclosure

With this information, a new reconstruction plan of the fortifications could be generated in 2015 (fig. 4; cf. Adenstedt 2016, 133, plan 4). In accordance with Azim's original reconstruction, protrusions were placed at regular intervals on all four sides of the enclosure wall, also taking the 12m gap that was established on the southern side as the basis. Differing from Azim, however, no corner towers were reconstructed. As a comparison, the New Kingdom town of Sesebi also had no towers at the corners (Morris 2005, 337-338; Spence *et. al.* 2011, 34, fig. 1), and since no evidence was attested for at Sai, it seems safe to omit them here as well, even if they were common elsewhere, such as at Amara West and the Middle Kingdom fortresses.

As for the town gates, as already mentioned above, the main gate was presumably situated at the western side, and an additional gate is attested for on the southern side. For both gates, towers on either side of the passageway are reconstructed, as is clearly evidenced through the remains at the western gate. For the southern gate, the protrusion directly on the eastern side of the entrance could very well have represented a tower, while no clear evidence exists for the western tower. The fortification wall in the area where it could have existed is badly damaged and the face of the wall is irregular, which could indicate that a tower bonded to the city wall had once existed here. In addition, for a better access to and from an assumed landing place in the east, at least one gate must have been situated somewhere along the eastern side of the settlement, in this first reconstruction it was placed directly in front of the temple, since the landing place was first thought to have been a little bit to the north of the temple.

Also in 2015 the first 3D reconstructions were made (fig. 5, cf. Adenstedt 2016, 191, pl. 55; 193, pl. 57). As is common with most 3D reconstructions, the determination of the heights is a problem, if the *in situ* remains are not



Figure 4. First reconstruction of the New Kingdom settlement on Sai Island (2014).



Figure 5. First 3D reconstruction of the fortifications (2014).

preserved in their entirety. As the height of the wall of the Middle Kingdom fortress of Buhen is proposed between 10 and 14m (Lawrence 1965, 69; Vogel 2009, 177; 2010c, 19), a somewhat lower height at Sai was assumed with 8m, since the actual fortifying function of the New Kingdom towns is by comparison diminished (cf. Kemp 1972, 653-654; Morris 2005, 97-98; Vogel 2013, 80) and the walls were less thick as well. Also for other details, the 3D reconstructions of the Nubian Middle Kingdom forts often served as comparisons (see *e.g.* Dunham 1960, 1967; Emery *et al.* 1979; Vogel 2010c), although the differences between the fortresses and the fortified towns must certainly be taken into account (Morris 2005, 81).

One of the problems that needed to be faced is the question of the protrusions lining the face of the outer wall. These protrusions appear regularly at the Middle Kingdom fortresses and also at the New Kingdom towns of Amara West and Sesebi. There has, however, been an ongoing discussion about their function and their appearance (e.g. Vogel 2004, 121-122; 2009, 177; 2010c, 21-22). Predominantly, the projections were thought to have been bastions or towers, reaching up to the parapet where they provided a platform to be used by one or two archers. This approach has been influenced by the excavation results at Buhen by Walter Emery and his team in the 1970s, who were the first to suggest extensive reconstruction proposals for the main wall of Buhen (Emery et al. 1979). However, already in 1965 Arnold Walter Lawrence (1965, 59-76) speculated about the nature of the protrusions at Buhen, indicating that for towers the size is too small for free movement on the top. He believed that overhanging platforms at the height of the parapets were supported by beams laid across between the piers. Also, Carola Vogel (e.g. 2004, 121-122; 2009, 177; 2010b, 21-22) has repeatedly discussed the problem of the protrusions in her publications on the Nubian fortresses,

interpreting them as abutments that were about two-thirds of the height of the wall with the purpose of distributing the force resting on the wall. After speculating about both versions at the fortifications on Sai Island, the approach with the bastions was slightly favoured, especially in view of the assumed limited fortifying purpose of the enclosure walls at the New Kingdom temple towns.

After completion of this first 3D model, it became clear that the reconstruction needed to be reconsidered, especially in view of the most recent excavation results. The most obvious problems are the abutments or towers and especially their distribution along the enclosure wall. The excavation results showed that the protrusions on the outer side could not have been placed as regularly as envisioned. In fact, the only protrusions that are securely testified are the two on the southern side, of which one is, however, considered to be a small tower flanking the southern city gate, and one excavated on the northern side at the excavations of SAV1 North. Along the remaining about 35m of the northern enclosure wall there was no trace of an outer protrusion. Also at the site SAV1 West no projection was discovered along a length of about 20m of the wall. The reconstructed abutments on the southern side need to be treated cautiously as well, since they could not be verified on site. Therefore, the original 3D reconstruction needed to be revised, since the abutments were obviously not distributed as regularly as initially thought, or the gap between them was simply wider than originally assumed. A comparison with the Middle Kingdom fortresses and the New Kingdom temple towns showed that albeit most of them had a system of abutments or small towers at regular intervals, a few exceptions existed. For example, at the Middle Kingdom fortress of Semna West the eastern wall, facing the Nile, had no abutments (cf. Vogel 2010c, 34-36), while on the ground plan of the New Kingdom town of Sesebi almost no protru-
sions are depicted on the southern wall and the eastern part of the northern wall (cf. Spence *et al.* 2011, 34, fig. 1). One must keep in mind, however, that the state of preservation at the time of the excavation is currently not known and also little about the level of detail the excavators resorted to while drawing the plans.

The protrusions at the most recent reconstruction of the fortifications of the New Kingdom settlement on Sai Island are, therefore, now placed further apart than originally assumed, at least on the northern and western sides (fig. 6). If they had a structural function, as suggested by Vogel (see above), they obviously were not needed at such a close interval. At the southern side, Azim's initial spacing of the protrusions was maintained, giving him the benefit of the doubt that the projections he had recorded had actually existed. For the eastern wall, of which very little is known, the projections are omitted, following the example of Semna West, as described above.

However, the concept, first introduced by Barry Kemp (1972, 651-654), that the enclosures of the New Kingdom temple towns were of limited fortifying purpose shall once again be dwelled upon. This becomes clear in various features, such as the thickness of the enclosure wall in general, the non-existence of further outworks and the relatively unprotected gateways. In fact, Kemp compares the fortifications of the temple towns with the design of temple enclosure walls in Egypt proper (e.g. Aten Temple at el-Amarna, Temple of Ramesses III at Medinet Habu), with towers along the sides and topped with battlements (see Kemp 1972, 653). Such a reconstruction (fig. 7) would be in line with a purely symbolic meaning rather than an actual fortifying function of the enclosure wall and with the change of function of the New Kingdom settlements as actual towns, in comparison with the Middle Kingdom forts in Nubia with their almost exclusive military usage (Kemp 1972, 654; Vogel 2013, 81).



Figure 6. Revised reconstruction of the town layout (2017).



Figure 7. Revised 3D reconstruction of the fortifications, showing small towers.

Another, smaller, alteration of the original 3D reconstruction concerns the city gates. In addition to the hypothetical eastern gate in front of Temple A, a second one is assumed to be further to the north, since the landing place is now established to have been at the north-eastern corner of the settlement (see above). As for the situation of the ditch, contrary to the initial belief that no ditch existed, this was now revised at least for the northern and western sides of the fortifications, and maybe also for the southern one. No ditch is assumed for the eastern side, since the natural fall of the ground towards the Nile rendered further outworks unnecessary. However, the ditch seemed not to have been reinforced with any walls, as is known from the Middle Kingdom fortresses (see *e.g.* Lawrence 1965, 77), once again showing the limited fortifying character of the enclosure. With this new, in-depth review of all the research undertaken on the fortifications on Sai Island, hopefully some open questions could be answered, even if a few elements of the reconstruction must still remain hypothetical. It becomes clear, however, that even if the New Kingdom temple towns seem to have been fairly uniform in their design, showing a similar layout and construction, site-specific features certainly exist. For example, the layout of the New Kingdom settlement on Sai Island with 242 x 118m is surprisingly elongated compared to the other known settlements of this time period. Also, the existence of a ditch seems to have been unique. Thus, this case study of the enclosure wall shall once more emphasise the individuality and uniqueness of the New Kingdom town on Sai Island.

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References

- Adenstedt, I. 2016. Reconstructing Pharaonic Architecture in Nubia: The Case Study of SAV1, Sai Island. Contributions to the Archaeology of Egypt, Nubia and the Levant 3. Vienna: Austrian Academy of Sciences Press.
- Azim, M. 1975. Quatre campagnes de fouilles sur la Forteresse de Sai, 1970-1973. 1^{ère} partie : l'installation pharaonique. *Cahiers de Recherches de l'Institut de Papyrologie et d'Egyptologie de Lille* 3, 91-125.
- Budka, J. 2014. The New Kingdom in Nubia: New results from current excavations on Sai Island. *Egitto e Vicino Oriente* 37, 55-87.
- Budka, J. 2015a. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2015b. The Egyptian "Re-conquest of Nubia" in the New Kingdom – Some Thoughts on the Legitimization of Pharaonic Power in the South, in: Coppens, F., Janák, J. and Vymazalová, H. (eds.), *Royal versus Divine Authority. Acquisition, Legitimization and Renewal of Power. 7th Symposium on Egyptian Royal Ideology, Prague, June 26-28, 2013.* Königtum, Staat und Gesellschaft früher Hochkulturen 4.4. Wiesbaden: Harrassowitz, 63-82.
- Budka, J. 2017a. Crossing Borders. Settlement Archaeology in Egypt and Sudan. *Near Eastern Archaeolo*gy 80.1, 14-21.
- Budka, J. 2017b (ed.). AcrossBorders I. The New Kingdom Town of Sai Island, Sector SAV1 North. Contributions to the Archaeology of Egypt, Nubia and the Levant 4. Vienna: Austrian Academy of Sciences Press.
- Budka, J. 2018. Palaces in so-called Nubian Temple Towns: A Reassessment, in: Bietak, M. and Prell, S. (eds.), Ancient Egyptian and Ancient Near Eastern Palaces. Volume 1. Contributions to the Archaeology of Egypt, Nubia and the Levant 5. Vienna: Austrian Academy of Sciences Press, 251-274.
- Budka, J. and Doyen, F. 2013. Life in New Kingdom towns in Upper Nubia – new evidence from recent excavations on Sai Island. *Egypt and the Levant* 22/23, 2012/2013, 167-208.

- Crabb, N. and Hay, S. 2011. Sai Island, Batn el Hagar, Sudan: Geophysical Survey Report. Unpublished report.
- Doyen F. 2009. The New Kingdom Town on Sai Island (Northern Sudan). Sudan & Nubia 13, 17-21.
- Doyen, F. 2014. Sai Island New Kingdom Town (Northern Sudan): 3rd and 4th Seasons (2009-2010), in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 367-375.
- Doyen, F. 2017. The Architecture of SAV1 North, in: Budka, J. (ed.), AcrossBorders I. The New Kingdom Town of Sai Island, Sector SAV1 North. Contributions to the Archaeology of Egypt, Nubia and the Levant 4. Vienna: Austrian Academy of Sciences Press, 23-118.
- Draganits, E. 2014. Geoarchaeological Investigations on Sai Island, in: Budka, J. (ed.), AcrossBorders. Fieldwork 2014 on Sai Island (North Province, Sudan), 20-22. [online: http://acrossborders.oeaw.ac.at/wp-content/ uploads/2014/03/AcrossBorders-Fieldwork-Report-2014.pdf]
- Dunham, D. and Janssen, J.M.A. 1960. *Semna, Kumna*. Second Cataract Forts 1. Boston: Museum of Fine Arts.
- Dunham, D. and Janssen, J.M.A. 1967. *Uronarti, Shalfak, Mirgissa*. Second Cataract Forts II. Boston: Museum of Fine Arts.
- Emery, W.B., Smith, H.S. and Millard, A.R. 1979 (eds.). *The Fortress of Buhen: The Archaeological Report*. Egypt Exploration Society Excavation Memoir 49. London: Egypt Exploration Society.
- Fields, N. 2004. *Troy c. 1700-1250 BC*. Fortress 17. Oxford: Osprey Publishing.
- Geus, F. 2004. Sai, in: Welsby D.A. and Anderson J.R. (eds.). Sudan – Ancient Treasures: An Exhibition of Recent Discoveries from the Sudan National Museum. London: British Museum Press, 114-116.
- Hafsaas-Tsakos, H. and Tsakos, A. 2012. A Second Look into the Medieval Period on Sai Island. *Beiträge zur Sudanforschung* 11, 75-91.
- Kemp, B.J. 1972. Fortified towns in Nubia, in: Ucko, P.J., Tringham, R. and Dimbleby, G.W. (eds.), Man, Settlement and Urbanism. Proceedings of a Meeting of the Research Seminar in Archaeology and Related Subjects Held at the Institute of Archaeology, London University. London: Duckworth, 651-656.
- Lawrence, A.W. 1965. Ancient Egyptian Fortifications. Journal of Egyptian Archaeology 51, 69-94.
- Morris, E.F. 2005. The Architecture of Imperialism. Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom. Probleme der Ägyptologie 22. Leiden: Brill.
- Smith S.T. 1991. Askut and the Role of the Second Cataract Forts. *Journal of the American Research Center* in Egypt 28, 107-132.

- Spence, K., Rose, P.J., Bradshaw, R., Collet, P., Hassan, A., MacGinnis, J., Masson, A. and van Pelt, P. 2011. Sesebi 2011. *Sudan & Nubia* 15, 34-39.
- Spencer, N., Stevens, A. and Binder M. 2014 (eds.). Amara West. Living in Egyptian Nubia. London: Trustees of the British Museum.
- Spencer, P. 1997. Amara West I: The Architectural Report. Egypt Exploration Society Excavation Memoir 63. London: Egypt Exploration Society.
- Steiner, H. 2008. Ägyptische Festungen und Stadtgründungen in Nubien von der Prädynastischen Zeit bis zum Ende des Neuen Reiches (Wissenschaftsgeschichtlicher Abriß sämtlicher Darstellungen in der ägyptologischen Literatur). Mag. Phil. Thesis, University of Vienna.
- Vogel, C. 2004. Ägyptische Festungen und Garnisonen bis zum Ende des Mittleren Reiches. Hildesheimer Ägyptologische Beiträge 46. Hildesheim: Gerstenberg.
- Vogel, C. 2009. Das ägyptische Festungssystem bis zum Ende des Neuen Reiches, in: Gundlach, R. and Vogel, C. (eds.), Militärgeschichte des Pharaonischen Ägypten. Altägypten und seine Nachbarkulturen im Spiegel aktueller Forschung. Paderborn: Schöningh, 165-185.
- Vogel, C. 2010a. Master Architects of Ancient Nubia: Space-saving solutions in Middle Kingdom Fortresses, in: Godlewski, W. and Łajtar, A. (eds.), Between the Cataracts. Proceedings of the 11th International Conference for Nubian Studies. Warsaw University, 27 August – 2 September 2006, Part two: session papers. Polish Archaeology in the Mediterranean Supplement Series 2.2. Warsaw: Warsaw University Press, 421-430.
- Vogel, C. 2010b. Storming the Gates? Entrance Protection in the Military Architecture of Middle Kingdom Nubia, in: Bietak, M., Czerny, E. and Forstner-Müller,

I. (eds.), Cities and Urbanism in Ancient Egypt. Papers from a Workshop in November 2006 at the Austrian Academy of Sciences. Untersuchungen der Zweigstelle Kairo des Österreichischen Archäologischen Instituts 35. Vienna: Austrian Academy of Sciences Press, 299-320.

- Vogel, C. 2010c. The Fortifications of Ancient Egypt 3000-1780 BC. Fortress 98. Oxford: Osprey Publishing.
- Vogel, C. 2013. Keeping the Enemy Out Egyptian Fortifications of the Third and Second Millennium BC, in: Jesse, F. and Vogel, C. (eds.), *The Power of Walls – Fortifications in Ancient Northeastern Africa. Proceedings of the International Workshop held at the University of Cologne, 4th – 7th August 2011.* Colloquium Africanum 5. Cologne: Heinrich-Barth-Institute, 73-100.
- Williams, B. 2012. Second Cataract Forts, in: Fisher, M.M., Lacovara, P., Ikram, S. and D'Auria, S. (eds.), *Ancient Nubia. African Kingdoms on the Nile*. Cairo: American University in Cairo Press, 340-347.

Notes on the contributor

Ingrid Adenstedt studied architecture at the Technical University of Vienna and completed her doctorate studies with specialization in building history and building research in 2006. Since 1999 she has been a member of various archaeological excavations and projects in Austria, Turkey, Italy, Egypt and Sudan. From 2013 to 2015, she was part of the AcrossBorders team, responsible for the re-examination of the area SAV1 and the terrestrial 3D laser scanning of the *in situ* remains (for the FWF START project Y615-G19).

Pots & People

Ceramics from Sai Island and Elephantine

Julia Budka*

Abstract

One of the main goals of the European Research Council project AcrossBorders is reconstructing life on Sai Island in Nubia during the New Kingdom according to the material evidence. The most numerous finds to be considered for this task on settlement sites like Sai are thousands of potsherds and ceramic vessels attesting to the use, function and aspects of the social strata of the ancient towns. In general, New Kingdom pottery in Nubia is very similar to contemporary material in Egypt. However, a detailed study comparing early to mid-18th Dynasty sites situated in both Nubia and Egypt has not been conducted before and is now for the first time undertaken within the framework of AcrossBorders.

The ceramic data from the New Kingdom town of Sai is currently being analysed and compared to the pottery corpora from the town of Elephantine, situated in Egypt. In this pottery analysis, a particular focus is laid on differences and similarities between local products and imported pieces, including the very significant appearance of hybrid types, vessels which combine Egyptian and Nubian ceramic tradition, e.g. Egyptian wheel-made types with Nubian surface treatment.

The pottery analysis from New Kingdom Sai, in conjunction with the processing of the material from Elephantine, allows for proposing some new tentative thoughts about the occupants of Sai. Despite the big caveat that pots do not equal people, the pottery from the island seems to attest to people who identified themselves primarily as Egyptian officials and occupants of an Egyptian site but may nevertheless have had family ties in Nubia and derive from a local group with a specific cultural identity that was never completely abandoned.

Keywords: Settlement archaeology, Egypt, Nubia, Elephantine, Sai, pottery, cooking pots, material entanglement, hybridity

Settlement pottery in Egypt and Nubia

Despite of recent advances, the current knowledge of settlement pottery in Ancient Egypt and Nubia during the era of the New Kingdom is still limited (Budka 2016a). From the following New Kingdom sites located in Egypt ceramics associated with domestic contexts have been published in considerable quantities (from north to south): Qantir (Aston 1998), Ezbet Helmi near Tell el-Daba (Aston 2002), Memphis (Bourriau 2010), Amarna (Rose 2007), Deir el-Ballas (Bourriau 1990), Thebes (especially Malqata and Karnak; Hope 1989; Jacquet-Gordon 2012) and Elephantine (Aston 1999; Seiler 1999; Budka 2005; 2013). According to the main occupation phases of these sites, only selected periods are accessible by means of published material; this is

*Institute of Egyptology and Coptology, Ludwig-Maximilians-Universität München, Katharina-von-Bora-Str. 10, 80333 Munich, Germany; Julia.Budka@lmu.de especially the Thutmoside era and the Amarna period as well as the Ramesside period (19th and 20th Dynasties). To date, no complete ceramic sequence covering the entire span of the New Kingdom has been presented from settlement sites. Consequently, vessels from well-dated New Kingdom tomb contexts were used as 'chronological markers' (Aston 2003; 2009), although clear shortcomings from these contexts were also noted (Bourriau 2010, 2). This also applies for New Kingdom sites located in Nubia where, until today, only ceramic assemblages from tomb contexts have been published in considerable number (e.g. Wolf 1937; Holthoer 1977; Williams 1992). Ceramic material from tombs represents, other than settlement pottery, no direct indicator for daily activities (cf. Budka 2016a; 2016c). Furthermore, as vessels from domestic contexts are likely to have shorter life spans than pots used for burials, the sequencing of settlement types in combination with stratigraphic information may prove to be highly valuable for dating evidence and for establishing concise "chronological markers". At present, the development of New Kingdom pottery is primarily based on material from tombs.

Since the 1980s, Bourriau defined four major ceramic phases characterising the New Kingdom up to late Ramesside times (Bourriau 1981, 72). Today, most scholars favour a new division into five phases (Aston 2003; 2008, 375; see also Bourriau 2010, 2-3). In addition to this new phasing, the ceramic production of selected reigns has been discussed in more detail in recent years. For example, the innovative and distinctive character of pottery under the long reign of Thutmose III was frequently raised in recent studies (e.g. Aston 2006). Similarly, the reign of Hatshepsut is commonly known to mark a new phase of ceramics distinguished by several innovations. One of the most pressing problems today is ascertaining a more specific chronology for Egyptian pottery pre-dating Hatshepsut other than "early 18th Dynasty", meaning a time span of approximately 70 years from the reign of Ahmose to Thutmose II. At present, labelling pottery phases as "early-mid 18th Dynasty", comprising more than 150 years from Ahmose to Thutmose III/Amenophis II, is still common (Wodzińska 2011, 1016-1019; see also Budka 2016a, 46). Significant finds from Abydos (Budka 2006) and Memphis (Bourriau 2010) seem to be relevant in this respect. Both sites revealed material datable to Ahmose and Amenhotep I from settlement contexts, comparing nicely to tomb groups (e.g. Aniba, see Helmbold-Doyé and Seiler 2012). Recently, Aston (2013) very convincingly re-dated Theban funerary contexts of the early 18th Dynasty, proposing that there was probably a break within the ceramic tradition after Amenhotep I. According to Aston, the Thutmoside tradition might have started already as early as during the reign of Thutmose I. Important indirect evidence for this theory comes from the pyramid of queen Tetisheri at South Abydos: votive pottery comprising the reigns of both Ahmose and Amenhotep I is of uniform character and markedly different from the well-known "Thutmoside style" (Budka 2006, 108-112).

All in all, several matters regarding settlement pottery of the New Kingdom are still unsolved: chronological issues, especially for the beginning of the 18th Dynasty, but also the general sequence and life span of significant types (*i.e.* of possible "chronological markers") as well as the characterisation of the material culture of the New Kingdom in specific regions, raising the issue of regional traditions. The importance of regional studies (*e.g.* Seiler 2010) and the potential of a close comparison between sites (Aston 2009; Bader 2009) were highlighted in recent years. The most promising sites with much potential to answer the greatest pressing questions are Abydos, Elephantine and Egyptian sites in Upper Nubia like Sai Island, Sesebi and Amara West.

The ceramics from recent German and Swiss excavations in the New Kingdom town of Elephantine, currently under the responsibility of the author, derive from layers datable to the 17th Dynasty/early 18th Dynasty until the Late Ramesside Period (cf. Budka 2005). This corpus of well-stratified material is of major importance and provides the keys to a more detailed understanding of settlement pottery. Most important is so-called House 55, excavated by the Swiss Institute Cairo under the direction of Cornelius von Pilgrim, in cooperation with the AcrossBorders project (von Pilgrim 2015; in press). This exceptional building, possibly a workshop connected with equipping expeditions going to the south, was founded in the 17th Dynasty and yielded strata with diagnostic pottery sherds from the 17th Dynasty to Thutmose III. This sequence of pottery from House 55 has therefore much potential for establishing a corpus of settlement pottery spanning the time from the late Second Intermediate Period to the mid-18th Dynasty, thus of a period with several assumed "breaks" in the pottery tradition (see above).

This paper focuses on the limits and the potential of comparing ceramics excavated from 18th Dynasty contexts on Sai Island with contemporaneous material from Elephantine; the relevance of pottery for tracing people and related problems will be discussed. That New Kingdom pottery in Nubia is very similar to contemporary material in Egypt is already well established (Williams 1992, 23; see also Holthoer 1977, *passim*; Budka 2016a). However, case studies from the Middle Kingdom have shown that a comparative approach without the consideration of regional developments can result in considerable shortcomings concerning the dating and production of ceramics (cf. Knoblauch 2007; 2011). Consequently, the increased understanding for the need of site specific and regional studies for researching New Kingdom pottery in Nubia is especially relevant for AcrossBorders' comparative method and its case studies of Sai and Elephantine (Budka 2016b; Budka 2016c). Pottery processing is much advanced at these two sites for the 18th Dynasty contexts, but still ongoing. The following is therefore only an outline of the present state of research.

Entanglement of cultures

One of the buzzwords in recent archaeological studies dealing with settlement remains in Northern Sudan is "entanglement" (see also Budka Households in this volume). The background for this is a new discussion of the concept of "Egyptianisation", well established in considerations of Nubian culture, but now subject of criticism on the grounds that it projects a one-dimensional and static view of culture (see, e.g., Cohen 1992; de Souza 2012). In its stead, a model based on the notion of "cultural entanglement" has been suggested (van Pelt 2013, based on Stockhammer 2012b), borrowing from a more advanced discussion in Mediterranean archaeology and also studies about Romanisation (see Stockhammer 2013). Ongoing excavation work on New Kingdom sites in Nubia has since expanded the material basis for the debate and has shown how central the dynamics of cultural entanglement really are (see Smith and Buzon 2014; Spencer 2014; Budka 2015a; Budka 2017; Spencer, Stevens and Binder 2017).

In the present paper, I follow Stockhammer's (2012b, 49-51) categories and propose that pottery can be regarded as evidence of "material entanglement". This seems to apply in particular to so-called hybrid vessels: Egyptian pottery types made of Nubian fabrics or with Nubian surface treatment (Budka 2017c, 440; see Stockhammer 2012a, Pappa 2013 and Stockhammer 2013 on hybridity and hybridisation; cf. also Hahn and Weis 2013 on mobility aspects of the material culture). Established research on Bronze Age networks of interaction was useful for this approach as were studies on the material culture during Romanisation (Woolf 1998; for recent ideas about the situation in Nubia, see van Pelt 2013; Smith 2014; Spencer 2014; Binder 2017). Such hybrid pots may represent products of a temporary or local fashion, but they can also refer to the cultural identity of their users or materialise more complicated processes (cf. Miller 1985; Woolf 1998; Smith 2003b; Budka 2017c, 440). In any case, one has to keep in mind one important paradigm phrased by Kraidy (2005, vi): 'It is therefore imperative to situate every analysis of hybridity in a specific context where the conditions that shape hybridities are addressed.' Thus, all following comments about hybridity of pottery at Sai and Elephantine need to be seen within the context of the Egyptian towns these ceramics derive from.

Within this specific context it is interesting to note that several archaeological case studies from elsewhere have illustrated that there might be 'close links between ceramic technological production and cultural identity' (Pierce 2013, 529; cf. also D'Ercole et al. 2017). I suggest that also the pottery production at Egyptian sites in Nubia seems promising in this respect. Egyptian imports and Egyptian-style wares appear side by side with indigenous Nubian wares, and this is in general very similar to the situation in the Levant (see, e.g. Martin 2008; Pierce 2013). The situation of cooking wares was already discussed by Smith (Smith 2003a, 113-124; see also Smith and Buzon in this volume), implying a gender-specific factor for the composition of the pottery corpora of Egyptian sites in Nubia (indigenous females responsible for cooking and using Nubian cooking pots) which faces some difficulties in interpretation and still needs to be tested by further examples (Raue 2015, 55; note, e.g., male cooking activities in various cultural contexts, see Goody 1982, 101-102).

Despite a general similarity with contemporary pottery in Egypt, for both the Middle and the New Kingdoms local pottery workshops and traditions are traceable in Nubia. Regional style was mostly expressed by surface treatment and decoration. Case studies like Marl clay vessels with incised decoration and cooking pots illustrate that Nubian decoration patterns and shapes directly influenced the Egyptian pottery tradition (Rzeuska 2010; 2012; see also Arnold 1993, 90; Miellé 2014). At present, it is still difficult to assess the possible impact of Nubian potters. That Egyptian potters were present at the colonial sites cannot be doubted (Williams 1992, 24, fn. 3; Reshetnikova and Williams 2016; see below).

At Elephantine, the cohabitation of Egyptians and Nubians can be traced through millennia (Raue 2015). During the 17th Dynasty, the period immediately preceding the New Kingdom, one can not only observe that Nubian cooking pots dominate the inventories of the Egyptian settlement of Elephantine, but also that hybrid forms of cooking vessels are developed which can be treated as evidence of "material entanglement" in Stockhammer's (2012, 49-51) categories. These wheelthrown imitations of hand-made Nubian cooking pots (Raue 2017), decorated with fine incisions, seem to be direct precursors of the New Kingdom vessel type (see Budka 2016b).

The pots and people debate

Pots are of course pots, and not people – recent migration studies have challenged the simplistic approach that pots can be regarded as direct traces of people (*e.g.* Dores Cruz 2011). Both assumptions are embedded in colonial approaches and post-colonial responses (cf. van Pelt 2013; Stockhammer 2013).

The cultural connectivity of the Nile valley as reflected in pottery is quite complex. Very regularly, Nubian vessels found in Egypt from various periods and in varied contexts are treated as foreign objects and associated with the presence of people of Nubian culture or at least of Nubian cooking practices (see, *e.g.*, Bourriau 1991; Smith 2003a, 43-53; Aston and Bietak 2017). In recent years, several scholars have stressed more complex processes connected with non-local pottery at sites with dynamic social structures and a high degree of mobility of its people (*e.g.*, Bader 2012; 2013; de Souza 2012; 2013; Raue 2015). Nubian case studies suggest that individual choices and group dynamics may sometimes be more significant than cultural identities (Spencer 2014, 47; Budka 2017c, 440).

Bearing this in mind, it seems nevertheless worthwhile to examine possible links between the production of pottery and cultural identity at Sai and Elephantine. The following questions can be addressed: Can pots be regarded as products of a temporary or local fashion? Do pots reflect the cultural identity of their users? Or are pots the results of more complicated processes and mirror individual choices? Answers to these questions can be sought by means of archaeological interpretation and ceramic typology, but also by petrographic analyses and provenience studies (*e.g.* by Instrumental Neutron Activation Analysis, see D'Ercole and Sterba in this volume).

Despite of the preliminary status of this paper, recent work at Sai, Amara West and Tombos has demonstrated: 'Rather than drawing artificial borders between Egyptians, Nubians, and their respective lifestyles, the aim should be to reconstruct social, economic and cultural identities at the local level (Budka 2017b, 177). Such identities can change, interact and merge and highlight the complexity of life in Pharaonic towns like Sai in Upper Nubia. Pottery can contribute to support a more balanced view of cultural changes in New Kingdom Nubia which were formerly all merged under the too-simplistic concept of "Egyptianisation". The case studies presented in the following strongly support de Souza's characterisation which is based on an analysis of Pan-Grave pottery and culture (2013, 119): 'Egyptianisation is a complex concept involving processes that differ greatly in different situations and must therefore be evaluated on a case-by-case basis."

The case studies Sai and Elephantine

In the following, the significance of a comparison between the New Kingdom corpora from the town of Sai located in Upper Nubia and the town of Elephantine located at the First Cataract, thus at the southern border of Egypt, will be discussed. This will be done by comparing the general groups of ceramic classes which appear at both sites. Five classes are attested at Sai (and also Elephantine): 1) Nubian hand-made pottery, 2) imports from Egypt (in the case of Elephantine: from elsewhere in Egypt), 3) imports from elsewhere (Levant; Cyprus etc.), 4) local wheel-made production in Egyptian style and 5) hybrid forms (incorporating aspects of both ceramic traditions, the Egyptian and Nubian). Because of the "material entanglement" focus discussed above, the emphasis will be on locally produced vessels of both Nubian and Egyptian style and on vessels attesting hybridity, keeping the respective contexts at both Sai and Elephantine in mind.

Sai Island

The ceramic material from Sai not only finds ready parallels at other Egyptian sites in Lower and Upper Nubia (cf. Holthoer 1977; Miellé 2012, 173-187; Budka 2016a), but also at various New Kingdom towns in Egypt (Budka 2011; 2016a), especially Elephantine (Seiler 1999, 204-224; Budka 2005, 90-116; Budka 2010, 350-352), Abydos (Budka 2006) and Deir el-Ballas (Bourriau 1990). However, a local component and site-specific features are present on Sai, a topic studied within the framework of the AcrossBorders project (Budka 2015a; 2016a; cf. also Miellé 2014 for Sai and Ruffieux 2016 for the local style at Dokki Gel). Food serving, food consumption, cooking, baking and storage are the main activities attested by the pottery found in the various sectors of the New Kingdom town of Sai, complemented by less frequently attested actions like spinning or ritual activities (Budka 2011; 2016a; 2016c; 2017c).

Within the New Kingdom temple town of Sai, several excavated sectors yielded pottery discussed in the following:¹ SAV1 North (Budka 2011; Miellé 2012; Miellé 2014, 387-392; Budka 2017b, 119-156), SAV1 East (Budka 2014, 68-69), and SAV1 West. It is beyond the scope of this paper to highlight the individual differences between these corpora despite their strong similarities (Budka 2016a; 2016c). Other aspects which will also not be addressed in detail are the close parallels between these Egyptian ceramics and the material from the local cemeteries, especially pyramid cemetery SAC5 (Minault-Gout and Thill 2012, pls. 132-145; cf. Budka 2015a, 48-50 and Budka Tomb 26 in this volume).

In the earliest levels of the town, the pottery material can be attributed to the very early 18th Dynasty, corresponding to unpublished material from South Abydos, the Ahmose complex and ceramics from the early phases of use in House 55 in Elephantine. Within these layers at Sai, the assemblages include a substantial amount of material which is seemingly 17th Dynasty in character.

¹ The individual numbers of the pottery fragments include the name of the excavation sectors and correspond to the following: "N/C + consecutive number" (*e.g.* N/C 642) refers to material from SAV1 North; SAV1 West and SAV1 East are abbreviated with "P + consecutive number" (*e.g.* SAV1W P044).

However, rather than being connected with the nearby Kerma cemetery, these sherds are always associated with Egyptian vessel types – like carinated bowls and carinated jars – datable to the early 18th Dynasty. Therefore, the formation of these earliest levels of Egyptian presence probably took place under Ahmose II Nebpehtyra or Amenhotep I (Budka 2015a, 50; 2016b). This dating, however, still poses some problems because only very few contexts derive from the earliest levels. In some respects, so-called Level 5 at SAV1 North bears already some characteristics of "Thutmoside" style, which point to a slightly later date under Thutmose I (see above and Aston 2013; also Budka 2017b, 128-130).

In terms of fabric classification, the Vienna System (Nordström and Bourriau 1993) works well for New Kingdom site in Nubia, especially if one includes local variations (Budka 2017b, 122-125; cf. Smith 2003b, 40). Nile silt fabrics form the most common group by far, which is very typical for settlement pottery. A considerable number of Nile clay vessels have been modelled on Egyptian types but were locally produced. From a macroscopic point of view it is not always possible to distinguish imported Nile clay products from Egypt ("Real Egyptian") and locally produced Nile variants ("Egyptian style", wheel-thrown, but of local fabrics). Chemical and petrographic analyses can help to differentiate between these two sub-families of Nile clays (see Carrano *et al.* 2009, 785-797; Spataro *et al.* 2015, 399-421 and D'Ercole and Sterba in this volume).

Most common pottery types

Native Nubian hand-made pottery vessels are present in all levels within the town (fig. 1). They comprise primarily cooking pots with basketry impression and sometimes incised decoration (cf. Rose 2012) and also fine wares of Kerma style (black-topped cups and beakers). Interestingly, within the latter none of the fine burnished Kerma vessels shows the silvery band characteristic of Kerma Classique productions (Gratien 1978, 210), corresponding to the evidence from early 18th Dynasty levels at Sesebi (Rose 2017, 466).

Nubian storage vessels from the New Kingdom town of Sai generally have a larger capacity than Egyptian vessels and often show traces of repair. This is nicely illustrated by the almost complete vessel N/C 650 with four repair holes (fig. 2) (Budka 2011, 27). Other than in Egypt, where repair holes are only common during Predynastic periods, the repair of pots is well attested through various periods and diverse Nubian cultures (Williams 1993, fig. 4 and *passim*). The repaired Nubian storage vessel N/C 650 from sector SAV1 North was found side by side with an Egyptian *zir* vessel (Budka 2017b, fig. 57), but was tentatively used for a much longer period, suggesting its production already prior to the New Kingdom. This example raises several caveats to use Nubian vessels as chronological



Figure 1. Nubian open forms and cooking pots from the New Kingdom town of Sai.



Figure 2. Nubian storage vessel N/C 650 from the New Kingdom town of Sai.

markers in early-mid 18th Dynasty contexts – and this also holds true for Kerma black-topped beakers – therefore such Nubian products of Kerma Classique tradition should always be dated in accordance with and based on the associated Egyptian material.

Within the group of imported vessels from Egypt, decorated Marl clay vessels form a distinctive group (fig. 3). For example, characteristic markers of Thutmoside pottery include decorated squat jars of various sizes and proportions (Steindorff 1937, pl. 82; Holthoer 1977, pls. 30-32; Williams 1992, 85, fig. 7) which are well attested in the New Kingdom town of Sai (figs. 3.7-9).



Nile clay vessels are of interest as well, in particular a large group of bichrome-decorated necked jars with linear, floral and figurative designs. Good examples of mid-18th Dynasty date are known from Sai (figs. 4.1-2) and Dokki Gel (Ruffieux 2009, 124-126, figs. 3-5; Ruffieux 2016, 512-513, figs. 7-8), but also from Askut, Buhen and Aniba (Budka 2015b, 334-335 with references). The origin of these specific vessels is still an open question – based on parallels, the area of Elephantine seemed likely (Budka 2015b) until new finds from Dokki Gel suggested a possible local workshop in the Kerma region (personal communication Phillipe Ruffieux, May



Figure 3. Imported Egyptian Marl clay vessels from the New Kingdom town of Sai.

2016). Thus, these bichrome vessels illustrate problems of differentiating between imported Egyptian Nile clays and locally produced Nile clay vessels (see D'Ercole and Sterba in this volume).

Another category of painted forms which is very likely to be imported from Egypt is blue-painted pottery, only rarely attested in Nubia (for the southernmost attestation Tombos, see Smith and Buzon in this volume). At Sai, some pieces of this type can be dated to the mid- to late 18th Dynasty, others like beakers with linear decoration (fig. 4.5) are already early Ramesside in date (e.g. at Aniba, Sai, Tombos, Dokki Gel and Amara West, cf. Budka 2011, 30; see also Holthoer 1977, pl. 33, FU1). A unique piece is the lower part of a rhyton with floral and faunal decoration, covered in a red slip and burnished (N/C 1205, fig. 4.3, Budka 2016a, 95).

A large variety of decorated open Nile clay forms is of particular interest since they might be products of the larger region of "Nubia". Most common are red-burnished and white-burnished carinated Nile clay dishes and bowls with linear monochrome decoration (figs. 5.1-5). Wavy lines are very popular both for incised and for painted decoration (figs. 5.7-10, Budka 2011, 29-30; cf. Smith 1995, fig. 6.4; also Smith and Buzon in this volume). Although they find parallels in Elephantine (see below) and other Nubian sites like Askut and Sesebi, it is at present difficult to identify them as imported or local group. The preference for a decoration with painted triangles on carinated bowls (fig. 5.2) might reflect according to Smith a local style of wheel-made products in Nubia (Smith 2003a, fig. 6.14; Smith 2003b, fig. 3.7; see Smith and Buzon in this volume).

Differentiating between Egyptian imports and locally produced wheel-made "Egyptian style" vessels becomes more complex in the group of utilitarian types, the largest group of pottery from the New Kingdom site of Sai. In general, small and medium-sized dishes, various plates, pot stands, storage vessels and jars, cooking pots, beer jars, beakers and bread plates dominate the corpus of ceramic types within the New Kingdom town of Sai. They appear both in imported fabrics and local variants. Bread moulds, bread trays and spinning bowls were mostly produced locally at Sai. Within the form class of Egyptian cooking pots (fig. 6), four individual types can be differentiated according to morphological details and all types find close parallels at Elephantine (Seiler 1999, 223, fig. 53; Budka 2016b). Analysis of the fabrics revealed that these cooking pots are mostly imports from Egypt, but that there are also local variants.



Figure 4. Decorated closed forms of Egyptian pottery from the New Kingdom town of Sai.



Figure 5. Decorated open forms of Egyptian type from the New Kingdom town of Sai.

In conclusion, precise statistics between form groups which were imported and/or produced locally still need to be established for Sai. For now, imported Nile clays on Sai are mostly open forms like black-rim dishes and bowls with red splash decoration, blue-painted vessels and cooking pots. Most of these imports are associated with the early and mid-18th Dynasty. Especially since Thutmoside times, the large group of locally produced Egyptian wheel-made ware became dominant, comprising all groups of vessels, open and closed forms as well as functional vessels.

Imports from elsewhere outside the Nile valley - especially the Egyptian western Oases and the Levant are well attested at Sai since Thutmoside times. These imports mostly comprise amphorae and storage vessels and also include some fine wares like Mycenaean stirrup jars and Black lustrous wheel-made jugs (Budka 2011, 31; 2017b, 125-126).

As was briefly mentioned above, some Nile clay pottery vessels from Sai have been modelled on Egyptian types but were locally produced and this sometimes with a "Nubian" influence as far as the surface treatment, production technique or decoration is concerned. The appearance of such hybrid types - Egyptian types made of Nubian fabrics, shaped by hand or with a Nubian surface treatment like ripple burnishing and incised decoration is very significant for the "cultural entanglement" on Sai, but not straightforward in its explanation. Influences of the Nubian tradition can also be traced for the decoration of Egyptian types. This does not only apply for the situation on Sai - Rzeuska has proposed convincingly that Marl jars with incised decoration attested in Egyptian contexts since the Middle Kingdom reflect Nubian decoration pattern (Rzeuska 2010). Such Marl B and especially Marl A3 storage vessels continue well into the Second Intermediate Period and also the early 18th Dynasty. They are common both on Sai and Elephantine, preferable showing incised wavy lines (fig. 3.12). Such a preference for wavy lines can also be found on open decorated shapes like carinated bowls (figs. 5.7-10) and is traceable until the late 18th Dynasty (Smith 1995, fig. 6.14; see also Sesebi: Rose 2017, fig. 1.4).



Figure 6. Cooking pots from the 18th Dynasty found at Sai, imported from Egypt.

Examples for pottery assemblages from Sai

In the following, case studies from two sectors within the New Kingdom town of Sai, SAV1 North and SAV1 East, will illustrate typical pottery assemblages from 18th Dynasty Nubia.

At SAV1 North, the circular storage pit N12D within Room N12/2 of building unit N12 (Budka 2017b, 141-148) is one of the rare cases of an almost intact context. Its ceramic material spans the time from the late Second Intermediate Period/early 18th Dynasty until the reign of Thutmose III (Budka 2017b, 141-144). The pottery from N12D is a typical household assemblage, but with a large repertoire of forms. The corpus comprises small and medium-sized dishes which usually have ring bases, various plates (usually with flat bases), storage vessels, cooking pots, beer jars, beakers, flower pots and bread plates (Budka 2017b, figs. 68-77). Especially remarkable amongst the ceramics from N12D is a small black burnished jug of Black Lustrous Wheel-made ware (N/C 763; Budka and Doyen 2013, 193-195, fig. 23; Budka 2017b, fig. 77). A small quantity of Nubian cooking pots and some Kerma black-topped cups complement the pottery from silo

N12D (see fig. 1). Overall, the complete assemblage finds close parallels at Elephantine, in material associated with "Bauschicht 10" (Budka 2017b, 148).

Among the most significant discoveries in the sector SAV1 East is Feature 15, a large subterranean room $(5.6 \times 2.2 \times 1.2m)$ located in the central courtyard of Building A. Feature 15 was in use from the reign of Hatshepsut until Amenhotep III (Budka 2015a, 44-45). More than 80 almost intact vessels were found in this cellar, mainly plates and dishes, beakers, storage jars, *zir* vessels and pot stands.

Among the open forms from Feature 15 simple dishes with flat or ring bases are very common, often with a red rim. Carinated dishes frequently show wavy incised or painted decoration, finding parallels at Sesebi (Spence and Rose *et al.* 2011, 37, fig. 5; Rose 2017, fig. 1.4). Black rim ware and the Thutmoside red splash decoration (Aston 2006) is regularly found on dishes which were imported from Egypt (fig. 7, top right; see also Smith 1995, fig. 6.4A). Chronological markers for the 18th Dynasty are the so-called flower pots, conical deep bowls with perforated bases (fig. 7, bottom; see Wolf

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Figure 8 (opposite page). Closed forms and miscellaneous vessels from Feature 15 in SAV1 East.



1937, pl. 77, 'Form 25'; Holthoer 1977, pl. 18; Williams 1992, 34-35; Minault-Gout and Thill 2012, pl. 132; Pierce 2013, 514-517). An unusual type within the corpus from Sai is represented by two deep bowls with an irregular flat base and a modelled rim (fig. 8, bottom, SAV1E P128 and P165). Interestingly, this rare vessel type finds a very close parallel at Elephantine: the still unpublished Excav. no. 37601X/b-29 from "Bauschicht 9" is slightly smaller, but still a good comparison for the mid-18th Dynasty vessels from Feature 15.

Beer jars with an inverted or direct rim, together with slender beakers of various sizes and types, are typical settlement forms of the New Kingdom and well attested on Sai and from Feature 15 (fig. 8, top left). Several fragments of heavy-walled slender vessels with short flaring necks were also found in Feature 15 (fig. 8, top right). These fall into the category of the so-called "Spitzbodenflasche", common at Elephantine from the late Middle Kingdom onwards (von Pilgrim 1996, figs. 142s, 147j-k; see also below) and finding parallels elsewhere in Egypt, e.g. at Amarna (Rose 2007, 92-93, type SG5, see below). Nile clay squat jars that imitate Marl clay vessels are typical of the Thutmoside period (fig. 8, SAV1 E P115 und SAV1 E P149) and though those from Feature 15 are not decorated, a large number of painted examples were documented from other sectors of the New Kingdom town of Sai, SAV1 East, West and North (see above, fig. 3).

All in all, the ceramics from Feature 15 find close parallels in Upper Nubia (especially Sesebi, Phase II/III, Rose 2017, 466-468) and Upper Egypt (Elephantine, "Bauschicht 10 and 9").

Elephantine Island

As was already mentioned, the New Kingdom pottery from Elephantine provides very close parallels to the corpus excavated at Sai (see Budka 2011). Of particular interest is the pottery from House 55, a workshop founded in the 17th Dynasty being in use until the mid-18th Dynasty, which will be studied in more detail in the near future. The following is a preliminary assessment of the rich corpus from House 55 which includes more than 2100 vessels documented and entered in the Filemaker database, among these almost 100 *in situ* vessels with precise stratigraphic information.

Most common pottery types

Because of its location at the First Cataract, Nubian pottery is abundant throughout all periods on Elephantine, also in the New Kingdom until the Ramesside era (see Raue 2015). Within House 55, Nubian pottery is also quite common. Remarkable here is the large spectrum of both types and wares: not only cooking pots are attested as hand-made Nubian wares, but



Figure 9. Nubian cooking pots from House 55 on Elephantine.

also storage vessels and fine wares (see Raue 2015, 55: *'vollständige Formationspräsenz'* of Nubian pottery on Elephantine). All of this closely resembles the evidence from Sai. The Nubian cooking pots from 18th Dynasty contexts on Elephantine (fig. 9) are mostly of Pan-Grave style with incised decoration (Raue 2015, 364-365 and *passim*). A minority of the cooking vessels shows basketry impression similar to pieces from Sai and Sesebi (see Rose 2012). Within the fine ware (fig. 10), Kerma Black Topped cups and beakers dominate, sometimes with the silvery band on the outside characteristic of the Kerma Classique period.

Similar to Sai, a large group of vessels is attested which may be classified as "hybrid" (fig. 11). These vessels are wheel-made imitations of Nubian cooking pots with red rims and incised decoration, labelled by Dietrich Raue as Medjay-imitations (Raue 2017). Although of different shape, these vessels combine a Nubian surface treatment with the Egyptian production technique and also use Egyptian Nile clay. Similar to Sai, these cooking pots are likely to illustrate complex aspects of cultural entanglement on Elephantine during the period of the Late Second Intermediate Period and the early New Kingdom.

