Old Kingdom Copper Tools and Model Tools

Martin Odler

with contributions by

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Archaeopress Egyptology 14

Archaeopress Publishing Ltd
Gordon House
276 Banbury Road
Oxford OX2 7ED

www.archaeopress.com

ISBN 978 1 78491 442 4
ISBN 978 1 78491 443 1 (e-Pdf)

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Cover: Abusir, Context A39, Tomb of Qar Jr., copper model tools (photo Kamil Voděra, © Faculty of Arts, Charles University, Czech Institute of Egyptology)

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Printed in England by Oxuniprint, Oxford
This book is available direct from Archaeopress or from our website www.archaeopress.com

To my parents
and grandparents

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Acknowledgements

The work has been funded in the greatest part by the Grant Agency of Charles University, Project No. 526 112: 'Ancient Egyptian copper artefacts down to the end of the Middle Kingdom' (2012–2014). The scope of the project was limited in time from the Predynastic period to the end of Middle Kingdom and was focused on the artefacts from documented archaeological contexts. The documentation included some of the largest collections of ancient Egyptian copper artefacts in Europe and the collection of the Museum of Fine Arts in Boston. Only copper alloy tools from the Old Kingdom were selected for the publication. This work is much extended and reworked version of a master's thesis, written in Slovak and defended at the Czech Institute of Egyptology in 2012.

Research in Egypt on the excavations at Abusir and some research visits were funded also within the Programme for the Development of Fields of Study at Charles University, No. P14 Archaeology of non-European regions, sub-programme Research of ancient Egyptian civilisation: Cultural and political adaptation of the North African civilisations in ancient history (5,000 BC –1,000 AD). Some of the reliefs in the Memphite area were collated by the author during the spring part of the mission at Abusir in 2016. The research visit of the Museum of Fine Arts in Boston was partially funded by the Mobility Fund of the Charles University. The archaeometallurgical research of the objects in the Ägyptisches Museum – Georg Steindorff – der Universität Leipzig, and the writing of other case studies in the appendix of this work by Jiří Kmošek and Martin Odler *et al.*, Martin Odler and Ján Dupej, Lucie Jirásková, and Katarína Arias Kytnarová was funded by the Grant Agency of Charles University, Project No. 38715 'Early copper metallurgy in ancient Egypt – a case study of the material from Ägyptisches Museum der Universität Leipzig'.

I wish to express my gratitude in the first place to Miroslav Bárta, at whose encouragement this research project started and who supervised its progress throughout. I would like to thank the following colleagues from the Czech Institute of Egyptology: Veronika Dulíková, Lucie Jirásková, Katarína Arias Kytnarová, Věra Nováková, Miroslav Verner, Ladislav Bareš, Jaromír Krejčí, Hana Vymazalová, Jana Mynářová, Mohamed Megahed, Jiří Janák, Hana Benešovská, Břetislav Vachala. Some specific problems have been discussed in the field with our colleagues and members of the Czech team in Abusir, Martin Dvořák, Jaromír Beneš and Václav Cílek. I would like to thank all persons involved in the work on the main grant funding, especially Markéta Kobierská, Dana Chmelíková and Valéria Uramová, Jiří Kmošek in the field of archaeometallurgy and Ján Dupej in the field of morphometry.

I would like to thank the following museums and their curators for the opportunity to work on the published and unpublished material, for the information about their collections and for the approval to use the documentation in this volume: Ägyptisches Museum – Georg Steindorff – der Universität Leipzig (D. Raue, K.-H. von Stülpnagel), the Kunsthistorisches Museum Wien (R. Hölzl), the Museum of Fine Arts in Boston (R. Freed), the Ashmolean Museum in Oxford (L. McNamara), the Petrie Museum, University College London (A. Stevenson, S. Quirke), the British Museum (N. Spencer), the Louvre (G. Pierrat-Bonnefois, N. Couton-Perche), the Roemer-Pelizaeus Museum in Hildesheim (R. Schulz, A. Spiekermann, D. Lindemann), the National Museum in Warsaw (M. Dolińska), Náprstek Museum of Asian, African and American Cultures in Prague (E. Dittertová, P. Onderka), Manchester Museum (C. Price). The most important *caveats* in this work are absence of the material deposited in the Neues Museum, Berlin and in the Egyptian Museum, Cairo. Due to the time and financial constraints, it was impossible to document collections in these museums.