The variety of potentially locally produced Nile clay vessels is large on Elephantine (figs. 12-13). Bowls with pinched rims which also very common in Nubia are well attested and nicely preserved (fig. 12.7).



Figure 10. Kerma Black topped fine ware from House 55 on Elephantine.



Figure 11. Hybrid cooking pots from House 55 on Elephantine. I have argued elsewhere that the Nile clay bichrome painted jars commonly found on Elephantine were possibly produced at the area of the First Cataract (see above) which is still a matter of future research. From House 55, more Marl clays with bichrome decoration were recorded. In contrast to Sai, Nile *zir* vessels are not very common on Elephantine (see fig. 13.8), but are more often replaced by Marl clay variants. Other ovoid Nile clay jars find good parallels at other sites and correspond nicely to Sai. This also holds true for beer jars, beakers, plates and dishes (figs. 12-13). Blue-paint-



Figure 12. Common open forms House 55, Egyptian types.

ed ware is well represented on Sai and was probably imported to the island (both Marl clays and Nile clay variants, see Budka 2013). However, no blue-painted sherds are associated with House 55.

Imported Levantine and Oases wares are regularly attested on Elephantine, especially from late 18th Dynasty

and Ramesside levels. The early 18th Dynasty levels from House 55 also yielded some Canaanite amphorae fragments, similar to vessels unearthed on Sai. So-called hybrid types are restricted on Elephantine to the wheel-made cooking pots with incised decoration mentioned above.



Figure 13. Common closed forms House 55, Egyptian types.

Functional pottery types – Sai vs. Elephantine

The most common functional vessel types from both Sai Island and Elephantine are pot stands, cooking pots and bread plates. At both sites, bread plates of different sizes are frequent and usually made in Nile C. Conical bread moulds, belonging to Jacquet's Type D (Jacquet-Gordon 1981, 18, fig. 5; also Rose 2007, HC 2, 288), appear only in very small numbers within the domestic contexts of Sai and Elephantine. The only exception is sector SAV1 East where they have been found in considerable quantities and are probably connected with the temple cult of nearby Temple A (Budka 2014; Budka 2015b; Budka 2017c). Pot stands are typically numerous in settlement contexts (both in Egypt and Nubia) and vary at both sites in general from low, transitional to tall (fig. 13.1). The pot stands are made primarily in Nile clays (Nile B2 and Nile C), but also attested in Marl clay (especially Marl B and Marl E) (see Budka 2017b, 137 with references). Marl E was also used for the so-called Schaelbecken or fish dishes, attested both at Sai and Elephantine. These large thick-walled trays are ovoid in shape and show incised geometric pattern on the interior. They occur both in Marl and local Nile clay variants - the shapes and decoration patterns are the same in both cases (Budka and Doyen 2013, 191) and are also very similar between Sai and Elephantine.

Amongst functional vessels, cooking pots are of much importance in settlement areas. At Sai, imported, authentic Egyptian wheel-made cooking pots are attested contemporaneous with Nubian-style cooking pots (handmade with basketry impression or incised decoration) (see above, figs. 1 and 6). In the earliest levels at SAV1 North (Levels 5 and 4), the Egyptian type of cooking pot seems to be the most common, gradually declining in frequency through later phases. This form class of Egyptian cooking pots finds close parallels at Elephantine (Seiler 1999, 223, fig. 53). Further variants regarding the size, carination and details of the rim shape are also attested and are likely to represent local variations.

Specific Egyptian ceramic devices thought to be connected with the preparation of food are the so-called fire dogs (Budka 2017b, 138-139). The functional use of these vessels is not precisely understood, but traces of burning link them to processes involving fire, most likely placing cooking pots above flames (Aston 1989; Giddy 1999, 250-253). The fire dogs from the New Kingdom town of Sai might therefore indicate that some of its inhabitants used a typical Egyptian tradition of food preparation: a set of fire dogs with an Egyptian cooking pot (Budka 2012; 2017b, 139). Until now, Sai is the only site in Upper Nubia where early 18th Dynasty cooking pots imported from Egypt were found; equally unique is the large quantity of Egyptian fire dogs (more than 200 pieces in total). However, this large number – contrasting considerably with findings in settlements in Egypt (Elephantine: from House 55, only five examples were found; from "Bauschicht 10" in total just 12) – and the lack of hearths from 18th Dynasty levels raises also doubts about an Egyptian "cooking kit", suggesting a more complex situation and possible multifunctional use of these fire dogs (Budka 2017b, 139). Comparably large quantities of these objects found at Buhen were tentatively associated with copper production processes (Millard 1979, 123-126, pls. 43, 103; Budka 2017c, 441).

Another category of functional vessels which are still not completely understood regarding their function are so-called crucibles, in German "Spitzbodenflaschen". These are well attested at both Sai (fig. 9.6) and Elephantine (fig. 13.7), finding parallels at Amarna (Rose 2007, 92-93, type SG5) and Mirgissa (Vercoutter 1970, 199-200). Whereas these vessels were frequently found in the contexts of hearths/ovens at Mirgissa and Elephantine, the find contexts on Sai are diverse and the function remains unclear. Common features of all "Spitzbodenflaschen" are that they are produced in coarse Nile C variants and most of them were red burnished.

In general, functional ceramics from 18th Dynasty strata at Elephantine compare very well with the Sai material. Despite of close parallels regarding the general corpus and the vessel types, a distinct difference between Sai and Elephantine seems to apply to the use of Marl or Nile clay for functional vessels. This can be illustrated by spinning bowls, but also fish dishes (*'Schaelbecken'*), pot stands and *zir* vessels.

The class of spinning bowls (fig. 14; dishes with two handles attached to the interior of the base; see Rose 2007, 60-61, SD 6, 202-203) is quite interesting. At El-ephantine, 32 pieces from 12451 records in the database represent a total of 0.25%. 21 fragments derive from "Bauschicht 10", and here 14 pieces from House 55 which equals 67%. In total, 15 Marl clay spinning bowls and 17 Nile clay pieces were recorded; in House 55, 8 Marl and 6 Nile clay bowls.

These numbers differ considerably from Sai Island. In sector SAV1 North, 19 of 2287 diagnostic pieces are spinning bowls (0.83%), comprising 18 Nile clay vessels and only a single one made in Marl clay. Five seasons of work at SAV1 East did not yield a single fragment of a spinning bowl; and only three fragments, all in Nile clay, were recorded at sector SAV1 West. All in all, a clear preference for Nile clays, produced onsite in local fabrics is traceable for Sai. This finds parallels at other Egyptian sites in Nubia, for example at Sesebi (Pamela Rose, personal communication, 20 Jan 2012) and Buhen (Emery, Smith and Millard 1979, pl. 68, nos. 143-144 and 148). It is likely to explain this as specialised pottery manufacture to meet the local demand as it was proposed for the workmen's village at Amarna (Rose 2007, 60).



Figure 14. Example of spinning bowl in Marl B from House 55.

All in all, the similar categories of functional ceramic vessels from Sai and Elephantine suggest that very analogous functional needs were present in both settlements. Small differences regarding the functional pottery types were noted for the quantities and especially the material. Functional vessels seem to represent a useful tool to investigate trade and import of vessels versus local demand/local production and should be studied in more detail.

Hybrid pottery production and its cultural implication

As was stressed above, hybridity has to be closely contextualised, in particular if taken into account for reconstructing archaeological "cultures". The two case studies presented here offer a precise historical and cultural framework allowing assumptions based on the appearance of hybrid vessels. Here, much potential lies in particular in the evidence from Elephantine, in the sealed context from House 55 which still needs to be investigated in more detail in the near future. Of course pots do not equal people – but the striking occurrence of hybrid types both on Sai and on Elephantine combining Nubian and Egyptian pottery technology implies that the occupants of these two sites comprised both Egyptians and Nubians and in particular people who were confronted with both cultures.

The general co-existence of Egyptian (wheel-made) and Nubian (hand-made) pottery traditions at both sites is not unusual but has found parallels at Elephantine since millennia (Raue 2015) and in Nubia since the Middle Kingdom (Smith 1995, 53-80). Hand-made Nubian cooking pots and some Kerma fine wares (cups and beakers) are also well attested at other New Kingdom sites in Egypt and Nubia, *e.g.* Tell el-Dab'a (Aston and Bietak 2017) and Sesebi (Rose 2012).

At Elephantine, a large number of wheel-made cooking pots with Nubian-style incised decoration represent ceramic vessels falling into the hybrid pottery category. What Raue called "Medjay-imitations" combines Nubian pottery surface treatment tradition with Egyptian wheelmade technology. Interestingly, Nubian traces of pottery tradition are most often reflected in surface treatment and here in particular in incised decoration (see Rzeuska 2010). Hybrid versions could therefore be products of local potters introduced to a new technological skill, but they could also be the outcome of a Nubian influence on trained Egyptians.

Little is known about the ceramic industry on Sai, though the finished products and their technological features testify that Egyptian potters skilled in the wheel production were certainly present at the town (see above). To date, no New Kingdom kilns or pottery workshops have been identified with certainty (see, however, Hesse 1981, 7-67 for a possible production area at SAV2; for the unsecure date of this site see Budka and Doyen 2013, 170). Furthermore, hybrid types attest to a specific regional style, despite a general similarity with contemporaneous pottery in Egypt. All in all, not only the appearance of Nubian hand-made and Egyptian wheel-made, but especially hybrid types combining both traditions seem to indicate a complex mixture of lifestyles in New Kingdom Sai (Budka 2014, 68 and 71; 2017c).

Summary

A close comparison between 18th Dynasty pottery from Sai and Elephantine stresses first of all the character of Sai as a "colonial" town. The ceramic material from the fortified town of Sai finds ready parallels not only in other Egyptian foundations in Lower and Upper Nubia, but also at various sites in Egypt, especially Elephantine and Abydos. Since the assemblage is well comparable to house inventories from Elephantine, the pottery does suggest a domestic character for the building units in sectors SAV1 North, SAV1 West and also SAV1 East. Furthermore, the development of the pottery corpus throughout the 18th Dynasty is significant. An increase in the variability in shapes and wares can be noted from the time of Thutmose III onwards and is most probably related to the heyday of Sai as an administrative Egyptian centre (cf. Budka SAV1 in this volume). Imported wares from Canaan, the Levant and the imitation of an Aegean rhyton attest to the full integration of the town on Sai Island within Egyptian international trade routes of the second half of the 18th Dynasty. The role of these imported and partly nicely decorated vessels for the occupants of Sai is difficult to assess - they might have been used for creating a "Pharaonic lifestyle" far away from home, but they could also simply be regarded as pretty 'knick-knacks with exotic cachet' (Barrett 2009, 226). Attributing a single meaning to an entire object type seems not reasonable in this case and it still remains to be tested how the entire ceramic corpus of New Kingdom Sai contributes to the reconstruction of lifestyles on the island.

At present, despite a general similarity with contemporary pottery in Egypt, the Egyptian pottery from Sai Island can also be used as a case study that local pottery workshops and traditions are traceable in New Kingdom Nubia. Regional style was mostly expressed by surface treatment and decoration (*e.g.* the preference of painted triangles, see Smith and Buzon in this volume). Amongst the site-specific features of the town of Sai, the large number of fire dogs is especially relevant. Compared to Elephantine, the quantity is much higher and raises the question whether the fire dogs are connected with some specific function or possible production process. This could suggest some kind of workshop character for parts of SAV1 North and SAV1 West. The high concentration of fire dogs is comparable to the very large number of stone tools found in these sectors (see Budka 2017c, 438).

The most pressing questions about the pottery from Sai Island, especially with regard to its comparison with Elephantine, were the identity of the producers/potters and of the users of the vessels. The answers must derive from respecting a very dynamic microcosm with fuzzy boundaries between cultural identities at the site, but as illustrated by other examples with both real Egyptian and Egyptianised pottery, the following seems likely for Sai as well: 'the close and multifaceted links between issues of cultural identity and the production sequence and technology employed in pottery manufacture, as well as the foodways and administrative systems of the individuals who produced and utilized such pottery' (Pierce 2013, 531). As mentioned above, no clear traces of kilns were found at Sai, but part of the material was definitely a local production in Egyptian style (see D'Ercole and Sterba in this volume). Here, it is interesting to mention the situation of pottery production at the Middle Kingdom Nubian forts. Nadejda Reshetnikova and Bruce Williams have convincingly argued that episodic work of potters as itinerant craftsmen travelling from site to site played an important role (Reshetnikova and Williams 2016, 500-501). New evidence from Askut complements this picture: based on the existence of a ceramic potter's wheel head, Stuart Tyson Smith demonstrated that the production and distribution of pottery during the Middle Kingdom in Nubia was probably quite complex, including industrial workshops at major sites like Askut, as well as local production for demands on a much smaller scale at other sites (Smith 2014).

For New Kingdom Sai, it would be reasonable to assume an industrial workshop during the heyday of the site. However, since we still know little about the internal structure of the town, it is possible to consider small scale production as well – perhaps the demands of the various sectors within the town (see Budka SAV1 in this volume) were fulfilled on a micro scale. Hybrid versions of New Kingdom and Nubian style vessels illustrate the close interconnections between Egyptians and Nubians. One has to assume that Nubian potters were being trained in wheel-made production by Egyptians, at least in the first generation. For this training, but also possibly to explain higher quality products in local fabrics, the presence of Egyptian potters at the site is very likely (see Reshetnikova and Williams 2016).

Nubian cooking pots and storage vessels are regular finds both at Sai and Elephantine and seem to attest in both cases to Nubian presence, maybe to Nubian cooks or persons otherwise involved in food production; at present, no clear gender-related conclusion is possible (see above). Nubian fine wares seem a little less clear in this respect – they may also be regarded as "luxury ware", likewise used by Egyptians (cf. Helmbold-Doyé and Seiler 2012, 36; Raue 2015, 360-361). Pots do not equal people but offer a much more complicated puzzle for archaeologists. As mentioned above, first of all the individual corpora have to be explained within their own small microcosm and contexts.

To conclude, the individuals using the pottery within the New Kingdom town of Sai remain difficult to grasp. Of course they were the occupants of New Kingdom Sai – but here, much is still debatable. At present, the most likely scenario would be that both Egyptians and Nubians settled at the site, with the Egyptians being both the majority and the "upper" social class. As highlighted elsewhere, there is a clear development with changing stratification from the earliest levels to the heyday in Thutmoside times (Budka 2015a).

All in all, the combined pottery analysis from New Kingdom Sai and Elephantine allows for proposing some new tentative thoughts about the occupants of Sai. From the earliest strata onwards, Nubian ceramics appear together with imported Egyptian wares and locally wheel-made products. Since the Nubian pots are the minority, it seems safe to assume that the Egyptian style town was first occupied by Egyptians. However, the production of hybrid types of pottery makes it reasonable to suggest that Egyptians and Nubians lived and worked side by side, combining aspects of both cultures. Although it comes as no surprise that within a colonial Egyptian site like Sai the Egyptian appearance is dominant, a local substratum is traceable as well. The pottery corpus seems to attest to people who identified themselves primarily as Egyptian officials and occupants of an Egyptian site but may nevertheless have had family ties in Nubia and derive from a local group with a specific cultural identity that was never completely abandoned.

Outlook

The close comparisons for the material from Sai at sites both in Egypt (e.g. Elephantine, Abydos and Amarna) and Upper Nubia (e.g. Sesebi) as well as certain differences (e.g. the fabrics used for functional types) are significant new results of AcrossBorders' research over the last years, allowing advances in fine dating and steps towards a better understanding of ceramic industries, trade, contact and household inventories at one of the most important New Kingdom Egyptian sites in northern Sudan. However, these analyses still need to be intensified – more general data from additional sites, more iNAA data and also petrographic observations would be useful and necessary for a further comprehensive approach.

Cooking pots and hybrid vessels still require a more detailed study because of their significance for reconstructing both producers and users of the pots and their individual food ways. In general, a detailed study of individual form groups, e.g. zir vessels, beer jars, bowls and dishes, from New Kingdom sites in Nubia seem worthwhile. Common efforts promise a better understanding of the topics addressed here in the near future, especially with new material from Serra (Williams forthc.), Amara West, Sesebi (Rose 2017), Dokki Gel (Ruffieux 2011; 2014; 2016; see also Bonnet in this volume), Tombos (see Smith and Buzon in this volume), Sai and also sites located in Egypt being published or in preparation for publication. Beyond doubt, the island of Elephantine holds a key role for these ceramic studies comparing Nubian and Egyptian material because of its function as trade port at the First Cataract and especially because of its stratigraphy, allowing the contextualisation of the development in the New Kingdom with the preceding Second Intermediate Period. In conclusion, pottery from New Kingdom Nubian sites seems to be a powerful tool for reconstructing social, economic and cultural identities at the local level with much potential for future studies.

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References

- Arnold, Do. 1993. Fascicle 1. Techniques and Traditions of Manufacture in the Pottery of Ancient Egypt, in: Arnold, Do. and Bourriau, J. (eds.), An Introduction to Ancient Egyptian Pottery. Sonderschriften des Deutschen Archäologischen Instituts Abteilung Kairo 17. Mainz am Rhein: Philipp von Zabern, 7-141.
- Aston, D.A. 1989. Ancient Egyptian "Fire Dogs" A New Interpretation. *Mitteilungen des Deutschen Archäologi*schen Instituts Abteilung Kairo 45, 27-32.
- Aston, D.A. 1998. Die Keramik des Grabungsplatzes Q I. Teil 1, Corpus of Fabrics, Wares and Shapes. Forschungen in der Ramses Stadt. Die Grabungen des Pelizaeus-Museums Hildesheim in Qantir-Pi-Ramesse, Bd. 1. Mainz am Rhein: Philipp von Zabern.
- Aston, D.A. 1999. Elephantine XIX. Pottery from the Late New Kingdom to the Early Ptolemaic Period. Archäologische Veröffentlichungen des Deutschen Archäologischen Instituts, Abteilung Kairo 95. Mainz am Rhein: Philipp von Zabern.
- Aston, D.A. 2002. The Pottery from H/VI Süd Strata a and b: Preliminary Report. *Egypt and the Levant* 11, 167-196.
- Aston, D.A. 2003. New Kingdom Pottery Phases as Revealed through Well-dated Tomb Contexts, in: Bietak, M. (ed.), *The Synchronisation of Civilizations* in the Eastern Mediterranean in the Second Millennium BC II. Vienna: Austrian Academy of Sciences Press, 135-162.
- Aston, D.A. 2006. Making a Splash. Ceramic Decoration in the Reigns of Tuthmosis III and Amenophis II, in: Czerny, E., Hein, I., Hunger, H., Melman, D. and Schwab, A. (eds.), *Timelines. Studies in Honour* of Manfred Bietak. Orientalia Lovaniensia Analecta 149.1. Leuven: Peeters, 65-73.
- Aston, D.A. 2008. Untersuchungen im Totentempel des Merenptah in Theben Bd. IV. The Pottery. Beiträge zur Ägyptischen Bauforschung und Altertumskunde 17. Mainz am Rhein: Philipp von Zabern.

- Aston, D.A. 2009. Kom Rabi^ca, Ezbet Helmi, and Saqqara NK 3507. A Study in Cross-Dating, in: Bietak, M. and Czerny, E. (eds.), *The Synchronisation of Civilizations in the Eastern Mediterranean in the Second Millennium BC III.* Vienna: Austrian Academy of Sciences Press, 207-248.
- Aston, D.A., 2013. TT 320 and the k3y of Queen Inhapi – A Reconsideration Based on Ceramic Evidence. *Göttinger Miszellen* 236, 7-20.
- Aston, D.A. and Bietak, M. 2017. Nubians in the Nile Delta: À propos Avaris and Peru-nefer, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 491-524.
- Bader, B. 2009. Tell el-Dab'a XIX. Auaris und Memphis im Mittleren Reich und in der Hyksoszeit: Vergleichsanalyse der materiellen Kultur. Untersuchungen der Zweigstelle Kairo 31. Vienna: Austrian Academy of Sciences Press.
- Bader, B. 2012. Migration in Archaeology: An Overview with a Focus on Ancient Egypt, in: Messer, M., Schroeder, R. and Wodak, R. (eds.), *Migrations: Interdisciplinary Perspectives*. Vienna: Springer, 213-226.
- Bader, B. 2013. Cultural Mixing in Egyptian Archaeology: The 'Hyksos' as a Case Study. Archaeological Review from Cambridge Issue 28.1: Archaeology and Cultural Mixing, 257-286.
- Barrett, C.E. 2009. The Perceived Value of Minoan and Minoanizing Pottery in Egypt. *Journal of Mediterrane*an Archaeology 22, 211-234.
- Binder, M. 2017. The New Kingdom tombs at Amara West: Funerary perspectives on Nubian-Egyptian interactions, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 591-613.
- Bourriau, J. 1981. Umm el-Ga'ab. Pottery from the Nile Valley before the Arab Conquest. Cambridge: Cambridge University Press.
- Bourriau, J. 1989. The Pottery, in: Lacovara, P., Deir el-Ballas, Preliminary Report on the Deir el-Ballas Expedition, 1980-1986. American Research Center in Egypt Reports 12. Winona Lake, Indiana: Eisenbrauns, 15-22 and 54-65 [figs.].
- Bourriau, J. 1991. Relations between Egypt and Kerma during the Middle and New Kingdoms, in: Davies, W.V. (ed.), *Egypt and Africa. Nubia from Prehistory to Islam.* London: The British Museum, 129-144.
- Bourriau, J. 2010. The Survey of Memphis IV. Kom Rabia: The New Kingdom Pottery. Egypt Exploration Society Excavation Memoir 93. London: Egypt Exploration Society.
- Budka, J. 2005. XII. Zur Keramik des Neuen Reiches erste Beobachtungen anhand des Materials aus der

Oststraße B II, in: Dreyer, G., Bommas, M., Budka, J., Duttenhöfer, R., Jeuthe, C., Jones, J., Kopp, P., Kroll, H., Laskowska-Kusztal, E., Pastenak, R., von Pilgrim, B., von Pilgrim, C., Raue, D., Schaten, S., Seidlmayer, St.J., Ubertini, C., Stadt und Tempel von Elephantine, 31./32. Grabungsbericht. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 61, 90-116.

- Budka, J. 2006. The Oriental Institute Ahmose and Tetisheri Project at Abydos 2002-2004: The New Kingdom pottery. *Egypt and the Levant* 16, 83-120.
- Budka, J. 2010. The New Kingdom-Pottery from Elephantine, in: Raue, D., von Pilgrim, C., Kopp, P., Arnold, F., Bommas, M., Budka, J., Schultz, M., Gresky, J., Kozak, A. and Seidlmayer, S.J., Report on the 37th season of excavation and restoration on the island of Elephantine. *Annales du Service des Antiquités de l'Égypte* 84, 350-352.
- Budka, J. 2011. The early New Kingdom at Sai Island: Preliminary results based on the pottery analysis (4th Season 2010). *Sudan & Nubia* 15, 23-33.
- Budka, J. 2013. Festival Pottery of New Kingdom Egypt: Three Case Studies, in: Bader, B. and Ownby, M.F. (eds.), Functional Aspects of Egyptian Ceramics within their Archaeological Context. Proceedings of a Conference held at the McDonald Institute for Archaeological Research, Cambridge, July 24th – July 25th, 2009. Orientalia Lovaniensia Analecta 217. Leuven: Peeters, 188-195.
- Budka, J. 2014. The New Kingdom in Nubia: New results from current excavations on Sai Island. *Egitto e Vicino Oriente* 37, 55-87.
- Budka, J. 2015a. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2015b. Bichrome Painted Nile Clay Vessels from Sai Island (Sudan). *Bulletin de la céramique égyptienne* 25, 331-341.
- Budka, J. 2016a. The New Kingdom town on Sai Island establishing the date of its foundation: potential and limits of ceramic studies. *Cahier de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 30, 2013-2015, 45-63.
- Budka, J. 2016b. Egyptian Cooking Pots from the Pharaonic Town of Sai Island, Nubia. *Bulletin de liaison de la céramique égyptienne* 26, 285-295.
- Budka, J. 2016c. Vessels of life: New evidence for creative aspects in material remains from domestic sites, in: Bader, B., Knoblauch, C.M. and Köhler, E.C. (eds.), Vienna 2 – Ancient Egyptian Ceramics in the 21st Century, Proceedings of the International Conference held at the University of Vienna 14th-18th of May, 2012. Orientalia Lovaniensia Analecta 245. Leuven: Peeters, 85-102.

- Budka, J. 2017a. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Budka, J. 2017b (ed.). AcrossBorders I. The New Kingdom Town of Sai Island, Sector SAV1 North. Contributions to the Archaeology of Egypt, Nubia and the Levant 4. Vienna: Austrian Academy of Sciences Press.
- Budka, J. 2017c. Life in the New Kingdom town of Sai Island: Some new perspectives, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 429-447.
- Budka, J. and Doyen, F. 2013. Living in New Kingdom towns in Upper Nubia – New evidence from recent excavations on Sai Island. *Egypt and the Levant* 22/23, 2012/2013, 167-208.
- Carrano, J.L., Girty, G.H. and Carrano, C.J. 2009. Re-examining the Egyptian colonial encounter in Nubia through a compositional, mineralogical, and textural comparison of ceramics. *Journal of Archaeological Science* 36, 785-797.
- Cohen, E.S. 1992. Egyptianisation and the Acculturation Hypothesis: An investigation of the Pan-Grave, Kerman and C-Group material cultures in Egypt and the Sudan during the Second Intermediate Period and the Eighteenth Dynasty. Unpublished PhD Thesis: Yale University.
- D'Ercole, G., Budka, J., Sterba, J.H., Garcea, E.A.A. and Mader, D. 2017. The successful 'recipe' for a long-lasting tradition: Nubian ceramic assemblages from Sai Island (northern Sudan) from prehistory to the New Kingdom. *Antiquity* 91, 24-42.
- De Souza, A.M. 2012. Pots and Pans. Observations on the Pan-Grave Culture in Egypt. MA Thesis: Macquarie University.
- De Souza, A.M. 2013. The Egyptianisation of the Pan-Grave Culture: a new look at an old idea. *The Bulletin* of the Australian Centre for Egyptology 24, 109-126.
- Dores Cruz, M. 2011. Pots are pots, not people: Material culture and ethnic identity in the Banda Area (Ghana), nineteenth and twentieth centuries. *Azania Archaeological Research in Africa* 46 (3), 336-357.
- Giddy, L. 1999. *The Survey of Memphis II. Kom Rabiaa: the New Kingdom and Post-New Kingdom Objects.* Egypt Exploration Society Excavation Memoir 64. London: Egypt Exploration Society.
- Goody, J. 1982. Cooking, Cuisine and Class. A Study in Comparative Sociology. Cambridge: Cambridge University Press.
- Gratien, B. 1978. *Les cultures Kerma. Essai de classification.* Lille: Institut de Papyrologie et d'Égyptologie de Lille.
- Hahn, H.-P. and Weis, H. 2013 (eds.). *Mobility, Meaning* and Transformations of Things: Shifting contexts of material culture through time and space. Oxford: Oxbow Books.

- Helmbold-Doyé, J. and Seiler, A. 2012. Kerma-Ware Vessels Found in an Intact Burial Chamber at Aniba, in: Forstner-Müller, I. and Rose, P. (eds.), Nubian Pottery from Egyptian Cultural Contexts of the Middle and Early New Kingdom. Proceedings of a Workshop held at the Austrian Archaeological Institute at Cairo, 1-12 December 2010, Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Institutes 13, Vienna: Phoibos, 31-48.
- Hesse, A. 1981. L'enclos SAV2 de l'île de Saï (Soudan). Cahier de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille 6, 7-67.
- Holthoer, R. 1977. New Kingdom Pharaonic Sites. The Pottery. The Scandinavian Joint Expedition to Sudanese Nubia Publications 5.1. Copenhagen, Oslo and Stockholm: Scandinavian University Books.
- Hope, C.A. 1989. *Pottery of the Egyptian New Kingdom: Three Studies.* Burwood: Victoria College Press.
- Jacquet-Gordon, H. 1981. A tentative typology of Egyptian bread moulds, in: Arnold, Do. (ed.), *Studien zur altägyptischen Keramik*. Mainz: Philipp von Zabern, 11-24.
- Jacquet-Gordon, H. 2012. *Karnak-Nord X. Le trésor de Thoutmosis Ier, La ceramique*. Fouilles de l'Institut français d'archéologie orientale du Caire 65. Cairo: Institut français d'archéologie orientale du Caire.
- Knoblauch, C.M. 2007. Askut in Nubia: A Re-examination of the Ceramic Chronology, in: Endreffy, K. and Gulyás, A. (eds.), Proceedings of the Fourth Central European Conference of Young Egyptologists: 31 August – 2 September 2006, Budapest. Studia Aegyptiaca 18. Budapest: Université Eötvös Loránd de Budapest, 225-238.
- Knoblauch, C.M. 2011. Not All That Glitters: A Case Study of Regional Aspects of Egyptian Middle Kingdom Pottery Production in Lower Nubia and the Second Cataract. *Cahiers de la céramique* égyptienne 9, 167-183.
- Kraidy, M. 2005. *Hybridity, or the Cultural Logic of Globalization.* Philadelphia: Temple University Press.
- Martin, M.A.S. 2008. Egyptians at Ashkelon? An Assemblage of Egyptian and Egyptian-Style Pottery. *Egypt* and the Levant 18, 245-274.
- Miellé, L. 2012. La céramique pharaonique de la ville fortifiée (SAV1 N) de l'île de Saï. *Cahier de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 29, 2011-2012, 173-187.
- Miellé, L. 2014. Nubian Traditions on the Ceramics Found in the Pharaonic Town on Sai Island, in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies*. British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 387-392.

- Millard, A. 1979. Part III. The Finds, in: Emery, W.B., Smith, H.S., Millard, A. (eds.), *The Fortress of Buhen: The Archaeological Report*. Egypt Exploration Society, Excavation Memoir 49. London: Egypt Exploration Society, 109-188.
- Miller, D. 1985. Artefacts as categories. A study of ceramic variability in Central India. New Studies in Archaeology. Cambridge: Cambridge University Press.
- Minault-Gout, A. and Thill, F. 2012. Saï II. Le cimetière des tombes hypogées du Nouvel Empire (SAC5). Fouilles de l'Institut français d'archéologie orientale du Caire 69. Cairo: Institut français d'archéologie orientale du Caire.
- Nordström, H.-Å. and Bourriau, J. 1993. Fascicle 2. Ceramic Technology: Clays and Fabrics, in: Arnold, Do. and Bourriau, J. (eds.), An Introduction to Ancient Egyptian Pottery. Sonderschriften des Deutschen Archäologischen Instituts Abteilung Kairo 17. Mainz am Rhein: Philipp von Zabern, 143-190.
- Pappa, E. 2013. Postcolonial Baggage at the End of the Road: How to Put the Genie Back into its Bottle and Where to Go from There. *Archaeological Review from Cambridge* 28.1, 29-50.
- Pierce, K.V.L. 2013. *Living and Dying Abroad: Aspects of Egyptian Cultural Identity in Late Bronze Age and Early Iron Age Canaan*. Los Angeles: UCLA Electronic Theses and Dissertations.
- Raue, D. 2015. *Elephantine und Nubien vom 4.-2. Jtd. v. Chr.* Unpublished habilitation thesis. Leipzig: Universität Leipzig.
- Raue, D. 2017. Nubian pottery on Elephantine Island in the New Kingdom, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 525-536.
- Reshetnikova, N. and Williams, B.B. 2016. Pottery Production during the Middle Kingdom at Serra East Fortress in Nubia, in: Bader, B., Knoblauch, C.M. and Köhler, E.C. (eds.), Vienna 2 – Ancient Egyptian Ceramics in the 21st Century. Proceedings of the International Conference held at the University of Vienna 14th-18th of May, 2012. Orientalia Lovaniensia Analecta 245, Leuven: Peeters, 487-505.
- Ruffieux, P. 2009. Poteries découvertes dans un temple égyptien de la XVIII^e dynastie à Doukki Gel (Kerma). *Genava, nouvelle série* 57, 121-134.
- Ruffieux, P. 2011. The pottery of Dukki Gel. Kerma 2010-2011. Université de Neuchâtel, Documents de la mission archéologique suisse au Soudan 3, 33-37.
- Ruffieux, P. 2014. Early 18th Dynasty Pottery found in Kerma (Dokki Gel), in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond: Proceedings of the 12th International Conference for Nubian*

Studies. British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 417-429.

- Ruffieux, P. 2016. Pottery of the 18th Dynasty at Dukki Gel (Kerma): Classical Repertoire and Local Style, in: Bader, B., Knoblauch, C.M. and Köhler, E.C. (eds.), Vienna 2 – Ancient Egyptian Ceramics in the 21st Century. Proceedings of the International Conference held at the University of Vienna 14th-18th of May, 2012. Orientalia Lovaniensia Analecta 245. Leuven: Peeters, 507-525.
- Rose, P. 2007. The Eighteenth Dynasty Pottery Corpus from Amarna. Egypt Exploration Society Excavation Memoir 83. London: Egypt Exploration Society.
- Rose, P. 2012. Early 18th Dynasty Nubian Pottery from the Site of Sesebi, Sudan, in: Forstner-Müller, I. and Rose, P. (eds.), *Nubian Pottery from Egyptian Cultural Contexts of the Middle and Early New Kingdom. Proceedings of a Workshop held at the Austrian Archae ological Institute at Cairo, 1-12 December 2010.* Ergänzungshefte zu den Jahresheften des Österreichischen Archäologischen Institutes 13. Vienna: Phoibos, 13-29.
- Rose, P. 2017. Sesebi: Ceramics, chronology and society, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 465-473.
- Rzeuska, T. 2010. Zigzag, triangle and fish fin. On the relations of Egypt and C-Group during the Middle Kingdom, in: Godlewski, W. and Łajtar, A. (eds.), Between the Cataracts. Proceedings of the 11th International Conference of Nubian Studies, Warsaw University, 27 August 2 September 2006, Part two: Session papers. Polish Archaeology in the Mediterranean Supplement Series 2.2/2. Warsaw: Warsaw University, 397-420.
- Rzeuska, T. 2012. Elephantine a place of an end and a beginning, in: Schiestl, R. and Seiler, A. (eds.), *Handbook of pottery of the Egyptian Middle Kingdom. Volume II: The Regional Volume.* Contributions to the Chronology of the Eastern Mediterranean 31.2. Vienna: Austrian Academy of Science Press, 329-359.
- Seiler, A. 1999. Zur Formentwicklung der Keramik der Zweiten Zwischenzeit und der frühen 18. Dynastie, in: Kaiser, W. et al., Stadt und Tempel von Elephantine, 25./26./27. Grabungsbericht. Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo 55, 204-224.
- Seiler, A. 2010. The Second Intermediate Period in Thebes: Regionalism in pottery development and its cultural implications, in: Marée, M. (ed.), *The Second Intermediate Period (Thirteenth-Seventeenth Dynasties). Current Research, Future Prospects.* Orientalia Lovaniensia Analecta 192. Leuven: Peeters, 39-53.

- Smith, S.T. 1995. Askut in Nubia. The Economics and Ideology of Egyptian Imperialism in the Second Millennium B.C. London: Kegan Paul International.
- Smith, S.T. 2003a. Wretched Kush. Ethnic Identities and Boundaries in Egypt's Nubian Empire. London: Routledge.
- Smith, S.T. 2003b. Pots and Politics: Ceramics from Askut and Egyptian Colonialism during the Middle through New Kingdoms, in: Redmount, C.A. and Keller, C.A. (eds.), Egyptian Pottery, Proceedings of the 1990 Pottery Symposium at the University of California, Berkeley. University of California Publications in Egyptian Archaeology 8, Berkeley: Regents of the University of California, 43-79.
- Smith, S.T. 2014. A Potter's Wheelhead from Askut and the Organization of the Egyptian Ceramic Industry in Nubia. *Journal of the American Research Center in Egypt* 50, 103-121.
- Smith, S.T. and Buzon, M. 2014. Colonial Entanglements: "Egyptianization" in Egypt's Nubian Empire and the Nubian Dynasty, in: Anderson, J.R. and Welsby, D. A. (eds.), *The Fourth Cataract and Beyond. Proceedings* of the 12th International Conference for Nubian Studies. British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 431-442.
- Smith, S. T. and Buzon, M. 2017. Colonial encounters at New Kingdom Tombos: Cultural entanglements and hybrid identity, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 615–630.
- Spataro, M., Millet, M. and Spencer, N. 2015. The New Kingdom settlement of Amara West (Nubia, Sudan): mineralogical and chemical investigation of the ceramics. *Archaeological and Anthropological Sciences* 7.4, 399-421.
- Spence, K., Rose, P.J., Bradshaw, R., Collet, P., Hassan, A., MacGinnis, J., Masson, A. and van Pelt, P. 2011. Sesebi 2011. Sudan & Nubia 15, 34-39.
- Spencer, N., Stevens, A. and Binder, M. 2017. Introduction: History and historiography of the colonial entanglement, and the shaping of new archaeologies for Nubia in the New Kingdom, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 1-61.
- Steindorff, G. 1937. Aniba II. Service des Antiquités de l'Egypte. Mission Archéologique de Nubie 1929-1934. Glückstadt: J.J. Augustin.
- Stockhammer, P.W. 2012a. Questioning Hybridity, in: Stockhammer, P.W. (ed.), *Conceptualizing Cultural*

Hybridization. A Transdisciplinary Approach. Berlin: Springer, 1-4.

- Stockhammer, P.W. 2012b. Conceptualizing Cultural Hybridization in Archaeology, in: Stockhammer, P.W. (ed.), Conceptualizing Cultural Hybridization. A Transdisciplinary Approach. Berlin: Springer, 43-58.
- Stockhammer, P.W. 2013. From Hybridity to Entanglement, From Essentialism to Practice. Archaeological Review from Cambridge Issue 28.1: Archaeology and Cultural Mixing, 11-28.
- Van Pelt, W.P. 2013. Revising Egypto-Nubian Relations in New Kingdom Lower Nubia: From Egyptianization to Cultural Entanglement. *Cambridge Archaeological Journal* 23.3, 523-550.
- Vercoutter, J. 1970. *Mirgissa I.* Paris: Mission Archéologique Française au Soudan.
- Von Pilgrim, C. 1996. Elephantine XVIII. Untersuchungen in der Stadt des Mittleren Reiches und des Zweiten Zwischenzeit. Archäologische Veröffentlichungen des Deutschen Archäologischen Instituts, Abteilung Kairo 91. Mainz am Rhein: Philipp von Zabern.
- Von Pilgrim, C. 2015. Excavation of House 55, in: Seidlmayer, S.J. et al., Report on the Excavations at Elephantine by the German Archaeological Institute and the Swiss Institute from autumn 2014 to spring 2015, 10-12 [www.dainst.org/projekt/-/project-display/25953].
- Von Pilgrim, C. in press. House 55: A workshop of the late 17th and early 18th Dynasty (Area VIII), in: Seidlmayer, S.J. *et al.*, Report on the 46th season of the Excavations at Elephantine by the German Archaeological Institute and the Swiss Institute. *Annales du Service des Antiquités de l'Égypte.*
- Williams, B. 1992. New Kingdom Remains from Cemeteries R, V, S and W at Qustul and Cemetery K at Adindan. The University of Chicago Oriental Institute Nubian Expedition VI. Chicago: The Oriental Institute.
- Williams, B. 1993. Excavations at Serra East, Parts 1-5: A-Group, C-Group, Pan-Grave, New Kingdom, and X-Group Remains from Cemeteries A-G and Rock

Shelters. The University of Chicago Oriental Institute Nubian Expedition 10. Chicago: The Oriental Institute.

- Williams, B. forthc. Excavations at Serra East, George R. Hughes and James Knudstad, Directors. Part 6: Middle Kingdom and New Kingdom Remains from the Fortress. The University of Chicago Oriental Institute Nubian Expedition 11. Chicago: The Oriental Institute.
- Wodzińska, A. 2011. Pottery and chronology. Preliminary remarks on ceramic material from Tell el-Retaba, in: Aston. D.A. et al. (eds.), Under the Potter's Tree. Studies on Ancient Egypt Presented to Janine Bourriau on the Occasion of her 70th Birthday. Orientalia Lovaniensia Analecta 204. Leuven: Peeters, 1016-1019.
- Wolf, W. 1937. G. Gefäße: I. Tongefäße, in: Steindorff, G, Aniba II. Service des Antiquités de l'Egypte. Mission Archéologique de Nubie 1929-1934. Glückstadt: J.J. Augustin, 125-138.
- Woolf, G. 1998. Becoming Roman: The Origins of Provincial Civilization in Gaul. Cambridge: Cambridge University Press.

Notes on contributor

Julia Budka studied Egyptology and Classical Archaeology at the University of Vienna and received her PhD in Egyptology, University of Vienna in 2007. She held a researcher position at Humboldt University Berlin (2004-2012) and was a temporary replacement Assistant Professor at the University of Vienna (2011-2012). With a START Prize 2012 and ERC Starting Grant 2012 she implemented her project AcrossBorders at the Austrian Academy of Sciences. Since 2015, Julia Budka is Professor of Egyptian Archaeology and Art, LMU Munich (and transferred her ERC project to LMU). Her specialty fields are Egyptian archaeology and ceramics; she conducts excavations in Sudan and Egypt, both at funerary and settlement sites, especially at Luxor (Thebes), Elephantine, Abydos and Sai Island.

From Macro Wares to Micro Fabrics and INAA Compositional Groups

The pottery corpus of the New Kingdom town on Sai Island (Northern Sudan)

Giulia D'Ercole^{*} and Johannes H. Sterba^{**}

Abstract

Between 2013 and 2016, within the framework of the European Research Council Across-Borders project, 344 samples including sherds, unfired bricks and natural soils have been submitted to petrological and chemical analysis. Of these, over 100 were Nile clay ware ceramics from the New Kingdom town on Sai Island (northern Sudan).

Instrumental Neutron Activation Analysis (INAA), with the application of the multivariate statistical filter proposed by Mommsen, succeeded in separating the samples in different compositional groups, whose largest is Group 1 including almost all of the Nile clay wares. Within the remainder of the samples, 16 additional groups were identified that correspond to and supplement the macroscopic identification. Within Group 1, which is chemically very homogeneous, specific elements allowed a separation between "Nubian-Local", "Egyptian-Local" and authentic Egyptian samples in Nile clay wares, although a certain amount of overlap was found.

Observations on thin sections with optical microscopy (OM) were consistent with the chemical results and confirmed that the largest group of Nile clay wares is strongly homogeneous also in its petrography. In spite of this, different micro fabrics were recognised within the Nubian and the Egyptian (local and not) samples. These petrographic fabrics well mirror the macro-wares identified on the field and point at a technological variability and at a compresence of different recipes in the use of Nile silt clays.

Keywords: Nile clay wares, Instrumental Neutron Activation Analysis (INAA), Optical Microscopy (OM), Sudan, Sai Island

Introduction

The Pharaonic pottery corpus of the New Kingdom town on Sai Island (Northern Sudan) consists of thousands of sherds and vessels made of different fabrics and manufactured according to different traditions and recipes (Budka 2011; 2014; Budka and Doyen 2013; see also Budka Pottery in this volume).

Between 2013 and 2016, within the framework of the project AcrossBorders, 344 samples were submitted to archaeometric laboratory analyses. This number included:

*ERC Project AcrossBorders, Institute of Egyptology and Coptology, Ludwig-Maximilians-Universität München, Katharina-von-Bora-Str. 10, 80333 Munich, Germany; Giulia.Dercole@aegyp.fak12. uni-muenchen.de

**Atominstitut, Technische Universität Wien, Stadionallee 2, A-1020 Vienna; jsterba@ati.ac.at



Figure 1. Macrophotographs of examples from Nubian-Local (a-b), Egyptian-Local (c-d) and Egyptian Import Nile clays (e-f) samples (photos G. D'Ercole).

- 308 ceramic samples (mostly from the New Kingdom town but also from four different prehistoric sites on Sai Island,¹ and three modern potsherds from the nearby village of Abri);
- 30 soil samples;
- two oven fragments;
- four unfired bricks.

Among the New Kingdom pottery corpus, most of the samples belong to the large macro group of the so-called "Nile clay wares". These are: "Nubian-Local" types hand-made with typical Nubian decorations and technological features, "Egyptian-Local" types wheelmade after the Egyptian fashion and technological style, and imported, authentic Egyptian wares manufactured in Nile clay wares. These samples show from a macroscopic point of view clear stylistic and morphological differences. The Nubian pottery is always hand-shaped and consists of different wares and macroscopic fabrics, such as the very fine Kerma style vessels (beakers and bowls) with red burnished and black topped surfaces, the traditional coarse Nubian cooking pots with basketry impressions or incised decorations, and the large thick-walled storage jars (Budka 2014; 2017a; cf. also D'Ercole *et al.* 2017) (figs. 1a-b).

The Egyptian-Local pottery is wheel-thrown and often undecorated. It is in most cases very similar to the same vessels manufactured contemporaneously in Egypt (cf. Carrano *et al.* 2009) and is made of different Nile fabrics classified as local variations (Budka 2017c, 120-123) of the Vienna System (Nordström and Bourriau 1993; Bourriau *et al.* 2000) (figs. 1c-d). Finally, imported, authentic Egyptian cooking pots in Nile clay wares coexist and were used side by side with local Nubian and Egyptian cooking pots (cf. Budka 2017a, 440). These vessels are of particular interest and were most likely imported to Sai Island from Upper Egypt (Budka 2016) (figs. 1e-f).

Samples, other than the Nile clay wares, included: Marl clays and Oasis clays as well as imported wares from the outside of Egypt (*i.e.*, Levantine wares). These samples are not discussed in this paper.

Research aims

Following a number of previous technological and compositional studies on ancient Nubian and Egyptian ceramic assemblages (*e.g.* Nordstöm 1972; De Paepe *et al.* 1992; Bourriau 1998; Bourriau *et al.* 2006; Carrano *et al.* 2009; D'Ercole *et al.* 2015; 2017; Spataro *et al.* 2015), this paper presents a geochemical and petrographic analysis of the New Kingdom pottery corpus of Sai Island, with a focus on the largest group of the Nile clay wares.²

The three principal aims of this study were:

- to discriminate between local productions and possible imports made in Nile clay fabrics;
- to identify distinct groupings and, particularly, distinct clay sources for the Nile clay fabrics;
- to recognise different technological formulas/ recipes in the use of clay raw materials and tempers by the ancient Nubian and Egyptian potters;

Finally, a more general purpose consisted of finding a correlation between INAA compositional groups, "macro" (recognised on the fieldwork) and "micro" (recognised at the microscope) fabrics and to evaluate the

¹ A study on the "Longue durée" of the Nubian pottery from Sai Island from prehistoric times until the New Kingdom period has been recently published (D'Ercole *et al.* 2017).

² The complete set of data will be published elsewhere (Budka, J. ed., *AcrossBorders III*, forthcoming).

efficiency and the limits of the analytical methods we used. Do the compositional and petrographic groupings fit with the macroscopic classification? What more did we learn? What are the advantages and the possible limits of geochemistry and petrography?

Sampling

The New Kingdom ceramic samples were collected during four field seasons (from 2013 until 2016) from three sectors of the Pharaonic town: SAV1 North, the sector situated along the northern enclosure wall which was excavated between 2008 and 2012 by the Sai Island Archaeological Mission (SIAM) of the University Charles-de-Gaulle-Lille 3 (Doyen 2009; 2014; Budka and Doyen 2013; Budka 2017c), and SAV1 East and SAV1 West, the two new sectors opened in the town since 2013, within the European Research Council AcrossBorders project directed by Julia Budka (2013; 2015; 2017a; 2017b; see also Budka SAV1 in this volume) (fig. 2). For each of these sectors, the samples were chosen from different stratigraphic levels and from the different macroscopic fabrics visually identified in the field (tab. 1).

Before being analysed, each sample was first entered into the FileMaker database used also for the macroscopic classification of the ceramics, given an identification label (the acronym SAV/S = "Sai Island New Kingdom Town (Ville)/Sample" followed by numbers starting from 01), registered and photographed. Two main layouts were created on the database, of which one reported the stratigraphic provenance and the general macroscopic characteristics of the sample; the other was specifically projected for recording the microscopic petrographic features and the chemical compositional grouping.

Samples	SAV1 North	SAV1 East	SAV1 West	Total
Egyptian Import	6	7	29	42
Egyptian-Local	28	10	17	55
Nubian-Local	38	10	8	56
Egyptian?	4	6	14	24
Mix clays?	9	3	1	13
Marl clays	16	1	6	23
Oasis clays	12	1	2	15
Other imports	22	3	0	25
Unfired	1	1	2	4
Oven fragments	0	0	2	2
Total	136	42	81	259

Table 1. Ceramics and unfired samples analysed from the New Kingdom town.

Analytical methods

Two analytical methods were used: Instrumental Neutron Activation Analysis (INAA) and Optical Microscopy (OM). INAA analysis was used to determinate the elemental composition (or "chemical fingerprint") of the archaeological artefacts and to establish, by comparison, their provenance. This analytical method is based on the irradiation of a small aliquot of the sample with neutrons in a nuclear reactor. After irradiation, the radiation emitted from the induced radionuclides in the sample is measured and from this qualitative and quantitative information on the elemental composition is gained (Minc and Sterba 2017).

The preparation procedure required that a tiny portion of the sherd be ground up in an agate mortar or sampled by drilling (about 100mg of powder). All samples were then dried for circa 12h in the oven at 95°C, weighed and sealed into SuprasilTM glass vials for irradiation in the TRIGA Mk II reactor of the Atominstitut in Vienna, Austria. After irradiation, the outer surfaces of the vials were decontaminated and packed into capsules. The samples were measured for 1800s after a decay time of four days (activity of the medium-lived radionuclides) and again for 10.000s after four weeks (long-lived radionuclides). The concentration of a total of 28 chemical elements was determined. The final data were statistically processed by the multivariate statistical filter method developed by Mommsen (Beier and Mommsen 1994; for further details on the analytical procedure, see also Sterba et al. 2009).

OM was used in combination with INAA, as a complementary technique, on 83 samples.³ This analysis has mainly a technological importance as it allows examining in greater detail the different ware groups and fabrics, elucidating particular technological aspects of the pottery manufacturing sequence which cannot be otherwise detected with the naked eye. A standard procedure has been followed for the preparation of the thin sections. The samples were impregnated in Araldite and ground down to a thickness of 30 microns. Petrographic observations were carried out with a Nikon Eclipse E600 POL microscope at the laboratories of the Department of Lithospheric Research and the Department of Geodynamics and Sedimentology of the University of Vienna.

³ In this paper, we discuss exclusively the petrography of the Nile clay wares.



Figure 2. Location of AcrossBorders excavation sectors in the New Kingdom town of Sai from where the analysed samples originate (map modified after Budka 2017b).

Results

Instrumental Neutron Activation Analysis (INAA)

From the statistical analysis of the INAA data, the New Kingdom samples, together with all other samples collected in this project, were grouped into 17 chemically distinct groups, where the group of Nile clay wares was clearly the largest with 183 samples, including most of the New Kingdom Egyptian-Local, Nubian-Local and Egyptian Import Nile clay wares as well as a few samples classified on the field as possible mixed clay and one marl clay. Some of the unfired samples, the oven fragments and the natural soils were also part of this group, together with one modern ceramic from the nearby village of Abri (fig. 3).⁴ All other groups were much smaller, on the range of two to nine samples each. A total of 84 samples could not yet be assigned to a specific group by multivariate statistical analysis. Of the 28 elemental concentrations measured for each sample (As, Ba, Ce, Co, Cr, Cs, Eu, Fe, Hf, K, La, Lu, Na, Nd, Ni, Rb, Sb, Sc, Sm, Sr, Ta, Tb, Th, U, W, Yb, Zn and Zr), only 22 were used for the grouping. The elements As, Na, W, Ba, Nd, Sr were not used due to their relatively high natural variation in the samples. Table 2 presents the mean composition of the group of the Nile clay defined in mg/kg. Looking more closely at the data of the Nile clay group, a Principal Component Analysis (PCA, see fig. 4) shows that while the most probably locally produced samples (Egyptian-Local and Nubian-Local) form an equally distributed point cloud, a few samples from the archaeological group of Egyptian Imports are slightly separated. All those samples are cooking pots (see discussion).

Nile Clays (183 Samples)						
As	2.29 +/- 0.47	Ni	74.4 +/- 5.1			
Ba	429 +/- 52	Rb	44.5 +/- 4.5			
Ce	64 +/- 2.1	Sb	0.233 +/- 0.037			
Co	32.4 +/- 2.1	Sc	21.4 +/- 0.75			
Cr	152 +/- 11	Sm	6.92 +/- 0.28			
Cs	1.28 +/- 0.12	Sr	270 +/- 63			
Eu	1.9 +/- 0.06	Та	1.38 +/- 0.055			
Fe	67000 +/- 2400	Tb	1.08 +/- 0.091			
Hf	7.08 +/- 0.59	Th	6.22 +/- 0.37			
к	14700 +/- 3600	U	1.5 +/- 0.23			
La	31.5 +/- 1.3	w	1.26 +/- 0.52			
Lu	0.46 +/- 0.032	Yb	3.19 +/- 0.2			
Na	12400 +/- 2500	Zn	109 +/- 7.3			
Nd	29.4 +/- 4.8	Zr	239 +/- 24			

Table 2. Mean values and errors found in the Nile clay chemical group. All values in mg/kg.



NileClay: 183 Samples

Figure 3. Distribution of archaeological groups in the chemical group of Nile clays. The height of the bar represents the number of samples in the archaeological group.

⁴ This chemical group also includes three prehistoric Nubian ceramic samples from Sai Island and nine New Kingdom Nile clay ceramics from the site of Dokki Gel (Kerma) (courtesy Philippe Ruffieux; excavation by Charles Bonnet). These samples are not discussed in this paper.

Principal Component Analysis (error scaled data)



Figure 4. Plot of the two major principal components of all samples in the Nile clay group. Symbols represent the archaeological grouping. The group of cooking pots clearly has a slightly different chemical composition.

Optical Microscopy (OM)

Looking at their petrography, Nubian-Local, Egyptian-Local and Egyptian Import Nile clay wares are all made of a non-calcareous clay matrix, rich in mica and iron oxides, and containing a similar suite of non-plastic inclusions: mainly silicate minerals such as quartz and feldspar (either plagioclase and alkali feldspar). Among other mineral phases, present are: chert, biotite and muscovite micas, chlorite, iron oxides, as well as traces of clinopyroxene (*i.e.* augite), epidote, amphibole (*i.e.* green hornblende), olivine and iron-titanium oxides (*i.e.* ilmenite, ulvospinel). Rock fragments derived from metamorphic, granitoid and volcanic rocks are also common together with pieces of carbonate rocks, classifiable as nodules of microcrystalline calcite (micrite).

Taken together, these characteristics point to the use of an alluvial silt clay as common source of raw material for making these vessels (D'Ercole 2018).

As stressed in previous studies (cf. Carrano *et al.* 2009, 788; Spataro *et al.* 2015), the composition of the Nile alluvia is homogeneous along the river, even several kilometres apart, and samples gained from different Nile clay deposits can show a very similar petrography. However, differences in textural features (grain size) and in the type and proportion of the inclusions (mineral and organic), allowed to discriminate among different petrographic groups. These differences refer to the

concept of "fabric" which comprises the raw material plus the potter's treatment, adapted for specific purpose to produce different types of ceramics (Quinn 2013; Rice 2015) (fig. 5).

Nubian-Local samples

Among the Nubian-Local samples, three main petrographic groups or micro fabrics were recognised (figs. 6a-c):

Micro Fabric 1: This is a characteristic sandy fabric, consisting mainly of a large amount of monocrystalline quartz of eolian and/or fluvial origin. The distribution of the silicate minerals is unimodal with a dominant grain size in the class of the fine-grained sand (~ 0.125 to 0.25mm). These samples do not contain or contain only in small amounts organic inclusions. The two samples attributed to this micro fabric are fine black-topped wares, Kerma beakers (tab. 3; fig. 6a).

Micro Fabric 2: Samples from this group have a micaceous texture, with a very fine unimodal grain size (~0.062 to 0.125mm) and contain common small organic inclusions. These organics are thin and tubular and seem to consist either of selected/chopped vegetable remains or of an organic component of animal origin (herbivore dung) (cf. D'Ercole *et al.* 2015; 2017; see also Livingstone Smith 2001). Macroscopically, these samples are medium-fine to medium open wares: black-topped and black-topped red slipped wares, bowls with burnished or wet



Figure 5. Schematic representation of the main petrographic features recognised in thin section. The circle in the middle includes the features that the groups have in common. The dashed circles refer to the features peculiar to each group.

smoothed surfaces decorated with incised or impressed patterns (tab. 3; fig. 6b).

Micro Fabric 3: This fabric has the same suite of non-plastic inclusions of fabric 2, however, it can be distinguished from it because of the significant presence of large organic matter added to the paste as a temper. The organics are either elongated pieces of straw and grass or other vegetable matter such as glumes, seeds, fruit or berries. In a few samples, the presence of calcium carbonate spherulites from herbivore dung was recognised (cf. Canti 1998, 435). Samples from this group mainly refer to bowls or globular vessels and cooking pots with typical basketry or matting impressions (tab. 3; fig. 6c).

Egyptian-Local samples

In the same way as the Nubian-Local samples, also within the Egyptian-Local wares we distinguished three main petrographic groups or micro fabrics (D'Ercole 2018) (figs. 6d-f):

Micro Fabric 1: Samples from this fabric are characterised by a very fine and homogeneous framework (average grain size between ~ 0.062 to ~ 0.125mm) with abundant mica and iron oxides. They contain numerous clay pellets and argillaceous rock fragments. Organic inclusions are few to abundant. They are completely carbonised and seem to derive mainly from straw, chaff and other plant remains. Samples assigned to this fabric are either handshaped bread plates and bread moulds or wheel-made dishes made in a local variation of fabric Nile clay B_2/C_2 or C, of the Vienna system (tab. 3; fig. 6d).

Micro Fabric 2: These samples have a dominant grain size in the class of fine sand (~ 0.125 to ~ 0.25mm), with a coarser population of grains consisting of rounded monocrystalline quartz and carbonate rock fragments (up to 1mm and more in size), possibly added to the clay as a temper. Organics are few and they are mainly tubular-shaped and completely carbonised. Macroscopically, these samples are made in a local variation of fabric Nile B_2 (D) or Nile D of the Vienna system and used for bowls, dishes and jars (tab. 3; fig. 6e).

Micro Fabric 3: Samples from fabric 3 have about the same size distribution and suite of mineral inclusions of micro fabric 2. However, they contain a higher amount of organic tempers. The organic inclusions are for the most tubular-shaped carbonised remains of chaff and vegetal fibres and can measure as much as 2.5mm or more long. These samples are made in a local variation of fabric Nile B_2/C_2 or Nile C_2 of the Vienna system and originate from deep bowls and cooking pots (tab. 3; fig. 6f).

Egyptian Import Nile clay wares samples

The petrography of the Egyptian Import Nile clay wares is pretty much the same as the Egyptian-Local samples. Two micro fabrics were distinguished according to the grain



Figure 6. Microphotographs of examples from Nubian-Local (a-c); Egyptian-Local (d-f) and Egyptian Import Nile clays samples (g-h). Abbreviations Org, Cal, Qtz, and Kfs stand for: organics, calcite, quartz, K-feldspar (cross polarized light; 3.3mm field of view; photos G. D'Ercole).
size, the morphology and the type of mineral inclusions (D'Ercole 2018) (figs. 6g-h):

Micro Fabric 1: Very fine to fine sandy and micaceous samples. These samples contain common clay pellets and ar-gillaceous rock fragments (ARF) and possibly some grog in-

clusions of higher fired ceramic. Organics are few and consist mainly of tubular-shaped chaff remains burned out after the firing. Their size commonly ranges from 1 to 2mm. These samples are cooking pots manufactured in a sandy version of a Nile clay B₂ of the Vienna system (tab. 3; fig. 6g).

No. sample	No. pottery	Sector	Description	Macro fabric	Vessel form	Micro fabric
SAV/S 01	N/C 966.1	SAV1N	Nubian-Local	2 (GDE)	Cooking pot	Nubian-Local 2
SAV/S 02	N/C 966.2	SAV1N	Nubian-Local	2? (GDE)	Cooking pot	Nubian-Local 2
SAV/S 03	N/C 966.3	SAV1N	Nubian-Local	3? (GDE)	Beaker, possibly post NK?	Nubian-Local 3
SAV/S 04	N/C 966.4	SAV1N	Nubian-Local	3 (GDE)	Cooking pot	Nubian-Local 3
SAV/S 05	N/C 966.5	SAV1N	Nubian-Local	3 (GDE)	Cooking pot	Nubian-Local 3
SAV/S 06	N/C 1302	SAV1 N	Nubian-Local	2 (GDE)	Cooking pot	Nubian-Local 2
SAV/S 07	N/C 1302	SAV1N	Nubian-Local	3 (GDE)	Cooking pot	Nubian-Local 3
SAV/S 08	N/C 1302	SAV1N	Nubian-Local	3 (GDE)	Cooking pot	Nubian-Local 3
SAV/S 09	N/C 1302	SAV1N	Nubian-Local	3 (GDE)	Cooking pot	Nubian-Local 3
SAV/S 10	N/C 1302	SAV1N	Nubian-Local	3 (GDE)	Cooking pot	Nubian-Local 3
SAV/S 11	N/C 1302	SAV1N	Nubian-Local	3 (GDE)	Cooking pot	Nubian-Local 3
SAV/S 12	N/C 1302	SAV1N	Nubian-Local	1/2 (GDE)	-	Nubian-Local 2
SAV/S 13	N/C 1302	SAV1N	Nubian-Local	2/3 (GDE)	-	Nubian-Local 2
SAV/S 14	N/C 702.1	SAV1N	Egyptian-Local	var. B2/C2	Dish	Egyptian-Local 1
SAV/S 15	N/C 702.2	SAV1N	Egyptian-Local	var. B2 (D?)	Incense bowl	Egyptian-Local 2
SAV/S 16	N/C 702.3	SAV1N	Egyptian-Local	var. B2 (D)	Carinated dish	Egyptian-Local 2
SAV/S 17	N/C 702.10	SAV1N	Egyptian-Local	var. B2/C2	Jar	Egyptian-Local 3
SAV/S 18	N/C 1295	SAV1N	Egyptian-Local	var. B2	Base sherd	Egyptian-Local 1
SAV/S 49	SAV1E P 015.4	SAV1E	Nubian-Local	1 (GDE)	Kerma beaker	Nubian-Local 1
SAV/S 50	SAV1E P 026.11	SAV1E	Nubian-Local	3 (GDE)	Cooking pot	Nubian-Local 3
SAV/S 51	SAV1E P 015.2	SAV1E	Egyptian-Local	var. C2	Deep bowl	Egyptian-Local 3
SAV/S 52	SAV1E P 015.3	SAV1E	Egyptian-Local	var. C2	Bread plate	Egyptian-Local 1
SAV/S 53	SAV1E P 020.10	SAV1E	Egyptian-Local	var. B2 (D?)	Dish, black rim	Egyptian-Local 2
SAV/S 54	SAV1E P 020.16	SAV1E	Egyptian-Local	var. D2	Neckless jar	Egyptian-Local 2
SAV/S 55	SAV1E P 026.12	SAV1E	Egyptian-Local	var. C2	Bread mould	Egyptian-Local 1
SAV/S 56	SAV1E P 026.13	SAV1E	Egyptian-Local	var. C2	Bread mould	Egyptian-Local 1
SAV/S 70	N/C 927	SAV1N	Nubian-Local	1/2 (GDE)	-	Nubian-Local 2
SAV/S 76	N/C 801	SAV1N	Nubian-Local	1? (GDE)	-	Nubian-Local 2
SAV/S 77	N/C 801	SAV1N	Nubian-Local	1 (GDE)	-	Nubian-Local 2
SAV/S 80	N/C 1209	SAV1N	Nubian-Local	1/2 (GDE)	-	Nubian-Local 2
SAV/S 85	N/C 865	SAV1N	Nubian-Local	1 (GDE)	-	Nubian-Local 1
SAV/S 149=150	SAV1W P 2014/002	SAV1W	Egyptian Import	E var.	Cooking pot	Egyptian 2
SAV/S 151	SAV1W P 2014/003	SAV1W	Egyptian Import	B2 var.	Cooking pot	Egyptian 1
SAV/S 152	SAV1W P 012.5	SAV1W	Egyptian Import	B2	Cooking pot	Egyptian 1
SAV/S 153	SAV1W P 012.6	SAV1W	Egyptian Import	B2 (sandy)	Cooking pot	Egyptian 1
SAV/S 154	SAV1W P 012.7	SAV1W	Egyptian Import	B2 (sandy, calc.)	Cooking pot	Egyptian 1
SAV/S 155	SAV1W P 012.8	SAV1W	Egyptian-Local	var. B2 (chaffy)	Cooking pot	Egyptian-Local 3
SAV/S 156	SAV1W P 012.9	SAV1W	Egyptian Import	E var.	Cooking pot	Egyptian 2

Table 3. Provenance, macroscopic features and fabric groups defined by petrographic analysis. The acronym GDE refers to the Nubian macro fabrics identified by G. D'Ercole on the field (see AcrossBorders report 2013).

Micro Fabric 2: Medium-grained sandy Egyptian samples with abundant quartz, alkali-feldspar and biotite mica. Samples from this fabric also contain a large amount of rock fragments of both volcanic and metamorphic origin. They do not contain any organic remains. Porosity is very low, and the fabric appears macroscopically hard and gritty to the touch. These samples are cooking pots manufactured in a variant of a Nile clay E of the Vienna system (tab. 3; fig. 6h).

Discussion

The recent excavations undertaken at the New Kingdom town on Sai Island as part of the AcrossBorders project have shown that the greatest quantity of the New Kingdom vessels found at the site were made from Nile silt clay (i.e. Nile paleo-alluvium). This group of wares includes both locally made products (either Nubian or Egyptian types) modelled from local clays collected and manufactured on Sai Island itself, but also examples of authentic Egyptian vessels produced on the outside of Nubia, possibly from Nile clay deposits located in Upper Egypt. These latter were found in all sectors of the town, beside the local production, and mostly refer to cooking wares made from a characteristic sandy Nile clay fabric (Nile clay B₂ or a variant of a Nile clay E of the Vienna System) (Budka 2016; 2017a). There are also are many other examples of Egyptian vessels made in Nile clay wares, such as dishes and decorated jars, which are likely to be imported, although this is less visible from a chemical point of view. Further analysis could confirm or deny the archaeological interpretation.

The Nubian hand-made wares can easily be differentiated from the wheel-made Egyptian types in the field as for being made through different manufacturing techniques and eventually by distinct social groups (respectively: Nubians and Egyptians residing in Nubia). However, the Egyptian wheel-made wares are more difficult to separate, and their attribution as local or imported is sometimes uncertain and can raise questions. In any case, these three pottery types (Nubian, Egyptian-Local and Egyptian Imported) are all made from a clay raw material geochemically very homogeneous so that paradoxically it becomes even more complex to separate these wares in the laboratory, according to specific petrological and chemical features (cf. Carrano *et al.* 2009, 787).

In this study, we have compared a large sample of Nile clay vessels from the New Kingdom town on Sai Island with other wares as well as with unfired bricks and natural soils. An integrated approach was adopted for the laboratory analyses, carrying out INAA and OM.

INAA analysis succeeded in separating the samples into different compositional groups, whose largest is Group 1. Within the remainder of the samples, sixteen additional groups were identified. Group 1 is chemically very homogeneous and includes most of the Nile clay wares, that is: Nubian types, locally produced Egyptian types and Egyptian Imported Nile clay wares. The unfired bricks, some of the natural soils and the modern ceramic samples also fit into this group, indicating the possibility of a correlation between Nile clay ceramics and local sediments through a broad chronological frame.

Within Group 1, Principal Component Analysis allowed a separation between Egyptian-Local and Egyptian Imported Nile clay wares. In particular, the cooking pot wares formed a well isolated cluster. In contrast, the locally made types (Nubian-Local and Egyptian-Local) turned out to be chemically very similar.

Observations on thin sections were consistent with the chemical results and confirmed that the largest group of Nile clay wares is strongly homogeneous also in its petrography. The mineralogical data suggested that Nubian-Local, Egyptian-Local and Egyptian Imported Nile clay wares were all made from Nile alluvial clays typically containing fine quartz, feldspar and mica together with rock fragments of calcareous, metamorphic and volcanic origin. Based on the proportion of the mineral components, their size distribution and the type and quantity of organic matter added to the pastes, it was possible to recognise different micro groups or fabrics. Such a variability may be attributed both to the varying composition of the raw materials selected to make pots with (different deposits/sources of Nile clays) and to the technological choices made by potters during the manufacture.

Specifically, the Nubian vessels turned out to have a finer grain size in comparison with the Egyptian wares and to contain on average a larger amount of organic inclusions, which were mainly of animal origin (herbivore dung), in the fine and medium wares, and of both animal and vegetal origin, in the coarse wares and in the cooking pots (cf. also Carrano *et al.* 2009). In contrast, the Egyptian-Local vessels were in most cases tempered with an organic component of vegetal origin (chaff and other plant remains). The fine wares, either Nubian or Egyptian, always contained a lower proportion of organics, abundant mica and very fine quartz inclusions.

Some of the Egyptian cooking pots showed a unique fabric: they contained predominant quartz grains angular to sub-angular in shape associated with crystals of alkali feldspar, biotite mica and rock fragments. In these samples, the size, distribution and morphology of the non-plastic inclusions might indicate the deliberate addition of a feldspathic medium-grained sand to the clay resulting from the decomposition of granitoid and metamorphic rocks (D'Ercole 2018). These petrological features correlate well with the chemical data and suggest that these vessels, manufactured in a variant of Nile clay E of the Vienna system, were most likely produced outside of Sai Island in a geological context where alkaline granite and derived metamorphic rocks outcrop. Besides provenance, it is worth to stress the coexistence of two very distinct types of cooking wares at the New Kingdom site on Sai Island: on the one hand the Nubian cooking pots produced locally according to the Nubian tradition and recipe (D'Ercole *et al.* 2017) with pastes rich in organic tempers (see micro fabric 3 of the Nubian samples); on the other hand the authentic Egyptian cooking pots, tempered mainly or exclusively with mineral inclusions (see micro fabric 2 of the Egyptian Import samples). In addition to these two types, there are also examples of Egyptian cooking pots thrown on the wheel on Egyptian models by using a local (Upper Nubian) variant of a sandy Nile clay tempered, in different proportion, with organic inclusions (cf. Budka 2016, 287).

Such differences in the manufacturing process in the use of similar Nile clay-based ceramics might be explained according to differences in the ways of cooking (*e.g.* different ranges of temperatures, cooking procedures and eventually type of food for which the vessels were intended for).⁵ Also, we must bear in mind the role played by the various standards of craftsmanship and by the local traditions and cultural identities (Budka 2016; 2017a, 440).

An experimental practical class was recently undertaken on this topic by the team of AcrossBorders (see http://acrossborders.oeaw.ac.at/tag/cooking-ware). Further research and laboratory analyses are planned in the future with the aim of elucidating this aspect of ceramic production.

Ultimately, a methodological consideration regards the benefits of combining petrological and chemical analyses with the archaeological classification of the ceramics on the field. This study showed that both methods, INAA and OM, worked in finding similar groups which correspond and supplement the macroscopic identification. INAA particularly has proven to be a valuable method for differentiating, among the Nile clay wares, the local from the non-local production, although the compositional differences were not as sharp as by the archaeological assessment. OM added useful information on the technological processes which complemented and finalised the macroscopic groupings. More detailed results derived from an efficient combined use of chemistry and petrography.

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⁵ In terms of technology and performance, a cooking pot should satisfy the following requisites: fracture strength, toughness, thermal shock resistance and thermal conductivity or heat transfer. These requisites depend on the ceramic manufacture and are mainly related to the firing temperatures and to the addition of tempering material (Tite et al. 2001). Generally, high amounts of temper material and low firing temperatures increase thermal shock resistance and toughness (Kilikoglou et al. 1995). On the other way around, vessels fired at high temperatures result in an increase in fracture strength (Steponaitis 1984; Kilikoglou et al. 1995) and thermal conductivity, the latter being beneficial for boiling activities (cf. Müller et al. 2013, 6). Pastes (like the Nubian cooking pots) with large and open pores have a bad thermal resistance although the heat transfer is greater. These vessels are theoretically poor cooking pots as porosity delays heating (Velde and Druc 1999, 161).

References

- Beier, T. and Mommsen, H. 1994. Modified Mahalanobis filters for grouping pottery by chemical composition. *Archaeometry* 36, 287-306.
- Bourriau, J. 1998. The Role of Chemical Analysis in the Study of Egyptian Pottery, in: Eyre, C.J. (ed.), Proceedings of the Seventh International Congress of Egyptologists. Cambridge, 3-9 September 1995. Orientalia Lovaniensa Analecta 82. Leuven: Peeters, 189-199.
- Bourriau, J., Nicholson, P. and Rose, P. 2000. Pottery, in: Nicholson, P.T. and Shaw, I. (eds.), *Ancient Egyptian Materials and Technology*. Cambridge: Cambridge University Press, 121-147.
- Bourriau, J., Bellido, A., Bryan, N. and Robinson, V. 2006. Egyptian Pottery Fabrics: A Comparison between NAA Groupings and the "Vienna System", in: Czerny, E., Hein, I., Hunger, H., Melman, D. and Schwab, A. (eds.), *Timelines. Studies in Honour* of Manfred Bietak. Orientalia Lovaniensa Analecta 149.3. Leuven: Peeters, 261-292.
- Budka, J. 2011. The early New Kingdom at Sai Island: preliminary results based on the pottery analysis (4th Season 2010). Sudan & Nubia 15, 23-33.
- Budka, J. 2013. Die 18. Dynastie auf Sai Island (Nordsudan) Ergebnisse der Feldkampagne 2013. *Sokar* 26, 78-87.
- Budka, J. 2014. The New Kingdom in Nubia: New results from current excavations on Sai Island. *Egitto e Vicino Oriente* 37, 55-87.
- Budka, J. 2015. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2016. Egyptian Cooking Pots from the Pharaonic Town of Sai Island, Nubia. *Bulletin de liaison de la céramique égyptienne* 26, 285-295.
- Budka, J. 2017a. Life in the New Kingdom Town of Sai Island: Some new perspectives, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 429-447.
- Budka, J. 2017b. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Budka, J. (ed.) 2017c. AcrossBorders I. The New Kingdom Town of Sai Island, Sector SAV1 North. Contributions to the Archaeology of Egypt, Nubia and the Levant 4. Vienna: Austrian Academy of Sciences Press.
- Budka, J. and Doyen, F. 2013. Living in New Kingdom towns in Upper Nubia – New evidence from recent excavations on Sai Island. *Egypt and the Levant* 22/23, 2012/2013, 167-208.
- Canti, M.G. 1998. The Micromorphological Identification of Faecal Spherulites from Archaeological and Modern Materials. *Journal of Archaeological Science* 25, 435-444.

- Carrano, J.L., Girty, G.H. and Carrano, C.J. 2009. Re-examining the Egyptian colonial encounter in Nubia through a compositional, mineralogical, and textural comparison of ceramics. *Journal of Archaeological Science* 36, 785-797.
- De Paepe, P., Gratien, B. and Privati, B. 1992. Étude Comparative de Céramiques Kerma. *Cahier de Recherches de l'institut de Papyrologie et d'Egyptologie de Lille* 14, 63-81.
- Doyen, F. 2009. The New Kingdom Town on Sai Island (Northern Sudan). Sudan & Nubia 13, 17-20.
- Doyen, F. 2014. Sai Island New Kingdom Town (Northern Sudan): 3rd and 4th seasons (2009-2010), in: Anderson, J.R. and Welsby, D.A. (eds.). *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 367-376.
- D'Ercole, G., Eramo, G., Garcea, E.A.A, Muntoni, I.M. and Smith, J.R. 2015. Raw Material and Technological Changes in Ceramic Productions at Sai Island, Northern Sudan from the Seventh to the Third Millennium BC. *Archaeometry* 57, 597-616.
- D'Ercole, G. 2018. Appendix, in: Budka, J., Egyptian Pottery from the New Kingdom Temple Town of Sai Island, in: David, R. (ed.), *Céramiques égyptiennes au Soudan ancien. Importations, imitations et influences.* Cahiers de la Céramique Égyptienne 11, Cairo: Institut français d'archéologie orientale du Caire, 115-120.
- D'Ercole, G., Budka, J., Sterba, J.H., Garcea, E.A.A. and Mader D. 2017. The successful 'recipe' for a long-lasting tradition: Nubian ceramic assemblages from Sai Island (northern Sudan) from prehistory to the New Kingdom. *Antiquity* 91, 24-42.
- Kilikoglou, V., Vekinis, G. and Maniatis Y. 1995. Toughening of ceramic earthenwares by quartz inclusions: An ancient art revisited. *Acta Metallurgica et Materialia* 43.8, 2959-2965.
- Livingstone Smith, A. 2001. Pottery manufacturing processes: reconstruction and interpretation, in: Garcea, E.A.A. (ed.), *Uan Tabu in the Settlement History of the Libyan Sahara.* Arid Zone Archaeology Monographs 2. Florence: All'Insegna del Giglio, 111-150.
- Minc, L.D. and Sterba, J.H. 2017. Instrumental Neutron Activation Analysis (INAA) in the Study of Archaeological Ceramics, in: Hunt, A. (ed.), *The Oxford Handbook of Archaeological Ceramic Analysis*. Oxford: Oxford University Press.
- Müller, N.S., Hein, A., Kilikoglou, V. and Day, M.P. 2013. Bronze Age cooking pots: Thermal properties and cooking methods. *Préhistoires Méditerranéennes* 4, 2-10.
- Nordström, H.-Å. 1972. *Neolithic and A-Group Sites*. Scandinavian Joint Expedition to Sudanese Nubia 3:1. Stockholm: Läromedelsförlagen.
- Nordström, H.-Å. and Bourriau, J. 1993. The Vienna System, in: Arnold, Do. and Bourriau, J. (eds.), *An Intro-*

duction to Ancient Egyptian Pottery. Sonderschriften des Deutschen Archäologischen Instituts Abteilung Kairo 17. Mainz am Rhein: Philipp von Zabern, 168-186.

- Quinn, S.P. 2013. Ceramic Petrography. The Interpretation of Archaeological Pottery and Related Artefacts in Thin Section. Oxford: Archaeopress.
- Rice, P. 2015. *Pottery Analysis: A Sourcebook*. 2nd edition. Chicago, Ill: University of Chicago Press.
- Spataro, M., Millet, M. and Spencer, N. 2015. The New Kingdom settlement of Amara West (Nubia, Sudan): mineralogical and chemical investigation of the ceramics. *Archaeological and Anthropological Sciences* 7.4, 399-421.
- Steponaitis, V.P. 1984. Technological Studies of Prehistoric Pottery from Alabama: Physical Properties and Vessel Function, in: van der Leeuw, S.E. and Pritchard, A.C. (eds.), *The Many Dimensions of Pottery*. Amsterdam: University of Amsterdam, 79-127.
- Sterba, J.H., Mommsen, H., Steinhauser G. and Bichler, M. 2009. The influence of different tempers on the composition of pottery. *Journal of Archaeological Science* 36, 1582-1589.
- Tite, M.S., Kilikoglou, V., Vekinis, G. 2001. Strength, Toughness and Thermal Shock Resistance of Ancient Ceramics, and Their Influence on Technological Choice. *Archaeometry*, 43 (3), 301-324.
- Velde, B. and Druc, I.C. 1999. Archaeological Ceramic Material. Origin and Utilization. Berlin: Springer.

Notes on the contributors

Giulia D'Ercole graduated at the Sapienza – University of Rome in 2008 and obtained a PhD in Prehistoric Archaeology in 2012 at the same university. She has been a post-doctoral fellow for the ERC Starting Grant project AcrossBorders at the Austrian Academy of Sciences in Vienna, Austria and at the Ludwig Maximilians University Munich, Germany (2013-2015). She has been conducting research in North Africa since 2006 and has participated in numerous international archaeological projects at Farafra Oasis (2006-2008), and Elephantine, Egypt (2015), Sai Island (2009-2015) and Amara West, Sudan (2011 and 2013). Her major interests are in manufacturing processes and technological analysis of ceramic productions.

Johannes H. Sterba graduated and obtained his PhD in technical physics in 2007 at the TU Wien in Austria. His PhD work was done in the framework of the special research program Synchronisation of Civilizations in the Eastern Mediterranean in the 2nd Millennium BC (SCIEM 2000), where he gained experience with archaeological material. Since 2009 he has been working on Neutron Activation Analysis of archaeological ceramics, establishing the application of the statistical filter developed in Bonn and Vienna. He has conducted research on ceramic material from Egypt, Japan, Iraq, Syria and Israel.

Tomb 26 in Cemetery SAC5 on Sai Island

Julia Budka*

Abstract

Tomb 26 in cemetery SAC5 was discovered by the European Research Council AcrossBorders project in 2015. It yielded several burials from the mid- to late 18th Dynasty with rich funerary equipment, including family members of a goldsmith, thus of Egyptian officials involved in gold working and exploitation in Upper Nubia. As a family tomb, Tomb 26 has much potential to illustrate the status and corresponding material culture traceable for lower and medium-ranked individuals from Thutmoside times onwards. All in all, Tomb 26 and its associated finds are of prime significance for understanding life on New Kingdom Sai.

Keywords: Sai, Nubia, Sudan, pyramid, funerary archaeology, goldsmith, New Kingdom, 18th Dynasty

Pyramid cemetery SAC5

The pyramid cemetery SAC5 (fig. 1), located approximately 800m south of the New Kingdom town, was discovered in the 1972-73 season by the French mission and represents the most significant Egyptian cemetery on the island (Minault-Gout and Thill 2012, 3; Budka 2014; 2015b; 2017b). Its size and qualitative data underline the importance of Sai as administrative centre during the mid-18th Dynasty in Upper Nubia (Minault-Gout and Thill 2012, 418; Budka 2014; 2015a, 51; 2015c, 77-80). Similar to other Egyptian sites in Nubia like Aniba, Soleb and Amara West, Pharaonic style tombs¹ had been built at SAC5 (Budka 2015b, 56-58) which covers almost the entire New Kingdom and was still used into the Pre-Napatan and Napatan periods (Thill 2007, 353-369; Budka 2014; 2015b). The results from the French mission in SAC5, comprising data from 24 rock-cut shaft tombs with mudbrick chapels and mostly pyramidal superstructures, were recently published as a substantial two volume monograph (Minault-Gout and Thill 2012).

According to the published material, SAC5 cannot be associated with the foundation of the Egyptian settlement on Sai in the very early 18th Dynasty (reign of Ahmose or Amenhotep I).² The cemetery was not in use prior to Thutmose III and flourished

*Institute of Egyptology and Coptology, Ludwig-Maximilians-Universität München, Katharina-von-Bora-Str. 10, 80333 Munich, Germany; Julia.Budka@lmu.de

For dating such tombs with pyramidal superstructures not before the mid-18th Dynasty and most likely from the reign of Amenhotep III onwards, see most recently Näser 2017, 560. Cf. Williams in this volume who argues for an earlier date, which is until now not attested on Sai.

² For the discussion of the foundation of Sai, see Davies 2005; Budka 2011; Gabolde 2012; Budka 2015c, 77-80.

until the late 18th Dynasty, reflecting the general heyday of the 18th Dynasty on Sai Island (Minault-Gout and Thill 2012, 403-418; Budka 2014; cf. also Budka 2011; 2015b; 2017a and 2017b). SAC5 is therefore contemporaneous



Figure 1. Location of SAC5 in relation to the New Kingdom town, the course of the Nile and Gebel Adou on Sai Island.

to the extensive building activities in the town, traceable in all town areas with a stone temple, an enclosure wall, magazines and cellars as well as the governor's residence (Azim 1975; Budka and Doyen 2013; Adenstedt 2016).³ The necropolis is of Egyptian type (Minault-Gout and Thill 2012, 406), with a preferred extended position for burials, pyramid superstructures resembling the New Kingdom Theban model and typical Egyptian installations for funerary offering cult (Budka 2014). The assumption that Egyptian administrative staff and their families⁴ were buried here is very likely and seems to be reflected in high quality objects like heart scarabs and stone shabtis.⁵ By contrast, the "mixed" cemetery SAC4, located to the north of the Egyptian town, was most likely used by Kerma people in contact with the Egyptians living on the island (Gratien 1985; 2002; see also Williams in this volume). SAC1, a graveyard with about 20 chamber tombs, seems to predate SAC5 and was maybe used by occupants (of Egyptian origin?) prior to the flourishing time under Thutmose III.⁶

All in all, the mortuary evidence from SAC5 supports the assessment of the New Kingdom town based on the material culture that there was a multifaceted community on Sai Island, including both Egyptians and Nubians (Budka 2015c, 68-69). This corresponds to recent studies of the biological identities of people buried at other New Kingdom sites in Nubia, for example at Tombos (Buzon 2008; 2017; Smith and Buzon 2014; in this volume) and Amara West (Binder and Spencer 2014; Spencer *et al.* 2014; Binder 2017). Research at these cemeteries has shown a complex social diversity during the entire period of the New Kingdom (both in the 18th Dynasty and the Ramesside era).

Fresh fieldwork in SAC5 2015-2017

To achieve one of the main goals of the AcrossBorders project, a better understanding of the population on the island, fieldwork in SAC5 was planned for three seasons, starting in 2015. Taking into account earlier work and publications (Thill 2007; Minault-Gout 2012; Minault-Gout and Thill 2012; Cressent and Raimon 2016), new material from AcrossBorders excavations offers fresh

³ See also Budka 2015a; 2017a; SAV1 in this volume for corresponding results in new excavation areas investigated by AcrossBorders.

⁴ See Minault-Gout and Thill 2012, 413-414, for titles attested at SAC5 from French excavations; see also Auenmüller in this volume.

⁵ However, as discussed below, this also has to include "Egyptianised" Nubians, born in Nubia and fulfilling a role as Egyptian official as well as "Egyptians" born in Nubia to Egyptian parents/fathers.

⁶ This cemetery will be published in the near future by Brigitte Gratien.

data. Besides information about the past occupants, the questions of dating the phasing of the cemetery were of key importance. Does the mortuary evidence support the model of distinctive phases established for the evolution of the New Kingdom town (Budka 2015a; 2017a) or does it show inconsistencies? Furthermore, does it correspond to the assessment of SAC5 as previously proposed by Ann Minault-Gout and Florence Thill?

In 2015, two new areas were opened by AcrossBorders in SAC5 (fig. 2), aiming to clarify zones definitely void of tombs or with still unexplored tombs. Area 1 indeed did not yield any tombs, although little New Kingdom surface material was present (Budka 2015a, 47). Area 2, located to the north of Area 1 and immediately adjacent to various 18th Dynasty monuments, proved more efficient for the search of new tombs. A new structure, similar to the tombs excavated by the French mission in its close surroundings, was discovered by AcrossBorders in 2015 with Tomb 26 (Budka 2015a, 47-50; 2017b).

In 2016, a complete surface cleaning over Area 2 and in particular towards the south and east of the new Tomb 26 proved that this part of the cemetery is otherwise void of tombs. In addition, Area 3 of the AcrossBorders excavation in SAC5 was opened in 2016 to the west of Tomb 8 (fig. 2). No mudbrick features were found and almost no pottery sherds, but the natural ground featured a number of irregular pits of unclear function and of unknown origin. These pits vary in dimensions and depths and might be connected to the Pharaonic building activity at SAC5 since very similar pits were observed directly within the mudbrick architecture of the courtyard of Tomb 11, located further to the west (fig. 2).





Tomb 26

The monument christened Tomb 26 was fully excavated in three seasons (2015-2017), yielding some unexpected finds and spectacular features which will be presented in the following.

The features and burials7

Only scarce remains of mudbrick attest to a now lost superstructure which can tentatively be reconstructed as a courtyard, a chapel and a pyramid (Budka 2015b, 63, fig. 20). The rock-cut substructure (fig. 3) is opened by a rectangular shaft (c. 2.6 x 1.8m) with a depth of more than 5.2m. A set of eight foot-holes was noted on each of the lateral walls towards the south (eastern and western shaft facing) (Budka 2015a, 47).⁸ The shaft (Feature 1) opens into a large burial chamber (Feature 2).

Finds from the shaft allow reconstructing a very long use life of Tomb 26 and comprise objects and ceramics from the mid- to late 18^{th} Dynasty, the early and late Ramesside period until c. 700 BC, including the Pre-Napatan era and the Napatan era (Thill 2007; Budka 2015b; 2016; 2017b). Interestingly, some of the fragmented ceramic vessels found joining fragments in material excavated in Feature 2 – illustrating that burials within the tomb had been robbed in antiquity and their contexts had been distributed throughout Tomb 26. The broken state of the vessels furthermore demonstrates ancient plundering.

The most significant finds from the shaft of Tomb 26 are three sandstone fragments giving the name and title of the Deputy of Kush (*jdnw n K3š*) Hornakht, who is attested from the reign of Ramesses II (see Budka 2015a, 48 with further references). Among these architectural pieces, SAC5 215 is the most important one: it represents the pyramidion inscribed with Hornakht's name and title and thus provided clear proof that he was buried somewhere in SAC5, if not in Tomb 26 (see below). Furthermore, its significance derives from that fact that Tomb 26 has yielded the first stone pyramidion ever found on Sai (cf. comparative examples at Aniba, Steindorff 1937, 61-62, pls. 35-36) illustrating that Egyptian-style pyramids were being built on the island in the 19th Dynasty.

A significant aspect of the shaft of Tomb 26 is that the lateral sides of its base are partly lined with worked stones. Both the eastern and western sides contain a large stone block each, which was plastered and perfectly aligned with the rock-cut shaft. The same holds true for the opening



Figure 3. Ground plan of the substructure of Tomb 26.

into Feature 2 (the chamber situated to the north), where a step, a threshold and the door jambs of the entrance are all set stones that were originally nicely plastered in white. This built-in entrance into the rock-cut subterranean part was given the label Feature 3 (fig. 3).

Feature 2, accessible via Feature 3, is almost square in outline, measuring 3.96 x 3.89m, with a height of c. 1.20m. The chamber was found partly filled with remains of flood levels, heaps of looser debris and sand as well as collapsed white plaster from the side walls. All four sides of the chamber were originally plastered, with the southern and western walls created by worked stones lined up against the irregular rock. These stone blocks were perfectly concealed as rock-cut lateral sides - only in areas with collapsed blocks like west of the entrance and in the north-western corner was this interesting feature noticeable for us (Budka 2016; 2017b). Feature 2 was completely excavated in 2016 (Budka 2016). Despite its obviously disturbed state of preservation and the multiple flooding, remains of a minimum of ten individuals were documented from different levels. Most of the burials can be dated to the Ramesside era, but there are also some that are likely to be of Post-New Kingdom date. The best preserved burial was found in

⁷ The details about the burials will be published elsewhere; for first comments on the anthropological findings from Tomb 26 see Stadlmayr and Wohlschlager in this volume. For the technique used while excavating and documenting Tomb 26 see Fera and Budka 2016; Fera and Geiger in this volume.

⁸ Such foot-holes are regularly found in SAC5, see Minault-Gout and Thill 2012, *passim* within the plans/sections of individual tombs.



Figure 4. Burials within Feature 6 (DEM combined with orthophotograph); the northern one was identified as the goldsmith Khnummose.

the south-western corner and most probably dates to the late 18th Dynasty (Budka 2017b, 116-117).

Along the north wall of Feature 2, a trench is located (Feature 4, 1.90 x 0.70 x 1.40m) which was cleaned in 2017 and yielded a number of burials. At the bottom of this trench, what is most likely the original burial chamber (Feature 6) opens towards the north (see fig. 3). It was found sealed with flood deposits and was obviously undisturbed since ancient times, contrasting with the other parts of Tomb 26. Feature 6 (2.13 x 1.35m), which is less than 1m in height, held two wooden, painted coffins of which only traces survived in the flood sediments as well as rich burial equipment of Egyptian style (fig. 4): scarabs, faience vessels, pottery vessels and one stone shabti (fig. 5) were used as burial goods. Traces of the funerary masks, here especially inlayed eyes and gold foil, have also survived. According to the inscribed finds and the human remains, the double burial in Feature 6 can be identified as the goldsmith Khnummose (main burial along the north wall) and an anonymous female, presumably his wife (second burial in the entrance area).

The titles of Khnummose as given on the faience vessels (fig. 6) and the shabti are gold worker/

goldsmith (Egyptian nbj) and overseer of goldworks (Egyptian *jmj-r'-nbjw*) (see Auenmüller in this volume). The stone shabti SAC5 350 (fig. 5) falls into a group of five stone shabtis from Egyptian officials, found at Aniba, Toshka and Sai, which share similar stylistic and palaeographic features. Ann Minault-Gout (2012) proposed that they all originate from one workshop, dating to the mid-18th Dynasty. A common origin might explain one specific detail on SAC5 350: the name of Khnummose was inscribed by a different hand than the remaining text which comprises Chapter 6 of the Book of the Dead. Obviously, this piece was not made for Khnummose, but was acquired already with its inscription, adding the name of the person whom it would accompany for eternity at the very last moment. This "off the shelf" purchase is highly significant for understanding the manufacturing and trading of elite funerary objects in New Kingdom Nubia and raises a number of questions (see also Smith and Buzon in this volume). Because of the non-local material of the shabti (serpentinite) a workshop in the north, most probably in Egypt, is likely (for the production of shabtis found in Nubia in Egypt see already Steindorff 1937, 75). The stone serpentinite was common in



Figure 5. Shabti of Khnummose from Feature 6, SAC5 350.



Figure 6. Faience vessel SAC5 353 with name and title of Khnummose from Feature 6.



Figure 7. Heart scarab SAC5 349 from Feature 6, backside with Book of the Dead spell.

Wadi Semna und Wadi Atalla in Egypt.⁹ Another remarkable object from Khnummose's burial equipment was made from the same material (serpentinite) – the high-quality heart scarab with excerpts of Chapter 30 of the Book of the Dead, SAC 349 (fig. 7) finds some parallels in other tombs in SAC5 (Minault-Gout and Thill 2012, pl. 102) and also in Soleb (Schiff Giorgini 1971, 120, figs. 170-171, 218, figs. 409-410) as well as more distant comparisons in Aniba (Steindorff 1937, 86-89 pls. 47-48).

The dating of Khnummose's shabti is supported by the ceramics found in Feature 6, originating from the mid-18th Dynasty (most likely the reigns of Amenhotep II and Thutmose IV and definitely no later than Amenhotep III). Especially relevant are the so-called flower pots, deep conical bowls with perforated bases and of uncertain function, which are very common 18th Dynasty types both in Egypt and Nubia (see Wolf 1937, 130, pl. 77, 'Form 25'; Williams 1992, 34-35; Budka 2017b, 123). Three flower pots accompanied Khnummose's burial, another one was placed next to the female adult below the entrance of the chamber. They all



Figure 8. Gold and silver signet ring SAC5 388 with a scarab still in place from Feature 5.

find close parallels from mid-18th Dynasty contexts in the Pharaonic town of Sai and also in the western chamber of Tomb 26.