The following institutions and colleagues approved the use of their published documentation and other images: Hartwig Altenmüller (University of Hamburg), Tine Bagh (Ny Carlsberg Glyptotek), Edward Brovarski, Naguib Kanawati (The Australian Centre for Egyptology, Macquarie University, Sydney), Stan Hendrickx, Dirk Huyge (Belgian mission at el-Kab), E. Christiana Köhler (Vienna University), Christine Lilyquist, Fabian Welc (Cardinal Stefan Wyszynski University in Warsaw, Institute of Archaeology), Bruce B. Williams (the Oriental Institute, University of Chicago).

I would like to thank the following publishers for allowing me to use pictures from their publications: Verlag Ferdinand Schöningh GmbH, L'Institut français d'archéologie orientale (Le Caire).

The following colleagues and institutions have kindly provided information and/or access to unpublished documentation of their finds: Michel Valloggia, Sylvie Marchand, Phillippe Collombert, Pierre Tallet (IFAO),

Donald B. Redford (Pennsylvania State University). I thank the following colleagues for providing me with literature not accessible in Prague: A. Wodzińska (Institute of Archaeology, University of Warsaw), M. Czarnowicz (Jagellonian University,Kraków), Nils Anfinset (University of Bergen), S. Doherty (the Ashmolean Museum, Oxford), V. G. Callender.

I would like to thank Ľubica Hudáková, Emily Cole, Christopher J. Davey, Leslie Warden Anderson, Geoffrey Killen, Diane Johnson, and Edward Brovarski for reading and commenting on parts of the manuscript. I would like to thank Milan Rydvan for meticulous editing and proofreading of the text. Any errors that remain are my sole responsibility.

List of Abbreviations

ACE – The Australian Centre for Egyptology, Macquarie University, Sydney

AERA – Ancient Egypt Research Associates

ÄMUL – Ägyptisches Museum – Georg Steindorff – der Universität Leipzig

BM – The British Museum, London

CIE – Czech Institute of Egyptology, Faculty of Arts, Charles University

DAIK – Deutsches Archäologisches Institut, Abteilung Kairo

EBA – Early Bronze Age

FA CU – Faculty of Arts, Charles University

GA CU – Grant Agency of the Charles University

IFAO - L'Institut Français d'Archéologie Orientale, Le Caire

KHM – Kunsthistorisches Museum, Wien

MBA – Middle Bronze Age

MFA – The Museum of Fine Arts, Boston

MSA – Ministry of Antiquties, Egypt

PCMA – Polish Centre for Mediterranean Archaeology, University of Warsaw

pers. comm. – personal communication

PM – Porter – Moss (1974), Porter – Moss (1981)

RPM – Roemer- und Pelizaeus Museum, Hildesheim

SCA – Supreme Council of Antiquities, Egypt

TLA – Thesaurus Linguae Aegyptiae

Introduction

It is generally accepted that the number of preserved ancient Egyptian full-size tools is too low to allow complex conclusions to be drawn.[1] Most ancient tools would have been recycled over time, losing their original shape as they were recast into other objects. There are some exceptions; Dynasty 1 has large numbers of tools that have been found in the secure archaeological contexts at Abydos and Saqqara, but regrettably, not many have been analysed. This lack of information about the finds from known contexts (their physical and chemical properties) limits the capacity to date unprovenanced full-size tools. Most full-size tools have been published merely because they were inscribed, and this caught the attention of scholars. Full-size tools are not the only evidence, however. Significant collections of model tools have been found from Dynasty 2 at Helwan and Abydos. They disappeared on a massive scale from the burial assemblages at the end of the Middle Kingdom, but from Dynasty 11, they were used in the foundation deposits, a practice that continued until after the end of the New Kingdom.[2] This custom even reached the Napatan sites in Nubia. This work will show that the number of at least partially preserved Old Kingdom tools with metal blades greatly exceeds not only the textual sources but also the evidence of the iconographic sources. This material culture should not be ignored in the reconstruction of the past of ancient Egypt and this monograph is an attempt to fill this gap.

In his monograph on the theory of archaeology, the Czech archaeologist Evžen Neustupný defines an artefact as 'every object, formed by man intentionally to serve a purpose'.[3] An artefact could have a practical purpose, a social meaning or a symbolical meaning. A tool is defined as 'an object used to change the properties of other objects'.[4] His definition enables to categorise objects of daily use, such as jewellery and toilet implements, as tools: pins used to join parts of clothing or mirrors used indirectly to change the human appearance. In this work, the definition of a tool is narrowed down to tools with practical purpose with a condition that their functional part was made in the Old Kingdom and of metal (usually a copper alloy, either pure copper or arsenical copper; the existence of bronze is supposed, but not proved for the Old Kingdom). This will leave out three other important categories of artefacts made of metal in the Old Kingdom: vessels, statues and statuettes, and jewellery.