The second interment in Feature 6 was placed directly below the entrance and was identified as a female (see Stadlmayr and Wohlschlager in this volume). Most remarkable among its burial gifts is a ceramic dish holding four miniature pottery jugs and two faience vessels which was placed next to the coffin, to the south of the burial, at the height of the shoulder. The miniature jugs find close parallels in Soleb, in particular in Tomb 15, dated by Michaela Schiff Giorgini to the reign of Amenhotep III (Schiff Giorgini 1971, 194, fig. 344, T 15 p9 and p14, and 196, fig. 348, T 15 p20). Likewise, the faience vessels of Khnummose are comparable to vessels from Tomb 11 at Soleb (Schiff Giorgini 1971, 166, figs. 268 and 270).

In 2017, a new discovery was made in the north-western corner of Feature 2 when the entrance to a hidden chamber, concealed by a plastered stone wall, was revealed (see fig. 3). This new western chamber, labelled Feature 5, yielded eleven adults and three infant burials (see Stadlmayr and Wohlschlager in this volume). The burial equipment is Egyptian in style and comprises among others a remarkable gold and silver signet ring (fig. 8; see parallels from Aniba, Steindorff 1937, 111, pl. 57, nos. 34 and 36), several scarabs, amulets (including an extraordinary necklace with crocodile pendants in various materials) and pottery vessels as well as some traces of the funerary masks and coffins which are closely comparable to the ones from Feature 6.

Based on the mode of burial (extended position in wooden coffins, funerary masks) and the burial

⁹ For serpentinite in general see Klemm and Klemm 1993, 376-378; for Wadi Semna as its northernmost attestation see Azer and Stern 2007, 457-472. For proposed shabti workshops in Memphis and Thebes see Minault-Gout 2012, 199, with references.

equipment (scarabs, canopic jars, amulets and jewellery) these burials in Feature 5 seem to be almost contemporary with Khnummose and his wife, suggesting that they probably represent further family members (Budka 2017a, 79; 2017c).

The oldest burials, being located on the chamber floor and sealed by debris from the roof as well as flood levels, were found in the southern part. Two extended burials of probably male adults yielded several objects, including canopic jars in clay, scarabs and pottery vessels, all of which are unfortunately without personal names or titles. At the feet of the individual lying along the south wall, a cluster of pottery vessels was positioned. This cluster comprises six flower pots, all piled up, partly upside down, one large dish with a red rim and a small lid. All vessels are datable to the mid-18th Dynasty (Budka 2017a, 79, pl. 9).

Khnummose and other burials in Tomb 26 as autochthonous individuals on Sai Island

Strontium isotope analyses were conducted on selected individuals from Tomb 26 in order to address one of the most pressing questions - the autochthony or allochthony of the skeletal remains from Tomb 26.10 The study is still ongoing and will be published elsewhere.¹¹ Very remarkable are the first preliminary data: according to the local "isoscape", the range of strontium established using soil samples, water samples as well as modern and ancient animal samples from Sai Island, all tested individuals from Tomb 26 are to be regarded as local. This means that neither Khnummose, nor his presumed wife and potential relatives from Feature 5 spent time in Egypt in their childhood or youth. Also the Ramesside burials from Feature 2 could be identified as autochthonous individuals. These first results - which still have to be treated with caution and need to be compared on a broader basis, e.g. with data from Tombos and Amara West - are very significant for the pressing questions of appropriation and the entanglement of cultures on Sai. It still remains possible that Khnummose was an offspring of an Egyptian 'colonist' who came to Sai during the time of Thutmose III, but it is equally possible that a person who seems completely Egyptian based on his burial style and burial gifts in Tomb 26 and has an Egyptian title (goldsmith), has actually roots in the indigenous population of Upper Nubia who were confronted with

Egyptian culture ever since the campaigns of Ahmose (see also Williams in this volume).

Reconstruction of the use-life of Tomb 26

Tomb 26 is remarkable in several aspects: its architecture, rich inventory and complex use-life. With the discovery of Features 5 and 6, much information was gained on the original users of Tomb 26. It is now safe to propose that the monument was originally built in the mid-18th Dynasty (Amenhotep II to Thutmose IV, Amenhotep III at the latest) for the goldsmith Khnummose. Until the late 18th Dynasty the family of Khnummose seems to have used the tomb as burial place, with interments taking place in Feature 5 and also probably in Feature 2 (Individual 10). By the Ramesside period at the latest, the original chamber (Feature 6) was completely sealed by flood levels. Some activity must have happened in the 19th and 20th Dynasties, most probably re-using Feature 2 as burial chamber. It is also likely that the entrance to Feature 5 was concealed and that this lateral room was forgotten - part of its roof must have collapsed soon after the 18th Dynasty. Consequently, interments of the Pre-Napatan and Napatan era used primarily the central room, Feature 2, which remained open and functioning well into the 7th century BC (Budka 2017b, 126, table 1).

The presence of the pyramidion, jambs and lintel of the Deputy of Kush under the reign of Ramesses II, Hornakht, which were found in the shaft of Tomb 26 still needs to be explained. Taking into account the new finds from 2017, there are two possible scenarios regarding the burial of Hornakht:

Since Khnummose is likely to be the original owner of Tomb 26, the structure cannot be interpreted as a new tomb erected for the Deputy of Kush in the 19th Dynasty. Thus, Hornakht was probably buried in a tomb close-by that has until now escaped its rediscovery (but note the large area void of tombs around Tomb 26, see fig. 2). The pyramidion and fragments of the offering chapel of this still unknown tomb then ended up in the shaft of Tomb 26, probably around the end of the New Kingdom.

Considering that most tombs in SAC5 testify a phase of re-use in Ramesside and late New Kingdom times, this modus of interment – usurpation of older structures – seems to represent the Ramesside standard on Sai.¹² As yet, no structure was found that was built as a new tomb *after* the 18th Dynasty. Thus, it is likely that also Hornakht, as Deputy of Kush, chose his burial place according to local contemporaneous traditions. Tomb 26 would have been re-occupied, its superstructure re-designed with a pyramid (including the inscribed

¹⁰ For first promising results of strontium signals in skeletal samples both from Egypt and Nubia, suggesting that distinguishing between the two areas is indeed possible with this method, see: Smith and Buzon 2017, 618-619, fig. 5.

¹¹ Many thanks go here to Anika Retzmann and Thomas Prohaska, VIRIS Laboratory of the University of Natural Resources and Life Sciences, Vienna, to whom I owe all preliminary data.

¹² The reuse of older structures as a mode of burial is also well-attested at Soleb, see Schiff Giorgini 1971, 100.

capstone) and a new chapel with inscribed doorways.¹³ At the end of the New Kingdom, this superstructure was dismantled, the tomb was re-used and the stone architectural pieces ended up in the shaft. This would correspond well to other finds (pottery and scarabs) from Tomb 26 dating to the 19th Dynasty.

All in all, Hornakht's burial at Sai represents a particular case, independent from which scenario is more likely: during the reign of Ramesses II, deputies of Kush were usually residing at Amara West and were also buried in this new administrative centre (cf. Binder 2017). But for whatever reason, perhaps because of family ties, Hornakht chose to have his tomb at Sai.¹⁴ In doing so, he followed the local tradition of re-using an older tomb, but equipping it with a new superstructure illustrating his rank as of Kush.

In summary, although no material from the funerary equipment of Hornakht was identifiable as such from Tomb 26, I would propose that the second scenario – the re-occupation of Khnummose's monument by Hornakht – is more likely, taking into account the specific situation during the 19th Dynasty on Sai.

Relevance of Tomb 26 in a broader context

The ceramics and prosopographical data from Tomb 26 are especially important for AcrossBorders' envisaged comparison between necropolis and town. The burial of Khnummose and the accompanying interments of the mid-18th Dynasty enable us to reconstruct a family whose members were engaged in gold mining, one of the main functions of Sai as Egyptian administrative centre during the New Kingdom (see Budka 2017a, 80; for gold production in the area see Klemm and Klemm 2013; 2017, 260-261, 266-267). As Deputy of Kush, Hornakht fits in perfectly and allows stretching the period of interest until the Ramesside era.

With Khnummose, one of the occupants of the New Kingdom town was identified – according to his title it is safe to closely associate his daily activities with the large scale magazine buildings, well known from the southern part of the town, but now also unearthed at SAV1 East by recent excavations of AcrossBorders (see Budka SAV1 in this volume). Large cellars in this sector of the New Kingdom town (like Feature 15, Budka 2015a, 45, table 1) were in use during the lifetime of Khnummose and possibly his offspring. These cellars and magazines are connected with tributes to Egypt, possibly also with Nubian gold and with the Egyptian administration

of Upper Nubia in general (cf. Müller 2013). Thus, combining the respective data with prosopographical information from SAC5 represents further steps in reconstructing both daily life and death on New Kingdom Sai, an Egyptian temple town and administrative centre.

As highlighted, Tomb 26 and its associated finds are of prime significance for understanding life on New Kingdom Sai. AcrossBorders' results from fieldwork at SAC5 nicely correspond to the results of the French Mission, which could rely on a much larger set of excavated tombs with large quantities of various materials. Most importantly, the new work in SAC5 supports my earlier reconstruction of the evolution of the Egyptian town based on the excavations in the city (Budka 2015a, 51; 2017a, 19). During the time of Thutmose III, Sai became an important administrative centre that was equipped with a large Egyptian-style pyramid cemetery. Egyptian architecture and material culture from both the town and cemetery SAC5 testify to the presence of Egyptians, but also to the appropriation of Egyptian style through indigenous elements. This resulted in a lifestyle during the second half of the 18th Dynasty that is very similar, but not completely identical to sites in Egypt proper. The case study of Khnummose, who was probably an autochthonous individual from Sai, illustrates the complex entanglement of cultures traceable for New Kingdom Nubia. Other than drawing artificial border lines between Egyptians and Nubians, ongoing research illustrates that at the local level social, economic and cultural identities were changing, interacting and merging with each other (see Binder 2017, 606-611; Smith and Buzon 2017; in this volume).

Furthermore, the individuals buried in Tomb 26 which should be considered as Egyptian officials with lower and medium ranking titles were partly associated with rich equipment and high quality finds. One possible explanation could be the function of Khnummose as goldsmith who might have had more direct access to jewellery like the gold and silver ring SAC5 388. Another explanation could rely on the fact that perceptions of status may well differ depending whether they are viewed from a micro or a macro perspective. The flourishing families on New Kingdom Sai Island who were buried like Khnummose's in SAC5 were not holding overly significant positions within the administration, but still represent the local wealth, once again underlining the dynamic character of this Egyptian microcosm and its occupants in Nubia (Budka 2017a, 80).

Evidence from Tomb 26 is also relevant for the Ramesside history of Sai Island, together with new finds from the town site (especially sector SAV1 West, see Budka 2015a, 46), the continued importance of the island during the 19th Dynasty – despite the foundation of Amara West as new residence of the Deputy of Kush – can be illustrated. Sai was still used by high officials as

¹³ Cf. the complex phases of re-designing the superstructure of Tomb 15 at Soleb, Schiff Giorgini 1971, 186, fig. 322.

¹⁴ As well as a – at least temporary – residence in the town area; see Budka 2015a, 49.

burial place, including selected Deputies of Kush like Hornakht. Finally, the material from Tomb 26 allows regional comparisons with other Egyptian sites in Upper Nubia. New parallels to another major Egyptian site in Upper Nubia, Soleb, can be highlighted and remarkable matches were noted between the new tomb on Sai and Tomb 15 at Soleb, implying either a close connection between the sites or - maybe even more likely - stressing the almost identical status of both sites as administrative centres (Budka 2017a, 79). In this respect, the stone shabti of Khnummose is also highly relevant (fig. 5); it falls into a homogenous group of funerary figurines attested for various officials of the Egyptian administration of Nubia, who were buried at major sites of the mid-18th Dynasty like Aniba, Toshka and Sai (Minault-Gout 2012).

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References

- Adenstedt, I. 2016. Reconstructing Pharaonic Architecture in Nubia: The Case Study of SAV1, Sai Island. Contributions to the Archaeology of Egypt, Nubia and the Levant 3. Vienna: Austrian Academy of Sciences Press.
- Azer, M.Z. and Stern, R.J. 2007. Neoproterozoic (835-720 Ma) Serpentinites in the Eastern Desert, Egypt: Fragments of Forearc Mantle. *The Journal of Geology* 115.4, 457-472.
- Azim, M. 1975. Quatre campagnes de fouilles sur la Forteresse de Saï, 1970-1973. 1^{ère} partie: l'installation pharaonique. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 3, 91-125.
- Binder, M. 2017. The New Kingdom tombs at Amara West: Funerary perspectives on Nubian-Egyptian interactions, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 591-613.
- Binder, M. and Spencer, N. 2014. The Bioarchaeology of Amara West in Nubia: Investigating the Impacts of Political, Cultural and Environmental Change on Health and Diet, in: Fletcher, A., Antoine, D. and Hill, J.D. (eds.), *Regarding the Dead: Human Remains in the British Museum*. British Museum Research Publication 197. London: British Museum Press, 123-136.
- Budka, J. 2011. The early New Kingdom at Sai Island: Preliminary results based on the pottery analysis (4th Season 2010). *Sudan & Nubia* 15, 23-33.
- Budka, J. 2014. Review of: Anne Minault-Gout and Florence Thill, Saï II. Le cimetière des tombes hypogées du Nouvel Empire (SAC5). Fouilles de l'Institut français d'archéologie orientale du Caire 69. Cairo 2012. *Methodos* 14 [online: http://methodos.revues.org/3760].
- Budka, J. 2015a. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2015b. Ein Pyramidenfriedhof auf der Insel Sai. *Sokar* 31, 54-65.
- Budka, J. 2015c. The Egyptian "Re-conquest of Nubia" in the New Kingdom – Some Thoughts on the Legitimization of Pharaonic Power in the South, in: Coppens, F., Janák, J. and Vymazalová, H. (eds.), Royal versus Divine Authority. Acquisition, Legitimization and Renewal of Power, 7th Symposium on Egyptian Royal Ideology, Prague, June 26-28, 2013. Königtum, Staat und Gesellschaft früher Hochkulturen 4.4. Wiesbaden: Harrassowitz, 63-82.
- Budka, J. 2016. Neues zum Pyramidenfriedhof auf Sai. *Sokar* 33, 60-67.

- Budka, J. 2017a. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Budka, J. 2017b. Pyramid Cemetery SAC5, Sai Island, Northern Sudan: An Update Based on Fieldwork from 2015-2017. *Egypt and the Levant* 27, 107-130.
- Budka, J. 2017c. Das Grab eines Goldschmiedemeisters auf Sai in Obernubien. *Sokar* 35, 52-63.
- Budka, J. and Doyen, F. 2013. Living in New Kingdom towns in Upper Nubia – New evidence from recent excavations on Sai Island. *Egypt and the Levant* 22/23, 2012/2013, 167-208.
- Buzon, M.R. 2008. A Bioarchaeological Perspective on Egyptian Colonialism in the New Kingdom. *Journal* of Egyptian Archaeology 94, 165-182.
- Cressent, M. and Raimon, A. 2016. Inscriptions in the name of governor Neby revealed by the restoration of miniature metal vases. *Sudan & Nubia* 20, 28-34.
- Davies, W.V. 2005. Egypt and Nubia. Conflict with the Kingdom of Kush, in: Roehrig, C.H., Dreyfus, R. and Keller, C.A. (eds.), *Hatshepsut: From Queen to Pharaoh*. New York: Metropolitan Museum of Art, 49-56.
- Fera, M. and Budka, J. 2016. Leben und Tod auf der Nilinsel Sai – GIS-gestützte Untersuchungen zu einer pharaonischen Tempelstadt in Obernubien. AGIT – Journal für Angewandte Geoinformatik 2-2016, 18-24.
- Gabolde, L. 2012. Réexamen des jalons de la présence de la XVIII^e dynastie naissante à Saï. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 29, 2011-2012, 115-137.
- Geus, F. 2004. Sai, in: Welsby, D.A. and Anderson, J.R. (eds.), Sudan – Ancient Treasures. An exhibition of recent discoveries from the Sudan National Museum. London: British Museum Press, 114-117.
- Holthoer, R. 1977. *New Kingdom Pharaonic Sites. The Pottery.* The Scandinavian Joint Expedition to Sudanese Nubia Publications 5.1. Copenhagen: Munksgaard.
- Klemm, R. and Klemm, D. 1993. Steine und Steinbrüche im Alten Ägypten. Berlin: Springer.
- Klemm, R. and Klemm, D. 2013. Gold and Gold Mining in Ancient Egypt and Nubia. Geoarchaeology of the Ancient Gold Mining Sites in the Egyptian and Sudanese Eastern Deserts. Natural Science in Archaeology. Heidelberg: Springer.
- Klemm, D. and Klemm, R. 2017. New Kingdom and early Kushite gold mining in Nubia, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 259-270.

- Minault-Gout, A. 2012. La figurine funéraire Saï inv. S. 964 (SNM 23424) et un groupe de quatre chaouabtis de la XVIII^e dynastie de même type. Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille 29, 2011-2012, 189-200.
- Minault-Gout, A. and Thill, F. 2012. Saï II. Le cimetière des tombes hypogées du Nouvel Empire (SAC5). Fouilles de l'Institut français d'archéologie orientale du Caire 69. Cairo: Institut français d'archéologie orientale du Caire.
- Müller, I. 2013. *Die Verwaltung Nubiens im Neuen Reich*. Meroitica – Schriften zur altsudanesischen Geschichte und Archäologie 18. Wiesbaden: Harrassowitz.
- Näser, C. 2017. Structures and realities of the Egyptian presence in Lower Nubia from the Middle Kingdom to the New Kingdom: The Egyptian cemetery S/SA at Aniba, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 557-574.
- Schiff Giorgini, M. 1971. *Soleb II. Les necropoles*. Florence: Sansoni.
- Smith, S.T. and Buzon, M. 2014. Colonial Entanglements: "Egyptianization" in Egypt's Nubian Empire and the Nubian Dynasty, in: Anderson, J.R. and Welsby, D. A. (eds.), *The Fourth Cataract and Beyond. Proceedings* of the 12th International Conference for Nubian Studies. British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 431-442.
- Smith, S.T. and Buzon, M. 2017. Colonial encounters at New Kingdom Tombos: Cultural entanglements and hybrid identity, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 615-630.

- Spencer, N., Stevens, A. and Binder M. (eds.) 2014. Amara West. Living in Egyptian Nubia. London: Trustees of the British Museum.
- Steindorff, G. 1937. Aniba. Zweiter Band. Service des Antiquités de l'Egypte. Mission archéologique de Nubie 1929-1934. Glückstadt: Augustin.
- Thill, F. 2007. Les réoccupations « (pré)napatéennes » dans le cimetière égyptien 8B5/SAC5 de Sai. *Mélanges offerts à Francis Geus. Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 26, 2006-2007, 353-369.
- Williams, B.B. 1992. New Kingdom Remains from Cemeteries R, V, S and W at Qustul and Cemetery K at Adindan. Oriental Institute Nubian Expedition 6. Chicago: Oriental Institute.
- Wolf, W. 1937. G. Gefäße: I. Tongefäße, in: Steindorff, G. Aniba. Zweiter Band. Service des Antiquités de l'Egypte. Mission Archéologique de Nubie 1929-1934. Glückstadt: Augustin, 125-138.

Notes on the contributor

Julia Budka studied Egyptology and Classical Archaeology at the University of Vienna and received her PhD in Egyptology, University of Vienna in 2007. She held a researcher position at Humboldt University Berlin (2004-2012) and was a temporary replacement Assistant Professor at the University of Vienna (2011-2012). With a START Prize 2012 and ERC Starting Grant 2012 she implemented her project AcrossBorders at the Austrian Academy of Sciences. Since 2015, Julia Budka is Professor of Egyptian Archaeology and Art, LMU Munich (and transferred her ERC project to LMU). Her specialty fields are Egyptian archaeology and ceramics; she conducts excavations in Sudan and Egypt, both at funerary and settlement sites, especially at Luxor (Thebes), Elephantine, Abydos and Sai Island.

Life History of Khnummose and Selected Anthropological Finds from Tomb 26, Sai Island, Sudan

Marlies Wohlschlager^{*} and Andrea Stadlmayr^{**}

Abstract

Archaeological excavation of Tomb 26 in the New Kingdom cemetery SAC5 on Sai Island, Sudan, was conducted between 2015 and 2017. In this article, evidence on the life history of Khnummose, the presumed owner of the tomb, and preliminary results on selected pathological finds are presented. The adult goldsmith showed no distinct signs of stress, but besides a healed rib fracture, he is diagnosed with possible DISH (diffuse idiopathic skeletal hyperostosis) and residues of arterial calcification, which points towards a rather privileged lifestyle. Among the most unusual pathological finds in Tomb 26 is a possible uterine fibroid of a menopausal female.

Keywords: *Khnummose, Tomb 26, Sai Island, New Kingdom, pathologies, arterial calcification, uterine fibroid, DISH*

Introduction

Field work conducted by the interdisciplinary team of the AcrossBorders project (principal investigator: Julia Budka) led to the discovery of a further New Kingdom tomb at SAC5 on Sai Island, Sudan, in 2015 (Budka 2017a; 2017b; Tomb 26 in this volume). In Feature 6 of Tomb 26, two individuals were identified as the main burials (fig. 1), one of which turned out to be a 35-50 year old male (SAC5 159/2017), who was accompanied by a more or less contemporary burial of an adult female (SAC5 160/2017). Individual SAC5 159/2017 in particular was surrounded by well preserved grave goods including a shabti engraved with the individual's name 'Khnummose' and stating his profession as 'goldsmith' (see Budka Tomb 26 in this volume). An overview of interesting pathological finds in Tomb 26 and preliminary results are presented here with a special focus on the life history of Khnummose, the presumed owner of the tomb.

Material and methods

The skeletal remains in Tomb 26 were excavated by archaeologists and physical anthropologists according to bioarchaeological standards. In general, bone preservation and bone mineralisation is rather poor due to numerous flooding events of the subterranean parts of the tomb in the past. The individual state of preservation varies and strongly

*Bioarchäologische Gesellschaft Österreichs (BAG), Franz-Klein-Gasse 1, 1190 Vienna, Austria; marlies.wohlschlager@gmail.com

**Museum of Natural History, Vienna, Burgring 7, 1010 Vienna, Austria; andrea.stadlmayr@nhm-wien.ac.at SAC5, T26, Feature 4+6, Sai Island 2017

Figure 1. In situ burial of Khnummose (SAC5 159/2017) in the north with neighbouring female SAC 5 160/2017 (© AcrossBorders 2017).

depends on the position of the skeletal remains within the tomb. Luckily, the skeleton of Khnummose was found *in situ* and almost complete in terms of the number of skeletal elements. Only small areas of post-mortem erosion could be detected on the bone surfaces. The neighbouring skeleton lacks major parts of the pelvic region, as well as parts of the upper and lower extremities with the right (southern) side being very poorly preserved.

Sex, as well as age at death was assessed for each individual before they were examined for pathological conditions macroscopically and/or by using a magnifying glass. Unusual and uncertain pathological cases were put aside for more precise investigation at a later point. Sex and age estimation is based on the methods suggested by Ferembach et al. (1979). Molar abrasion was recorded according to Miles (1963) and caries location and size, calculus, periodontal changes as well as linear and spotted enamel hypoplasia according to Schultz (1988). Periapical abscesses were coded 0 when 'not present' and 1 when 'present'. Porotic hyperostosis, cribra orbitalia, osteoperiostitis, degenerative changes of the vertebrae and joints were scored according to Steckel et al. (2006). Inflammatory reactions, endocranial changes and fractures were recorded with left and right elements being described separately.

Stress markers

The diseases discovered in archaeological material are often unrelated to the cause of death, but they may have had an influence on the individual's lifestyle and often reveal more about the life of people than their death (Mays 2010). Stress is, therefore, closely linked to health and wellbeing and the prevalence of stress markers on skeletal material allows conclusions about the general state of health.

Linear enamel hypoplasia (LEH) on teeth, periosteal reactions on long bones and porotic hyperostosis (including *cribra cranii* and *cribra orbitalia*) can reveal non-specific forms of nutritional and/or infectious disease stress. No distinct signs of LEH, *cribra orbitalia* or periosteal reactions commonly found in ancient skeletal long bone remains are present in Khnummose.

Dental health

Food leaves debris in the mouth and in combination with various components from the saliva, those deposits form dental plaque (calculus) on the teeth. We noticed calculus on the teeth of 5 from 11 rateable individuals (45.5%) in Tomb 26. This can lead to temporary inflammation of the bone around the tooth, with the alternating periods of inflammation and recovery resulting in alveolar recession and eventually tooth loss. Of the 11 investigated individuals, 7 (63.7%), including Khnummose, show signs of alveolar recession. On the other hand, dwelling bacteria within the plaque can metabolise carbohydrates and produce acidic waste products that start to attack the dental hard tissue (Hillson 2008). The strong cariogenic effect of a diet rich in carbohydrates (sucrose) is well known (White 1991; Hillson 2008). The only case of caries is present in the adult individual SAC5 145/2017 (Feature 5), who displays at least peppercorn-sized caries on the cervical margins of the present first and second molars. It should be noted that in ancient skeletal material, carious lesions always tend to be located between teeth (often at the cemento-enamel junction) and are rarely found on the occlusal surface. Abrasives in the food or a 'high attrition environment' usually polish the biting surface and wear away small pits and grooves before dental decay can advance on the occlusal surface (Chazel et al. 2005; Mays 2010). With certainty this applies to the individuals on Sai Island, including Khnummose, whose molars display high grades of abrasion. Of the 19 rateable individuals, 5 (26.3%) are affected by ante-mortem tooth loss. Gross attrition is frequently found in all age groups of ancient Egypt (Leek 1972) and like dental decay, it can also lead to dental pulp exposure early in life. Once the pulp is reached, it is exposed to infections which can lead to the formation of an abscess around the apex of the root (Hillson 2008; Mays 2010). In total, 3 of the 11 investigated individuals (27.3%) had formed dental abscesses. Khnummose is one of them with peppercorn-sized abscesses on the distal roots of both lower first molars.

Vertebral column (spine)

Four individuals (SAC5 145/2017, SAC5 159/2017, SAC5160/2017 and SAC5 279/2017), including Khnummose, carry Schmorl's nodes. They occur as a result of intervertebral disc pressure on both sides of the vertebral bodies and once the intervertebral disc has herniated into the vertebral body, it leaves behind discernible depressions (Mann and Hunt 2005, 87; Waldron 2009, 45). Besides trauma, congenital defects and various spinal diseases (Mann and Hunt 2005, 87-88), Schmorl's nodes are most commonly associated with degenerative arthritis and the related changes, *i.e.* the formation of bony spurs called osteophytes (Ortner and Putschar 1981, 430). Extensive osteophyte formation (>7mm) is present in most of Khnummose's cervical, thoracic and lumbar vertebrae.

DISH?

DISH (diffuse idiopathic skeletal hyperostosis) is a fairly common systemic disorder, meaning it affects a number of organs or tissues or the body as a whole. It is observed mainly in the elderly and more often in males than in females (Rogers *et al.* 1985; Roberts and Manchester

2005, 159; Olivieri et al. 2009). The aetiology is not quite clear. Genetic and external factors are presumed to contribute to the development of DISH and recent studies have shown a strong association with obesity, hypertension and Type 2 diabetes (Rogers and Waldron 2001; Verlaan et al. 2007; Olivieri et al. 2009). It is a non-inflammatory arthritic disease characterised by continuous ossification along the anterolateral aspect of at least four contiguous vertebral bodies and/or when multiple enthesopathies and bony spurs are present at tendon and ligament insertions (Crubézy 1990; Roberts and Manchester 2005; Olivieri et al. 2009; Verlaan et al. 2007). Khnummose shows a possible onset of DISH, with a non-fused bony bridge on the right side of his two lowest thoracic vertebrae, th11 and th12, and enthesal ossifications in the following areas: left and right clavicle (tuberosity and trapezoid line), right scapula (tuberosity, acromion), right humerus (lateral epicondyle with osteophytes >5mm), left radius (pronounced radial tuberosity and pronator tuberosity), metacarpals (pronounced insertion points), hand phalanges (pronounced plantar ridges), right femur (medial epicondyle with osteophytes >5mm; massive femoral crest >8mm), left and right calcaneus (inferior calcaneal spur), foot phalanges (pronounced insertion of adductor hallucis). The disease is asymptomatic in most patients, but the ossifications can cause stiffness, pain or even airway obstruction in some cases (Resnick et al. 1975; Roberts and Manchester 2005; Verlaan et al. 2007). DISH can easily be confused with other vertebral diseases: it is often expressed in a similar way to inflammatory spondylarthropathies such as ankylosing spondylitis (AS) and many researchers have had problems distinguishing one disease from the other (see e.g. Rogers et al. 1985; Olivieri et al. 2009; Waldron 2012). In most cases, DISH can be distinguished from the usually more painful AS because the intervertebral disc space as well as the bony joints, especially the sacroiliac joints, are by definition preserved in DISH (Resnick et al. 1975; Resnick and Niwayama 1976; Verlaan et al. 2007). When investigating individual SAC5 145/2017 from Feature 5, we found signs of DISH as well as possible AS: the anterior longitudinal ligament ossified without any involvement of the intervertebral disc space (fig. 2), which is a typical sign for DISH; various enthesopathies and bony spurs have formed, which happens in DISH and AS; the left sacroiliac joint appeared fused as it does in AS. However, Olivieri et al. (2009, 322) point out that in some cases 'DISH may also affect the sacroiliac joints, which can further result in being mistaken for sacroiliitis of AS'. In a clear diagnosis of AS, the synovial part of the joint shows sclerosis, whereas in individual SAC5 145/2017, only the ligamentous part of the joint is affected without any involvement of the synovial part. With this in mind, we suggest 'possible DISH' for Khnummose and 'DISH' for individual SAC5 145/2017, following Utsinger's classification (see Crubézy 1990).



Figure 2. SAC5 145/2017: Ossified anterior ligament (photo: Cajetan Geiger, © AcrossBorders).

Joint degeneration

The following right and left joints were investigated: shoulder joint, elbow joint, radio-ulnar joint, proximal wrist, hip joint, knee joint, proximal ankle, distal ankle. With exception of the left proximal and the left distal ankle which show no signs of modification, Khnummose's joints have formed slight marginal osteophytes (grade 2) only, while 4 of the 19 (21%) rated individuals show massive signs of alteration, including the formation of osteophytes greater than 3mm around the margin and various changes on the joint surface. The female individual buried next to Khnummose (SAC5 160/2017), for instance, shows massive signs of eburnation in both knees (fig. 3). This is diagnostic for osteoarthritis (OA), at the stage when 'bare bone rubs on bare bone to produce a surface as shiny as a billiard ball (Waldron 2009, 28). Important contributors to the development of OA include genetics, sex, obesity, and of course age and movement with the location of the modified joint correlating to each of these factors to a certain degree (Waldron 2009). With the knee, females are more often affected than males and a high correlation with obesity has been observed (O'Connor 2006; Waldron 2009). Felson (1988) also states, that re-



Figure 3. SAC5 160/2017: Left and right patella with massive eburnation (photo: Cajetan Geiger, © AcrossBorders).

petitive use in heavy labour jobs that require knee bending probably increases the risk. Because of the fact that significant bone changes do not become apparent until many years after the cartilage has shown first degenerative changes (usually not before the fourth decade in a person's life), the life span of a population has great influence on the recognition and frequency of OA in skeletal remains (Ortner and Putschar 1981).

Greenstick fracture - Khnummose's cracked rib

Adult ribs are a frequent site for partial or incomplete fractures, also called 'greenstick fractures'. We found a healed greenstick fracture with remodelled callus on the inside (fig. 4) of one of Khnummose's lower right ribs (height th10/11/12). Usually, and as was probable in this case, such rib fractures result from direct trauma like a fall against a hard object, and the location of the present trauma suggests an impact on the back; however, because the affected posterior angle is the weakest part of the rib, it is a common site for fractures regardless of the type of impact (cf. Katzenberg and Saunders 2008, 356). The fact that the site of the fracture has remodelled shows that this fracture must have occurred at least several months to years before death. Even though this fracture does not seem to have had any major effect on Khnummose's life, one should remember that rib fractures can cause severe pain and varying degrees of disability (Katzenberg and Saunders 2008, 357).

Calcifications

Arterial calcifications

Residues of artery calcification were still *in situ* in three individuals (SAC5 124/2017, SAC5 159/2017 and SAC5 145/2017). The morphology of the present calcifica-



Figure 4. SAC5 159/2017: Fragment of lower right rib with callus indicating a healed partial fracture (photo: Cajetan Geiger, © AcrossBorders).

tions in Khnummose on the left side of the fifth thoracic vertebra and also directly above the left iliac crest suggest atherosclerosis. Instead of being seen as a solely degenerative condition, the aetiology of this cardiovascular disease is complex and influenced by the interaction of multiple factors, including genetic and environmental risk factors (Lusis 2000; Lusis et al. 2004). Today, the main risk factors include smoking, lack of physical activity, high fat diet, hypertension and diabetes (cf. e.g. Jamkhande et al. 2014). Most of these factors were probably also present in ancient Egypt. Cereal grains, domestic animals (sheep, goat, cow and pig), wild birds, fish and hunted fauna were available in the region (Buzon 2006; Budka 2015) as well as lentils, melons, various types of weed and fruit including the sycamore fig and doum-palm (Ryan et al. 2012). It seems that the amount of cattle on Sai Island increased in Thutmoside times and pigs were imported to the island in the early 18th Dynasty together with cooking pots, storage vessels, etc. (Budka 2015). Because fat, sugar and protein were all available, it can be presumed that higher ranking individuals such as Khnummose had sufficient access to 'unhealthy' food. A study on atherosclerosis in royal/elite Egyptian mummies ranging from the Middle Kingdom to the Graeco-Roman Period showed that atherosclerosis was, in fact, quite common in ancient Egypt, particularly in the New Kingdom (Allam et al. 2011). There is little record of arterial calcifications in ancient skeletal remains, with one of the very few exceptions being the neighbouring site Amara West, Northern Sudan (1300-800 BC), where possible examples of calcified blood vessels were discovered in five burials (Binder and Roberts 2014). It is noted that the affected Amara West individuals all show signs of new bone formation on the visceral side of the ribs, whereas the three individuals with calcifications from Sai Island do not, so the suggested link with chronic pulmonary diseases (Thompson et al. 2013; Binder and Roberts 2014) can be excluded here.

Calcified uterine fibroid

Another very interesting in situ find in the pelvic area of the mature to early senile individual SAC5 51/2017 (Feature 4) possibly represents a calcified uterine fibroid, also known as uterine leiomyoma, which is a non-cancerous uterine tumour that forms within the smooth muscle tissue of the uterus. Uterine fibroids can remain small, but they can also fill the entire abdominal cavity. They most commonly affect women in their childbearing years. Genetics and hormone levels appear to have a great influence on the formation of uterine fibroids, some of the most important risk factors being obesity, diabetes and hypertension (Flake et al. 2003; Walker and Stewart 2005; Evans and Brunsell 2007; Okolo 2008). Today, up to three-quarters of all women experience uterine fibroids at some point in their life and they may cause various symptoms such as abdominal pressure or menorrhagia, depending on their size and location (Cramer and Patel 1990; Baird et al. 2003; Parker 2007). Once fibroids have outgrown their blood supply, they start to degenerate. Degeneration causes calcium deposition, which results in calcification. This typically happens in the last phase of the degenerative process, usually in the menopausal stage in women when the body's oestrogen levels decrease (Casillas et al. 1990; Wilde and Scott-Barrett 2009).

However, the hypothesis that the discovered mass in the pelvic region of individual SAC5 51/2017 is a calcified uterine fibroid is currently based on morphological comparison with various calcifications housed in the Collection of Anatomical Pathology in the 'Narrenturm', Vienna (part of the Natural History Museum, Vienna), as well as with published examples of other calcified objects (e.g. Strouhal 1976; Strouhal and Jungwirth 1977; Baud and Kramar 1991; Binder *et al.* 2016). Since the *in situ* position of the find could also allow a bladder stone as a diagnosis, chemical analysis is planned for clarification.

Summary

We found no distinct signs of the stress markers that are typically found in ancient skeletal material and that normally indicate nutritional deficiencies and chronic infectious diseases in Khnummose and the female individual buried next to him. On the contrary, evidence for ample access to sugary and fatty food as well as possible systemic disorders and mainly age-related degeneration prevails. This fits in well with the general understanding of a more privileged life in New Kingdom Egypt, especially under the reign of the kings of the 18th Dynasty (Haikal 2002; Smith 2003; Redford 2006; Spalinger 2006).

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References

- Allam, A.H., Thompson, R.C., Wann, L.S., Miyamoto, M.I., Nur el-Din, A. el-H., Abd el-Maksoud, G., Al-Tohamy Soliman, M., Badr, I., Abd el-Rahman Amer, H., Sutherland, L., Sutherland, J.D. and Thomas, G.S. 2011. Atherosclerosis in Ancient Egyptian Mummies: The Horus Study. JACC: Cardiovascular Imaging 4.4, 315-327.
- Baird, D.D., Dunson, D.B., Hill, M.C., Cousins, D. and Schectman, J.M. 2003. High cumulative incidence of uterine leiomyoma in black and white women: ultrasound evidence. *American Journal of Obstetrics and Gynecology* 188.1, 100-107.
- Baud, C.-A. and Kramar, C. 1991. Soft tissue calcifications in paleopathology, in: Ortner, D.J. and Aufderheide A.C. (eds.), *Human Paleopathology: Current Syntheses and Future Options*. Washington: Smithsonian Institution Press, 87-89.
- Binder, M. and Roberts, C.A. 2014. Calcified structures associated with human skeletal remains: Possible atherosclerosis affecting the population buried at Amara West, Sudan (1300-800BC). *International Journal for Paleopathology* 6, 20-29.
- Binder, M., Berner, M., Krause, H., Kucera, M. and Patzak, B. 2016. Scientific analysis of a calcified object from a post-medieval burial in Vienna, Austria. *International Journal of Paleopathology* 14, 24-30.
- Budka, J. 2015. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2017a. Pyramid Cemetery SAC5, Sai Island, Northern Sudan. An Update Based on Fieldwork from 2015-2017. *Egypt and the Levant* 27, 107-130.
- Budka, J. 2017b. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Buzon, M.R. 2006. Health of the non-elites at Tombos: Nutritional and disease stress in New Kingdom

Nubia. American Journal of Physical Anthropology 130, 26-37.

- Casillas, J., Joseph, R.C. and Guerra, J.J. 1990. CT Appearance of Uterine Leiomyomas. *Radiographics* 10.6, 999-1007.
- Chazel, J.C., Valcarel J., Tramini P. and Pellisier B. 2005. Coronal and apical lesions, environmental factors: study in a modern and an archaeological population. *Clinical Oral Investigations* 9, 197-202.
- Cramer, S.F. and Patel, A. 1990. The frequency of uterine leiomyomas. *American Journal of Clinical Pathology* 94.4, 435.438.
- Crubézy, E. 1990. Diffuse Idiopathic Skeletal Hyperostosis: Diagnosis and importance in Paleopathology. *Journal of Paleopathology* 3.2, 107-118.
- Evans, P. and Brunsell, S. 2007. Uterine Fibroid Tumors: Diagnosis and Treatment. *American Family Physician* 75.10, 1503-1508.
- Felson, D.T. 1988. Epidemiology of hip and knee osteoarthritis. *Epidemiologic Reviews* 10.1, 1-28.
- Ferembach, D., Schwidetzky I. and Stloukal, M. 1979. Empfehlungen f
 ür die Alters- und Geschlechtsdiagnose am Skelett. *Homo* 30, 1-32.
- Flake, G.P., Andersen, J. and Dixon, D. 2003. Etiology and Pathogenesis of Uterine Leiomyomas: A Review. *Environmental Health Perspectives* 111.8, 1037-1054.
- Haikal, F. 2002. Thutmose III and the Glory of the New Kingdom, in: Hornung, E. and Bryan B.M. (eds.), *The Quest for Immortality: Treasures of Ancient Egypt.* Munich: Prestel, 4-23.
- Hillson, S. 2008. Dental Pathology, in: Katzenberg, M.A. and Saunders, S.R. (eds.), *Biological Anthropology* of the Human Skeleton. Second Edition. Hoboken: Wiley, 301-340.
- Jamkhande, P.G., Chandak, P.G., Dhawale, S.C., Barde, S.R., Tidke, P.S. and Sakhare, R.S. 2014. Therapeutic approaches to drug targets in atherosclerosis. *Saudi Pharmaceutical Journal* 22.3, 179-190.
- Katzenberg, M.A. and Saunders, S.R. 2008 (eds.), Biological Anthropology of the Human Skeleton. Second Edition. Hoboken: Wiley.
- Leek, F.F. 1972. Teeth and Bread in Ancient Egypt. Journal of Egyptian Archaeology 58, 126-132.
- Lusis, A.J. 2000. Atherosclerosis. Nature 407, 233-241.
- Lusis, A.J., Mar, M. and Pajukanta, P. 2004. Genetics of atherosclerosis. *Annual Review of Genomics and Human Genetics* 5, 189-218.
- Mann, R.W. and Hunt, D.R. 2005. *Photographic Regional Atlas of Bone Disease: A Guide to Pathologic and Normal Variation in the Human Skeleton*. Third Edition. Springfield: Charles C Thomas.

- Mays, S. 2010. *The Archaeology of Human Bones*. Second Edition. London: Routledge.
- Miles, A.E.W. 1963. The Dentition in the Assessment of Individual Age in Skeletal Material, in: Brothwell, D.R. (ed.), *Dental Anthropology*. Symposia of the Society for the Study of Human Biology 5. Oxford: Pergamon, 191-209.
- O'Connor, M.I. 2006. Osteoarthritis of the Hip and Knee: Sex and Gender Differences. *Orthopedic Clinics* of North America 37.4, 559-568.
- Okolo, S. 2008. Incidence, etiology and epidemiology of uterine fibroids. *Best Practice & Research Clinical Obstetrics & Gynaecology* 22.4, 571-588.
- Olivieri, I., D'Angelo, S., Palazzi, C., Padula, A., Mader, R. and Khan, M.A. 2009. Diffuse idiopathic skeletal hyperostosis: differentiation from ankylosing spondylitis. *Current Rheumatology Reports* 11/5, 321-328.
- Ortner, D. J. and Putschar, W.G.J. 1981. *Identification of Pathological Conditions in Human Skeletal Remains*. Smithsonian Contributions to Anthropology 28. Washington D.C.: Smithsonian Institution Press.
- Parker, W.H. 2007. Etiology, symptomatology, and diagnosis of uterine myomas. *Fertility and Sterility* 87.4, 725-736.
- Redford, D.B. 2006. The Northern Wars of Thutmose III, in: Cline, E.H. and O'Connor, D. (eds.), *Thutmose III: A New Biography*. Ann Arbor: University of Michigan Press, 325-343.
- Resnick, D. and Niwayama, G. 1976. Radiographic and pathologic features of spinal involvement in diffuse idiopathic skeletal hyperostosis (DISH). *Radiology* 119, 559-568.
- Resnick, D., Shaul, S.R. and Robins, J.M. 1975. Diffuse Idiopathic Skeletal Hyperostosis (DISH): Forestier's Disease with Extraspinal Manifestations. *Radiology* 115, 513-524.
- Roberts, C. and Manchester, K. 2005. *The Archaeology of Disease*. Third Edition. Stroud: Sutton Publishing.
- Rogers, J. and Waldron, T. 2001. DISH and the Monastic Way of Life. *International Journal of Osteoarchaeolo*gy 11, 357-365.
- Rogers, J., Watt, I. and Dieppe, P. 1985. Palaeopathology of spinal osteophytosis, vertebral ankylosis, ankylosing spondylitis, and vertebral hyperostosis. *Annals of the Rheumatic Diseases* 44, 113-120.
- Ryan, P., Cartwright, C.R. and Spencer, N. 2012. Archaeobotanical research in a Pharaonic town in ancient Nubia. *British Museum Technical Research Bulletin* 6, 97-106.

- Schultz, M. 1988. Paläopathologische Diagnostik, in: Knußmann, R. (ed.), Anthropologie. Handbuch der vergleichenden Biologie des Menschen Bd. 1: Wesen und Methoden der Anthropologie. Stuttgart: Fischer, 480-496.
- Smith, S.T. 2003. Pharaohs, Feasts, and Foreigners: Cooking, Foodways, and Agency on Ancient Egypt's Southern Frontier, in: Bray, T.L. (ed.), *The Archaeology* and Politics of Food and Feasting in Early States and Empires. New York: Springer, 39-64.
- Spalinger, A.J. 2006. Covetous Eyes South: The Background to Egypt. Egypt's Domination over Nubia by the Reign of Thutmose III, in: Cline, E.H. and O'Connor, D. (eds.), *Thutmose III: A New Biography.* Ann Arbor: University of Michigan Press, 344-369.
- Steckel, R.H., Larsen, C.S., Sciulli, P.W. and Walker, P.L. 2006. Data Collection Codebook by the Global History of Health Project. Columbus: Ohio State University, 1-41.
- Strouhal, E. 1976. Tumors in the Remains of Ancient Egyptians. American Journal of Physical Anthropology 45, 513-620.
- Strouhal, E. and Jungwirth, J. 1977. Ein verkalktes Myoma uteri aus der späten Römerzeit in Ägyptisch-Nubien. *Mitteilungen der Anthropologischen Gesellschaft in Wien* 107, 215-221.
- Thompson, R.C., Allam, A.H., Lombardi, G.P., Wann, L.S., Sutherland, M.L., Sutherland, J.D., Saliman, M.A., Frohlich, B., Mininberg, D.T., Monge, J.M., Vallodolid, C.M., Cox, S.L., Abd el-Maksoud, G., Badr, I., Miyamoto, M.I., Nur El-Din, A. el-H., Narula, J., Finch, C.E. and Thomas, G.S. 2013. Atherosclerosis across 4000 years of human history: the Horus study of four ancient populations. *The Lancet* 381, 1211-1222.
- Verlaan, J.J., Oner, F.C. and Maat, G.J.R. 2007. Diffuse idiopathic skeletal hyperostosis in ancient clergymen. *European Spine Journal* 16.8, 1129-1135.
- Waldron, T. 2009. *Palaeopathology*. Cambridge: Cambridge University Press.
- Waldron, T. 2012. Joint Disease, in: Grauer, A.L. (ed.), A Companion to Paleopathology. Oxford: Wiley, 513-530.
- Walker, C.L. and Stewart, E.A. 2005. Uterine Fibroids: The Elephant in the Room. *Science* 308, 1589-1592.
- White, T. 1991. *Human Osteology*. San Diego: Academic Press.
- Wilde, S. and Scott-Barrett, S. 2009. Radiological appearances of uterine fibroids. *Indian Journal of Radiology and Imaging* 19.3, 222-231.

Notes on the contributors

Marlies L. Wohlschlager received her master's degree in physical anthropology from the University of Vienna in 2011 (working with skeletal remains from the early Bronze Age population of Gemeinlebarn F, Austria, under Maria Teschler-Nicola). She is a member of BAG (Bioarchäologische Gesellschaft) and her main interests include osteoarchaeology and palaeopathology in connection with ancient social structures. Andrea Stadlmayr received her master's degree in physical anthropology from the University of Vienna (2009) and has been a freelance anthropologist since 2011. Since 2017 she has been employed at the Department of Anthropology, Natural History Museum, Vienna. With a strong background in evolutionary anthropology, she focuses on osteological and bioarchaeological research and is a founding member of the BAG (Bioarchäologische Gesellschaft).

The Fortified Settlement at Tombos and Egyptian Colonial Strategy in New Kingdom Nubia

Stuart Tyson Smith^{*} and Michele R. Buzon^{**}

Abstract

Excavation at Tombos by a joint UCSB-Purdue University expedition has revealed evidence for the foundation of a New Kingdom colony around 1450 BC. Recent fieldwork in the cemetery has further refined our picture of the organisation of the Egyptian New Kingdom empire and cultural entanglements between Egyptian colonists and Nubians that reflect the give and take of lived experience on the frontier. The lack of a fortification and temple have always been puzzling, since all of the other major New Kingdom colonies in Upper Nubia were supplied with these features. Starting in 2013, we uncovered evidence for structures and from 2015-2017 documented a defensive system consisting of a dry moat lined with mud brick walls enclosing an area of at least four hectares. Pottery indicates that it was in use from the founding of the colony through the reign of Amenhotep III. Reuse of sections of the ditch in the Ramesside period and into the Third Intermediate Period indicates that the settlement continued to thrive after the fortifications were abandoned and filled with domestic refuse, sand and debris. The size of the fortification system and importance of officials buried in the cemetery point towards Tombos as the most likely location for the menenu Taroy mentioned by Amenhotep III's viceroy Merymose.

Keywords: Tombos, Taroy, Fortifications, Colonialism, Nubia

Introduction

In *c*. 1502 BC, Thutmose I completed the conquest of Kush, incorporating Nubia into an extensive empire that would last through the end of the New Kingdom. He ordered that a number of commemorative inscriptions be placed on granite outcrops at Tombos. As Robert Morkot (1991; 2013), followed by Stuart Tyson Smith (2003b), has argued, this symbolically marked an important internal boundary within Egypt's new Nubian empire at the headwaters of the Third Cataract. North of this boundary, colonisation took the form of newly established temple-centred towns (Kemp 1972). One might have expected Thutmose to found a similar colony at Tombos, especially given its strategic location just north of Kerma and symbolic importance marked by his rock inscriptions. The great Tombos inscription commissioned by Thutmose I after his conquest of Kush is often interpreted as referring to the construction of a *menenu*, or fortress at the site. There is, however, no indication of this early an Egyptian presence. There is some indication of New Kingdom occupation on Tombos and Dabaki islands

*Department of Anthropology, 2001HSSB, University of California, Santa Barbara, CA 93106-3210; stsmith@anth.ucsb.edu

> **Department of Anthropology, Purdue University, 700 W. State St., West Lafayette, IN 47907; mbuzon@purdue.edu

in the form of light sherd scatters, but no substantial remains and nothing that would point to an early New Kingdom date. After four field seasons of excavation in the settlement area and nine seasons in the cemetery we have yet to uncover any evidence for an early Thutmoside occupation in the area. Instead, radiocarbon dates and the stylistic analysis of pottery and other artefacts from the substantial cemetery and from our initial excavations within the settlement area suggest a founding date for the colony at the earliest around the reign of Thutmose III/ Hatshepsut, whose throne names both appear on scarabs from the cemetery (Smith and Buzon 2017). The relevant passage in the great Tombos inscription is more likely simply part of a string of epithets. Instead of stating that Thutmose I has commissioned a fortress, the text reads like the common trope of pharaoh as 'a fortress for his army'. The passage continues with the supposed name of the fortress, which - while it could be a somewhat bellicose name - is better understood as another epithet, 'None faces him among the Nine Bows'. It continues with more general statements of the power of the king: 'Like a young panther among the fleeing cattle, the fame of His Majesty blinded them. He brought the ends of the *earth into his domain.*' The entire passage carries a familiar hyperbolic tone, framing Thutmose I as a universal lord and conqueror (Breasted 1906, 30-31). Thus, we need not expect him to have built a fortress at Tombos.

Even though the Egyptian occupation at the site dates later than the foundation of the menenu during Thutmose I's reign, it has always seemed odd that there was no sign of fortification. The tombs in the cemetery are comparable in monumentality to those at other sites like Sai, Amara West, Soleb and Sesebi, yet up until recently, there has been no indication of the kind of massive temple and walled town that characterised the other Egyptian settlements established between the Second and Third Cataracts (Morris 2005). There are the remains of a fortress on the northern end of Dabaki island, but in spite of reports of some New Kingdom sherds in the area (Osman and Edwards 2012), the structures themselves are clearly Medieval, with dense scatters of later Christian pottery across the surface and diagnostic sherds embedded in the walls themselves. Light sherd scatters do provide some indication for New Kingdom occupation on Tombos and Dabaki island, but no substantial remains consistent with a fortress are apparent. In any case, the



Figure 1. Third Cataract at Tombos.

Dabaki fortress was clearly designed to monitor riverine traffic coming from the north, exactly the opposite orientation for a New Kingdom fortification, which would be expected to monitor traffic from the south (fig. 1).

As soon as we began work at Tombos, we noticed sherd scatters of Pharaonic pottery across the southern end of the village. After unsuccessful tests in 2002, we discovered evidence for buildings and a massive new fortification in our 2013 and 2015-2017 field seasons. The enclosure is very large, extending to the south of the modern village. This location is consistent with the orientation of the earlier Thutmose I inscriptions as well as the later inscriptions of viceroys Inebny and Usersatet, who served under Hatshepsut/Thutmose III and Amenhotep II, respectively, and Merymose, who served under Amenhotep III (fig. 1; Davies 2008; 2012). The inscriptions place Tombos within a symbolic landscape centred around the Cataract's headwaters and the defeat of Egypt's southern enemy. The later date for the insertion of a colony at the Third Cataract reflects a shift in Egypt's Nubian policy, right about the time the Egyptians ended the kingship of Kush (Morkot 2013; Smith and Buzon 2014a). In this way, Tombos presents an interesting lens through which to understand the course of colonialism and colonisation during the New Kingdom. Before turning to the excavations in the settlement, we will briefly summarise the chronological, historical and demographic implications of our work in the cemetery.

Tombos Cemetery

There are two areas of the Tombos cemetery that utilise primarily Egyptian style tomb structures and burial practices. The larger area is marked by elite pyramid/ chapel tomb monuments, while a smaller area to the north contains "middle-class" underground chamber tombs. Both areas contain some smaller single/double pit tombs as well, including the burials of children inserted around the mud brick tomb structures (fig. 2). These two areas begin at or near the beginning of the Tombos occupation, around the time of Thutmose III, and continue through the Ramesside period. Pit burials and new structures reflect the construction of new tomb complexes, while later additions and adaptation to older tombs indicate the reuse of older structures through the 25th Dynasty. During the Ramesside period, tumuli began to be constructed in a separate cemetery adjacent to the older necropolis. This area also shows evidence for both new construction and the reuse of older tombs into the 25th Dynasty (Smith and Buzon 2014b; Buzon et al. 2016).

The earliest pyramid tombs date to the mid-18th Dynasty, including those built for two named individuals, Siamun (Unit 1/4) and Tiy (Unit 30). A third tomb discovered in the 2017 field season was associated

with new cones naming a hm-ntr-priest. Although the name was not legible, the cones most likely belong to the hm-ntr Horemhet mentioned on finely carved wooden coffin fragments from the burial chambers. Based on the funerary cone inscriptions, Siamun held the title 'Scribe Reckoner of the Gold of Kush' (Smith and Buzon 2017). Damp conditions and logistical difficulties prevented complete excavation of the shaft and chambers, but the tomb contained multiple inhumations (MNI>20), the badly decayed remnants of several wooden and at least one ceramic coffin, pottery and jewellery. The ceramic coffin was painted in mid-late 18th Dynasty style with a black background and yellow decoration like a wooden coffin, pointing to a corresponding date. One adult female and four children were buried in the alleyway around Siamun's pyramid, placed just before the completion of the tomb. The burial of children in individual pit tombs around larger monuments is a pattern that also appeared in the area to the west of Siamun's tomb (see below). A complete but shattered red jar was found above one of the child's tomb, providing evidence for the ritual of "Breaking the Red Pots" (Smith and Buzon 2017).

Artefacts from Tiy's burial complex also indicate a mid-late 18th Dynasty date, including blue painted ware with parallels from the reign of Amenhotep III (Smith and Buzon 2017). Tombos is thus far the farthest place south where this palace-associated ware has appeared, attesting to the colony's integration into the larger, royal political economy. A funerary cone with a simple stamp containing only Tiy's name in large hieroglyphs had fallen down the shaft. Contrasting with Siamun's elaborate but conventional cones, the unusual nature of the stamp suggests that Tiy's was an adaptation of the Theban practice. His body remained inside the poorly preserved wooden polychrome painted coffin, which was of very high quality with inlaid faience and stone eye and eyebrow inlays. Horemhet's tomb also reflects his high social status, with a green stone heart scarab and fragmentary but remarkably well preserved fragments from two wooden coffins finely decorated in the black background yellow/polychrome style typical for the later 18th Dynasty. Although badly denuded, there were traces of at least some kind of chapel around the shaft of his tomb, a feature also indicated by the presence of cones, which would have run in a frieze across the façade of the tomb (e.g. the reconstruction of Siamun's tomb in fig. 2). Unlike Tiy's tomb, the cones had a conventional stamp, although of the simplified rectangular type like those found on rectangular "cones" and stamped fired bricks dedicated to Siamun and his mother Weren. Given the tomb's elaborate treatment, very likely there was also a pyramid, but no trace remains. The presence of three tombs decorated with funerary cones is highly unusual and suggests strong ties to Thebes, from which the vast majority of cones derive (Ryan 1988). The only



Figure 2. Tombos Pharaonic cemetery. Inset illustrations show a reconstruction of the tomb of Siamun with funerary cones, a tumulus burial from the early Third Intermediate Period, and the flexed Kerma style burials in Unit 6, along with a Mycenaean LHIII A2 flask found in the stratum above.

other Nubian tomb with cones appears at the viceregal capital at Aniba (Steindorff 1937). Since the viceroys resided in Thebes during the 18th Dynasty, Tombos may have had a special connection with the Egyptian side of the viceregal administration during this period.

A small funerary chapel (Unit 36, Shaft 1) with a shaft leading to east and west burial chambers reflects a more modest kind of tomb (fig. 3). A damaged but very fine blue glazed steatite scarab with the throne name of Hatshepsut was found at the bottom of the shaft, similar to examples from her Deir el-Bahari foundation deposits (Hayes 1959, 87-88, fig. 48). In spite of the damage, the reading is clear, 'Ma'atkare United with Amun' ($M3^c.t-k3-R^c-\underline{h}nm(.t)-Jmn$). This is the earliest royal name appearing at the site after the inscriptions of Thutmose I. The western chamber contained coffin remains with preserved paint with yellow detail on black background, including figures presumably of the four Sons of Horus, consistent with a mid- to late 18th Dynasty date. Broken off by ancient looters and tossed to one side, the face of this coffin was preserved, painted yellow, indicating it was made for a woman, which was indeed the case based upon the remains still *in*



Figure 3. Plan of Unit 36, Shaft 1 tomb.

situ inside the trough. Another wooden coffin had completely decayed, but another burial lay inside a complete ceramic coffin.

A chamber tomb with a side niche and eastern end chamber (Unit 37) revealed wooden coffin remains with an older female who had a faience plaque amulet inscribed with Thutmose III's nomen, Mn-hpr-R^c. It was found near the pelvis, probably originally attached with string as a ring. Although the throne name is problematic as a chronological marker since it continued to be used long after Thutmose's death, a large jar with an elaborate monochrome decoration of lotuses and pot stands found in the eastern chamber are consistent with a date around the time of his reign (Hope 1987). Other pottery from the tomb also supports this date, including several bowls, "flowerpots", and a small one-handled tall-necked jar with bichrome decoration. Unarticulated bone suggests some looting, but a group of burials in the eastern chamber were intact, including two east-west oriented extended burials and a fully articulated female in a flexed position, hands to the face, and head more to the west and facing north in Kerma tradition. Like the Unit 36 burial mentioned above, this burial continues a gendered pattern of Nubian influence first uncovered in 2002 (Smith 2008; Buzon et al. 2016). There were indications of a western chamber, but unfortunately it was not possible to continue excavation due to the instability of the tomb, which was cut into alluvium.

As noted above, mud brick vaulted underground chamber tombs characterised the northern cemetery (Units 6, 7, 8). These tombs were constructed in the mid-18th Dynasty and in at least one case continued to be used through the late Ramesside period (Smith 2008). Like the subterranean complexes of the pyramid tombs, they are large and designed for multiple inhumations. The Unit 6 tomb in particular shows a long and continuous history of use (Buzon et al. 2016). We associate these tombs with "middle-class" individuals such as lower-ranking bureaucrats, including the scribe Djehuty, and other skilled workers. Burial goods included decorated wooden and ceramic coffins, including a wooden coffin with the name and figure of the god Duamutef (one of the protective Sons of Horus), amulets, three shabti figurines, scarabs (referring to Thutmose III, Amenhotep II, Amenhotep III, and Ramses II) and other jewellery. Amun-Re is commonly named on scarabs at Tombos. Significant amounts of pottery were found, including amphorae, large to small jars, plates and bowls, and "flowerpots" and beer jars (Smith and Buzon 2017). A small amount of Nubian pottery appears as well as ivory bracelets and ivory and quartz earrings. Two Mycenaean juglets were found in Unit 6 and sherds appear in association with the pyramid tombs (fig. 2), making Tombos the farthest place south where Mycenaean wares have been found. These luxury goods indicate the colony's relative wealth and connection to the larger political economy (Smith 2003b).



Figure 4. Plan of Unit 37 tomb.



Figure 5. Plan of Unit 23 tomb.

In addition to the tombs constructed during the 18th Dynasty, a number of tombs were built during the Ramesside period. A pyramid tomb with attached chapel (Unit 23, figs. 2 and 5) had a small eastern chamber containing five individuals, one of whom wore a steatite scarab of Ramses II on the right hand. The western burial complex was much larger, consisting of a rectilinear chamber with two side rooms. A number of late Ramesside and/or early Third Intermediate Period whole pots were found in the bottom of the shaft and entryway to the western complex. A duck-shaped ceramic incense burner lay in situ just outside the entrance. The best parallel comes from Deir el-Medina tomb 359 or 360, associated with either Qaha, built during the reign of Seti I or Ramesses II, or his grandson Inherkhau, year 21 of Ramesses III through year 1 of Ramesses VI (Nagel 1938, 172-176, figs. 29, 141, 143-144). The bulbous amphora with upside down handles finds parallels in the mortuary temple of Merenptah from 20th-21st Dynasties contexts associated with the magazines and in a 10th to 8th century context at Elephantine, although both parallels lack the rim (Aston 2008, pl. 99; 1996, fig. 183). A copper alloy kohl applicator and faience scarab were found within the north-eastern side room. Burials with disintegrated wooden coffins in the entryway were uncovered; moist conditions and chamber ceiling collapse prevented continued work. Within the shaft, several disturbed burials were recovered in addition to two late Ramesside or early Third Intermediate Period pilgrim flasks. The lentoid flask with a large flanged rim shown here (fig. 5) finds a close parallel in Third Intermediate Period deposits at Medinet Habu, although Aston (1996) dates it somewhat earlier. Above these burials were the remains of an intact horse burial dating to the early Third Intermediate Period (Schrader et al. 2018). Debris from the collapse of the chapel was found in the shaft below the horse, and the mouth of the shaft was sealed with granite beams placed over the original floor, indicating reuse. Curiously, two child burials in baskets were placed on the original floor of the chapel and sealed by the beams, indications that the tomb was reused after the chapel had fallen into disrepair.

Grave goods, imports and local production

Grave goods reflect a strong adherence to Egyptian burial practices and point towards a combination of import from Egypt and local production and finishing. Some of the specialised grave goods were clearly purchased as "blanks" ready for the insertion of the deceased's name, a practice attested in Egypt. The finely carved shabti found next to Tiy's head inside his coffin provides a more dramatic example



Figure 6. Shabti of Tiy from the Unit 30 tomb.

of this practice (fig. 6). It appears to have been left completely blank apart from the masterful shaping and detail in rendering the head and hands. The high quality of the carving contrasts dramatically with the crudeness of the inscription. It was inscribed with his name and titles, but instead of the usual shabti spell from the Book of the Dead, the inscriptions were laid out like a coffin, with bands referencing the four sons of Horus. The inscription itself is literate but crude and difficult to read as a result. Similarly, elements of decoration added to the piece were also crudely carved, including a vulture collar. The inscription is difficult to read, but includes his name, Tjy, and titles scribe and wab-priest. Tiy is typically a woman's name, but does appear as a masculine name in the New Kingdom (Ranke 1935). The contrast between the quality of the shabti and inscription suggests that it was purchased as a "blank" and finished by a scribe without artistic training, presumably a member of the family. This opens the possibility that these pieces were originally crafted in Egypt and imported as "blanks" into Nubia ready made to meet the elite demand for specialised funerary objects (see also Budka Tomb 26 in this volume).

Evidence of ceramic production appears at various sites in Upper and Lower Nubia, even relatively small communities like Askut at the Second Cataract, where one of only two known ceramic wheel heads appears (Smith 2014). There is no direct evidence for ceramic production thus far at Tombos, but the unusual style and fragility of the ceramic coffins from the site point



Figure 7. Ceramic coffins from the Unit 36, Shaft 1 tomb.

towards a similar local industry. Unlike the classic "slipper" style popular in the New Kingdom in Egypt and the Levant, all of the coffins found at Tombos are designed to mimic a wooden coffin with separate lid and trough, although the lid is in two pieces. When preserved, the mummiform decoration is somewhat crude, along the lines of contemporary "slipper" coffins (Cotelle-Michel 2004). A similar trough and lid coffin was recovered from Soleb, although only part of the lower section of the lid was present, unlike at Tombos pierced at the top with holes that may have been used to bind the two pieces together (Schiff Giorgini 1972, 256, figs. 500, 502). Fragments from a nearly complete trough have also been found at Sai in Tomb 8 (Minault-Gout and Thill 2012, 164, pl. 87). The western chamber of the Unit 36 tomb discussed above contained the most elaborate example, more realistically rendered and painted in mid-18th Dynasty style with yellow bands and face on a black background. The coffin from Siamun's tomb was even more elaborately decorated with hieroglyphic inscriptions on the lower part of the lid and trough, although unfortunately the upper part of the lid was not recovered. The popularity of ceramic coffins at Tombos and their idiosyncratic nature compared to contemporary examples from Egypt and the Levant suggests that they were a local phenomenon. They would have had the dual advantage of obviating the problem of termites and cost savings, since wood suitable for coffin making would have been

particularly expensive in Nubia. Theoretically they could have been imported, but they were all in a low fired Nile Silt clay fabric and thus not suitable for long distance transport.

Demographic trends

New Kingdom burials at Tombos include the entire age spectrum of the community from foetal to elderly (including a pregnant female and foetus found in Unit 35/36). Seasons of fieldwork from 2015-2017 resulted in a significant increase in the number of juvenile skeletons excavated at Tombos. For example, the Unit 36, Shaft 1 complex contained a relatively large number of infant and child burials along with some adults with physical conditions that may have caused impairment, including a woman buried in Nubian flexed position whose lower limbs were paralysed. Other tombs in this part of the cemetery contained a large number of subadults, including several pit burials of children, but also one with a child and adult male. Young individuals seem to have been concentrated in the area around Unit 36. Strontium isotope analyses show that the earliest burials account for the largest number of immigrants from Egypt, although smaller numbers continue to appear through the Ramesside period (Buzon et al. 2016). Consistent with these earlier analyses, strontium isotope analysis of the remains excavated in the most recent seasons demonstrates the

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Figure 8. Overview of excavation in the Tombos settlement.

presence of immigrants in the cemetery sample. Preliminary work indicates that palaeopathological and demographic trends are also consistent with earlier work, showing few signs of poor health and long lives at Tombos (Buzon 2006). Excavations have revealed a number of individuals with conditions that might have impaired normal physical activity, such as paralysis and skeletal dysplasia (abnormal growth). Ongoing skeletal analysis of both previously recovered and more recently excavated remains will further elucidate these patterns. Our recent work has also revealed a larger number of more modest burials, individuals simply wrapped in a kind of coarse reed matting attested for poorer individuals at sites like Amarna (Kemp *et al.* 2013).

The fortified settlement at Tombos

As early as our first field season in 2000, we identified the likely location of the ancient settlement as lying beneath the modern village of Tombos (fig. 8). A small set of test excavations in 2002 confirmed this, but only produced deposits of pottery from the New Kingdom. Unfortunately, a mosque overbuilt a particularly promising area before we had a chance to excavate, but an informal survey of the village streets revealed New Kingdom pottery scattered across the southern end of the village. Further tests in 2013 uncovered the first structural remains (Unit 5). After some negotiations with the residents, we began more extensive work within the village in 2015 as part of a three-year project funded by the National Science Foundation (fig. 9), which also included further excavation within the cemetery as well as selected sites within the surrounding area. Although this new work in the village uncovered large assemblages of New Kingdom pottery and a handful of small finds, structural remains proved disappointingly elusive until the discovery of a large mud brick structure that was curiously built into a deep trench cut into the alluvial terrace upon which the settlement was founded.

Excavation along the southern edge of the village in 2013 revealed the foundations of a structure with substantial walls of well laid masonry from a brick and a half to two bricks wide (fig. 9). Unfortunately, this area was damaged by the construction of a canal in the late 1940s, but enough remains to hint at large buildings. A number of pits contained burned debris from a demolished building(s) that showed the negative impressions of beams and roofing. Some fragments clearly show a finished floor above the ceiling, pointing towards either a second story and/or a finished roof that could be used as living space (fig. 10). Other test excavation across the southern end of the village failed to reveal any structural remains, apart from a sandstone column base, which was not in situ. Nevertheless, this architectural item hints at the existence of a clerestory or porch/portico, features in elite residences or perhaps administrative or religious buildings.



Figure 9. Plan of settlement Unit 5.



Figure 10. Architectural elements from Unit 5: A. Burnt Brick, B. Mud Plaster, C. Roofing/flooring, D. Beam impression with flooring above; from Unit 2: E. Sandstone column base.

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Figure 11. Pottery from Unit 5 and surrounding area.

Assemblages of pottery found associated with the building and in shallow but dense deposits distributed over a wide area suggest a somewhat longer chronological range, extending into the Ramesside period (figs. 11 and 12 and fig. 9, Units 1-8). For example, sharp shouldered amphorae should date to the late 18th Dynasty or later, and the head from a duck shaped censor would point to a Ramesside date (Nagel 1938; Hope 1989), as noted above a period that is represented in the cemetery by substantial remains, including the construction of new tombs and continuing/re-use of older tombs. A rim sherd from a large jar with a folded rim (fig. 11k) finds parallels in deposits from the 20th-21st Dynasties at the mortuary temple of Merenptah in Thebes (Aston 2008, pls. 79 and 104). "Flowerpots" and beer jars are common in the cemetery and settlement (fig. 11a), although the former ceases after the 18th Dynasty. Marl clays indicate the import of goods from Egypt and are more common in the cemetery, where in particular quite a few amphorae were left as grave goods. One

found in 2017 was associated with remains of a large stamped sealing, perhaps pointing towards official long distance supply. Mycenaean sherds found both in the settlement and cemetery further attest to the economic connections of the colony (figs. 11f-h). One of these appears to be from the same upright flask as a whole example recovered from the cemetery and dating to the LHIII A2 (Mountjoy 1986), consistent with an Amarna or just post-Amarna date (fig. 2, c. 1350-1300 BC). Blue painted ware has thus far only been recovered from the cemetery, but as noted above also shows the importance of the colony to the palace administration in the late 18th Dynasty (Hope 1982; Smith and Buzon 2017). Fragments of Egyptian alabaster vessels appear in the settlement as well as both fragments and complete examples from the cemetery and settlement. A few more prosaic objects like net weights, ceramic disks (for gaming?), and spindle whorls attest to domestic craft production, while a rectangular figurine would reflect household worship (fig. 12).



Figure 12. Small finds from excavations in the settlement.

Figure 13. Egyptian and Nubian cookpots from the settlement.

Nubian influence can be seen in the settlement through the presence of handmade pottery, in particular mat-impressed cooking wares (fig. 11d). Both mat impressed, polished blacktopped and incised Nubian wares appear in the cemetery (Smith and Buzon 2017). Pottery from the settlement is predominately mat impressed (figs. 13b-d), including blacktopped bowls presumably used for food service. Although quantification is ongoing, our initial impression is that Nubian cooking pottery greatly outnumbers Egyptian style cookpots (fig. 13a). Their use for cooking is confirmed by sooting (fig. 13c) and technical features like the roughening of the base with applied clay (fig. 13d). A similar pattern appears at the other Egyptian colonial settlements in both Upper and Lower Nubia (Smith 2003b; Spencer 2014). A more nuanced pattern is apparent at Askut by tying secondary trash deposits to different households within the fortress (fig. 14). Although Nubian cooking pottery predominates in all contexts, a larger proportion of Egyptian cookpots, about a third, appear in deposition associated with the largest and most elaborate house during the New Kingdom. This house had a cultic emplacement with a stela dedicated to an ancestor named Mery-ka. In contrast, the proportion

of cooking vessels is much higher in the houses nearby and those remaining within the enclosure of the old Middle Kingdom fortress. The proportion of Nubian serving vessels is also lower in Mery-ka's house than the rest of the fortress. This variability between households may reflect the impact of personal choices made by the inhabitants as well as their particular history. As we have argued elsewhere, when combined with the maintenance of Nubian burial traditions by women in the cemetery at Tombos, this pattern may reflect a gendered dynamic in the colonial encounter, with Nubian women influencing colonial foodways in different ways (Smith 2003b; Buzon *et al.* 2016).

Test excavation at Tombos in the 2015 season revealed an unusual underground feature (fig. 15). A ditch was cut into the alluvium, lined with mud brick walls, with the floor and walls roughly plastered. The trench itself was roughly cut around four metres wide, reduced to about three metres with the mud brick wall. The walls were well constructed with a stone foundation. A small amount of pottery and faunal material in the fill is consistent with a settlement. The trench was filled with sand, but also contained some mud brick debris, likely from the collapse of the internal walls and/or a



Figure 14. Proportion of New Kingdom Egyptian vs. Nubian pottery in different areas at Askut.

nearby structure. Buttressing in Unit 12 indicates that the structure was maintained over a substantial period of time. Further tests nearby and in other areas of the village revealed natural alluvium just beneath the surface, indicating that the settlement was otherwise completely deflated by erosion and/or modern activity (fig. 9, Units 2-4, 6-8, and 14-17). In 2016, this linear subterranean feature was pursued to the east, with a small test in a street and a large exposure at the eastern edge of the village made possible by the co-operation of a local resident who was willing to postpone the construction of a new house (fig. 16). This work established that the trench continued and made a right angle turn towards the south. Although the extent of the feature was still not clear, the scale and right angle turn suggested a fortification similar to the early feature at Sesebi, a defensive ditch serving as a dry moat (Blackman 1937; Fairman 1938). Differences in the brickwork, including the presence of burnt bricks (perhaps tied to Unit 5?), suggest either rebuilding or perhaps later repair in line with the buttressing in Unit 12. Eventually, the brickwork in the corner was partially dismantled, judging from associated pottery towards the end of the 18th Dynasty. The masses of pottery recovered from this area indicate that it was

used as a dump for the colony after the ditch was no longer relevant. Grinding stones (both querns and handstones, hammerstones and other tools, as well as some faunal material, including cattle, caprids and pig, and other domestic refuse indicate a fairly intensive period of trash disposal from an adjacent settlement area.

The pottery from these areas dates primarily to the late 18th Dynasty (fig. 17), some sherds could be as early as Hatshepsut/Thutmose III, but most look to be later, consistent with a date in reign of Amenhotep III or latest into the Amarna period (Hope 1989; Rose 2007; Aston 2008; Bourriau 2010). Diagnostic features include examples of simple plates and bowls (fig. 17b), often with a red rim (fig. 17d), bread trays with impressed bases (fig. 17h), bowls with sharp and elaborated carination (figs. 17e, g, and k), distinctive ring bases set slightly above the rounded base (fig. 17f), and monochrome and bichrome decoration including lotus petal motifs (figs. 17c, g, and i), line and wavy line decoration (figs. 17a, e, g, j, and k), and a line and dot motif (fig. 17e and perhaps g) particularly popular in the Egyptian ceramic industry in Nubia (Smith 2003a). A rim sherd from a carinated bowl with lined and wavy line and line and dot decoration finds a close parallel in a context running from Amenhotep III to Akhenaton in the temple



Figure 15. Plan of settlement Units 9-12. Gaps in the plan were due to the need to work around existing structures.



Figure 16. Plan of Settlement Unit 20.

of Merenptah (Aston 2008, pl. 7). A sharply carinated bowl with wavy line decoration similar to examples from Unit 20 (Aston 2008, figs. 17e and k) finds similar form if somewhat simpler decoration from a mid to late 18th Dynasty context at Memphis (Bourriau 2010, fig. 45d) and all of the sherds illustrated here find parallels of the same date at Sai (Budka, personal communication 2018). A similar but an alternating vertical line and wavy line with triangle (lotus petal?) pattern on the shoulder of a jar from Unit 18 (Bourriau 2010, fig. 17j) is similar to decoration on a jar from a late 18th to early 19th Dynasty context at Memphis, although at Memphis the motif appears farther down the side of the vessel (Bourriau 2010, fig. 74i). This very large ceramic assemblage from Units 18, 20, and 21 reflects heavy trash deposition in the north-east corner of the fortification's dry moat at the end of the 18th Dynasty, around the reign of Amenhotep III and/or the Amarna period, at which time the defensive system had apparently ceased to be important.

We pursued the trench to the west and south during the 2017 field season, opening small exposures along streets and eventually into the fields to the south of the village (figs. 9 and 18). To the west, the fortification ran to the riverbank, a distance of 215m from the north-eastern corner. Unlike the rest of the trench, the area adjacent to the river was filled with hard packed silt with the wall constructed with roughly laid stone instead of brick over a stone foundation. Although the stone lining may in part be to avoid erosion from the flood, the silt filling appears to be deliberate, since sherds appeared throughout. The use of silt might indicate that this is where a gateway was located, with solid fill allowing the trench to be crossed, as was the case at Sesebi. The trench almost certainly continued some distance to the west, but was destroyed by erosion.

A series of test pits revealed that the trench continued at least 230m to the south from the north-eastern corner (figs. 9 and 18). Like the corner, the bottom of the trench in Units 21 and 22 was filled with large amounts of pottery and other refuse. The upper part of the trench was filled with sand and some mud brick debris, as was the case everywhere except the excavation unit next to the river. Unit 23 contained mud brick debris about one metre above the bottom of the trench likely indicating the collapse of a structure into the trench sometime after an accumulation of sand filled the bottom. This suggests the presence of a light defensive wall running along the inside. Farther south in Unit 33 there was more evidence of modification and reuse, this time above about a metre of sand and some debris and trash. A light but well-constructed wall was laid in across the trench. The associated pottery dated from the later New Kingdom, with sharply carinated bowls, simple plates and the type of ring base described above (fig. 19A), and carinated bowls and heavily modelled rims characteristic of the Third Intermediate Period (fig. 19B), consistent



Figure 17. Pottery from Units 18 and 20.

with the continuity seen in the cemetery. Sherds from a red-coated carinated bowl (fig. 19, top of A) have a very similar pattern of moulding on the top of the rim from a context dating from Ramesses II through Merenptah and another from a somewhat later 20th-21st Dynasty context, although the shape is a bit different (Aston 2008, pl. 92, 1821). A sharply carinated thin walled red coated bowl has a close parallel from contexts dating to the later 19th Dynasty (Aston 2008, pls. 22, 463; 51, 995). A rim from a red coated jar with modelled rim finds parallels in a context from the 20th-21st Dynasties (Aston 2008, pl. 87, 1737). The white coated modelled rim is similar to an example from 25th Dynasty deposits at Amarna (French 1986, fig. 9.11, SJ4.4.1). This area contained a particularly large number of bread moulds with the pointed and knob bases characteristic of the New Kingdom perhaps extending into the Third Intermediate Period given the sharp point of most of the bases compared to the more rounded base typical of the



Figure 18. Plan of settlement Units 23 and 33.



Figure 19. Pottery from settlement Unit 33.

New Kingdom (figs. 19C and D). The concentration of moulds perhaps came from a nearby bakery for sacred offerings from an as yet undiscovered temple.

Tombos and menenu Taroy

The size and scale of the fortified enclosure at Tombos is impressive. It is structurally very similar to a feature at Sesebi (Blackman 1937; Fairman 1938), including the infill for a gateway, but much larger. As noted above, the trench would have served as a dry moat. There are indications of at least a light wall on the inside. Enclosing an area of over 230 by 215m, Tombos is nearly eight times the size of Sesebi's similar enclosure and probably as large as (or larger than) the later mud brick fortification (fig. 20). The enclosure at Tombos dwarfs the Lower Nubian fortified towns founded in the Middle Kingdom, like Buhen and Aniba, double the size even of their larger enclosures (Emery et al. 1979; Steindorff 1937). Tombos's fortification is at least twice as large as the New Kingdom fortified enclosure at Sai (Adenstedt 2016), arguably the most important administrative centre in Upper Nubia. It measures about four times the size of the fortified area of Amara West, the seat of the Ramesside deputy of Kush (Spencer 2014), still over twice the size if the later *extra muros* area is included.

In his Semna inscription, Amenhotep III's vicerov Merymose mentions recruiting soldiers for the colonial army for a campaign against Ibhet from the territory of 'the menenu of Baki (Kuban) down to the menenu of Taroy, making 52 iteru of sailing' (Sethe 1906, 2068:12). Ellen Morris suggested that the two best candidates for Taroy were Tombos or Kawa (Morris 2005, 331-333). With the discovery of the fortified enclosure, Tombos becomes the most likely location for Taroy. It is perhaps no coincidence that Merymose left an inscription of his name and a more elaborate stela venerating the names of Amenhotep III over bound prisoners next to Thutmose I's great inscription (Davies 2012). Their presence reinforces the idea of Tombos as an enduring internal boundary, marking the end of the reach from which troops could be reliably recruited. It also points towards the site's continuing importance during the reign of Amenhotep III, who made large scale investments in Nubia. Tombos clearly flourished during that king's reign, with a number of

■Core ■Later ■Outer



Figure 20. Relative size of Egyptian fortified enclosures in Upper and Lower Nubia.

scarabs naming him and pottery pointing towards the late 18^{th} Dynasty in both the cemetery and settlement. The enclosure is located opposite a natural calm "pond" in the river, an ideal place for a port and perhaps a staging area for the assembly of the goods presented at the annual *jn.w* "tribute" ceremony (for discussion see Spalinger 1996; Smith 2017). At the end of the Kerma basin, the colony at Tombos could have closely monitored events at Kerma/Dokki Gel, which lay only 12km away, and policed traffic through the rapids and narrowing of the river that characterise the beginning of the Third Cataract.

Conclusions: Tombos and New Kingdom colonialism

Tombos was founded around 50 years after the initial conquest, perhaps as part of an adjustment after rebellions led to the removal of the institution of kingship at Kush (Kerma). The timing of the fortification at Tombos and its architectural style closely matches the ditch fortification at Sesebi. Morkot (2013) has recently suggested that Tombos may have been the seat of an Upper Nubian prince, which is plausible, but made unlikely by the presence of a large number of colonists from Egypt (Buzon et al. 2016). Siamun's tomb in particular has a very Theban cast with its funerary cones and T-shaped chapel, and the discovery of cones dedicated to another official again supports the idea of a colony (Smith and Buzon 2017). As an Egyptian menenu, Tombos sat at an important geopolitical node that was marked symbolically by Thutmose I's and later inscriptions (and previously in the Kerma and Neolithic periods). The inscriptions of Inebny and Usersatet, both of whom served under Hatshepsut/ Thutmose III and Amenhotep II respectively (Davies 2008), suggest timing in creation of a new hardened frontier at Tombos with the construction of a very large fortified enclosure at a strategic location.

Evidence from the cemetery confirms Tombos's importance as a colony, with large pyramid tombs that compare favourably with those at other colonial centres and even the Theban necropolis. A high-level bureaucrat named Siamun was buried in the largest complex. His tomb was decorated with funerary cones, which are very rare outside of Thebes and appear elsewhere in Nubia only on a tomb at Aniba (Steindorff 1937; Ryan 1988), the Lower Nubian capital and local seat of the viceroy (Morkot 2013). Based upon the discovery of new examples, his title is now read as 'Scribe Reckoner of the Gold of Kush', a position that connects him closely to the assembly of tribute, particularly gold, from upstream of the Third Cataract (Vercoutter 1959). The existence of a temple is suggested by the discovery of new titles in the 2017 season, including a hm-ntr-priest named Horemhet, who also appears to have had a set of funerary cones. The concentration of bread moulds in Unit 33 is also suggestive of nearby cultic activity. Finally, Davies (2012) notes the graffito of a temple façade next to the great stela of Thutmose I. It is just possible that the priests at Tombos served in the temples at Pnubs (Kerma/Dokki-Gel), an inconvenient but doable two hour walk from Tombos, but taken together, this

evidence points to an active cult at Tombos like those that characterise the other "temple towns".

The trench fortification seems to have been abandoned and reused towards the end of the 18th Dynasty, in spite of continuing evidence for a thriving colony. It could be that the security situation was such that a fortification was no longer needed, as seems to be the case at various sites in Lower Nubia and later with the extramural settlement at Amara West. Perhaps we just have not yet found the remains of a later enclosure like Sesebi. In any case, far from pulling back the colony during the Ramesside period, we see a new wave of immigration from Egypt, around the same time that Amara West was established as the new seat of the deputy of Kush (Smith and Buzon 2017). At the same time, Nubian culture did not completely disappear, but entanglements can be seen both within the settlement and cemetery, apparently increasing as the community transitioned from the Ramesside to the Third Intermediate/early Napatan period. Although it lies beyond the scope of this study, it is nevertheless interesting to note that continuity, which appears at other former colonial sites and belies the notion of an Egyptian "withdrawal" at the end of the New Kingdom. The colonists that founded these Egyptian settlements had built robust communities and had intentionally or unintentionally become profoundly entangled with the local population, both biologically and culturally. Although they may have retained some ties with Egypt, Nubia was their home.

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References

- Adenstedt, I. 2016. Reconstructing Pharaonic Architecture in Nubia: The Case Study of SAV1, Sai Island. Contributions to the Archaeology of Egypt, Nubia and the Levant 3. Vienna: Austrian Academy of Sciences Press.
- Aston, D.A. 2008. Untersuchungen im Totentempel des Merenptah in Theben Bd. IV. The Pottery. Beiträge zur Ägyptischen Bauforschung und Altertumskunde 17. Mainz am Rhein: Philipp von Zabern.
- Aston, D.A. 1996. Egyptian Pottery of the Late New Kingdom and Third Intermediate Period (Twelfth – Seventh Centuries BC): Tentative Footsteps in a Forbidding Terrain. Heidelberg: Heidelberger Orientverlag.
- Blackman, A.M. 1937. Preliminary Report on the Excavations at Sesebi, Northern Province, Anglo-Egyptian Sudan, 1936-37. *The Journal of Egyptian Archaeolo*gy 23, 145-151.
- Bourriau, J. 2010. The Survey of Memphis IV. Kom Rabia: The New Kingdom Pottery. Egypt Exploration Society Excavation Memoir 93. London: Egypt Exploration Society. London: Egypt Exploration Society.
- Breasted, J.H. 1906. Ancient Records of Egypt, Vol. II: The Eighteenth Dynasty. Chicago: University of Chicago Press.
- Buzon, M.R., Smith, S.T. and Simonetti, A. 2016. Entanglement and the Formation of the Ancient Nubian Napatan State. *American Anthropologist* 118, 284-300.
- Cotelle-Michel, L. 2004. Les sarcophages en terre cuite: en Egypte et en Nubie de l'époque prédynastique à l'époque romaine. Dijon: Faton.
- Davies, W.V. 2008. Tombos and the Viceroy Inebny/ Amenemnekhu. Sudan & Nubia 12, 25-33.
- Davies, W.V. 2012. Merymose and others at Tombos. Sudan & Nubia 16, 29-36.
- Emery, W.B., Smith, H.S., Millard, A. and Dixon, D.M. 1979 (eds.). *The Fortress of Buhen: The Archaeological Report.* Egypt Exploration Society Excavation Memoir 49. London: Egypt Exploration Society.
- Fairman, H.W. 1938. Preliminary Report on the Excavations at Sesebi (Sudla) and 'Amārah West, Anglo-Egyptian Sudan, 1937-8. *The Journal of Egyptian Archaeology* 24, 151-156.
- French, P. 1986. Late Dynastic Pottery from the Vicinity of the South Tombs, in: Kemp, B.J. (ed.), *Amarna Reports III*, 147-88. London: Egypt Exploration Society.
- Hayes, W.C. 1953. The Scepter of Egypt: A Background for the Study of the Egyptian Antiquities in the Metropolitan Museum of Art. Cambridge, Mass.: Harvard University Press, for the Metropolitan Museum of Art.
- Hope, C.A. 1987. Innovation in the Decoration of Ceramics in the Mid-18th Dynasty. *Cahiers de La Ceramique Egyptienne* 1, 97-122.
- Hope, C.A. 1982. Blue-Painted Pottery, in: Brovarski, E., Doll, S.K. and Freed, R.E. (eds.), *Egypt's Golden Age*.

The Art of Living in the New Kingdom 1558-1085 B.C. Boston: Museum of Fine Arts, 88-100.

- Hope, C.A. 1989. *Pottery of the Egyptian New Kingdom: Three Studies.* Burwood: Victoria College Press.
- Kemp, B.J. 1972. Fortified towns in Nubia, in: Ucko, P.J., Tringham, R. and Dimbleby, G.W. (eds.), Man, Settlement and Urbanism. Proceedings of a Meeting of the Research Seminar in Archaeology and Related Subjects Held at the Institute of Archaeology, London University. London: Duckworth, 651-656.
- Kemp, B.J., Stevens, A., Dabbs, G.R., Zabecki, M. and J.C. Rose. 2013. Life, death and beyond in Akhenaten's Egypt: excavating the South Tombs Cemetery at Amarna. *Antiquity* 87, 64-78.
- Minault-Gout, A. and Thill, F. 2012. Saï II. Le cimetière des tombes hypogées du Nouvel Empire (SAC5). Fouilles de l'Institut français d'archéologie orientale du Caire 69. Cairo: Institut français d'archéologie orientale du Caire.
- Morkot, R.G. 1991. Nubia in the New Kingdom: The Limits of Egyptian Control, in: Davies, W.V. (ed.), *Egypt and Africa*. London: British Museum, 294-301.
- Morkot, R.G. 2013. From Conquered to Conqueror: The Organization of Nubia in the New Kingdom and the Kushite Administration of Egypt, in: García, J.C.M. (ed.), Ancient Egyptian Administration. Leiden: Brill, 911-964.
- Morris, E.F. 2005. *The Architecture of Imperialism: Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom.* Leiden: Brill.
- Mountjoy, P. A. 1986. Mycenaean Decorated Pottery: A Guide to Identification. Göteborg: P. Åström.
- Nagel, G. 1938. *La céramique du Nouvel Empire à Deir el Médineh*. Cairo: Institut français d'archéologie orientale du Caire.
- Osman, A. and Edwards, D.N. 2012. *The Archaeology of a Nubian Frontier: Survey on the Nile Third Cataract, Sudan.* Bristol: Manhaus Publishing.
- Ranke, H. 1935. *Die Ägyptischen Personennamen*. Glückstadt: J.J. Augustin.
- Rose, P. 2007. *The Eighteenth Dynasty Pottery Corpus from Amarna*. London: Egypt Exploration Society.
- Ryan, D.P. 1988. The Archaeological Analysis of Inscribed Egyptian Funerary Cones. *Varia Egyptiaca* 4, 165-170.
- Schiff Giorgini, M. 1972. Soleb II, Les Nécropoles. Florence: Sansoni.
- Schrader, S.A., Smith, S.T., Olsen, S. and Buzon, M.R. 2018. Symbolic equids and Kushite state formation: a horse burial at Tombos. *Antiquity* 92, Issue 362, 383-397.
- Smith, S.T. 2003a. Pots and Politics: Ceramics from Askut and Egyptian Colonialism during the Middle through New Kingdoms, in: Redmount, C.A. and Keller, C.A. (eds.), Egyptian Pottery, Proceedings of the 1990 Pottery Symposium at the University of California, Berkeley.

University of California Publications in Egyptian Archaeology 8. Berkeley: Regents of the University of California, 43-79.

- Smith, S.T. 2003b. Wretched Kush: Ethnic Identities and Boundaries in Egypt's Nubian Empire. London: Routledge.
- Smith, S.T. 2008. Tombos and the Transition from the New Kingdom to the Napatan Period in Upper Nubia, in: Godlewski, W. and Łajtar, A. (eds.), Between the Cataracts: Proceedings of the 11th International Conference of Nubian Studies, 27 August – 2 September 2006. Warsaw: Warsaw University, 95-115.
- Smith, S.T. 2014. A Potter's Wheelhead from Askut and the Organization of the Egyptian Ceramic Industry in Nubia. *Journal of the American Research Center in Egypt* 50, 103-121.
- Smith, S.T. 2017. Colonial Gatherings: The Presentation of Inu in New Kingdom Egypt and the British Imperial Durbar, a Comparison, in: Belgane, F. (ed.), *Gatherings: Past and Present. Proceedings from the 2013* Archaeology of Gatherings International Conference at IT, Sligo, Ireland. Oxford: British Archaeological Reports, 102-112.
- Smith, S.T. and Buzon, M.R. 2014a. Colonial Entanglements: "Egyptianization" in Egypt's Nubian Empire and the Nubian Dynasty, in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 431-442.
- Smith, S.T. and Buzon, M.R. 2014b. Identity, Commemoration and Remembrance in Colonial Encounters: Burials at Tombos during the Egyptian New Kingdom Empire and its Aftermath, in: Porter, B. and Boutin, A. (eds.), *Remembering and Commemorating the Dead: Recent Contributions in Bioarchaeology and Mortuary Analysis from the Ancient Near East.* Boulder: University Press of Colorado, 185-215.
- Smith, S.T. and Buzon, M.R. 2017. Colonial encounters at New Kingdom Tombos: Cultural entanglements and hybrid identity, in: Spencer, N., Stevens, A. and

Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 615-630.

- Spalinger, A. 1996. From Local to Global: The Extension of an Egyptian Bureaucratic Term to the Empire. *Studien zur Altägyptischen Kultur* 23, 353-376.
- Spencer, N. 2014. Creating and Re-Shaping Egypt in Kush: Responses at Amara West. *Journal of Ancient Egyptian Interconnections* 6, 42-61.
- Steindorff, G. 1937. Aniba II. Service des Antiquités de l'Egypte. Mission Archéologique de Nubie 1929-1934. Glückstadt: J.J. Augustin.
- Vercoutter, J. 1959. The Gold of Kush: Two Gold-washing Stations at Faras East. *Kush* 7, 120-152.

Notes on the contributors

Michele R. Buzon is Professor of Anthropology at Purdue University. Her bioarchaeological research investigates health and identity in the ancient Nile Valley. Through the analysis of mortuary practices, strontium isotopes, biodistance, and palaeopathological indicators, her work has explored how people at the Nubian site of Tombos experienced sociopolitical changes during the New Kingdom and Napatan periods (1500-650 BC).

Stuart Tyson Smith is Professor of Anthropology and Director of the Institute for Social, Behavioral, and Economic Research at the University of California, Santa Barbara. His research focuses on the dynamics of cultural interaction, ethnicity, and other axes of identity, ceramics and foodways, legitimisation and ideology, sealings and administration, funerary practice, and the social and economic dynamics of ancient Nilotic civilisations. He is also an active field archaeologist, having participated in and led archaeological expeditions to Egypt and, since 1997, to Sudanese Nubia, currently codirecting the excavation at Tombos with Michele Buzon (Purdue University) that investigates Egypt's New Kingdom empire and the emergence of the Nubian Dynasty in its aftermath.