There was no single term for this definition of tools in Old Kingdom Egyptian, as we will see; tools were split into several practical and cognitive categories for ancient Egyptians. Their common characteristic was that they were made of metal in the metallurgical workshops.[5]

Accurate dating of the decoration of private tombs is possible in the Old Kingdom Memphite necropolis. Elsewhere, there have been numerous attempts to date and redate specific tombs and tomb clusters.[6] Much less attention has been paid to other datable items of art and material culture, although the situation has changed recently for pottery.[7] It can be argued that other items of material culture were created closer to the moment of the burial than the tomb decoration, which was planned and executed well in advance of the burial itself. However, the provision of the Old Kingdom burial equipment has not been the subject of a significant study.

The iconographic and textual evidence cannot be ignored because it can help explain the meaning(s) and role(s) of tools as they were perceived by Egyptians during the Old Kingdom. This evidence also provides information about the cognitive categories of Old Kingdom Egyptians. Ancient Egyptian evidence can be aptly used to demonstrate that artefacts occurred in meaningful assemblages. The tool classes were not perceived as singular, but were organized into tool kits.[8] Elena Maragoudaki and Panayotis Kavvouras have recently reconstructed Late Bronze Age Mycenaean tool kits, containing chisels, adzes, axes, saws, drills, awls, hammers and mallets.[9] They used a shipbuilding scene from the Old Kingdom, late Dynasty 5 tomb of Ty at Saqqara by way of comparison, but the Late Bronze Age is too late to investigate the origins of the tool kits. In Egypt, kits of tools with metal blades appear in the Chalcolithic period, in the second phase of Naqada culture in the latter half of the 4th millennium BC. The first complete collection of tools with copper blades was found in the First Dynasty Tomb 3471 at Saqqara dated to the reign of King Djer.[10] Such tool kits continued into the Old Kingdom and throughout the whole Early Bronze Age of Egypt. Old Kingdom tool kits consisted of several emic artefact classes, the most frequent of which are axes, adzes, chisels and saws. They had distinct shapes, which can be discerned from the Early Dynastic tool types and variants by means of the tool morphology. Iconographic evidence and preserved tool marks reveal that tool kits, consisting of chisels, adzes, axes and saws, were used to

[1] Eichler (1993, 15).
[2] Weinstein (1974).
[3] Neustupný (2010, 45).
[4] Neustupný (2010, 61).
[5] Scheel (1985); Davey (2012).
[6] Linacre College (2006); McFarlane and Mourad (2012).
[7] Rzeuska (2006); Arias Kytnarová (2010, 2014); Krejčí and Arias Kytnarová *et al.* (2014).
[8] In the case of woodworking, copper blade tools and other tools were studied as a meaningful unit, a tool kit, by J. Śliwa (1975, 21–43).
[9] Maragoudaki and Kavvouras (2012).
[10] Emery (1949, 18–57).

work wood and stone in the building of ships, shaping of wooden and stone statues and for other tasks. The preserved evidence can be arranged in a semiotic triangle of meaning, combining full-size artefacts, their models and their ancient Egyptian names, together with their connotations.

In the Old Kingdom, tool kits were represented mostly by assemblages of so-called copper model tools. They were included in the burial equipment at all major burial sites in the Memphite area: Meidum, Giza, Abu Rawash, Abusir, Saqqara, Heliopolis; they are only lacking in Dahshur. They appear also in the provincial cemeteries, with assemblages *e.g.* in Elephantine, Edfu, el-Kab, el-Khokha (Western Thebes), Abydos, Gebelein, Balat and Bubastis. They represented miniaturized versions of full-size tools used in Old Kingdom society. The interpretation of Old Kingdom copper tools and models tools has been discussed in the paper 'Social Context of the Old Kingdom Copper Model Tools' by Martin Odler and Veronika Dulíková and by Martin Odler in an article on model tools in Old Kingdom female burials.[11] This book is a continuation of the discussion on Old Kingdom model tool kits.