Urbanism in Nubia and the New Kingdom Temple Towns

Jördis Vieth*

Abstract

Over the last 50 years, we have come to understand in greater detail the settlement structures built by the Egyptians in Nubia during the New Kingdom. These structures were usually referred to as 'temple towns', based on the still standing Egyptian stone temples as the most striking feature. The temple town sites have been mainly discussed in the light of Egyptian imperialism and colonialism and were seen as manifestations of Egyptian presence in Nubia. While the description and perception of the Egyptian-Nubian relationship and the theoretical approach behind has changed from imperial and colonial to elite emulation and cultural entanglement, the supposed concept of the temple towns is still hard to identify. It is argued that one sticking point may be the subsuming of actually different site categories (e.g. fortress-site, town-site, temple-site, sites only known from written sources) under one term: temple town. The implicit need for separation is reflected in the often additional paraphrasing of the term (e.g. fortress temple town, temple-centred town, newly established temple town, fortified town, walled town) and shows at the same time how different the opinions and the perceptions of the concept temple town are. To reopen the discussion on a potential concept of the temple town or even its deconstruction, a settlement/landscape archaeological point of view will be engaged to address the issues of definition, terminology and typology by means of spatial pattern analysis, site typology and landscape analysis to hopefully contribute to a better understanding of the nature of the Egyptian presence in New Kingdom Nubia.

Keywords: Temple town, New Kingdom, settlement structure, GIS, proximity relationship analyses, urbanism

Introduction

The topics of temple towns and urbanism, not only in Sudan but also in Egypt, are much related to the work of Barry Kemp. Aside from the early excavators, it was he who popularised these very special settlements with an article in 1972, where he titled them 'fortified towns', a distinctive settlement type that is characterised by the features of an enclosure, a temple and both domestic and administrative buildings. Due to the restricted state of knowledge at the time, he only cited two settlements, Amara West and Sesebi, as references for this type (Kemp 1972a). Over 30 years later, today our state of knowledge is much more advanced, thanks to the fresh research conducted in Sudan over the last decades.¹ While several theories on certain aspects of life in New Kingdom Nubia

*Ludwig-Maximilians-Universität München, Munich, Germany; Rueppgasse 4/14, Vienna, Austria; joerdis.vieth@gmail.com

¹ E.g. at Soleb and Sedeinga, Amara West, Sai Island, Sesebi, Faras, Aksha, Tombos and Kawa.

were changed or adapted during that time, the theoretical background based on Kemp's model did not change or was corroborated. However, current literature reveals that there is an obvious need for a re-evaluation, as shown by the contributions with their assumed concept of the so-called temple towns. To reopen the discussion on a potential concept or model of the temple town, or even its deconstruction, a settlement/landscape archaeological point of view is engaged in the author's currently ongoing PhD-thesis to address the issues of definition, terminology and typology by means of spatial pattern analysis, site typology and landscape analysis.

Theoretical background of the temple towns

For the proposed discussion, a brief overview of theories and considerations developed regarding the temple towns or influencing the study of the temple towns so far will be given first.

Egyptian settlements in Nubia were first mentioned by early travellers of the 19th century and have soon after been excavated, or at least investigated.² Meanwhile, the so-called imperialism theories explaining the European colonial expansion of the 19th and 20th centuries were published by Hobson (1902) and Lenin (2010 [1917]) and received enormous attention. Their focus on economic driven reasons, such as compensation for overproduction and therefore the opening of new markets, had a strong influence even until today, including the pioneers of Sudan archaeology, like Säve-Söderbergh (1941), Arkell (1955), Adams (1964) and Trigger (1976). These scholars tried to explain the conquest of Nubia in the New Kingdom due to economic reasons, as can be read in Adams:

'The motives which brought the Egyptians back to Nubia can hardly have been colonization in the usual sense (...). It is clear that, as in previous penetrations in Nubia, they were bent upon the exploitation of mineral resources, and perhaps of the native population as well.' (Adams 1964, 104-105)

Later, the ideological motivation as an important reason for the conquest was also discussed in the light of imperialism theories, as illustrated by Kemp:

'Ideology shapes decisions as much as it legitimizes them. Indeed, a useful rule for addressing the question of imperialism might be: first find the ideology.' (Kemp 1997, 131) But what have these theories to do with the temple towns? As kind of a side effect, they explain why and for what reason the settlements were built. One key argument is that they served as infrastructure that would be needed to exploit the natural resources of the land and to control the trade (Trigger 1965, 111; Kemp 1972b; Hein 1991, 129-130). Another is that Nubia was colonised by Egyptian settlers to help maintain the rule of the conquered territory and to integrate it to the realm of Egypt (Morris 2005, 342; Török 2009, 209).

A further field of interest, in Nubia as well as in Egypt, has been the study of the Egyptian administration. It is commonly agreed that the redistributive temple economy system of Egypt was also implemented in the Egyptian settlements of Nubia (Trigger 1965, 111; Kemp 1972b; Adams 1977, 230-231; Frandsen 1979; Morkot 1995, 176-177) and served 'as backbone of urbanism' (Kemp 1972a, 654), just like temple-centred towns presumably did in Egypt. To run such a system and to administer the exploitation of natural resources and trade, an efficient and on-site bureaucracy would be needed. Thus, it is supposed that the temple towns were established as homes of the officials and also as the seat of government (Adams 1977, 227-228; Welsby 2001; Török 2009, 180; Müller 2013, 44-45).³ Whether the inhabitants and officials were purely Egyptian settlers or Nubians or acculturated Nubians is a topic that has been much debated over the last decades (van Pelt 2013) and also seems to depend on the form of government that the scholars suppose Egypt applied on Nubia, like direct or indirect control or the elite emulation model (Emery 1965, 191; Adams 1977, 229-230; Säve-Söderbergh 1993; Smith 1995; Higginbotham 2000; Morkot 2013, 916, 944).

This short extract shows that the mentioned theories regarding the temple towns are closely related to contemporary history and often derived from other theories or fields of interest. The excavation publications of individual settlements of course add additional information and considerations to the idea of the temple towns. However, when the temple towns are mentioned in greater survey works of topics such as life in New Kingdom Nubia or archaeology of New Kingdom Nubia etc., it is mostly just a short note or sentence that these settlements were fortified and characterised by a temple (Heidorn 1999; Welsby 2001, 554; Bard 2007, 261). The impression one gets from literature is, therefore, ambiguous, because on the one hand it seems that there is a homogenous model of only one specific settlement type existing in that time and on the other hand, with a closer look, it seems difficult

² Amongst the settlements were *e.g.* Amara West, Sesebi, Kawa, Buhen, Aniba, and Aksha, which were mentioned by early travellers such as Cailliaud, Linant de Bellefonds, Breasted and Lepsius.

³ As shown by inscribed doorjambs bearing the titles of some *jdn.w* from administrative buildings in towns such as Amara West (Spencer, P. 1997, 168-169; Spencer, N. 2014, 459; Auenmüller in this volume).

to merge all the aspects and information from different sources and diverging opinions into a consistent understanding of these specific settlements.

Issues of the previous "model"

The following discussion will briefly consider some of the issues with the previous "model" of the temple town. Therefore, a short analysis of three supposedly basic facts about the temple towns will reveal certain disagreements: the state of preservation or type of site, the labelling and the number of the temple towns.

Preservation of the sites

It seems that nearly every New Kingdom building activity is regarded as or associated with the temple towns, despite differences in their state of preservation and structure. For instance, there are the "fortress-sites" of the Middle Kingdom fortress-chain with New Kingdom building activities, such as alterations of the inner layout and additions mainly in the form of temples.⁴ Then there are the "temple-sites" like Soleb, where only the temple - and in the case of Soleb a cemetery is preserved (Schiff Giorgini 1971; Schiff Giorgini et al. 2002) - but no settlement has yet been found.⁵ Finally, there are the "town-sites" like Sesebi (Spence et al. 2011), Amara West (Spencer, N. et al. 2014) and Sai (Budka 2014), where settlements with temples and associated cemeteries are preserved. However, all these sites have been labelled as temple towns in the literature.

The labelling of the sites

This leads directly to the problem that comes along with the labelling: the phrase "temple town" is predominantly used, however, a combination of phrasing often appears in literature, as one can see in Table 1.

Unfortunately, very often it is impossible to say whether the terms were used simply as synonyms or as a type of classification, since the authors do not explain why they use this or that specific term. It is, therefore, for instance not clear whether a difference in size is proposed or different categories or maybe different functions.

The number of sites

The third factor, the number of towns, shows a similar wide range of possibilities. Some authors identify three sites as temple towns (Lawrence 1965, 88-90; Badawy 1977, 201), some five (Adams 1977, 220, 227-228; Morkot 2001, 235; Cavillier 2014, 393, 398) or six

Labelling	Author
fortified towns	Kemp (1972a, 651); Badawy (1977, 200); Welsby (2001, 554); Morris (2005, 320); Budka (2015, 40)
fortified settlements	Heidorn (1999, 581)
walled towns	Trigger (1976, 126-127); Emery (1965, 189); Morris (2005, 325); Spencer, N. (2014, 458)
walled settlements	Adams (1977, 220, 222)
independently walled towns	Lawrence (1965, 88-90)
temple towns	Kemp (1972b, 667); Trigger (1976, 126-127); Adams (1977, 220, 222); Heidorn (1999, 580); Morkot (2001, 235); Bard (2007, 261); Spencer, N. <i>et al.</i> (2014, 9); Budka (2015, 41)
walled temple town	Heidorn (1999, 581)
fortified temple towns	Bard (2007, 261)
fortress towns	Blackman (1937, 146); Morris (2005, 336)
temple-based settlements	Morris (2005, 74)
administrative temple centres	Bard (2007, 261)
temple-centred towns	Kemp (1972a, 654)
temple-centred fortress towns	Heidorn (1999, 583)
newly established temple towns	Heidorn (1999, 583)

Table 1. List of labellings which occur in the literature for "temple towns".

(Kemp 1978, 25), some cite up to 13 (Heidorn 1999, 580-583) and finally 28 towns and fortresses (Zibelius-Chen 2013, 146, 148). For instance, Adams (1977) and Morkot (2001) both name five sites, but different ones – Adams named Amara West, Sai, Sesebi, Kawa and Gebel Barkal (Adams 1977, 220, 227-228), whereas Morkot named Amara West, Sai, Sesebi, Sedeinga and Soleb (Morkot 2001, 235).

Already these basic parameters demonstrate the disunity amongst the authors. The apparent need for separation or types is shown by the different labelling and quantities of towns and it seems to be problematic to subsume the different site categories under one theme (or one concept respectively). This in turn indicates that there is no common sense or clear definition of what a temple town actually is, and, therefore, the character and nature of these sites.

The approach of landscape and settlement archaeology

The author's approach to a better understanding of the settlement structures in New Kingdom Nubia, and their function and relationship to each other is based on a comparative study of all previous known sites in order to address the issues of terminology, typology and definition. Following the basic principles of settlement archae-

⁴ E.g. Buhen (Emery et al. 1979), Askut (Smith 1995), Semna and Kumma (Dunham and Janssen 1960).

⁵ Other "temple-sites" are Sedeinga (Schiff Giorgini 1967-1968) and Gebel Barkal (Kendall 1994).

ology, the comparative study will be applied on a meso and macro scale (Trigger 1976, 151; Clarke 1977, 11-12; Butzer 1984, 212). The meso level deals with the study of whole sites like settlements or cemeteries. Similarities and differences regarding the architecture, layout, function and type of the settlements are of interest here. Within the macro level, the vicinity of the site and the regional aspect are of interest, but even more so is the study of the relations between sites in a given region and their distribution and development.

Meso scale - comparison of settlements

The study of settlements and the question of urbanism are based on certain theoretical concepts like the Central-Place-Theory (Christaller 1933; Renfrew and Bahn 2008, 182-185) or the Network-Theory (Müller 2009; Nakoinz 2009).⁶ These theories are methodologically based on the comparison of settlement structures in order to group and structure the features to facilitate the understanding of the settlements (Renfrew and Bahn 2008, 182). For this purpose, a typology (a synthetical classification) is used in which a rather phenomenological or phenotypic classification is crucial for the typification (Hasler 2015).

Based thereupon, a first simple comparison of all known and labelled temple towns already shows interesting similarities and differences regarding the structure and layout of these towns. Apparent are, for instance, the differences between the fortresses of the Second Cataract and the settlement sites of the Third Cataract (fig. 1). However, before dealing with the differences, it is necessary to check and look for the (supposed) similarities, as in each case there was a fortified enclosure, an Egyptian stone temple and several different building complexes. Especially the enclosure and the stone temple seem to be the essential features of the type of temple town that is proposed by Kemp. This is not surprising, bearing in mind that these features are the ones that are in most cases best preserved and therefore visible. This circumstance is most likely also the reason from which the term temple town evolved. However, a careful comparison of the architecture, layout, function and the conclusions drawn from the associated material culture will reveal certain differences even regarding the supposedly similar enclosures. The forts Askut, Buhen and Semna are shown in the upper part of fig. 1 as examples of Second Cataract fortresses, whereas in the lower part Sesebi, Amara West and Sai represent the towns of the larger Third Cataract area. The latter were enclosed with buttressed town walls,

6 Other theoretical concepts which deal with settlements and especially the perception of space in buildings and towns derive for instance from the fields of human ecology and sociology (Hillier and Hanson 1984; Maran *et al.* 2006).

but without the effective defensive fortifications from the Middle Kingdom forts, like fortified gates, ditches, stone water tunnels, glacis, parapets and so on (Vogel 2004; cf. Morris 2005).

The fortress-like appearance of the new foundations around the Third Cataract is not seriously comparable with the Middle Kingdom forts, because the enclosure wall is rather a simplified emulation of the Middle Kingdom fortifications, as was already argued by Kemp and others (Kemp 1972b, 667; Adenstedt 2016). Therefore, the only common features are the inner quarter-layout and the temple, though it seems that the temples in most cases were not implemented in the forts prior to the mid-18th Dynasty (Dunham and Janssen 1960; cf. Budka 2017, 432, 442). Furthermore, it can be stated that the forts were initially used for military purposes by the New Kingdom troops and only later were inhabited by a civilian population (Adams 1977, 218, 220, 225; Zibelius-Chen 2013, 144), while the newly established settlements seem to have been first mainly populated by civilians, as is indicated by the titles known from textual sources and the associated cemeteries of the towns (Posener 1958, 58; Auenmüller 2013, 696-698; Müller 2013, 33, 47).7

However, based on phenomenological studies two different morphological types are detectable, which share common elements but look different. Therefore, I propose speaking of two different types of temple towns, one that is integrated or housed by the former fortresses and located between the First and Second Cataracts of Lower Nubia ("fortress temple towns") and another that refers to the "real" newly established temple towns that were clustered around the Third Cataract of Upper Nubia ("fortified temple towns"). This typification based on morphological features could be further strengthened by the mentioned written records, which suggest different functions for the two types, at least for the first wave of occupation in the forts (military *vs.* civilian).

The function(s) of a settlement or town is regarded as an important indicator for typification as well as for the level of centrality, which in turn draws conclusions from urbanity (Gringmuth-Dallmer 1999; Krausse 2009). In this respect, it is interesting that not all temple towns were residences of the viceroys or deputies and feature larger representative administrative buildings.⁸ Of course, this

⁷ In the early 18th Dynasty and especially in regard to the reoccupied forts, the military titles of the commanders who ruled the forts were named, whereas in the new towns of the later 18th Dynasty the civilian titles of mayors appear, like in the cases of Sai, Sesebi and Faras (Posener 1958, 58; Müller 2013, 33, 47).

⁸ Larger representative administrative buildings which housed the deputy or viceroy could be identified *e.g.* in Amara West (Spencer, N. 2014, 459) and Sai (Budka 2015; Adenstedt 2016), but not in Sesebi.



Figure 1. Comparison (especially regarding structure and layout) of the reoccupied forts of Lower Nubia and the newly established towns of Upper Nubia in the New Kingdom.

may be only due to the state of preservation but could also indicate different usage or functions of the towns and thereby also further possible types or subtypes. One must certainly bear in mind not to build a typology only for the sake of building it, but also to keep the balance between generalisation and uniqueness. For this reason, the search or identification of the function(s) of the temple towns by means of investigating the macro level – the vicinity of the towns as well as their relationship to other sites – could offer valuable clues.

Macro scale - relations between settlements (and other sites or features)

Possibly the best way of investigating a macro scale is the application of a geographic information system (GIS), as it is designed to capture, manage, analyse, and display all forms of geographically referenced information and allows users to create interactive queries, analyse spatial information, edit data in maps, and present the results of all these operations (Kappas 2001, 5).

For the purposes of archaeology, the first step is often a reconstruction of the ancient landscape using data of climate, vegetation, topography, geology etc. from different sources like previously conducted research, survey, remote sensing and old maps or any written sources that can add information (Jäger 1973, 33-50). From the then applied spatial analyses and quantitative methods conclusions can be drawn from potential settlement areas, trade routes, resource utilisation, migration and so on (Huggett and Ryan 1995; Wheatley 2002). These can then be visualised in the GIS, set in relation to each other and interpreted regarding the particular research questions. One of the most frequently applied analyses for cases of settlements or where the distribution of sites was investigated is therefore the proximity relationship, as the most basic questions asked of a GIS is 'what's near what?' (Conolly 2006, 2). For example: how close is this well to a village? What is the distance between two locations? What is the nearest or farthest feature from something? What is the shortest street network route from one location to another?



Figure 2. Map showing nearest-distance calculation in both directions, from the settlement sites to the gold working sites and vice versa. The frequency statistics shows that based on a total of 17 settlements, Sarras is the nearest gold working site to a settlement six times. Conversely, based on a total of 68 gold working sites, Faras is the nearest settlement 35 times.

In terms of the temple towns it would, therefore, be of interest to know or analyse the distances between each of them, or which resources (such as rock formations) are the nearest to the settlements. What is the nearest recorded gold working area from a particular or all settlements? In which distance from the settlements are most likely arable lands to be found? Which is the shortest route between the sites or between two specific ones, by overland route or by boat? As an example, some preliminary results will be demonstrated briefly, which deal with some of these questions, especially regarding the relationship of gold working sites to geology and the temple towns, as such aspects are obviously of high relevance to the economic-exploitation-theory.9 Therefore, satellite images,10 the coordinates of the settlements and the gold working sites which date to the New Kingdom, obtained from the

recent book of Rosemarie and Dietrich Klemm (2013), and a digitised geological map¹¹ serve as a basis.¹²

Proximity relationship analysis 1 - distance analyses

The easiest way of performing or starting a spatial analysis is to investigate distances between features, in this case between the temple towns and the gold working sites. Of interest here may be the question: which is the nearest gold working site from a particular settlement and vice versa? Applied to all settlements and also gold working sites, the results can be displayed by a categorised symbology, where settlements or gold working sites can be near (red), distant (yellow) or far away (green) from each of the other features (fig. 2). The computed associated frequency statistics show that the gold working

⁹ The author uses ArcGIS 10.4.1 for Desktop from ESRI for all the analyses.

¹⁰ Obtained from U.S. Geological Survey website https:// earthexplorer.usgs.gov/.

¹¹ Geological map from the Geological Research Authority Sudan, 2005.

¹² The following analyses include the sites from Faras/Buhen to Gebel Barkal and exclude the northerly sites from Aksha to Ikkur. This is due to the current state of digitisation and work in progress.

sites of Sarras and Tondi-South are the nearest to the settlements. Conversely, Faras is by far the most frequently calculated settlement nearest to all gold working sites, interestingly followed by Gebel Barkal as well as Kumma and Sesebi. The additional computed summary statistic shows that the minimum distance between the settlements and nearest gold working site is around 4.4km, whereas the maximum distance is about 149km and the mean distance is 42.4km.

This already gives an indication of which settlements could be in a closer relation with which gold working sites.¹³

Proximity relationship analysis 2 - kernel density

A further analysis in that respect is the computing of a kernel density (Conolly 2006, 173-178) for both features, showing the areas with high density of settlements and gold working sites (fig. 3, A and B). As one can see, there are two areas where both overlap (Figure 3, C), which are interestingly both high-density areas as well. One distinct cluster or overlapping zone is around the Second Cataract from the sites of Askut to Kumma and the gold working sites of Duweishat and Umm Fahm. Another cluster is seen around the Third Cataract, although only Soleb is placed in the overlapping zone. By comparison, Sesebi, although not lying in the high-density area of settlements, is located directly in the high-density area of the gold working sites of Tondi, Sokar and Abu Sari.

The interpretation could therefore be that the mentioned sites have a high probability of a close relationship or association with each other – that is to say, these settlements most likely play a role within the exploitation or trade of gold, under the assumption that proximity is the determining factor.

Proximity relationship analysis 3 - buffer analyses

Another frequently used tool in a GIS or within spatial analyses is to buffer the features and to then investigate the information that lies within these buffer zones (Wheatley 2002). For instance, a 10km buffer can be generated around the settlements and a 1km buffer around the gold working sites (fig. 4). The parameter to be investigated in these zones is the underlying geology of this region, as it may be of interest to know in which specific rock formations the settlements and the gold

working sites are located. The computed statistics to quantify the results show that the majority of the gold working sites lie within the rock formations of the metavolcanics (15 times) followed by gneiss (6 times), and third in line by colluvium and greenshist assemblages (5 times each).¹⁴ The rock formations which cover the largest area within the buffered zones of the settlements in Lower Nubia are the basement rock gneiss (442km²), followed by sandstone (173km²) and metavolcanics (greenshist, 146km²), whereas in Upper Nubia the largest areas are occupied by the colluvium (sand sheets, amalgamated dunes, 549km²) as well as sandstone (327km²) and metavolcanics (296km²). Thus, it seems that the settlements were all located in the same mixture or proportions of the predominant rock formation for the area (gneiss in Lower Nubia, colluvium in Upper Nubia) at first place, followed by sandstone and finally metavolcanics. The metavolcanics are of high importance also when it comes to gold working sites. This specific rock formation is by far the most frequent one in which gold working sites are attested.

Based on these quantitative methods it can hypothetically be said in which rock formations New Kingdom settlements and gold working sites are most likely to be found in Nubia.

Further analyses: Outlook

Resulting from such analyses a study location for each settlement can be derived, which shows the most important features that might be crucial factors for founding the site on that particular location. In turn, this can help identify the function(s) of the settlement or the reason for choosing a specific location in the first place. Another outcome is that the results bear the potential for deriving a pattern for their distribution and maybe also for their typology. Such a pattern could then be used for predictive mapping or modelling (Wheatley 2002, 148-162; Conolly 2006, 179-181), where the probability of further settlements can be predicted and potentially help identify possible locations for sites previously only known from written records. Of even more interest, however, is that it could be especially useful in the region of the 4th Cataract where a lack of sites is discernible, despite being the official reach of the Egyptian realm. Such predictive mapping could provide a base for future surveying in the 4th Cataract region and contribute to the discussion on why so little Egyptian material or sites have been found until now (Welsby 1996; Grzymski 1997; Morkot 2013), even though the region is the most fertile in the whole area and also the centre of the subsequent Napatan kingdom (Fisher 2012).

¹³ It must be noted that the calculations are air-line distances and do not take into account the relief, elevation, slope or any other obstacles that may occur in the real landscape. For this, the much more complex cost-path-analyses must be applied. Nevertheless, the simple distance analyses already provide a good indication from which further analyses can be conducted.

¹⁴ Calculated from a total of 37 gold working sites.

Proximity Relationship Analysis 2 - Kernel Density

Figure 3. Maps showing the calculation of a Kernel Density of both the gold working sites (Map A) and the settlement sites (Map B). Map C shows in detail the overlapping areas of both highdensity areas.

Proximity Relationship Analysis 3 - Buffer Analyses

A. Buffer analysis of gold working sites

B. Buffer analysis of settlement sites (detail)

Statistics

showing the buffer analysis conducted for gold working sites (Map A) and settlement sites (Map B) in order to investigate in which specific rock formations the sites were located. The computed statistics shows the frequency of gold working sites by rock formation (Map A) and the distribution of rock formation by km² for the Lower Nubian sites from Buhen to Kumma and the Upper Nubian sites from Sai to Gebel Barkal.

Figure 4. Maps

Conclusion

In summary, I would like to say that there is indeed potential for a revision of the supposed model of the temple town and a new evaluation of the whole of the settlement structure in New Kingdom Nubia. I hope I have shown that a more precise and sophisticated terminology and typology is possible and also necessary, due to differences not only between the regions of Lower and Upper Nubia, but also in chronology as well as in layout and function. Furthermore, the study of spatial relationships by means of a GIS is a great opportunity to gain more information, for example about settlement patterns, and contribute to a better understanding of settlement structures. Finally, this study shows that urbanism in New Kingdom Nubia is quite a bit more complex than it was previously thought to be.

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References

- Adams, W.Y. 1964. Post-Pharaonic Nubia in the Light of Archaeology I. *Journal of Egyptian* Archaeology 50, 102-120.
- Adams, W.Y. 1977. *Nubia. Corridor to Africa*. London: Allen Lane.
- Adenstedt, I. 2016. Reconstructing Pharaonic Architecture in Nubia: The Case Study of SAV1, Sai Island. Contributions to the Archaeology of Egypt, Nubia and the Levant 3. Vienna: Austrian Academy of Sciences Press.
- Arkell, A.J. 1955. A History of the Sudan. From the Earliest Times to 1821. London: Athlone.
- Auenmüller, J. 2013. Die Territorialität der ägyptischen Elite(n) des Neuen Reiches. Eine Studie zu Raum und räumlichen Relationen im textlichen Diskurs, anhand prosopografischer Daten und im archäologischen Record. Berlin: Freie Universität Berlin [stable URL: http://www.diss.fu-berlin.de/diss/receive/ FUDISS_thesis_000000099252].
- Badawy, A. 1977. Festungsanlage, in: Helck, W. and Westendorf, W. (eds.), *Lexikon der Ägyptologie Band 2*. Wiesbaden: Harrassowitz, 194-203.

- Bard, K.A. 2007. An Introduction to the Archaeology of Ancient Egypt. Malden, Mass: Blackwell.
- Blackman, A.M. 1937. Preliminary Report on the Excavations at Sesebi, Northern Province, Anglo-Egyptian Sudan, 1936-37. *Journal of Egyptian Archaeology* 23.2, 145-151.
- Budka, J. 2014. The New Kingdom in Nubia: New results from current excavations on Sai Island. *Egitto e Vicino Oriente* 37, 55-87.
- Budka, J. 2015. The Pharaonic town on Sai Island and its role in the urban landscape of Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2017. Life in the New Kingdom town of Sai Island: Some new perspectives, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven, Belgium: Peeters, 429-447.
- Butzer, K.W. 1984. Siedlungsgeographie, in: Helck, W. and Westendorf, W. (eds.), *Lexikon der Ägyptologie Band 5*. Wiesbaden: Harrassowitz, 924-933.
- Cavillier, G. 2014. Soleb 2010 Project: Amenhotep III's Fortified Complex Research, in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond. Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 393-398.
- Christaller, W. 1933. Die zentralen Orte in Süddeutschland. Eine ökonomisch-geographische Untersuchung über die Gesetzmäßigkeit der Verbreitung und Entwicklung der Siedlungen mit städtischen Funktionen. Jena: Fischer.
- Clarke, D.L. 1977 (ed.). *Spatial Archaeology*. London: Academic Press.
- Conolly, J. 2006. *Geographical Information Systems in Archaeology*. Cambridge Manuals in Archaeology. Cambridge: Cambridge University Press.
- Dunham, D. and Janssen, J.M.A. 1960. Semna, Kumma. Second Cataract Forts 1. Boston: Museum of Fine Arts.
- Emery, W.B. 1965. Egypt in Nubia. London: Hutchinson.
- Emery, W.B., Smith, H.S. and Millard, A. (eds.). 1979. *Excavations at Buhen. The Archaeological Report*. Egypt Exploration Society Excavation Memoir 49. London: Egypt Exploration Society.
- Fisher, M.M. 2012. The History of Nubia, in: Fisher, M.M., Lacovara, P., Ikram, S., D'Auria, S. and Higgins, C. (eds.), *Ancient Nubia. African Kingdoms on the Nile*. Cairo: American University in Cairo Press, 10-44.
- Frandsen, P.J. 1979. Egyptian Imperialism, in: Larsen, M.T. (ed.), Power and Propaganda. A Symposium on Ancient Empires. Mesopotamia 7. Copenhagen: Akademisk Forlag, 167-190.
- Gringmuth-Dallmer, E. 1999. Methodische Überlegungen zur Erforschung zentraler Orte in ur- und frühgeschichtlicher Zeit, in: Leciejewicz, L. (ed.), *Centrum*

i zaplecze we wczesnośredniowiecznej Europie Środkowej. Spotkania bytomskie 3. Wrocław: Instytut Archeologii i Ethnologii, Polskiej Akademii Nauk, 9-20.

- Grzymski, K. 1997. Canadian Expedition to Nubia: The 1994 Season at Hambukol and in the Letti Basin. *Kush* 17, 236-243.
- Hasler, D. 2015. Geschäftsmodelle der Datenindustrie. Herleitung eines Klassifizierungsansatzes mit Fallbeispielen aus der Telematik. Hamburg: Diplomica.
- Heidorn, L.A. 1999. Nubian Towns and Temples, in: Bard, K.A. (ed.), *Encyclopedia of the Archaeology of Ancient Egypt*. London: Routledge, 579-583.
- Hein, I. 1991. *Die ramessidische Bautätigkeit in Nubien*. Göttinger Orientforschungen IV.22. Wiesbaden: Harrassowitz.
- Higginbotham, C.R. 2000. Egyptianization and Elite Emulation in Ramesside Palestine. Governance and Accommodation on the Imperial Periphery. Culture and History of the Ancient Near East 2. Leiden: Brill.
- Hillier, B. and Hanson, J. 1984. *The Social Logic of Space*. Cambridge: Cambridge University Press.
- Hobson, J.A. 1902. *Imperialism: A Study*. New York: James Pott and Co.
- Huggett, J. and Ryan, N. 1995. Computer Applications and Quantitative Methods in Archaeology, CAA94. British Archeological Reports International Series 600. Oxford: Tempus Reparatum.
- Jäger, H. 1973. *Historische Geographie*. Das Geographische Seminar. Braunschweig: Westermann.
- Kappas, M. 2001. *Geographische Informationssysteme*. Das Geographische Seminar. Braunschweig: Westermann.
- Kemp, B.J. 1972a. Fortified towns in Nubia, in: Ucko, P.J., Tringham, R. and Dimbleby, G.W. (eds.), Man, Settlement and Urbanism. Proceedings of a Meeting of the Research Seminar in Archaeology and Related Subjects Held at the Institute of Archaeology, London University. London: Duckworth, 651-656.
- Kemp, B.J. 1972b. Temple and town in ancient Egypt, in: Ucko, P.J., Tringham, R. and Dimbleby, G.W. (eds.), Man, Settlement and Urbanism. Proceedings of a Meeting of the Research Seminar in Archaeology and Related Subjects Held at the Institute of Archaeology, London University. London: Duckworth, 657-680.
- Kemp, B.J. 1978. Imperialism and Empire in New Kingdom Egypt (c. 1575-1087 B.C.), in: Garnsey, P. and Whittaker, C.R. (eds.), *Imperialism in the Ancient World*. Cambridge Classical Studies. Cambridge: Cambridge University Press, 7-57.
- Kemp, B.J. 1997. Why empire rises. Cambridge Archaeological Journal 7.1, 125-131.
- Kendall, T. 1994. Le Djebel Barkal: le Karnak de Koush. *La Nubie* 196, 46-53.
- Klemm, R. and Klemm, D. 2013. Gold and Gold Mining in Ancient Egypt and Nubia. Geoarchaeology of the

Ancient Gold Mining Sites in the Egyptian and Sudanese Eastern Deserts. Natural Science in Archaeology. Heidelberg: Springer.

- Krausse, D. 2009. Möglichkeiten und Grenzen archäologischer Zentralisierungs- und Urbanisierungsforschung. (Unveröffentlichtes Thesenpapier zum Workshop des DFG-Schwerpunktprogramms 1171, 23.-24.03.2009, Stuttgart).
- Lawrence, A. 1965. Ancient Egyptian Fortifications. Journal of Egyptian Archaeology 51, 69-94.
- Lenin, W.I. 2010 (1917). *Imperialism, the highest stage of capitalism*. London: Penguin Random House.
- Maran, J., Juwig, C., Schwengel, H. and Thaler, U. 2006 (eds.). *Constructing Power. Architecture, Ideology and Social Practice*. Geschichte, Forschung und Wissenschaft 19. Berlin: LIT Verlag.
- Morkot, R. 1995. The Economy of Nubia in the New Kingdom. Actes de la VIII^e conférence internationale des études nubiennes. Lille 11-17 Septembre 1994, Vol. I – Communications principales. Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille 17.1, 175-189.
- Morkot, R. 2001. Egypt and Nubia, in: Alcock, S.E., D'Altroy, T.N., Morrison, K.D. and Sinopoli, C.M. (eds.), *Empires: Perspectives from Archaeology and History*. Cambridge: Cambridge University Press, 227-251.
- Morkot, R. 2013. From Conquered to Conqueror: The Organization of Nubia in the New Kingdom and the Kushite Administration of Egypt, in: Moreno Garcia, J.C. (ed.), *Ancient Egyptian Administration*. Handbook of Oriental Studies. Series 1, Vol. 104. Leiden: Brill, 911-963.
- Morris, E.F. 2005. *The Architecture of Imperialism. Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom.* Probleme der Ägyptologie 22. Leiden: Brill.
- Müller, I. 2013. *Die Verwaltung Nubiens im Neuen Reich*. Meroitica – Schriften zur altsudanesischen Geschichte und Archäologie 18. Wiesbaden: Harrassowitz.
- Müller, U. 2009. Netzwerkanalysen in der Historischen Archäologie – Begriff und Beispiele, in: Brather, S. and Steuer, H. (eds.), *Historia archaeologica*. Ergänzungsbände zum Reallexikon der Germanischen Altertumskunde 70. Berlin: De Gruyter, 735-754.
- Nakoinz, O. 2009. Zentralortforschung und zentralörtliche Theorie. Archäologisches Korrespondenzblatt 39, 361-380.
- Posener, G. 1958. Pour une localisation du pays Koush au Moyen Empire. *Kush* 6, 39-61.
- Renfrew, C. and Bahn, P. 2008. Archaeology. Theories, Methods and Practice. London: Thames & Hudson.
- Säve-Söderbergh, T. 1941. Ägypten und Nubien: ein Beitrag zur Geschichte altägyptischer Aussenpolitik. Lund: Ohlsson.
- Säve-Söderbergh, T. 1993. Teh-Khet. The Cultural and Sociopolitical Structure of a Nubian Princedom in Tuthmoside Times, in: Davies, W.V. (ed.), *Egypt and Africa. Nubia from Prehistory to Islam.* London: British Museum Press, 186-194.

- Schiff Giorgini, M. 1967-1968. Soleb-Sedeinga. Résumé des travaux de la Mission pendant les trois campagnes automne 1965-printemps 1968. *Kush* 15, 251-268.
- Schiff Giorgini, M. 1971. Soleb II. Les nécropoles. Florence: Sansoni.
- Schiff Giorgini, M. 2002. *Soleb III. Le temple. Description.* Mission Michela Schiff Giorgini. Cairo: Institut français d'archéologie orientale.
- Smith, S.T. 1995. Askut in Nubia. The Economics and Ideology of Egyptian Imperialism in the Second Millennium B.C. Studies in Egyptology. London: Kegan Paul International.
- Spence, K., Rose, P.J., Bradshaw, R., Collet, P., Hassan, A., MacGinnis, J., Masson, A. and van Pelt, P. 2011. Sesebi 2011. *Sudan & Nubia* 15, 34-39.
- Spencer, N., Stevens, A. and Binder, M. 2014 (eds.). *Amara West. Living in Egyptian Nubia.* London: Trustees of the British Museum.
- Spencer, N. 2014. Amara West: Considerations on Urban Life in Colonial Kush, in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond.* Proceedings of the 12th International Conference for Nubian Studies. British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 457-485.
- Spencer, P. 1997. Amara West I: The Architectural Report. Egypt Exploration Society Excavation Memoir 63. London: Egypt Exploration Society.
- Török, L. 2009. Between Two Worlds. The Frontier Region between Ancient Nubia and Egypt 3700 BC – AD 500. Probleme der Ägyptologie 29. Leiden: Brill.
- Trigger, B. 1965. *History and Settlement in Lower Nubia*. Yale University Publications in Anthropology 69. New Haven: Department of Anthropology.

- Trigger, B. 1976. *Nubia under the Pharaohs*. Ancient Peoples and Places 85. London: Thames & Hudson.
- Van Pelt, W.P. 2013. Revising Egypto-Nubian Relations in New Kingdom Lower Nubia: From Egyptianization to Cultural Entanglement. *Cambridge Archaeological Journal* 23.3, 523-550.
- Vogel, C. 2004. Ägyptische Festungen und Garnisonen bis zum Ende des Mittleren Reiches. Hildesheimer Ägyptologische Beiträge 46. Hildesheim: Gerstenberg.
- Welsby, D.A. 1996. The Kingdom of Kush. The Napatan and Meroitic Empires. London: British Museum Press.
- Welsby, D.A. 2001. Nubia, in: Redford, D.B. (ed.), *The Oxford Encyclopedia of Ancient Egypt*. Oxford: Oxford University Press, 551-557.
- Wheatley, D. 2002. Spatial Technology and Archaeology. The Archaeological Applications of GIS. London: Taylor & Francis.
- Zibelius-Chen, K. 2013. Nubien wird ägyptische Kolonie, in: Wenig, S. and Zibelius-Chen, K. (eds.), *Die Kulturen Nubiens – ein afrikanisches Vermächtnis*. Dettelbach: Röll, 135-155.

Notes on the contributor

Jördis Vieth received her Mphil in Northeast African Archaeology and Classical Archaeology from the Humboldt University in Berlin, Germany in 2012. From 2013 to 2016 she held a DOC-researcher position in the ERC Starting Grant project AcrossBorders from Julia Budka, where she started her currently ongoing PhD on the New Kingdom temple towns in Nubia. Jördis' main research interests focus on settlement and landscape archaeology in Egypt and Sudan, GIS applications and remote sensing, theory and methods in archaeology.

New Kingdom Towns in Upper Nubia

Sai, Soleb and Amara West in prosopographical perspective

Johannes Auenmüller*

Abstract

Based on the compilation of prosopographical data from larger archaeological contexts such as cemeteries, settlements and temples, Sai, Soleb and Amara West, three towns that were successive administrative centres of Upper Nubia in the New Kingdom, are evaluated. The prosopographical method is used to undertake a comparative "sociography" in assessing who inhabited and frequented these Pharaonic foundations, discussing the respective social fabric and describing particularities and commonalities. Based on the evidence, only a specific and quite small group of the ancient people can be characterised. On the one hand, there are the residents, mainly priests and administrative personnel including the deputies of Kush, who were also buried in the elite cemeteries. They can be considered permanent inhabitants of the towns. On the other hand, there are the viceroys of Nubia, who were only temporarily present at these sites, while they particularly represented themselves in the temple spaces. Although the three sites and the larger contexts provide particular prosopographical data sets, they can be jointly evaluated and compared. The aim of the paper is to provide a general overview of the prosopographies of Sai, Soleb and Amara West. This is then used as basis for drawing a more comprehensive picture of their people and the social fabric of the places.

Keywords: Upper Nubia, New Kingdom, prosopography, social fabric, Sai, Soleb, Amara West

Introduction

Prosopography is about people. This simple, yet emphatic statement at the beginning aims at stressing the importance of prosopography as a means of shedding light onto the social fabric and historical development of pre-defined historic populations. In the present case, these pre-defined groups shall be the residents and frequent visitors of three Pharaonic foundations in Upper Nubia in the New Kingdom: Sai, Soleb and Amara West. Before looking at these three historic places and their local societies, a short outline about "prosopography" is appropriate.

Prosopography, a scientific method, scholarly technique or research approach (cf. Stone 1971; Carney 1973; Bulst 1986; Verboven *et al.* 2007; Smythe 2008), has several and sometimes quite diverse objectives. It is, however, based on shared ideas and methodologies. In a general sense, prosopography can be understood as

*ERC AcrossBorders Project, Institute of Egyptology and Coptology, Ludwig-Maximilians-Universität München, Katharina-von-Bora-Str. 10, 80333 Munich, Germany / Institute of Egyptology and Coptology, University of Münster, Schlaunstr. 2, 48143 Münster, Germany; Johannes.Auenmueller@unimuenster.de 'an attempt to bring together all relevant biographical data of groups of persons in a systematic and stereotypical way" (Verboven et al. 2007, 37). Furthermore, the prosopographical target groups shall come from 'specific milieus defined chronologically and geographically' (Verboven et al. 2007, 39; see also ibid., 51-53). In the rather broad definition of Lawrence Stone (1971, 46), prosopography is considered as 'the investigation of the common background characteristics of a group of actors in history by means of a collective study of their lives.'

Consequently, prosopography is a complex endeavour that must evaluate individual personal data in order to understand social collective phenomena. Thus, it has to employ a number of (sub)disciplines, *e.g.* onomastics, the study of administrative titles, genealogy and biography (Verboven *et al.* 2007, 37-39), in pursuing two general aims that are inextricably linked with each other. They can be characterised as "collecting" and "understanding". While the claim '*[t]he ultimate purpose of prosopography is to collect data on phenomena that transcend individual lives*' (Verboven *et al.* 2007, 41) particularly emphasises the first aspect, it is Keats-Rohan (2007, 141), who pinpoints the pivotal objective of all prosopographical effort: '*to achieve an understanding of social reality*.'

Methodological considerations

Prosopography is about people. However, we can only address certain people and facets of their identities and lives using "prosopography". For Egyptology in general, and for Sai, Soleb and Amara West in particular, it is the "social elite" that stands in the focus due to the specific nature of their evidence (for prosopography in Egyptology see *e.g.* Raedler 2008, 311-313; on the relational term "elite" Auenmüller 2013, 20-70). People at the other ends of the social spectrum, who had neither the means to commission any substantial epigraphical monument nor left any trace in a site's textual record, can only be tackled through genuine archaeological materials and methods.

As for the evidence of the Pharaonic elite, the issue of data quality as well as the question of its representativeness must be considered. This has several implications for studying social and historical phenomena regarding ancient people and societies. Concerning this matter, the prosopographer is faced with the question which socio-cultural phenomena shall be analysed and explained in the first place. Secondly, there is the problem which evidence exists to answer this question. The main body of prosopographical data is constituted by separate records of personal details that can be looked at individually or under overarching questions trying to describe and understand broader social contexts. Bearing in mind that studying individuals is a prerequisite of prosopography (cf. Keats-Rohan 2007, 141), one is encouraged to overcome this quasi "individualist" perspective to '*target the common aspects of people's lives, not their individual histories*' (Verboven *et al.* 2007, 41). Nevertheless, a thorough discussion of the single prosopographical record that constitutes the larger data set is pivotal.¹

In any case, the prosopographical data to be assessed and understood can be little or rich, one-sided or diverse, fragmentary or comprehensive. In fact, what matters in the end is not the scarcity and/or fragmentary state of the data, but it is the scholarly questions that are asked in order to evaluate and explain it.

Prosopographical evidence

Egyptological prosopography is concerned with a quite specific range of data comprising all sorts of textual evidence pertaining to individuals of Pharaonic society, in most cases at high elite level. Typical epigraphical media are inscribed objects from funerary installations (grave goods etc.) or settlement spaces (e.g. architectural elements), or statues or stelae from more formal (esp. temple) contexts. For this paper, one can thus differentiate between three larger contexts: the cemeteries on the one, and the settlements on the other hand; a third setting - mostly part of the settlements themselves - is the temple as a separate space for elite presence and display. The epigraphical media to be assessed should ideally come from the towns that constitute our geographically defined social milieus: Sai, Soleb and Amara West. However, also non-local attestations of individuals with relationships to these towns must be incorporated to picture their social composition more comprehensively. In terms of chronology, it is the heydays of Sai, Soleb and Amara West in the New Kingdom that - next to factors of preservation and research history - delimit the respective prosopographical data sets.

Research questions

Based on the nature of the evidence, prosopography has developed a number of typical research objectives, such as social stratification and mobility, decision-making processes and the (mal-)functioning of institutions, to name but a few (cf. Verboven *et al.* 2007, 41). Since the key objective of this paper is local societies, prosopography shall be applied as a means to undertake a comparative "sociography" (Verboven *et al.* 2007, 38 and 40), *i.e.* an assessment and discussion of the social fabric of these towns in view of the local social elite. Although this approach has

¹ This statement is especially valid regarding the issue of unequivocally identifying historical actors on a methodologically sound basis which only rests upon the available personal or attributed epigraphical evidence.

to skip all other non-elite people who lived and/or died at these places, the above statement 'prosopography is about people' is still valid. Even though we cannot get to the individual level of their every-day life and experience, those few people we are about to encounter are the ones who commissioned, built, used, inhabited and transformed the architectural spaces that were excavated at Sai, Soleb and Amara West, those spaces we are used to see in two-dimensional architectural plans. In parallel with the study of the settlements' layouts, structures, finds and contexts (cf. Budka 2014b; 2015a; 2015b; 2015c; 2017b; 2017c; 2017d; Budka and Doyen 2013; Spencer, N. 2014; 2015; 2017), we can try to fill some excavated and functionally known settlement spaces to a certain degree with life and individual people.

In pursuing such a "sociography" of New Kingdom Sai, Soleb and Amara West, it shall, therefore, be asked which people are attested in these places in which contexts.² Furthermore, it is of interest to assess what these contexts tell us about the roles and attachments of these people and what we learn about the social and functional differentiation within the towns in view of their elite inhabitants (cf. Morkot 1995; Budka 2015b, 46). The final research question sets out to compare the prosopography of Sai, Soleb and Amara West: do we see characteristic sets of people inhabiting and frequenting these places or are the differences greater than the commonalities? The aim behind this research interest in New Kingdom prosopography is to develop "localised prosopographies" of urban landscapes, assessing both towns and their elite cemeteries (cf. e.g. Auenmüller in press) in order to get a more comprehensive understanding of the people and the composition of these social spaces.

Sai: Cemetery SAC5

As for Sai, the first larger and typical context yielding prosopographical data shall be initially discussed: the elite necropolis. While the New Kingdom funerary landscape of Sai consists of three cemeteries SAC1, 4 and 5, it is only SAC5 (Minault-Gout and Thill 2012, 404-406; Budka 2014a; 2015a; 2015b, 46-50; 2017d, 75-79) that yielded objects with prosopographical data. Cemetery SAC5 currently comprises 26 known tombs. The above-ground architectural remains of the tombs – mudbrick chapels and pyramids – and the subterranean structures and funerary assemblages confirm the designation of SAC5 as elite ne-

cropolis of New Kingdom Sai. A compilation of its prosopography based on the published record is shown in tab. 1.

In this table, objects bearing names and titles are listed for each tomb and given a date to roughly position their owners chronologically and to provide a general idea about the use life of cemetery SAC5 from the mid-18th Dynasty down to Ramesside times and beyond (cf. also Thill 2007; Budka 2014a). In view of all the tombs excavated so far, their "prosopographical yield" from ten funerary installations with 19 names seems to be quite small. In comparison to other New Kingdom elite cemeteries in Nubia, it is nevertheless a substantial amount. Only the cemetery of Aniba in Lower Nubia has a more extensive data record (Steindorff 1937, 248-254).

Tomb 5 is of special importance for the upper echelon of Sai's social fabric. Based on the names and titles on the funerary objects, it belonged to a family of local city governors or mayors. Ipy and Neby can be considered the highest local representatives of Pharaonic state agency during the mid-18th Dynasty in the mnn.w of Sai (cf. Budka 2017c, 442-443; see also Auenmüller 2013, 652-775, for a comprehensive evaluation of all known New Kingdom mayors in Egypt and Nubia). Ipy and Neby might be father and son, since the mayoral office is regularly transmitted in this way in the New Kingdom (Auenmüller 2013, 731-736). The familial relation of the songstress Henut-aat to Ipy and Neby is not determinable; she may be either one's wife or mother. Her role as songstress being certainly associated to a temple on Sai positions her in a rather high local female elite sphere as well (cf. Onstine 2005).

In addition, some further comments can be made. Neby seems to be identical with the $h_3.t_j$ - h_{rp} (or $h_3.t_j$ -< < n > -Shm, on this reading which is the same as on the shabti cf. Cressent and Raimon 2016, 32-34, with fns. 8-9) Neby attested further north at the Tanjur rapids in the Batn el-Hajar by three rock inscriptions (Hintze and Reineke 1989, 170-171, No. 553a and 554a, 174, No. 573). Thus, his sphere of action obviously went well beyond the confines of the town of Sai. The interment of both mayors Ipy and Neby in the elite necropolis of the town which they administered is a typical trait for such functionaries (cf. Auenmüller 2011; Auenmüller 2013, 742-751). In contrast, an earlier 18th Dynasty mayoral predecessor, Ahmose - whose tomb has yet to be localised - was obviously not buried here. No monument of his has come to light on Sai itself. He is known from at least two statues from Thebes (Bologna, KS 1823) and Karnak (CG 42047) respectively (Müller 2013, 209). They manifest his personal and functional attachment to Thebes which might even be his home town. He can thus be considered as the first known 18th Dynasty mayor of the newly established town of Sai, who did not opt for being buried near his place of office (Budka 2015c, 70, with

² The question of whether the individuals we encounter here were – or considered themselves as – "Egyptians" or "Nubians" is not of immediate concern for this paper. The fact that they were present here is proof that they had a specific – individual, professional, *etc.* – relationship to the respective places and communities in one way or the other, regardless of their origin or ethnicity.

Tomb	Title	Name	Object(s)	Date
T 2	ḥm-nṯr	Mrj-ms	Heart scarab T2C50	End of 18 th Dyn early 19 th Dyn.
	ḥr.j-w3ḏ.tj	<u>H</u> wy	Heart scarab pectoral T2C25	End of 18 th Dyn early 19 th Dyn.
	- / w ^c b	Ky-jry	Shabtis T2C41 + T2C47; heart scarab T2C48	Early 19 th Dyn.
	s <u>h</u> 3.w / s <u>h</u> 3.w-n-š ^c (.t)	Hr-m-ḥ3b	Shabti T2C24; heart scarab T2C11	Early 19 th Dyn.
	-	Wsr-ḥ3.t	Shabtis T2C20 + T2C34; amulet T2C23	Early 19 th Dyn.
Т 3	s3-nsw-n-Kš	R ^c -mss-nht	Rectangular plaque T3Ca87	Ra. III / IX
T 5	ḥȝ.tj-٢	Jpy	Heart scarab T5C32	A. II - T. IV
	ḥ3.tj-ʿ ḥrp (or ḥ3.tj-ʿ-n-Sħm)	Nby	Shabti T5C33; copper-alloy vessels T5C38-44	T. IV - A. III
	šm ^c .yt	Ḥnw.t-[^c ɜ.t/tɜ.wj]	Faience vase T5C62	A. II - A. III.
Т 8	<u>hm-nt</u> r-[]	<u>Hn-sb3</u>	Shabti T8Cc79	A. II - T. IV
	-	Nnз	Mentioned on shabti T8Cc79 as mother	A. II - T. IV
	ḥm-nṯr-[m-r'-pr?]	Sj	Heart scarab T8Cb45	18 th - 19 th Dyn.
Т9	-	[]- <i>nḫt</i>	Painted plaster fragment T9S1	Ramesside
T 11	-	[]y-[]	Stela T11Ca2	End of 18 th Dyn 19 th Dyn.
T 16	<i>nb.t-[pr]</i>	3S.t	Stela T16S21	End of 18 th Dyn 19 th Dyn.
T 20	-	<i>Pt</i> <u>h</u> -??	Seven faience shabtis T20Ca92	Ramesside
T 25	[]- <i>nsw</i>	[]	Stela T25P6 from shaft	Ramesside
T 26	nb.y /jm.j-r'-nb.yw	<u>H</u> nm.w-ms	Shabti SAC5 350; faience vessels SAC5 352, SAC5 353, SAC5 355	A. II - T. IV
	nb.t-pr	<u>H</u> nn-??	Heart scarab SAC5 349	T. IV - A. III
	jdn.w-n-Kš	<u>H</u> r-n <u>h</u> t	Door lintel SAC5 083; door jamb fragments SAC5 122; pyramidion SAC5 215, all from shaft	Ra. II

Table 1. Sai: Individuals known from SAC5 (based on Minault-Gout and Thill 2012, esp. 413-414, tab. 10; for Tomb 26, see Budka 2015a; 2015b, 46-50; 2017b, 18-19; 2017d, 75-79, pl. 5; 2017e; Tomb 26 in this volume; for the copper alloy vessels from Tomb 5, see Cressent and Raimon 2016).

fn. 54, 74-75). Ipy and Neby thus seem to represent the second and third generation of local city governors who were posted at Sai (cf. Budka 2015c, 74-75; 2017c, 443), continued to live there, identified themselves with "their" town and consequently also chose to be laid to rest there. No 18th Dynasty or Ramesside successor of these mayors is known either from Sai or elsewhere.

Although the chronology of the elite buried at Sai and prosopographically represented by their inscribed grave goods is not without problems (cf. *e.g.* Budka 2014a), we encounter a contemporary of the mayors, Hen-seba, in Tomb 8. His shabti identifies him as local priest (cf. Thill 2017, 207-209), while it also mentions his mother Nenna. Unfortunately, the genealogical relationship cannot be tied in into any other known familial relationship. The heart scarab from Tomb 8 bears witness of a further priest named Si, who seems to be chronologically later, but may belong to the same family as Hen-seba due to his interment in this tomb.

In Tomb 2, five male members of the local Sai society are attested. Two of them – Merymose and Kyiry – are also priests of different ranks but without reference to the cult they were attached to. The burial of all these priests including Hen-seba and Si on Sai itself, however, is a very strong indication that this cult was a temple at the very site, most probably Sai's main Temple A (Adenstedt 2016, 34; cf. Thill 2017, 207-209, who links the priestly titles to a sun cult on Sai). Whether the unique <u>hr.j-wsd.tj</u>-title of Huy from Tomb 2 can be understood as expressing his duties as '*superior des deux Ouadjyt*' (cf. Minault-Gout and Thill 2013, 214; Thill 2017, 209-210) or more mundanely as supervisor of the vegetable gardeners (for such a reading of *wsd.tj* see *e.g.* Gardiner 1947, 97* [227]) cannot be finally clarified. Due to the lack of a title, role and function of Userhat from Tomb 2 remain unknown. However, he may also belong to the religious milieu of the town; military personnel are lacking in the record of Sai.

Next to the 18th Dynasty mayors, there is only one more member of the urban administrative sphere attested at SAC5: the letter scribe Haremhab in Tomb 2. In the early 19th Dynasty, he may have been responsible for the written correspondence of Sai's administration with Egypt and other Pharaonic mnn.w-foundations in Nubia. During recent works of AcrossBorders in Tomb 26, the burials of an overseer of gold-workers Khnummose and his potential wife, a mistress of the house, were discovered (Budka 2017d, 75-79; 2017e; Tomb 26 in this volume). They are identified on an intriguing serpentine shabti from an Egyptian workshop (cf. Minault-Gout 2012; Budka 2017d, 77-78), three inscribed faience vessels and the wife's heart scarab respectively. Khnummose adds another very important facet to the population of Sai. Although he is the only representative of gold-workers to date on Sai, his presence and burial there attests to the role of this temple town as place of working, storing and/ or trading the "Gold of Kush" in New Kingdom Upper Nubia (Budka 2014b, 59; 2017d, 80; Tomb 26 in this volume; Vieth in this volume).

Tomb 26 provided evidence for yet another important addition to the social fabric of Sai, belonging to the earlier 19th Dynasty. At the bottom of its vertical tomb shaft, lintel and door jamb fragments as well as a pyramidion were found (Budka 2015a; 2015b, 47-50; 2017b, 18-19; Tomb 26 in this volume). The inscription on the latter identifies its owner as the deputy of Kush Hornakht, a major and well-known figure in the administration of Upper Nubia in his times under Ramesses II (cf. Budka 2015a, 63; 2015b, 48-50). Interestingly, he is the only person evidenced from both the cemetery and the settlement (see below) in terms of epigraphical material, directly linking these two larger contexts.

The last prosopographical data comes from Tomb 3. Pottery vessels of 18th Dynasty and Ramesside date indicate its several use phases. In the north of the main burial chamber, a rectangular faience plaque with the identity signature of a viceroy Ramessesnakht came to light at the neck of a skeleton. This is one of the very few plaques of this type from a reliable archaeological context. While a viceroy Ramessesnakht is known to have served under Ramesses IX (Müller 2013, 146; cf. also Spencer, P. 2016, 39-41), the plaque names Ramesses III on its front. This might be chronologically significant, but it can also be explained as a personal turn of Ramessesnakht to this specific pharaoh. Although his tomb has not been localised, Tomb 3 is generally considered not to be Ramessesnakht's burial place (Müller 2013, 143). The individual with the plaque at his neck may, therefore, rather be a member of the late Ramesside elite of Sai who was given this plaque as a token of loyalty (cf. Budka 2017a).

Further fragmentary names and titles are attested at SAC5 on plaster fragments (Tomb 9), funerary stelae (Tombs 11, 16 and 25) and shabtis (Tomb 20). They are, however, less informative in terms of evaluable prosopographical information. They nevertheless show that SAC5 during its heydays must have been an impressive funerary landscape in terms of both architecture and funerary equipment.

Sai: The walled town including the temple

After the assessment of the prosopography of SAC5, the Pharaonic town (cf. Budka 2014b; 2015b; 2015c; 2017b; 2017c) shall now be looked at. This is the place where those people we have just encountered actually lived. In the southern part of the town enclosure there are two areas that were places of Pharaonic state presence and, therefore, spots for monumental display of its supra-regional and local elite. The first is SAF2, the governor's palace or administrative residence (Azim 1975, 100-103; Adenstedt 2016, 56-63) as the main seat of power, either temporary for the viceroys of Nubia or his local agents, the deputies of Kush and the mayors of Sai. The second area, SAF5, not only comprises silos and magazines where maybe the gold and the goods and resources needed for maintaining the walled town were stored and administered; there are also indications for the existence of a smaller sanctuary (cf. Adenstedt 2016, 35-44). A third location for elite display – especially in the form of statues or stelae - was the main Temple A dedicated to Amun-Ra to the north of the administrative residence (cf. Azim and Carlotti 2012; Budka 2015c, 68-69; Adenstedt 2016, 34).

Tab. 2 shows the prosopographical list of the town based on the published record. At first glance, it seems far more extensive than the compilation for SAC5. A closer look, however, reveals that only five people are attested with certainty. This is in stark contrast to SAC5, where we encountered at least 19 individuals.

Recently, Vincent Rondot was able to put together three stela fragments from Sai and environs belonging to a king's son of Kush whose identity signature and image were intentionally erased (Doc. 2.1). Based on the remaining hieroglyphic traces, he argued that this monument belongs to the viceroy Inebny/Amenemnekhu, who was in office during the joint reign of Hatshepsut and Thutmose III (Davies 2008). With this piece, his presence as viceroy on Sai during his tenure is documented, while the role of Sai as early 18th Dynasty seat of power in Upper Nubia is once more underlined (cf. Budka 2016; 2017c). The original emplacement of this stela is unknown, but a temple setting on Sai seems likely.

Doc.	Title	Name	Attestation	Context and Reference	Date
2.1	mḥ-jb- ^c 3-m-n'.t-[rs.jt] [s3-nsw-n-Kš]	[Jmn-m- nḩw]	Stela S.1100	From Sai and environs (Rondot 2017)	Hat./T. III
2.2	wḥm.w-nsw jm.j-r'-r[w.]yt s3-[ns]w jm.j-r'-ḫ3s.wt-rs.jt	Nhy	Sandstone pillar S.1 originally from temple A	Town / fort (Minault-Gout 2007, fig. 3; Müller 2013, Beleg 45.1)	T. III
2.3	s3-nsw jm.j-r'-ḫ3s.wt-rs.jt wḥm.w-nsw	Nḥy	Cuboid statue fragment S.734a	Reused in 'mur turc' (Thill 2012, 288; Müller 2013, Beleg 45.6)	T. III
2.4	jr.j-p ^c .t h3.tj- ^c htm.tj-bjt smr-w ^c .tj rs-tp.j-n-nb-t3.wj n-[rh.yt ^c h ^c]-hr-h3.t=f s3-nsw jm.j-r'-h3s.wt-rs.jt	Nḥy	Door jamb fragment seen by Lepsius	Town area (Müller 2013, Beleg 45.2)	T. III
2.5	s3-nsw jm.j-r'-ḫ3s.wt-rs.jt	Nḥy	Door jamb fragment used as threshold	SAF5 (Müller 2013, Beleg 45.3; Adenstedt 2016, pl. 31.1)	T. III
2.6	S3-NSW	Nḥy	Door jamb S.119	Reused in Temple A (Müller 2013, Beleg 45.4; Thill 2016, Doc.Sai.14)	T. III
2.7	[]	[N] <u>h</u> y	Lintel S.417	Reused in Temple A area (Thill 2016, Doc. Sai.01)	T. III
2.8	[]	[<i>N</i> ḥy]	Lintel fragment S.25 (+ bloc F2018)	Reused in 'mur turc' (Thill 2016, Doc.Sai.02 + 03)	T. III
2.9	jr.j-p ^c .t ḥ3.tj- ^c wḥm.w-nsw jm.j-r'-rw.yt s3-nsw	Nḥy	Lintel fragment S.1085	SAF5 (Thill 2016, Doc.Sai.04)	T. III
2.10	[] <i>jm.j-r</i> '- <i>r</i> w.yt	Nḥy	Lintel fragment S.781 (+ S 109, blocs 195, 221, 200)	Reused in 'mur turc' (Thill 2016, Doc. Sai.05-09)	T. III
2.11	[jm.j-r'-rw].yt s3-nsw jm.j-r'-ḫ3s.wt-rs.jt	Nḥy	Lintel fragment S.6	Probably SAF5 (Thill 2016, Doc.Sai.11)	T. III
2.12	[]	Nḥy	Lintel fragment bloc 3008	No findspot known (Thill 2016, Doc.Sai.13)	T. III
2.13	[<i>S3</i>]- <i>nsw</i>	[Nḥy?]	Door jamb bloc F 1031	No findspot known (Thill 2016, Doc.Sai.15)	T. III
2.14	jm.j-jb-Ḥr-nb-ʿḥ wḥm.w-nsw jm.j-r'-rw.yt	Nḥy	Door jamb S.1079	SAF5 (Thill 2016, Doc.Sai.20)	T. III
2.15	s3-nsw jm.j-r'-ḥ3s.wt-rs.jt wḥm.w-nsw jm.j-r'-rw.yt	Nḥy	Door jamb fragment bloc 3048	Brought by villagers from Morka (Thill 2016, Doc.Sai.21)	T. III
2.16	[jm.j-r']-rw.yt	[Nḥy]	Door jamb fragment S.1139	SAF5 (Thill 2016, Doc.Sai.22)	T. III
2.17	[] wh[m.w-nsw]	Nḥy	Door jamb fragment bloc F 1032 in situ	SAF5 (Thill 2016, Doc.Sai.23; Adenstedt 2016, pls. 20.1-3)	T. III
2.18	whm.w-nsw	Nḥy	Lintel fragment S.1146	SAF5 (Thill 2016, Doc.Sai.24)	T. III
2.19	jm.j-r'-rw.yt	Nḥy	Seal SAV1E 2326 with sealing impression	SAV1E Feature 15 (Budka 2015b, 45; http://acrossborders.oeaw.ac.at/nehy- and-hornakht-at-sai-island/sav1e-2326- thumbnail/ [last accessed 5 January 2018])	T. III
2.20	jm.j-r'-ḫ3s.wt-rs.jt	[<i>N</i> ḥy]	Stela fragment	Gebel Abri, next to cairns (Müller 2013, Beleg 44.1)	T. III
2.21	jr.j-p ^c .t h3.tj- ^c [htm.tj]-bjt [smr-w ^c .tj]; wb3.w-nsw- w ^c b- ^c .wj s3-nsw jm.j-r'- h3s.wt-rs.jt	Wsr-s <u>t</u> j.t	Statue fragment(s) SNM 33130	Statue cache (Davies 2017, No. 1)	A. II
2.22	S3-NSW	Wsr-stj.t	Statue fragment(s) SNM 33225	Statue cache (Davies 2017, No. 2)	A. II
2.23	wb3.w-nsw-w ^c b- ^c .wj <u>h</u> rd-n- k3p s3-nsw jm.j-r'- h3s.wt-rs.jt	Wsr-s <u>t</u> j.t	Statue fragment(s) SNM 34947	Statue cache (Davies 2017, No. 3)	A. II

Table 2. Sai: Individuals known from the town including the temple (continued on opposite page).

Doc.	Title	Name	Attestation	Context and Reference	Date
2.24	[s3-nsw] jm.j-r'-[h3s.wt]-rs.jt	Wsr-s <u>t</u> j.t	Statue fragment, no No.	Statue cache (Davies 2017, No. 6)	A. II
2.25	jr.j-[p ^c .t] <u>h</u> 3.tj- ^c mh-jb-n-n[sw]	[Wsr-stj.t]	Statue fragment SNM 36537	Statue cache (Davies 2017, No. 7)	A. II
2.26	s3-nsw	Wsr-s <u>t</u> j.t	Stelae fragment(s) SNM 33224	Statue cache (Davies 2017, No. 10)	A. II
2.27	[]	[Wsr-s <u>t</u> j.t?]	Stela or statue fragments, no No.	Statue cache (Davies 2017, No. 14)	A. II
2.28	[s3-nsw-n-Kš]	[Wsr-stj.t?]	Stela S.63 of Amenhotep II	Town / fort (Gabolde 2012, 130-135, fig. 13)	A. II
2.29	jr.j-p ^c .t ḥ3.tj- ^c []	[]	Statue fragment, no No.	Statue cache (Thill 2012, 286; Müller 2013, Beleg 45.11; Davies 2017, 134, fn. 2)	18 th Dyn.
2.30	<u>t</u> 3.y-hw-[] hsy-n-hm=f	Hr-nht	Door jamb S.772	Town / fort (Fouquet 1975, Doc. 10; Budka 2001, Kat. 198; Müller 2013, Beleg 45.12)	Ra. II
2.31	wr-m-j3.t=f wpw.tj-nsw-r- h3s.(w)t-nb(.t) [jdn.w]-n-Kš	<u>H</u> r-n <u>h</u> t	Door jamb SNM 466 I	Town / fort (Fouquet 1975, Doc. 8; Budka 2001, Kat. 196; Müller 2013, Beleg 45.13)	Ra. II
	jdn.w	H3t[j3y]			
2.32	[jdn.w-n]-Kš	Hr-nht	Door jamb SNM 466 II	Town / fort (Fouquet 1975, Doc. 9; Budka 2001, Kat. 197; Müller 2013, Beleg 45.14)	Ra. II
2.33	jdn.w-n-Kš	Hr-nht	Door lintel, no number	From modern village (Geus 2012, 170, fig. 21; Budka 2015a, fig. 19)	Ra. II
	nb.t-pr?	?T3b?			
2.34	jdn.w-n-Kš	<u>H</u> r-nht	Door jamb SNM 14412	Abri (Fouquet 1975, Doc. 7; Müller 2013, Beleg 44.3)	Ra. II
2.35	[]	Hr-nht	Door jamb SNM, ExcNo. 2-R-A/2	Amara East, Karassin (Fouquet 1975, Doc. 6)	Ra. II
2.36	jm.j-r'-ḥm.w-nṯr-n-nṯr.w- nb.w jdn.w-n-Kš	Wsr-M3 ^c .t- R ^c -nḩt	Doors jambs seen by Lepsius	ln centre of town / fort (Vercoutter 1956, 76-77; Budka 2001, Kat. 199; Müller 2013, Beleg 45.15)	Ra. IX
2.37	jm.j-r'-ḥm.w-nṯr-n-nṯr.w- nb.w jdn.w-n-Kš	[Wsr- M3 ^c .t-R ^c - nḫt]	Door jamb fragment S.11 (may be one of the jambs seen by Lepsius?)	Town / fort (Vercoutter 1956, 76-77, No. 18; Budka 2001, Kat. 200; Müller 2013, Beleg 45.16)	Ra. IX
2.38	jdn.w-n-Kš	[]	Door jamb fragment	Town / fort (Müller 2013, Beleg 45.17)	Ram.
2.39	sh3.w-nsw jm.j-r'-pr-n-s3- nsw-St3w [hrp-hsb?]-n-Jmn sh3.w-m3 ^c -m-[Kš?] jm.j- r'-jh.w-n-Jmn-[m-Kš?] sh3.w-hsb-nbw jm.j-r'- h3s.wt-nbw-Kš-n-nsw ^c 3-n-pr sh3.w-[]	Ӊr-m-ḥзb	Stela fragment S.103	Town / fort (Müller 2013, Belege 45.9 + 19; Habachi 1981, 139-144, fig. 46; Kitchen 1980, 110.6-14)	Ra. II

Table 2. continued.

With Inebny/Amenemnekhu's immediate successor, viceroy Nehy, who flourished under Thutmose III (Leblanc 2008; Müller 2013, 106-108), we meet the elite individual who left the largest number of epigraphical documents on Sai (cf. Budka 2015c, 72-73). The most famous one, sandstone pillar S.1 originally from Temple A (Doc. 2.2; Davies 2014, 7-9), bears the historical text that documents the (re-)building of this very temple under Nehy's direction in year 25 of Thutmose III. This temple might also be the place where he installed his cuboid statue (Doc. 2.3). Stela Doc. 2.20 can further be attributed to him and may come from this temple as well.

While these documents are related to a religious context, the by far largest number of Nehy's inscribed architectural elements (Docs. 2.4-6, 2.13-17 and Docs. 2.7-12, 2.18) originally adorned several entrances and magazine doorways most likely in SAF5, the storage area of the town (Thill 2016, esp. 266; Adenstedt 2016, 35-44). Format and iconographical layout of these pieces correspond to Nehy's door frames from the Aniba magazine building (the so-called 'Gehöft'; Steindorff 1937, 31-33). Florence Thill (2016, esp. 298) has argued that his SAF5 evidence attests to the specific responsibility of Nehy in collecting and storing Nubian tribute

and in redistributing these resources in the context of the economic role of Aniba and Sai, while underlining the status of both towns as administrative centres of Lower and Upper Nubia under Thutmose III (cf. also Budka 2017c, 442-443). In addition, the ideological background of architectural elements showing cartouche adoration scenes in New Kingdom Nubia must be considered for understanding the function of Sai as well as Nehy's and the viceregal responsibilities in general (cf. Budka 2015c, 69-73; 2017a).

Further evidence of Nehy's role and presence on Sai was brought to light by AcrossBorders' excavation in SAV1 East, Feature 15 (Budka 2015b, 45; SAV1 in this volume). The seal impression Doc. 2.19 identifies him specifically with his title overseer of the *rw.yt*, which can be understood as either referring to his liabilities supervising access to the royal sphere, or – rather likely for our context – to his immediate duties on Sai and Aniba in connection with the local storage and magazine spaces (Thill 2016, 290-291, with fns. 93-95; see also Budka 2017a).

While both immediate successors of Nehy (see Müller 2013, 108-109) are not attested on Sai, it is the viceroy of Kush Usersatet who is prominently present again. Usersatet acted in this office under Amenhotep II and was later subject to a *damnatio memoriae*. On Sai, he set up one, if not the most important private statuary ensembles of New Kingdom Nubia. Many statue and stelae fragments with his name and titles (Docs. 2.21-27) were found in a cache in 1939. They have recently been pieced together by Vivian Davies (Davies 2017b). Originally, Usersatet's six so far identified individual statues and this one stela were installed in a temple setting, most likely again Temple A whose construction continued under Amenhotep II (cf. Azim and Carlotti 2012, 46-47; Gabolde 2012, 137). These pieces are thus not only reliable proof of a 'significant programme of renewed investment in the complex' (Davies 2017b, 145), but also of Usersatet's own personal attachment to Sai and its Amun temple. In addition, Usersatet might be the viceroy appearing on the stela S.63 (Doc. 2.28) that has recently been re-attributed to Amenhotep II (Gabolde 2012, 130-135). His stela discovered in the temple of Amara West (Doc. 7.6) may originally also come from Sai.

When we assess the attestations of both individuals and their geographical distribution, it becomes apparent that Nehy and Usersatet were, in contrast to those local people buried at SAC5, not long-term residents of the town. Nehy's sphere of influence and coverage ranges from Thebes, where his tomb is located, to the end of New Kingdom state presence at the Hagr er-Merwa (Leblanc 2009; Müller 2013, 106-108; Davies 2017a, 86). As member of the peripatetic elite responsible for the Egyptian territories in Upper and Lower Nubia, he established the seat of administrative power for Lower Nubia

(Wawat) at Aniba, while Sai was chosen as headquarters for Upper Nubia (Kush) (cf. Budka 2015c). Although the spatial distribution of Usersatet's inscriptional records is a little more restricted in geographical terms, it mirrors his functional duties as viceroy as well fairly accurately (cf. Davies 2009; Davies 2017b, esp. 137). While Usersatet's tomb is supposed to be located at Thebes (possibly TT 116, see Hartwig 2010), it is, based on the cluster of his rock inscriptions at the First Cataract and his theophorous name, generally assumed that Usersatet originated from the Aswan area (cf. Müller 2013, 111). In view of the local social fabric of the mnn.w Sai, both viceroys Nehy and Usersatet as well as their predecessor Inebny/ Amenemnekhu have to be regarded as externals, taking only temporary residence here in the context of their site and region specific administrative and supervising duties (cf. Budka 2015c, esp. 73-74).

A second look at tab. 2 makes it further clear that only one person, the deputy of Kush Hornakht, is also attested in the elite cemetery SAC5 (tab. 1, Tomb 26). With him, we are chronologically progressing to the time of Ramesses II (Budka 2015a, 63).³ Three of Hornakht's inscribed architectural fragments (Docs. 2.30-32) come from secondary contexts on Sai, two others were found in Abri and a little further north in Amara East (Docs. 2.34-35). Julie Masquelier-Loorius (2017, 152-154) has recently argued that all these pieces may originally derive from Amara West. However, until now, no evidence for Hornakht came to light there. After all, there are two further pieces in favour of Sai as the origin of his blocks (cf. Budka 2015b, 49): the door lintel fragment (Doc. 2.33) that was recently discovered in a modern village on Sai showing him together with his wife, and - as unambiguous proof - the pyramidion from the shaft of Tomb 26.

When we consider this evidence, it is plausible that Hornakht had an office or residence in the town centre of Sai and a monumental tomb with a pyramid superstructure in SAC5 (Budka 2015a, 63; 2015b, 49; Tomb 26 in this volume). Following the idea of Julia Budka (2015b, 49), two door jambs amongst Docs. 2.30-32, 2.34-35, 2.38(?) should have adorned Hornakht's residence in the town, while another pair, including maybe Doc. 2.31 that names his father, and the lintel Doc. 2.33 showing him with his wife, were once part of his pyramid tomb. Judging from Hornakht's epithets 'Favoured one of his majesty' (Doc. 2.30) and 'Great one in his office' as well as from his role as royal envoy to all foreign countries (Doc. 2.31; cf. Valloggia 1976), Hornakht can be considered a person of high status within royal court society (cf. Raedler 2006).

³ Until now, no prosopographical evidence covering the time after Amenhotep II to the early Ramesside period is known from the town itself.

The geographical, albeit mostly secondary distribution of his monuments around Sai, Abri and Amara impressively attests to his functional and personal attachment to this region. His tomb on Sai further underlines this perception. Based on all this evidence it has been assumed with good reason that Hornakht originated from Sai and that he was sent back to his hometown to fulfil his duties as local agent of the Pharaonic state after completing his education in Egypt (cf. Müller 2013, 201; Budka 2015a, 63; 2015b, 49-50).

Hornakht is, in addition, not the only Ramesside deputy of Kush known from Sai. In 1843, Richard Lepsius came across two 18th Dynasty door jambs with the cartouches of Thutmose III in the town centre, on whose inner faces the identity signature of the overseer of priests of all gods and deputy of Kush Usermaatranakht was present (Doc. 2.36). One of these pieces may be the door jamb rediscovered by Jean Vercoutter in an even more fragmented state (Doc. 2.37). Another door jamb fragment gives the deputy-title only (Doc. 2.38), it could thus also belong to Hornakht. Thanks to his appearance in the temple of Amara West, Usermaatranakht can be confidently dated to the time of Ramesses IX (Doc. 7.17). He thus represents the latest individual New Kingdom elite presence on Sai next to the king's son of Kush Ramessesnakht represented by the rectangular plaque from Tomb 2 in SAC5.

Next to these chronologically distant deputies of Kush Hornakht and Usermaatranakht, a further member of the Ramesside body of functionaries can be identified on Sai. Stela fragment S.103 (Doc. 2.39) contains an (auto-)biographical text of a royal scribe Haremhab who was active under Ramesses II. Its correct reading is very difficult to establish (cf. Müller 2013, 257-259), but it is clear that Haremhab describes his successive career stages under several viceroys, beginning with his latest position under Setau. Among the other viceroys, Paser is securely identifiable, while Iuny and Huy are less certain. Despite the problematic reading of the text, the list of Haremhab's titles is impressive and mirrors his wide range of duties not only for viceroy Setau, but also in the administration and management of Nubian resources, e.g. cattle and gold, in general. The erection of stela S.103 in a presumable temple setting on Sai once more underlines the continued status and functioning of this town during the 19th Dynasty: with such a special text, the stela was meant to be perceived and read by an audience.

In view of Hornakht's and Haremhab's floruit, Sai exhibits a substantial administrative and individual elite presence under Ramesses II, when a little further north at Amara West a new administrative seat of power was founded under Sethi I and substantially redeveloped under Ramesses II (cf. Spencer, N. 2014; 2015; 2017). These two sites seem to be more connected than previously thought.

Soleb: The necropolis and the temple complex

At this point, it is imperative to look beyond Sai to assess the initial question whether we encounter a typical social fabric of a New Kingdom temple town at Sai. The first comparison is devoted to Soleb, famous for the sed-fest temple precinct of Amenhotep III (cf. Schiff Giorgini 1998; 2002; 2003). 800m to the west of the temple, an extensive New Kingdom elite necropolis was excavated between 1957 and 1963 (Schiff Giorgini 1971). The tomb chapels with pyramids and single or multi-chambered subterranean structures conform to the typical New Kingdom format that we also came across at Sai. At Soleb, the dimension and location of the individual tombs within the necropolis seem to be related with the social status of the tomb owners. All in all, 16 different names are known from the necropolis of Soleb (tab. 3). Most of their bearers date to the floruit of Soleb under Amenhotep III. There are, however, also some individuals that have been dated to the end of the 18th Dynasty or even the 19th Dynasty. They indicate that the settlement, which, if preserved at all, is yet to be excavated (cf. Schiff Giorgini 2002, 410; Cavillier 2014), continued to exist for a certain period.

The funerary objects with names and titles are typical for such contexts: shabtis, heart scarabs, faience vessels and funerary stelae. Exceptional is the sandstone sarcophagus from tomb T 5. In addition, there are also inscribed architectural elements that once adorned the tomb chapels, such as lintel and door jamb fragments as well as pyramidia. Characterising the social composition of Soleb as displayed through the individual titles, we encounter two priests (T 4, T 22) and three scribes (T 11, T 14, T 25) next to a goldsmith (T 38), a (necropolis) stonemason (T 5) and a master of servants (T 10). This generally agrees quite well with the functional spectrum seen at Sai, where priests, scribes and a goldsmith appeared (cf. tab. 1). Of high importance for further functional and prosopographical comparison with Sai are - besides the two(?) deputies of Soleb Nebansu and Khaiemwaset (T 4 and 32) - the mayor Neby (T 15) and the deputy of Kush Imenemipet (T 21), who held office under Amenhotep III and Tutankhamun respectively.

The last person not yet discussed is the royal messager Iuwenimen, whose fan handle was found in T 17. Michela Schiff Giorgini (1971, 98) generally considers him to be one of the people buried in this tomb that is one of the earliest funerary installations at Soleb, dated to Thutmose III. This fan handle, however, can be assigned to the 19th Dynasty based on the peculiar writing of the *wpw.tj-nsw*-title (Valloggia 1976, 157). Looking at Iuwenimen's titles, the place names mentioned therein, his "Herkunftsvermerk"

Tomb	Title	Name	Attestation	Date
T 4	jdn.w-m-Ḫˤj-m-M³ˤ.t	Nb- ^c n-sw	Door lintel fragment T 4 s1	A. III
	ḥm-n <u>t</u> r	Mrj-ms	Shabti T 4 c21; vessel T 4 p1	A. III - Ra. II
	-	Mhw	Heart scarab T 4 c17	A. III - Ra. II
T 5	<u>h</u> r.tj-n <u>t</u> r	W ^c b-s.t	Sandstone sarcophagus T 5 c2	A. III
T 10	ḥr.j-mr.t	Hr-nfr	Door lintel fragment T 10 p1	A. III
T 11	<u>s</u> <u>h</u> з.w	<u>H</u> nm.w-ḥtp	Shabti T 11 c29; three faience vessels T 11 c37-38 and T 11 c9	A. III
	<u>h</u> 3.tj- ^c	[]	Door lintel fragment(?) T 11 p3	
T 14	s <u>h</u> 3.w	[]	Stela fragment T 14 s1 (+ M 30 d1)	A. III
T 15	?s3-nsw sh3.w-[nsw]? h3.tj-c	Nby	Door jamb T 24 p2	
	nb.t-pr	Mr.yt-šrj(.t)	Two shabtis T 15 p1 and T 24 p1	
T 17	wpw.tj-nsw-r-n'[.w]t-[rs.jt] []-Ḥw.t-k3-Ptḥ [kṯn-n?]- ḥm=f PN n-[W3s.]t	Jw=w-n-Jmn	Fan handle T 17 p9 (T.	
T 21	jdn.w-n-Kš	Jmn-m-jp.t	Door lintel T 20 p1; pyramidion T 30 p3; Tut. stela fragment T 21 p3	
T 22	<u>ḥm-nṯ</u> r	s-hpr-k3 ک	Unidentified schist fragments T 22 c5 A. III	
	??	Jmn-ms	Shabti T 22 p15	
T 25	s <u>h</u> 3.w-[]	<i>Mry</i> -[]	Stela T 25 p3 A. III	
T 32	[jdn.w?]-m-Ḫˤj-m-M³ˤ.t	ŀfj-m-₩3s.t	Shabti T 32 p2 (+ s1-3) S. I / Ra	
T 36	-	[]- <i>snb</i> .w	Stela fragment T 36 s1 A. III	
T 38	nb.y	B3k	Door lintel fragment T 38 p1 A. III	

Table 3. Soleb: Individuals known from the necropolis (based on Schiff Giorgini 1971, esp. 98-99).

n-[*W* $_{35}$.]*t* and other elements of the funerary goods, one is inclined to identify him as a functionary of Theban origin buried here at Soleb, who also had a professional relationship to Memphis (Auenmüller 2013, 373, with fn. 3103).

As at Sai, the temple of Soleb can also be assessed as a space for elite display and presence (tab. 4). Here, however, no substantial traces of private temple statues have been found. While many well-known named and unnamed functionaries occur in the temple reliefs as participants or ritual priests of Amenhotep III's sed festival (Schiff Giorgini 1998, pls. 31-145),⁴ they are only represented as taking part in the actual ritual performance of the festival in the designated palace in Malkata, not at Soleb itself. The walls of the temple, especially at one of the main doorways, were, however, used as space for secondary votive tableaus by members of the highest Ramesside elite active in Upper Nubia. Under pharaoh Ramesses III, viceroy Hori II (Müller 2013, 142-143) left a cartouche adoration scene below an inscription of the prince and generalissimo Ramesses, future king Ramesses IV (Peden 1994), in the passage between the two temple courts (Docs. 4.1-2). Another anonymous overseer of the southern foreign countries (and thus very likely viceroy) is present there as well (Doc. 4.3; cf. Schiff Giorgini 1998, pls. 202-203 for more, but not satisfactorily legible traces of inscriptions of other high officials).

Additionally, several supra-regional functionaries can be traced at Soleb as donators of temple stelae: the viceroys

⁴ The named individuals are Amenhotep, Son of Hapu (sh3.w-nsw Jmn-htp), the southern vizier Ramose (t3.tj R^c-ms), the viceroy Mry-ms, the hr.j-h3b.t-hr.j-tp sh3.w-nsw Nb-mr. wt=f, the s(t)m and hm-ntr-tp.j-n-Jmn Mry-R^c and the hm-ntr-sn.nw-n-Jmn S3-Mw.t. Not identified by name are e.g. the northern vizier (jm.j-r'-n'.t [3.tj), the Memphite high-priest of Ptah (wr-hrp-hmw.wt), the high priest of Re at Heliopolis (wr-m3.w) as well as an overseer of sealed things (jm.j-r'-htm.t),

an overseer of the treasury (*jm.j-r'-pr-ħd*), an overseer of the king's private quarters (*jm.j-r'-jp.t-nsw*), an overseer of the lector priests (*jm.j-r'-hr.j-h3b.t*), a chamberlain (*jm.j-r'-c-hnw.tj*), a *jm.j-hn.t*-chamberlain and an under-supervisor (*jm.j-ht-h3s.t*) next to a number of *smr.w*, *smr.w-pr* and *smr.w-w*.*tj* and *s*(*t)m-* as well as *ħm.w-ntr*-priests. Additionally, a priest of Selket (*ħm-ntr-Srk.t*) and a stolist (*sm3.tj*) are shown.

Doc.	Title	Name	Attestation	Date	Reference
4.1	s3-nsw-n-[K]š [jm.j-r'- h3s.]wt-[rs.j]t [jm.j-r'-h3s.]wt- nbw-n-[Jmn] [sh3.w]-nsw PN n-B3s.t	<u></u> Ӊrj ॥	Ex-voto tableau R 38a (+ fragment Sb. 75)	Ra. III	Schiff Giorgini <i>et al.</i> 1998, pl. 199.
4.2	's3-nsw`-[n-h.t=f] [] []- nsw jm.j-r'-mš<-wr [] s <u>h</u> 3.w-nsw-m3 ^c -mry=f	R ^c -mss	Ex-voto tableau R 38b	Ra. III	Schiff Giorgini <i>et al.</i> 1998, pls. 200-201.
4.3	ˈjm.j-r'-ḥɜs.wt-rs.jt [ṯɜ.y]-ḥw-ḥkฺɜ-[ḥr-wnm.j-n-nsw]	[]	Ex-voto tableau R38bis, fragment Sb 260d	Ramesside	Schiff Giorgini <i>et al.</i> 1998, pl. 204.
4.4	s3-nsw <u>t</u> 3.y- <u>h</u> w- <n>-nb-t3.wj</n>	Mry-ms	Stela Sb. 82	A. III	Schiff Giorgini <i>et al.</i> 1998, pl. 330.
4.5	[]	Mry-ms	Stela Sb. 251a-b	A. III	Schiff Giorgini <i>et al.</i> 1998, pl. 330.
4.6	tʒ.y-hw-ḥr-wnm.j-n-nsw [sʒ-nsw-n-Kš]	Ӊҟ҉ҙ-nḫt	Stela Sb. 83	Ra. II	Schiff Giorgini <i>et al.</i> 1998, pl. 330.
4.7	[] <u>t</u> 3.y-ḥw-ḥr-wnm.j-n-nsw	R ^c (?)-ms	Stela Sb. 71	18 th Dyn.	Schiff Giorgini <i>et al</i> . 1998, pl. 330.
4.8	[]	Sb3-m-W3s.t	Stela Sb. 32	A. III (?)	Schiff Giorgini <i>et al.</i> 1998, pl. 330.
4.9	jr.j-p ^c .t []	[]	Stela Sb. 34	18 th Dyn.	Schiff Giorgini <i>et al.</i> 1998, pl. 330.

Table 4. Soleb: Individuals known from the temple complex.

Tomb	Title	Name	Attestations	Date
G 320	jdn.w / jdn.w-n-Kš	P3-sr	Shabtis und shabti fragments F8465, F8543, F8546, F8548, F8549, F8550, F8551 and F8552; door jamb F8129 (found in secondary context in tomb G321)	Ra. III
	šm ^c .yt-n-Jmn	?Тујз?	Shabti F8545	
G 322	[]	Jbзy	Shabti F8966	19 th -20 th Dyn.

Table 5. Amara West: Individuals known from Cemetery D (data courtesy of the Amara West research project, British Museum, London).

Merymose (Doc. 4.4-5) and Heqanakht (Doc. 4.6) and the fanbearer to the right of the king Ramose (Doc. 4.7). Except of maybe Sebaemwaset (Doc. 4.8), they do not belong to Soleb's residents and officials. Heqanakht, Ramose and the anonymous overseer of the southern foreign countries (Doc. 4.3) might have come to Soleb only during their journeys through Upper Nubia in fulfilment of their official obligations, as is also the case with Hori II and the prince Ramesses. For Merymose, however, a longer stay at Soleb is conceivable, since the temple complex was built during his tenure (Müller 2013, 115).

Amara West: Cemetery D, the town and the temple

The final comparison shall be made with Amara West. Recent excavations have brought to light several elite funerary complexes in Cemetery D in the well-known New Kingdom format including mudbrick chapels and pyramids (cf. Binder *et al.* 2011; Binder 2017). Their proso-

pography is, also because all tombs have been thoroughly robbed in antiquity, quite scanty (tab. 5). The prominent person documented here is the deputy of Kush Paser, whose tomb G320 yielded several fragmented shabtis with his name and title. A door jamb from his funerary chapel, found in neighbouring tomb G321 and bearing eroded traces of his identity signature, can further be attributed to him. Based on the stratified occurrence of inscribed blocks with his name in the town (Spencer, P. 1997, 220) and his appearance together with viceroy Hori II (Doc. 7.12), he can be dated to Ramesses III. His wife Tyia, a songstress of Amun also known from the town (see below), was very likely attached to the temple of Amara West. Due to the lack of a title, Ibay (tomb G 322) cannot be characterised any further. His name points at a semitic origin (Schneider 1992, 16-17, N 6), however, such names do not necessarily have ethnic implications, particularly not in the Ramesside period (cf. Schneider 2006).

The prosopographical record from Amara West proper (cf. Spencer, N. 2014; 2015; 2017) is shown

Doc.	Title	Name	Object	Provenance	Date	Reference
6.1	jdn.w-m-T3-stj jm.j-r'-k3.t	Sb3-ḫ ^c .w	Door jambs in situ	E13.2/IV.10 Governor's Palace	S. I - Ra. II	Spencer, P. 1997, pls. 117a-b; Budka 2001, Kat. 188.
6.2	jdn.w	Sb3-ḫ ^c .w	Door jambs, found loose	E13.2 Governor's Palace	S. I - Ra. II	Spencer, P. 1997, pls. 117c, 151; Budka 2001, Kat. 187.
6.3	s3-nsw-n-Kš jm.j- r'-ḥ3s.wt-rs.jt	<u>Ḥ</u> ķȝ-[nḫt]	Door lintel	D12.1, re-used as threshold in magazine	Ra. II	Spencer, P. 1997, pl. 150a; Budka 2001, Kat. 177.
6.4	s3-nsw-n-Kš jm.j- r'-h3s.wt-rs.jt	<u>H</u> ķ3-nht	Door lintel	E12.4B, in floor of magazine	Ra. II	Spencer, P. 1997, pl. 150b; Budka 2001, Kat. 179.
	jdn.w-n-nb-t3.wj	<u>H</u> stjsy				
6.5	s3-nsw-n-Kš	<u>H</u> ķ3-n <u>h</u> t	Door jamb, Khartoum SNM, excno. 2-R-A/3	Amara East; re-used in ruined house in Karassin	Ra. II	Fouquet 1975, fig. 4 (Doc. 1).
6.6	s3-nsw-n-Kš jm.j- r'-ḫ3s.wt-rs.jt	<u>H</u> ķ3-n <u>h</u> t	Lintel, excno. 2-R- 2/1 (& AW frgs. F2175 and F2176)	Amara West; ca. five metres west of the western town wall	Ra. II	Fouquet 1975, fig. 3 (Doc. 2); Vila 1977, 26-27, fig. 3; Budka 2001, Kat. 178.
6.7	s3-nsw-n-Kš jm.j- r'-h3s.wt-rs.jt	<u>Ḥ</u> ķ3-nḫt	Lintel Khartoum SNM 14410	Abri; re-used in house next to school	Ra. II	Fouquet 1975, fig. 2 (Doc. 3); Budka 2001, Kat. 194.
6.8	s3-nsw-n-Kš jm.j- r'-ḥ3s.wt-rs.jt	<u>Ḥ</u> ķ3-nḫt	Lintel F8602, Khartoum SNM 36976	Amara West, Cemetery D, in secondary position in tomb G321	Ra. II	Spencer, N. <i>et al.</i> 2017, 28, fig. 15.
6.9	s3-nsw-n-Kš	[Ḥķȝ-nḫt]	Door lintel	D14.24	Ra. II	Spencer, P. 1997, pl. 108a; Budka 2001, Kat. 181.
6.10	s3-nsw	<u>Ḥ</u> ķ3-nḫt	Column drum	E13.2 'low levels' Governor's Palace	Ra. II	Spencer, P. 1997, pls. 148c-d, 149.
6.11	sʰʒ.w smtr.w- m-ḥʒb-n-ps[ḏ.t- nṯr.w]	Jmn-m- jp.t	Door jamb set	D14.17c	20 th Dyn.	Spencer, P. 1997, pls. 94a-b, 107.
	sn=f mry=f wr-hnr-[]-nsw	[]				
6.12	jdn.w-n-Kš	P3-sr	Door lintel (Louvre E.25227?)	E13.2 Governor's Palace	Ra. III	Spencer, P. 1997, pl. 166a-b; Budka 2001, Kat. 183.
	nb.t-pr	Тујз				
6.13	[jdn.w]	Pз-sr	Door jamb, reused	E13.2II.3/II.4 Governor's Palace	Ra. III	Spencer, P. 1997, pls. 117d, 121b.
6.14	jdn.w / jdn.w-n-Kš	Рз-sr	Door jamb	D12.4 'lower levels'	Ra. III	Spencer, P. 1997, pl. 152; Budka 2001, Kat. 189.
6.15	jdn.w-n-Kš	P3-sr	Door lintel	E13.2Q Governor's Palace	Ra. III	Spencer, P. 1997, pl. 153b; Budka 2001, Kat. 180.
6.16	[jdn.w]-n-Kš	P3-sr	Door jamb	E13.2Q Governor's Palace	Ra. III	Spencer, P. 1997, pl. 154; Budka 2001, Kat. 190.
6.17	[jdn.w]	[<i>P</i> 3]- <i>sr</i>	Undetermined fragment	E13.2Qʻlevel twoʻ Governor's Palace	Ra. III	Spencer, P. 1997, pl. 161d.
6.18	[jdn].w-n-Kš	P3-sr	Door jamb	E13.2Y Governor's Palace	Ra. III	Spencer, P. 1997, pl. 155; Budka 2001, Kat. 191.
6.19	jdn.w s <u>h</u> 3.w	P3-sr	Fragmented door lintel	E13.2 Governor's Palace	Ra. III	Spencer, P. 1997, pl. 167a-d; Budka 2001, Kat. 185.
	nb.t-pr sm ^c .yt-n- Jmn-R ^c -nsw-n <u>t</u> r.w	T3-53.t				
6.20	s3-nsw-n-Kš PN n-[B3s.t]	<i>Ḥrj</i> ∥	Stela fragment	E13.2Y Governor's Palace	Ra. III	Spencer, P. 1997, pl. 153.