Other tool kits were also present in the iconographic and archaeological record – toilet implements (mirrors, razors, tweezers, hair curlers), weaving tools (needles, awls), leatherworking tools (leather-cutting knives, awls), tools for the retrieval and processing of food (fish-hooks, harpoons, knives) and weapons (axes, arrowheads, spearheads, daggers). Iconographic sources, texts and the archaeological record complement each other in the study of the past: it will be shown that some artefactual classes were preserved only in the iconographic evidence and, *vice versa*, many items of material culture were not reflected in the iconography.

It needs to be borne in mind that tools with copper alloy blades were not the only material category of tools utilised in the Old Kingdom. Tool kits traversed the borders of materials, although these borders were not often crossed by the contemporary specialists on specific materials. Stone, bone and wooden tools were also widely used in the Old Kingdom. The *Encyclopedia of Egyptian Archaeology* dates the use of stone tools from the earliest times up to Dynasty 25.[12] The case is similar in Mesopotamia, Moorey considers higher effectivity and cheapness of stone and ceramic tools.[13] Mutual influence of materials can be observed – butcher's knives were made of flint in the Old Kingdom, and a few preserved examples of metal knives have the lithic form. Tools made of other materials are beyond the scope of this work, but the use of different materials for tools will be noted.

The present work is intended as a corpus publication of the preserved tools and model tools with copper alloy blades from the ancient Egyptian Old Kingdom. The corpus includes all existing tool categories: tools of craftsmen, cosmetic tools, textile and leatherworking tools, hunting and food processing tools. The artefacts have been described by morphological and metric variables in a database. The corpus comprises tools and model tools found in documented archaeological contexts. Only a limited selection of unprovenanced artefacts is included, falling into two categories. Artefacts with inscriptions, which could be dated using either the information in the inscription or the palaeography of the signs, are included. The assemblages of unprovenanced Old Kingdom artefacts from the Kunsthistorisches Museum Wien and Ägyptisches Museum der Universität Leipzig have been included in the corpus because they contain the most completely preserved model tool blades, can be dated by their morphology to the Old Kingdom and provide the dimensions of the complete tools (necessary for statistical evaluation). It was impossible to include every unprovenanced artefact found in museum collections all over the world, even though online collection databases provide easy access to some of them.

The corpus is used as a basis for a typological and morphological re-evaluation of Old Kingdom tools and model tools. Metals were controlled by weighing in ancient Egypt. The weight of metal artefacts changed during use and during the post-depositional history due to corrosion processes. Other measures of the tools, including their general size and other dimensions, are better preserved. The regularization and standardization of the tools will be examined using these measures. A reviewed and refined chronology of the evolution of tools and model tools is proposed. Their morphological evolution during the Old Kingdom is clarified. Material culture will be compared to a proposed model: copper artefacts were produced within attached craft specialization[14] and a centralised control is assumed for the Early Dynastic period and the Old Kingdom. The centres of attached craft specialization were regionalised during the First Intermediate period and regional differences might be expected thereafter.

After defining the subject of the work in Chapter 1, tools in the archaeological theory and Egyptian archaeology are discussed in Chapters 2 and 3. The focus then moves on to the correct definitions of artefacts that will enable correct 'reading' and interpretation of the tool kits (Chapter 4). The main research tool, a database of archaeological contexts and tools, is described in Chapter 5. The evidence of texts, iconography and palaeography on the Old Kingdom tools with copper blades is discussed in Chapter 6. Chapter 7 comprises a general evaluation of the archaeological record of contexts with preserved tools. Chapter 8, the core of the volume, discusses Old Kingdom tool categories and tool

[11] Odler and Dulíková (2015); Odler (2015a; 2015b).
[12] Tillmann (1999).
[13] Moorey (1994, 256).
[14] Brumfiel and Earle (1987, 5–9).

kits. New hypotheses about the meaning(s) of copper tools and model tools are proposed in Chapter 9.

Case studies of selected problems are appended after the conclusion. The first paper is an archaeometallurgical study of Old Kingdom copper tools and model tools in the collection of the Egyptian Museum of Leipzig University (Jiří Kmošek and Martin Odler *et al.*). The second paper deals with the promising application of morphometry on the statistical evaluation of the tool morphology focused on Old Kingdom adze blades (Martin Odler and Ján Dupej). The third and fourth papers discuss the dating of the stone and ceramic vessels found in the Old Kingdom archaeological contexts with copper model tools (Lucie Jirásková, Katarína Arias Kytnarová).

A catalogue of the Old Kingdom archaeological contexts containing tools and model tools with copper alloy blades, together with data sheets for complete tools, is presented in an online appendix to this work http://bit.ly/2cT1NFz.