Table 6. Amara West: Individuals known from the town (continued on next page).
Doc.	Title	Name	Object	Provenance	Date	Reference
6.21	jm.j-r'-?jḥ.w?	? <u></u> ?	Door lintel 738	E13.2Q Governor's Palace	Ramesside	Spencer, P. 1997, pls. 156, 166c-d; Budka 2001, Kat. 184.
	nb.t-pr šm ^c .yt	٢nķ.t				
	<u>s</u> <u>h</u> з.w	Hrw-nfr				
	s <u>h</u> з.w	P3-jdn.w- (nht?)				
6.22	jm.j-r'-ḥm.w- nṯr-[n-nṯr.w- nb.w]-n-T3-stj	<i>N</i> [<i>n</i>]	Door jamb	E13.2F Governor's Palace	Ramesside	Spencer, P. 1997, pl. 160; Budka 2001, Kat. 193.
6.23	ḥsy-ˤȝ-n-nṯr=f jm.j-r'-šnw.tj	<u></u> Hr-ḥtp	Door jamb F6900	E13.5, re-used as threshold betw. rooms 4 and 5	Ramesside	Spencer, N. <i>et al</i> . 2017, 29.
6.24	?s3? ḥm-nṯr	Nfr-ms	Door jamb	unprovenanced	Ramesside	Spencer, P. 1997, pl. 164.
6.25	sh3.w-pr-ḥḏ	Nfr-ḥ3.t	Door jamb	unprovenanced	Ramesside	Spencer, P. 1997, pl. 165.
6.26	nb.t-pr	Jy <u>t</u> t	Door lintel F12412, Khartoum SNM 38131	D12.7, re-used for blocking a doorway	Ramesside	Spencer, N. <i>et al</i> . 2014, 42.

Table 6. continued.

in tab. 6, excluding all people attested in the temple domain. As one would expect, Paser from G320 (Docs. 6.13-20) and the first deputy of Kush residing in the newly founded town, Sebakhau (Docs. 6.1-2), are amongst the individuals. Their inscribed door jambs and lintels derive from the governor's palace in the southern city centre (Spencer, P. 1997, 220; Spencer, N. 2017, 329-334). In addition, the king's son of Kush Heganakht, who flourished in the earlier decades of Ramesses II, i.e. the phase of urban redevelopment of Amara West, is strongly evidenced with architectural elements that come either from the town itself (Docs. 6.3-4; 6.6; 6.9-10) or from secondary contexts in the Amara East-Abri area (Docs. 6.5, 6.7) and Cemetery D (Doc. 6.8). Viceroy Hori II, active under Ramesses III, is present on a stela fragment (Doc. 6.20), that may originally have been installed in the temple. All other male functionaries in this list belong to the local priestly (Docs. 6.22: an overseer of the priests [of all gods?] of Nubia) and/or administrative milieus (Docs. 6.11, 6.21, 6.23, 6.25: three scribes, an overseer of the granary and a scribe of the treasury). And with lintel Doc. 6.21, a nuclear family of a certain overseer together with his wife and their two sons enters the social stage. They should have lived in a house somewhere in the neighbourhood (on the urban layout cf. Spencer, N. 2014; 2015; 2017). With these few individuals, we can at least identify a small share of the inhabitants of the town during the Ramesside period.

Taking the main temple at Amara West (cf. Spencer, P. 2016, esp. 35-38) as space for elite presence and display into consideration, we can add a large number of viceroys

to the list of officials that were once active here and came to visit the temple and thus also the town (tab. 7). Usersatet's temple stela (Doc. 7.6), however, was originally set up some place else. Sai is the most probable candidate. The stela would, therefore, have to be added to his multifarious evidence from there. While the 19th Dynasty successors of Heqanakht, viceroys Paser, Huy and Setau do interestingly not appear at Amara West,⁵ it is their 20th Dynasty successors in office who represented themselves in the temple with many ex-voto tableaus along its central axis and some stelae. Hori I (Docs. 7.8, 7.11, 7.5?), his son Hori II (Docs. 7.10, 7.12, 7.19, 7.5?), Siese (Doc. 7.15) and Wentawat (Docs. 7.3-4) together with his father and predecessor Naherhu (Docs. 7.14, 7.16) as well as Ramessesnakht (Docs. 7.1-2, 7.9) left short texts and images of themselves. The successive presence of all these king's sons of Kush attests to the continuing importance of Amara West and especially its temple for those high elite officials during the 20th Dynasty from Ramesses III to IX.

While the temple walls were primarily reserved for high elite functionaries, also a single temple statue and some votive stelae of people presumably living at Amara West itself were erected in its inner rooms:⁶ the statuary presence of the gold counting scribe Amenemhet (Doc. 7.7) may hint at the role of Amara West in the context of exploiting,

⁵ Interestingly, they are, however, at least named on the stela of Haremhab from Sai Island (S.103, Doc. 2.39).

⁶ See also the quite large number of stelae without (preserved) names and titles and thus not listed and discussed here, which further attest to the use of the temple as votive space for the local community: Spencer, P. 2016, pls. 200-206.

No	Title	Name	Attestation	Provenance	Date	Reference
7.1	s3-nsw-n-Kš jm.j-r'-nbw	R ^c -mss-nḫt	Ex-voto tableau on eastern outer door jamb	Main temple entrance	Ra. VI	Müller 2013, Beleg 43.16; Spencer, P. 2016, pl. 10.
7.2	jm.j-r'-mš ^c -n-nb-t3.wj	R ^{<} -mss-nḫt	Ex-voto tableau on western outer door jamb	Main temple entrance	Ra. VI	Müller 2013, Beleg 43.16; Spencer, P. 2016, pl. 11.
7.3	[jm.j-r'-ḥ3s.wt-nbw-n-Jmn-R ^c -nsw]- nṯr.w s3-nsw-n-Kš ḥm-nṯr-tp.j-n- Jmn jm.j-r'-pr	Wn-t3-w3.t	Ex-voto tableau on north end of interior east side	Main temple entrance	Ra. IX	Spencer, P. 2016, pl. 12a.
7.4	s3-nsw-n-Kš jm.j-r'-ḫ3s.wt-nbw-n- Jmn ṯ3.y-ḥw-ḥkȝ-ḥr-wnm.j-n-nsw sฏ3.w-nsw	Wn-t3-w3.t	Ex-voto tableau on north end of interior west side	Main temple entrance	Ra. IX	Spencer, P. 2016, pl. 14a.
7.5	wpw.tj-nsw-r-[ḥ3s.wt-nb.t] kṯn-[n- ḥm-f?] s3-nsw-n-Kš [jm.j-r'-ḫ3s. wt]-nbw-n-Jmn sṯh3.w-nsw	<u></u> Hrj I	Tableau south end of interior west side	Main temple entrance	Sethnakht - Ra. III	Müller 2013, Beleg 43.11; Spencer, P. 2016, pls. 15a-b.
7.6	jr.j-p ^c .t h3.tj- ^c htm.tj-bjt smr-w ^c .tj mh-jb-n-nsw-m-h3s.wt-rs.jt-m- smnh-mnw=f-r-nhh s3-nsw jm.j-r'- h3s.wt-rs.jt whm.w-nsw mrr-nb=f s3-nsw <u>h</u> rd-n-k3p	Wsr-s <u>t</u> j.t	Stela Louvre E.17341	Peristyle court; ExcNo. 100	A. II	Müller 2013, Beleg 43.1; Spencer, P. 2016, pl. 201b.
7.7	sh3.w sh3.w-hsb-nbw	Jmn-m-ḥ3.t	Block statue Brooklyn 39.426	Peristyle court; ExcNo. 69	19 th Dyn.	Müller 2013, Beleg 43.31; Spencer, P. 2016, pl. 201a.
7.8	[] wpw.tj-nsw-r-h3s.t-nb[.t] jm.j- r'-[h3s.wt-rs.jt] s3-nsw-n-Kš []	Hrj i sз Kзm ^c	Tableau on north wall, west side, on west jamb of gateway	Peristyle court	Sethnakht - Ra. III	Spencer, P. 2016, pls. 21a-c.
7.9	s3-nsw-n-Kš jm.j-r'-ḫ3s.wt ṯ3.y-ḫw- ḥr-wnm.j-n-nsw []	R ^c -mss-nḫt	Tableau on south wall, west side, on west jamb	Peristyle court	Ra. IX / XI	Müller 2013, Beleg 43.17; Spencer, P. 2016, pls. 24c, 25d, 31a.
7.10	s3-nsw-n-Kš PN n-B3s.t	<i>Ḥrj</i> ∥	Stela SNM Khartoum 3061	Hypostyle hall; ExcNo. 98	Ra. III, year 5	Müller 2013, Beleg 43.9; Spencer, P. 2016, pls. 202a-b.
7.11	s3-nsw-n-Kš jm.j-r'-ḫ3s.wt-rs.jt	Hrj 1 s3 s3b K3[m [€]]	Stela Stockholm E.1393	Hypostyle hall; ExcNo. 99	Sethnakht	Müller 2013, Beleg 43.8; Spencer, P. 2016, pls. 202c-d.
7.12	s3-nsw-n-Kš jm.j-r'-ḥ3s.wt-nbw- n-Jmn-nsw-nṯr.w sḥ3.w-nsw PN <n>-B3s.t</n>	<u></u> . Нrj ш	Stela British Museum EA1784	Hypostyle hall; ExcNo. 103	Ra. III, year 11	Müller 2013, Beleg 43.10; Spencer, P. 2016, pls. 203a-b.
	jdn.w	P3-sr s3 P3-n-n'.t				
7.13	[]-n- <u>h</u> n.w-n-nb-t3.wj [] ??	[Wn-t3- w3.t?]	Ex-voto tableau on north wall, west jamb	Hypostyle hall	Ra. IX (?)	Spencer, P. 2016, pls. 40c, 41c, 44-45.
7.14	[jr.j-p]{[.t] h3.tj-c s3-nsw-[n-Kš] jm.j-r'-h3s.wt-[rs.jt] [t3.y-hw]-hr- wnm.j-n-nsw jm.j-r'-h3sw.t-n-nbw- n-Jmn-R ^c -nsw-nIr.w jm.j-r'-jh.w-wr jm.j-r'-šnw.tj w3h-htp.w-n-nIr.w- nb.w-T3-stj [hm-nIr-tp.j]-n-Jmn- R ^c -nb-Hnm.t-W3s.t PN [] s3 n s3-nsw-n-Kš N3-hr-hw	Wn-t3-w3.t	Antithetic ex-voto tableau on north wall, east jamb	Hypostyle hall	Ra. IX	Müller 2013, Beleg 43.15; Spencer, P. 2016, pls. 40d, 41d, 46a-b, 47a-b.

Table 7. Amara West: Individuals known from the temple (continued on opposite page).

No	Title	Name	Attestation	Provenance	Date	Reference
	<u>t</u> 3.y-ḥw-ḥk3-[ḥr]-wnm.j-nsw [wpw. tj-nsw?]-r-ḥ3s.wt-nb(.t) sgrḥ-ḥn.w- n-nb=[f] [nb?]-nm.tt-r-ḥ []	[]				
7.15	s3-nsw-n-Kš jm.j-r'-ḥ3s.wt-rs.jt ṯ3.y-ḥw-ḥr-wnm.j-n-nsw sṯ3.w-nsw []-wr-n-ḥm=f	S3-3S.t	Ex-voto tableau on shrine of Amenmesse	Hypostyle hall	Ra. VI	Müller 2013, Beleg 43.13; Spencer, P. 2016, pls. 58f, 59f, 62-63.
7.16	s3-nsw-n-Kš jm.j-r'-h3s.wt-rs.jt t3.y-hw-hk3-hr-wnm.j-n-nsw jm.j-r'- h3s.wt-nbw-n-Jmn jm.j-r'-ssm.t-wr jm.j-r'-šnw.tj w3h-htp.w-n-ntr.w- nb.w-T3-stj hm-ntr-tp.j-n-Jmn-R ^c - nb-Hnm.t-W3s.t PN s3 s3-nsw-n-Kš N3-hr-[hw]	Wn-t3-w3.t	Ex-voto tableau on shrine of Amenmesse	Hypostyle hall	Ra. IX	Müller 2013, Beleg 43.14; Spencer, P. 2016, pls. 58f, 59f, 64-65.
7.17	jdn.w-n-Kš jm.j-r'-ḥm-nṯr-n-nṯr.w-nb.w	Wsr-M3 ^c .t- R ^c -nḥt	Ex-voto tableau on shrine of Amenmesse	Hypostyle hall	Ra. IX	Spencer, P. 2016, pls. 59f, 64-65.
7.18	$jr.j-p^{\epsilon}.t$ $h_{3}.tj-\epsilon$ $s_{3}-nsw-n-K\delta$ $jm.j-r'-h_{3}s.wt-[]$ $[jm.j-r'-ssm.t]-wr$ $jm.j-r'-snw.tj$ $w_{3}h-h_{1}tp.w-n-ntr.w-$ $nb.w-n-T_{3}-stj$ $hm-ntr-tp.j-n-Jmn-R^{\epsilon}-$ $nb-H_{nm.t}-W_{3}s.t$ PN $s_{3}s_{3}-nsw-n-K\delta$ $[N_{3}-h_{7}r-h_{W}]$	Wn-t3-w3.t	Ex-voto tableau on north face of jamb of gate into vestibule	Hypostyle Hall	Ra. IX	Spencer, P. 2016, pls. 58e, 59e, 66.
7.19	[] hm-ntr-tp.j-[] ??	??	Ex-voto tableau on buttress, east side	Hypostyle hall	Ra. VII	Spencer, P. 2016, pls. 94b, 95b.
7.20	s3-nsw-n-Kš jm.j-r'-ḥ3s.wt-rs.jt ṯ3.y-ḥw-ḥr-wnm.j-n-nsw jm.j-r'-ḥ3s. wt-nbw-n-Jmn sḥ3.w-nsw	<u></u> . Н <i>rj</i> ॥	Ex-voto tableau on east side stone pillar	Hypostyle hall	Ra. III.	Spencer, P. 2016, pls. 104a-c.
7.21	ḥm-nṯr-sn.nw	<u></u> Hrj	Stela Brooklyn 38.544	Sand fill over sanctuary area; ExcNo. 10	Ramesside	Müller 2013, Beleg 43.29; Spencer, P. 2016, pl. 205d.
	jm.j-r'-jḥ.w	P3-sr				
	šm ^c .yt-n- <u>H</u> nm.w	Jrj-th				
	šm ^c .yt-n-Hr-nb-Mj ^c m	T3-mḥy.t				
7.22	<i>jr.j-^c3.t-n-Jmn / ḥr.j-šn^c-n-Jmn</i> (after Polz)	Nb- <u>d</u> f3.w	Stela Louvre E.15659	Niche in exterior wall; ExcNo. 13	Ramesside	Müller 2013, Beleg 34.25; Polz 1990, 58-59, B27 & D2; Spencer, P. 2016, pls. 159b, 203b.
	$b_{3k} < n > - \check{s}n^{c} - n - Jmn$ (after Polz)	Nfr-??				
7.23	s3-nsw-n-Kš jm.j-r'-h3s.wt-rs.jt t3.y-hw-hr-wnm.j-n-nsw	[<u>Ḥ</u> kȝ-nḫt]	Lintel Khartoum SNM 3062	Temple magazines	Ra. II	Kitchen 1980, 72.15-73.5; Budka 2001, Kat. 182; Spencer, P. 2016, pl. 179c.
7.24	ḥm-ntr-sn.nw-n-Mn-ḥpr-R ^c w ^c b-n-Jmn	<u>H</u> wy	Stela Denver Museum	Temple magazine E14.14, Exc No. 208/265	19 th Dyn.	Müller 2013, Beleg 43.26; Spencer, P. 2016, pl. 206c.
7.25	-	Dhw.tj-nfr	Stela SNM Khartoum 3067	Temple mag- azine E14.14, ExcNo. 212	19 th - 20 th Dyn.	Hinkel/Ali Mohammed 2002, 188; Spencer, P. 2016, pl. 206e.
7.26	-	Jmn-nħt	Stela SNM Khartoum 3069	Temple mag- azine E14.14, ExcNo. 211	19 th - 20 th Dyn.	Hinkel/Ali Mohammed 2002, 188; Spencer, P. 2016, pl. 206d.

Table 7. continued.

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processing and administrating Nubian gold (cf. Spencer, N. *et al.* 2014, 56; Spencer, N. 2015, 202, with fn. 34). On the stela Doc. 7.20, a legal property matter concerning four members of a possibly local family is officially published in the space of the temple. A minor official of the temple also donated a stela (Docs. 7.21). Finally, the temple magazines themselves (cf. Spencer, N. 2017, 334-339) are the find spot of several stelae, *e.g.* of Huy, a local priest of Amun and the deified Thutmose III (Doc. 7.23), and of two untitled male visitors to the temple precinct, Djehutinefer and Amennakht (Docs. 7.24-25).

The only individual that prosopographically links all three Amara West contexts, cemetery, temple and settlement, is deputy Paser, who we already have encountered in tomb G320 and the governor's residence. He appears, further identified as son of a certain Pennut, behind the viceroy Hori II on his stela dating to year 11 of Ramesses III (Doc. 7.12) in the temple. The vicerov Heganakht can in a way be connected with the temple as well, since the door lintel Doc. 7.22 attributed to him was found in the area of the temple magazines. While Paser is a local of Amara West, Heganakht is also present due to his involvement in the urban re-development of Amara West in the early years of Ramesses II (Müller 2013, 125-126). The adornment of the temple magazines with inscribed door lintels - also Heqanakht's Doc. 6.6 may originally come from one of these installations - compares quite well to what is documented for Nehy at Sai and Aniba (cf. Thill 2016).

Concluding remarks

After the site-specific discussions, it is now time to conclude. Based on certain limitations in the data sets, the initial ambitious aim of a prosopography-based "sociography" can only partially be realised. It has, however, to be emphasised that Sai, Soleb and Amara West provide a substantial amount of prosopographical data as basis not only for this paper, but also for future studies. The prosopographical discussion oriented itself towards larger contexts. One body of data derived from the cemeteries at Sai, Soleb and Amara West. All the individuals that we encountered there with their burials can be considered permanent residents of the respective towns. They were firmly integrated into the social fabric of the settlements and were attached to them functionally, socially or individually. They thus chose to be buried in the necropolis of their place of office and hometown (cf. Auenmüller 2014).7 Statistically, most of the individuals we encountered in the cemeteries are evidenced only through single pieces of epigraphical material.

To differentiate the social fabric of the towns in more detail, the chronology of the attested individuals must be considered as well. This allows to draw conclusions not only about the floruit of the people, but also of the settlements themselves (cf. e.g. Budka 2017c, 442-443). Cemetery SAC5 was not in use as elite necropolis prior to Thutmose III (Budka 2014a,7) and flourished well into Ramesside times. The prosopographically attested use of the Soleb and Amara West elite necropoleis is, on the other hand, chronologically rather restricted: to the time of Amenhotep III to Tutankhamun and the (later) Ramesside period respectively, partly mirroring the heydays of these two sites. When we consider the people buried at the Sai and Soleb cemeteries as representatives of the body of Pharaonic functionaries active at these places, a close prosopographical similarity can be observed which substantiates their typical nature: both Sai and Soleb display a common set of New Kingdom religious and administrative personnel characteristic for temple towns in Nubia during their floruit. Both prosopography and chronology also confirm the impression that Soleb at a given point replaced Sai as administrative centre of Upper Nubia (cf. Budka 2014a; 2015c, 74-81). In terms of chronology and use, however, a certain contemporaneousness of the Sai and Soleb cemeteries can be observed (Budka 2017d, 78). Later, obviously, Amara West took over the position of administrative hub (cf. Spencer, N. 2017), while Sai still retained its local and regional importance.

At Sai and Amara West, we can identify several people from the settlement context. Here, however, the distinction must be made between inhabitants and town officials and frequent visitors, of which the viceroys of Nubia are the most pertinent example. In certain cases, the epigraphic material was found in secondary use in the settlements, so its original position must be reconstructed. As has already been seen, especially the magazines SAF5 at Sai and the governor's palace E13.2 at Amara West are the main spots for inscribed material with titles and names of elite officials and sometimes their family members. At Sai, viceroy Nehy under Thutmose III and the deputy of Kush Hornakht under Ramesses II left the most impressive traces of their presence and residence. The deputy Usermaatranakht later re-appropriated architectural elements in the town for his presumed domicile. At Amara West, a king's son of Kush, Heqanakht under Ramesses II, and two deputies, Sebakhau and Paser dating to Sethi I and Ramesses III respectively, occur as well in the town. While both deputies are partially attested in situ in the administrative residence, the epigraphical materials of Heganakht are more difficult to locate. In comparison with Sai and Nehy's monuments there, they might also come from magazine facilities that were elabo-

⁷ As for Sai, Soleb and Amara West, it is quite likely that the generations of residents following the initial builders and administrators decided – or were made or were allowed? – to stay here and therefore inaugurated appropriate elite cemeteries in the vicinity of their towns.

rately equipped with inscribed door jambs and lintels (cf. Spencer, P. 2016, 30-31). The other architectural elements identifying their owners enlarge the number of inhabitants of Amara West – once again priestly and administrative personnel – that we can at least call by their names.

The temples are the third important context for elite display and thus prosopographical data. As for Sai, several inscribed architectural elements from the temple were discovered in the town in secondary position (e.g. Doc. 2), so some of the pieces listed in tab. 2 can also be considered as belonging to the space of the temple. As for Temple A at Sai, it is, next to [Inebny/Amenemnekhu]'s stela (Doc. 2.1), Nehy's block statue (Doc. 2.3) and presumably also Haremhab's biographical text (Doc. 2.39), above all the viceroy Usersatet who used the temple space to represent himself in the form of magnificent statues. While the viceroys were temporary residents, Haremhab could be considered a Ramesside official living at Sai. At Soleb, temporary high elite visitors dating to Amenhotep III and Ramesside times, including viceroys Merymose and Hori II, who is also present at Amara West, dominate amongst those who left ex-voto-tableaus or stelae. Finally, at Amara West we find a congruent set of highest elite functionaries, especially 20th Dynasty viceroys, representing themselves in the temple. Besides them, the temple also hosted votive stelae or statues of members of the local community. The different media of self-presentation show a sociologically important scaling between the viceroys on the one and the local people on the other hand, underlining the Pharaonic decorum of medialising presence and attachment.

Whenever the viceroys stopped off at Sai ([Inebny/Amenemnekhu], Nehy and Usersatet, maybe also Ramessesnakkht), Soleb (Merymose, Heqanakht and Hori II) or Amara West (Heqanakht, Hori I and II, Siese, Wentawat and Ramessesnakht) for a shorter or longer official or private visit, they spearheaded the local social fabric temporarily. Their presence highlights not only the political, administrative and economic importance of all three temple towns, but also underlines their professional and/or individual attachments to them. The main contexts and general media of their epigraphic presence, however, differ: magazine doorways, temple statues and *ex-voto*-tableaus.

Socially and functionally next in line were the deputies of Kush (cf. Müller 2013, 44-46). The earliest within the dataset is Amenemope (Soleb, Tomb T 21; Tut.), followed by Sebakhau at Amara West (Docs. 6.1-2; S. I-Ra. II) and maybe Hatiay (Docs. 2.31, 6.4; Ra. II), father and predecessor of Hornakht, who we came across at Sai in both town and cemetery (SAC5, Tomb 26; Docs. 2.30-35; Ra. II). Under Ramesses III, the deputy Paser is attested at Amara West with a tomb, within the governor's residence and in the temple (Amara West, G320; Docs. 6.12-19; Doc. 7.12). Hornakht and Paser thus resemble each other quite well in the nature of their evidence, despite chronological differences. Both were members of the local society and obviously considered Sai and Amara West respectively as their home, so they chose to be buried in the elite necropoleis of their place of office and maybe origin as well. As for the late Ramesside deputy Usermaatranakht, known from both Sai and Amara West (Doc. 2.36-37(?); Doc. 7.17), prosopographical and archaeological data is lacking to give more particulars about him beyond these two places, especially with regard to his burial.

The mayors are, next to the not attested high priests of the city's temples (but see possibly Docs. 2.36-37, 6.22), the highest local functionaries within the administration of the towns (cf. Müller 2013, 46-49; Auenmüller 2013, 652-775). They are known from Sai (Tomb 5) and Soleb (Tombs 11, 15) for the heydays of both settlements. For Amara West, no such official has yet been identified. Nevertheless, a mayor for Amara West should have existed. As for Sai and Soleb, their presence allows to further pinpoint the status of the towns as Egyptian urban centres in Upper Nubia (cf. Müller-Wollermann 1991; Morris 2005, esp. 809-814; Auenmüller 2013, 681-699; Budka 2015c, 75-76; 2017c, 443). The choice of the mayors to be laid to rest at Sai and Soleb respectively is also an important and very typical indicator that they considered this place their life's centre and hometown (cf. Auenmüller 2013, 742-750).

More prosopographical details and backgrounds could be discussed regarding the lower social echelons of scribes, priests, granary overseers, magazine supervisors, master of servants, gold workers and stonemasons. They are individually known to us, lived in these towns and certainly formed a demographically significant part of their populations next to the even larger group of people that escaped our study since no epigraphical data is extant or was ever commissioned.

Some final comments shall finally be devoted to a short characterisation of the female presence. All seven prosopographical tables are quite gender biased in favour of the male functionaries of the (local) societies, a typical phenomenon for Pharaonic Egypt and Nubia in general. All in all, only nine women are attested. In fact, their evidence derives from the cemeteries and towns only and is in most cases related to the mentioning of a male person of reference. In general, they share two common titles that are most popular for elite women in the New Kingdom. Henut-aat (Sai, Tomb 5), Paser's wife Tyia/Ta-aat⁸ (Amara West, G321; Doc. 6.19) and Anuket (Doc. 6.21) are

⁸ If not two separate wives are meant. The problem of identifying their names unequivocally is hampered by the fact that the name on the shabti is difficult to read, while there are no epigraphical copies of both lintels Doc. 13 and 20. Spencer, P. 1997, 168, gives her name on Doc. 13 as 'Tiye', the photograph of Doc. 20 allows to read her name as T3-c3.t.

entitled as female temple singers (cf. Onstine 2005). Isis (Sai, Tomb 16), Khnummose's wife Henen?...? (Sai, Tomb 26), Hornakht's wife ?Ta-...? (Doc. 2.33), Meritsherit (Soleb, Tomb 15), Jytjet (Doc. 6.27) and again Tyia/Ta-aat (Doc. 6.12) are designated as mistresses of the house. With these individuals, we encounter some women that played very important roles in their families and communities not only as wives, mothers (cf. Nenna, Sai, Tomb 8, no title) and household managers in a rather high social stratum, but also as ritual temple singers at the local cult places (cf. Budka 2001, 74-76). They must be considered an integral part of the prosopographically male dominated social fabrics of Sai, Soleb and Amara West. In addition, they represent only a very small share of the certainly way larger number of women living in these towns.

To sum up, despite chronological differences, a characteristic set of local elite people emerges for all three New Kingdom Pharaonic foundations: on the one hand, we see male functionaries (scribes, priests, mayors, deputies) who represent the typical local or regional administrative domains. However, no mayor is attested for Amara West. On the other hand, we have the viceroys, members of the peripatetic elite, who are supra-regionally active and therefore not only present at Sai or Amara West, but also at other places of their administrative domain. In addition, also a few women allow for characterising the social composition further. In comparing these three prosopographical data sets, several similarities appear. They are not accidental, but can be explained by the typical social and functional composition of all three sites that is particularly based on the role of Sai, Soleb and Amara West as urban sites embodying Pharaonic state agency and power in Upper Nubia.

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References

- Adenstedt, I. 2016. Reconstructing Pharaonic Architecture in Nubia. The Case Study of SAV1, Sai Island. Contributions to the Archaeology of Egypt, Nubia and the Levant 3. Vienna: Austrian Academy of Science Press.
- Auenmüller, J. 2011. Individuum Gruppe Gesellschaft Raum: Raumsoziologische Perspektivierungen einiger (provinzieller) <u>h3.tj-c-Bürgermeister</u> des Neuen Reiches, in: Neunert, G., Gabler, K. and Verbovsek, A. (eds.), Sozialisationen: Individuum Gruppe Gesellschaft. Beiträge des ersten Münchner Arbeitskreises Junge Ägyptologie (MAJA 1). Göttinger Orientforschungen IV.51. Wiesbaden: Harrassowitz, 17-32.
- Auenmüller, J. 2013. Die Territorialität der ägyptischen Elite(n) des Neuen Reiches. Eine Studie zu Raum und räumlichen Relationen im textlichen Diskurs, anhand prosopografischer Daten und im archäologischen Record. Berlin: Freie Universität Berlin [stable URL: http://www.diss.fu-berlin.de/diss/receive/ FUDISS_thesis_000000099252].
- Auenmüller, J. 2014. Provincial New Kingdom Elite Tombs – Space, Place, and Significance. *Studies in Ancient Art and Civilization* 18, 171-193.
- Auenmüller, J. in press. Ein Beitrag zur regionalen Prosopografie des Neuen Reiches (I): Die provinzielle Elite von Tuna el-Gebel und Hermopolis, in: Flossmann, M., Hoffmann, F. and Schütze, A. (eds.), Tuna el Gebel – Eine ferne Welt. Akten der Konferenz der Graduate School Distant Worlds vom 16.01.2014 – 19.01.2014 am Institut für Ägyptologie der LMU München. Tuna el-Gebel. Vaterstetten: Brose.
- Azim, M. 1975. Quatre campagnes de fouilles sur la Forteresse des Saï, 1970-1973. 1^{ère} partie: l'installation pharaonique. *Cahiers de Recherches de l'Institut de Papyrologie et d'Egyptologie de Lille* 3, 91-125.
- Azim, M. and Carlotti, J.-Fr. 2012. Le temple A de l'île de Saï et ses abords. *Cahiers de Recherches de l'Institut de Pa*pyrologie et d'Egyptologie de Lille 29, 2011-2012, 11-65.
- Binder, M. 2017. The New Kingdom tombs at Amara West: Funerary perspectives in Nubian-Egyptian interactions, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 591-613.
- Binder, M., Spencer, N. and Millet, M. 2011. Cemetery D at Amara West: The Ramesside Period and its aftermath. *British Museum Studies on Ancient Egypt and Sudan* 16, 47-99.
- Budka, J. 2001. Der König an der Haustür. Die Rolle des ägyptischen Herrschers an dekorierten Türgewänden von Beamten im Neuen Reich. Veröffentlichungen der Institute für Afrikanistik und Ägyptologie der Uni-

versität Wien. Beiträge zur Ägyptologie 19. Vienna: Afro-Pub.

- Budka, J. 2014a. Review of Anne Minault-Gout and Florence Thill, Saï II. Le cimetière des tombes hypogées du Nouvel Empire (SAC5), Fouilles de l'Institut français d'archéologie orientale du Cairo 69, Cairo 2012. *Methodos* 14 [online: http://methodos. revues.org/3760].
- Budka, J. 2014b. The New Kingdom in Nubia: New results from current excavations on Sai Island. *Egitto e Vicino Oriente* 37, 55-87.
- Budka, J. 2015a. Ein Pyramidenfriedhof auf der Insel Sai. *Sokar* 31, 54-65.
- Budka, J. 2015b. The Pharaonic town on Sai Island and its role in the urban landscape of New Kingdom Kush. *Sudan & Nubia* 19, 40-53.
- Budka, J. 2015c. The Egyptian "Re-conquest of Nubia" in the New Kingdom – Some Thoughts on the Legitimization of Pharaonic Power in the South, in: Coppens, F., Janák, J. and Vymazalová, H. (eds.), Royal versus Divine Authority. Acquisition, Legitimization and Renewal of Power. 7th Symposium on Egyptian Royal Ideology, Prague, June 26-28, 2013. Königtum, Staat und Gesellschaft früher Hochkulturen 4.4. Wiesbaden: Harrassowitz, 63-82.
- Budka, J. 2016. The New Kingdom town on Sai Island establishing the date of its foundations: potential and limits of ceramic studies. *Cahiers de Recherches de l'Institut de Papyrologie et d'Egyptologie de Lille* 30, 2013-2015, 45-63.
- Budka, J. 2017a. Constructing Royal Authority in New Kingdom Towns in Nubia: Some Thoughts Based on Inscribed Monuments from Private Residences, in: Bács, T. and Beinlich, H. (eds.), Constructing Authority. Prestige, Reputation and the Perception of Power in Egyptian Kingship. 8th Symposium on Egyptian Royal Ideology. Budapest, May 12-14, 2016. Königtum, Staat und Gesellschaft früher Hochkulturen 4.5. Wiesbaden: Harrassowitz, 29-45.
- Budka, J. 2017b. Crossing Borders. Settlement Archaeology in Egypt and Sudan. *Near Eastern Archaeology* 80.1, 14-21.
- Budka, J. 2017c. Life in the New Kingdom town of Sai Island: Some new perspectives, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 429-447.
- Budka, J. 2017d. The 18th Dynasty on Sai Island new data from excavations in the town area and cemetery SAC5. *Sudan & Nubia* 21, 71-81.
- Budka, J. 2017e. Pyramid Cemetery SAC5, Sai Island, Northern Sudan. An Update Based on Fieldwork from 2015-2017. *Egypt and the Levant* 27, 107-130.

- Budka, J. and Doyen, F. 2013. Life in New Kingdom towns in Upper Nubia – New evidence from recent excavations on Sai Island. *Egypt and the Levant* 22/23, 2012/2013, 167-208.
- Bulst, N. 1986. Zum Gegenstand und zur Methode von Prosopographie, in: Bulst, N. and Genet, J.-P. (eds.), Medieval Lives and the Historian: Studies in Medieval Prosopography. Proceedings of the First International Interdisciplinary Conference on Medieval Prosopography. Medieval Institute Publications. Kalamazoo, Mich.: Western Michigan University, 1-16.
- Carney, T.F. 1973. Prosopography: Payoffs and Pitfalls. *Phoenix* 27.2, 156-179.
- Cavillier, G. 2014. Soleb 2010: Amenhotep III's Fortified Complex Research, in: Anderson, J.R. and Welsby, D.A. (eds.), *The Fourth Cataract and Beyond: Proceedings of the 12th International Conference for Nubian Studies.* British Museum Publications on Egypt and Sudan 1. Leuven: Peeters, 393-398.
- Cressent, M. and Raimon, A. 2016. Inscriptions in the name of governor Neby revealed by the restoration of miniature metal vessels. *Sudan & Nubia* 20, 28-34.
- Davies, W.V. 2008. Tombos and the Viceroy Inebny/ Amenemnekhu. British Museum Studies in Ancient Egypt and Sudan 10, 39-63.
- Davies, W.V. 2009. The British Museum epigraphic survey at Tombos: The stela of Usersatet and Hekaemsasen. *Sudan & Nubia* 13, 21-29.
- Davies, W.V. 2014. From Halfa to Kareima: F.W. Green in Sudan. *Sudan & Nubia* 18, 2-19.
- Davies, W.V. 2017a. Nubia in the New Kingdom: The Egyptians at Kurgus, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 65-105.
- Davies, W.V. 2017b. A statue-cache from Sai: Putting the pieces together, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 133-148.
- Fouquet, A. 1975. Deux Hauts-Fonctionnaires du Nouvel Empire en Haute-Nubie. *Cahiers de Recherches de l'Institut de Papyrologie et d'Egyptologie de Lille* 3, 127-140.
- Gabolde, L. 2012. Réexamen des jalons de la présence de la XVIII^e dynastie naissante à Saï. *Cahiers de Recherches de l'Institut de Papyrologie et d'Egyptologie de Lille* 29, 2011-2012, 115-137.
- Gardiner, A.H. 1947. *Ancient Egyptian Onomastica* I. Oxford: Oxford University Press.
- Geus, F. 2012. Saï 2003-2004. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 29, 2011-2012, 151-171.

- Hartwig, M. 2010. The Tomb of a h3.tj-^c, Theban Tomb 116, in: D'Auria, S. (ed.), Offerings to the Discerning Eye. An Egyptological Medley in Honor of Jack A. Josephson. Culture and History of the Ancient Near East 38. Leiden: Brill, 159-167.
- Hinkel, F.W. and Ali Mohammed, A. 2002. Catalogue of Objects in the Sudan National Museum, I Accession Nos.: 00001-04000. The Archaeological Map of the Sudan Supplement III. Centennial Edition. Berlin: Monumenta Sudanica.
- Hintze, F. and Reineke, W.F. 1989. Felsinschriften aus dem sudanesischen Nubien. Publikation der Nubien-Expedition 1961-1963. Berlin: Akademie Verlag.
- Keats-Rohan, K.S.B. 2007. Biography, Identity and Names: Understanding the Pursuit of the Individual in Prosopography, in: Keats-Rohan, K.S.B. (ed.), *Prosopography Approaches and Applications: A Handbook*. Prosopographica and Genealogica 19. University of Oxford: Unit for Prosopographical Research, Linacre College, 139-181.
- Kitchen, K.A. 1980. *Ramesside Inscriptions III. Historical and Biographical*. Oxford: Blackwell.
- Leblanc, C. 2009. Nehy, prince et premier rapporteur du roi. Deux nouveaux documents relatifs au vice-roi de Nubie, sous le régne de Thoutmosis III. *Memnonia* 19, 102-112.
- Masquelier-Loorius, J. 2017. Huisseries d'Égypte et de Nubie. Enquêtes sur les fragments aux noms de Qénia, de Hornakht et de Nebrê, in: Favry, N., Ragazzoli, C., Somaglino, Cl. and Tallet, P. (eds.), Du Sinaï au Soudan. Itinéraire d'une égyptologue (Mélanges offerts à Dominique Valbelle). Orient et Méditerranée 23. Paris: Boccard, 149-157.
- Minault-Gout, A. 2007. Les installations du début du Nouvel Empire à Saï: un état de la question. Mélanges offerts à Francis Geus. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 26, 2006-2007, 275-293.
- Minault-Gout, A. 2012. La figurine funéraire Saï inv. S. 964 (SNM 23424) et un groupe de quatre chaouabtis de la XVIII^e dynastie de même type. *Cahiers de Recherches de l'Institut de Papyrologie et d'Égyptologie de Lille* 29, 2011-2012, 189-200.
- Minault-Gout, A. and Thill, F. 2012. Saï II. Le cimetière des tombes hypogées du Nouvel Empire (SAC5). Fouilles de l'Institut français d'archéologie orientale du Caire 69. Cairo: Institut français d'archéologie orientale du Caire.
- Morkot, R. 1995. The Economy of New Kingdom Nubia. Actes de la VIII^e conférence internationale des études nubiennes. Lille 11-17 Septembre 1994, Vol. I – Communications principales. Cahiers de Recherches de l'Institut de Papyrologie et d'Egyptologie de Lille 17.1, 175-188.
- Morris, E.F. 2005. The Architecture of Imperialism. Military Bases and the Evolution of Foreign Policy in Egypt's New Kingdom. Probleme der Ägyptologie 22. Leiden: Brill.

- Müller, I. 2013. *Die Verwaltung Nubiens im Neuen Reich*. Meroitica – Schriften zur altsudanesischen Geschichte und Archäologie 18. Wiesbaden: Harrassowitz.
- Müller-Wollermann, R. 1991. Präliminierungen zur ägyptischen Stadt. Zeitschrift für Ägyptische Sprache und Altertumskunde 118, 48-54.
- Onstine, S.L. 2005. *The Role of the Chantress (šm'yt) in Ancient Egypt.* British Archaeological Reports, International Series 1401. Oxford: Hadrian.
- Peden, A. 1994. *The Reign of Ramesses IV*. Warminster: Aris and Phillips.
- Polz, D. 1990. Die šn^c-Vorsteher des Neuen Reiches. Zeitschrift für Ägyptische Sprache und Altertumskunde 117, 43-60.
- Raedler, Chr. 2006. Zur Struktur der Hofgesellschaft Ramses' II., in: Gundlach, R. and Klug, A. (eds.), Der ägyptische Hof des Neuen Reiches. Seine Gesellschaft und Kultur im Spannungsfeld zwischen Innen- und Außenpolitik. Akten des Internationalen Kolloquiums vom 27.-29. Mai 2002 an der Johannes-Gutenberg-Universität Mainz. Königtum, Staat und Gesellschaft früher Hochkulturen 2. Wiesbaden: Harrassowitz, 39-87.
- Raedler, Chr. 2008. Zur Prosopographie von altägyptischen Militärangehörigen, in: Gundlach, R. and Vogel, C. (eds.), Militärgeschichte des pharaonischen Ägypten: Altägypten und seine Nachbarkulturen im Spiegel der aktuellen Forschung. Paderborn: Schöningh, 309-343.
- Rondot, V. 2017, Le vice-roi de Kouch Imenemnekhou à Saï, in: Favry, N., Ragazzoli, C., Somaglino, Cl. and Tallet, P. (eds.), Du Sinaï au Soudan. Itinéraire d'une égyptologue (Mélanges offerts à Dominique Valbelle). Orient et Méditerranée 23. Paris: Boccard, 225-228.
- Schiff Giorgini, M. 1971. Soleb II. Les nécropoles. Mission Michela Schiff Giorgini. Florence: Sansoni.
- Schiff Giorgini, M. 1998. Soleb V. Le temple. Bas-reliefs et inscriptions. Mission Michela Schiff Giorgini. Cairo: Institut français d'archéologie orientale du Caire.
- Schiff Giorgini, M. 2002. *Soleb III. Le temple. Description.* Mission Michela Schiff Giorgini. Cairo: Institut français d'archéologie orientale du Caire.
- Schiff Giorgini, M. 2003. Soleb IV. Le temple. Plans et photographies. Mission Michela Schiff Giorgini. Cairo: Institut français d'archéologie orientale du Caire.
- Schneider, Th. 1992. Asiatische Personennamen in ägyptischen Quellen des Neuen Reiches. Orbis Biblicus et Orientalis 114. Freiburg (Schweiz): Universitätsverlag.
- Schneider, Th. 2006. Akkulturation Identität Elitekultur – Eine Positionsbestimmung zur Frage der Existenz und des Status von Ausländern in der Elite des Neuen Reiches, in: Gundlach, R. and Klug, A. (eds.), Der ägyptische Hof des Neuen Reiches. Seine Gesellschaft und Kultur im Spannungsfeld zwischen Innen- und Außenpolitik. Akten des Internationalen Kolloquiums vom 27.-29. Mai 2002 an der Johannes-Gutenberg-Univer-

sität Mainz. Königtum, Staat und Gesellschaft früher Hochkulturen 2. Wiesbaden: Harrassowitz, 201-216.

- Smythe, D. 2008. Prosopography, in: Cormack, R., Haldon, J.F. and Jeffreys, E. (eds.), *The Oxford Handbook of Byzantine Studies*. Oxford: Oxford University Press, 176-181.
- Spencer, N. 2014. Creating and Re-Shaping Egypt in Kush: Responses at Amara West. *Journal of Ancient Egyptian Interconnections* 6.1, 42-61.
- Spencer, N. 2015. Creating a Neighborhood within a Changing Town: Household and other Agencies at Amara West in Nubia, in: Müller, M. (ed.), Household Studies in Complex Societies: (Micro) Archaeological and Textual Approaches. Oriental Institute Seminars 10. Chicago: Oriental Institute, 169-210.
- Spencer, N. 2017. Building on new ground: The foundation of a colonial town at Amara West, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions.* British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 323-355.
- Spencer, N., Stevens, A. and Binder, M. 2014. Amara West. Living in Egyptian Nubia. London: Trustees of the British Museum.
- Spencer, N., Stevens, A. and Binder, M. 2017. Introduction: History and historiography of a colonial entanglement, and the shaping of new archaeologies for Nubia in the New Kingdom, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions*. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 1-64.
- Spencer, P. 1997. *Amara West I: The Architectural Report.* Egypt Exploration Society Excavation Memoir 63. London: Egypt Exploration Society.
- Spencer, P. 2016. Amara West III: The Scenes and Texts of the Ramesside Temple. Egypt Exploration Society Excavation Memoir 114. London: Egypt Exploration Society.
- Steindorff, G. 1937. Aniba. Zweiter Band. Service des Antiquités de l'Egypte. Mission archéologique de Nubie 1929-1934. Glückstadt: Augustin.
- Stone, L. 1971. Prosopography. Daedalus 100.1, 46-79.
- Thill, F. 2007. Les réoccupations « (pré)napatéennes » dans le cimetière égyptien 8B5/SAC5 de Sai. Mélanges offerts à Francis Geus. *Cahiers de Recherches de l'Institut de Papy*rologie et d'Egyptologie de Lille 26, 2006-2007, 353-369.
- Thill, F. 2012. Statuaire privée égyptienne de Sai. *Cahiers de Recherches de l'Institut de Papyrologie et d'Egyptologie de Lille* 29, 2011-2012, 127-140.
- Thill, F. 2016. Saï et Aniba: deux centres administratifs du vice-roi Nehy sous Thoutmosis III. *Cahiers de Recherches de l'Institut de Papyrologie et d'Egyptologie de Lille* 30, 2013-2015, 263-299.
- Thill, F. 2017. The 'Pyramid' of Sai: State of research, in: Spencer, N., Stevens, A. and Binder, M. (eds.), *Nubia in*

the New Kingdom. Lived Experience, Pharaonic Control and Indigenous Traditions. British Museum Publications on Egypt and Sudan 3. Leuven: Peeters, 193-211.

- Valloggia, M. 1976. *Recherche sur les 'messagers' (wpwtyw) dans les sources égyptiennes profanes*. Centre de Recherches d'Histoire et de Philologie de la IV^e Section de l'École pratique des Hautes Études II. Hautes Études Orientales 6. Geneva: Librairie Droz.
- Verboven, K., Carlier, M. and Dumolyn, J. 2007. A Short Manual to the Art of Prosopography, in: Keats-Rohan, K.S.B. (ed.), *Prosopography Approaches and Applications: A Handbook*. Prosopographica and Genealogica 19. University of Oxford: Unit for Prosopographical Research, Linacre College, 35-70.
- Vercoutter, J. 1956. New Egyptian texts from the Sudan. *Kush* 4, 66-82.
- Vila, A. 1977. La Prospection Archéologique de la Vallée du Nil, au Sud de la Cataracte de Dal (Nubie Soudanaise). Fasc. 7. Le district d'Amara Ouest. Paris: Centre National de la Recherche Scientifique.

Note on the contributor

Johannes Auenmüller studied Egyptology, Classical Archaeology and Prehistoric Archaeology at Free University Berlin and completed his doctoral studies funded by the Berlin Cluster of Excellence TOPOI with a dissertation about the territoriality and space-related identity of the Egyptian New Kingdom elite. He then conducted archaeological and archaeometric research on a unique ensemble of Late Period casting moulds for producing figurative bronzes at the Egyptian Museum of Bonn University. Since April 2015, he is Research Associate at the Institute of Egyptology and Coptology of Münster University. In the context of his employment within the ERC Starting Grant project AcrossBorders, he is working on the New Kingdom prosopography of Sai Island and environs. His current archaeological work focuses on metalworking at Amara West (Sudan) as member of the research project of the British Museum London.

FROM MICROCOSM TO MACROCOSM

This book illustrates the state-of-the-art in settlement archaeology in Northeast Africa.

As reflected in the title "From Microcosm to Macrocosm: Individual households and cities in Ancient Egypt and Nubia", both a microapproach introducing microhistories of individual sites according to recent archaeological fieldwork incorporating interdisciplinary methods as well as general patterns and regional developments in Northeast Africa are discussed.

This combination of research questions on the micro-level with the macro-level provides new information about cities and households in Ancient Egypt and Nubia and makes the book unique. Architectural studies as well as analyses of material culture and the new application of microarchaeology, here especially of micromorphology and archaeometric applications, are presented as case studies from sites primarily dating to the New Kingdom (Second Millennium BC). The rich potential of well-preserved but still not completely explored sites in modern Sudan, especially as direct comparison for already excavated sites located in Egypt, is in particular emphasised in the book.

Settlement archaeology in Egypt and Nubia has recently moved away from a strong textual approach and generalised studies to a more site-specific approach and household studies. This new bottom-up approach applied by current fieldwork projects is demonstrated in the book. The volume is intended for all specialists at settlements sites in Northeast Africa, for students of Egyptology and Nubian Studies, but it will be of interest to anyone working in the field of settlement archaeology. It is the result of a conference on the same subject held in 2017 as the closing event of the European Research Council funded project AcrossBorders at Munich.

