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*edited by*

Massimiliano S. Pinarello, Justin Yoo, Jason Lundock  
and Carl Walsh

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BASHA, Walaa Aboubakr (University of Manchester) Stable Isotope Analysis of Soft Tissue from Kulubnarti (Sudanese Nubia).

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BENNETT, James (Durham University) Tells, Toponyms and the Third Intermediate Period. Constructing a New Topographical Settlement Map for the Period.

BEUTHE, Tatjana (University College London) The Landscape of the Osiris Tomb at Abydos and its Relation to Funerary Icons and Items from the Late New Kingdom onward.

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ROBINSON, Joanne M. (University of Manchester) 'Blood is thicker than water': Cultural and Biological Influences and Outcomes of Consanguineous Marriage in Ancient Egypt.

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SKUMSNES, Reinert (University of Oslo) Patterns of Change: Titles of Non Royal Women in New Kingdom Egypt.

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STONER, Jo (University of Kent) The Cultural Life of Monastic Baskets in Late Antique Egypt.

STÖVESAND, Katharina (University College London/University of Cologne) Ancient Egyptian Coffins as Communicative Media for Religious Visual Strategies: Lower and Middle Egyptian Coffins of the Late and Ptolemaic Periods.

TAKENOUCI, Keita (Waseda University) Some Remarks on the Distribution of Stone Production in Predynastic Egypt: A View from the Analysis of Mudstone Artefacts.

TITZ, Pavel and MUSIL, Jiri (Charles University in Prague) El-Hayz Project: Current State of Knowledge on the Egyptian Western Desert Oasis.

WADE, Janelle (University of Chicago) Pharaonic Economy: a New Commodity-Based Approach to an AgeOld Discussion.

WALSH, Carl (University College London) Establishing the Proper Etiquette: Diplomacy and the Transmission of Court Lifestyles between Egypt and Kerma during the Middle Bronze Age.

WYATT, John (Independent) Bird Hieroglyphs: An Ornithologist's Viewpoint on their Origin and Subsequent Depiction.

YOO, Justin (King's College London) Mercenaries, Merchants, Migrants and Marauders: Greeks in Late and Persian Period Egypt.

## Poster presentations

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SIFFERT, Uta (University of Vienna) From Object to Icon: Visual Reflections on and the Designations of Material Culture in the Reliefs and Paintings of Middle Kingdom Tombs.

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UGOLINI, Federico (King's College London) Upper Adriatic and Egypt in the Roman Empire: Ports and Trade.

WASMUTH, Melanie (University of Basel) Being 'Foreign' in an Ancient Multi-cultural Society: the case of the Egyptians in Early Iron Age Mesopotamia.

WATT, Kimberly (University of Cambridge) Does Form Follow Function? What Functions can be Deduced from a Floor Plan?

ZERMANI, Isabel (University of North Carolina at Wilmington) Sharing the Story: Creating a Dialogue with the Past and Present Community.

## Copper Model Tools in Old Kingdom Female Burials

*Martin Odler*

Several Old Kingdom tombs have been identified as female burials based either on funerary inscriptions, anthropological examinations, or the assumptions of the excavators inferred from the archaeological context. Besides the typical Old Kingdom burial equipment, workmen's model tools appeared in female burials as well. Although Old Kingdom women bore administrative and court titles (Fischer 2000), they only rarely held those connected with the organization of work, and they were not craftsmen themselves (Bryan 1996, 39–40; Robins 1993, 116). A detailed study of these assemblages shows that the inclusion of copper model tools in female elite burials was typical of the Old Kingdom Memphite funerary customs. Moreover, the appearance of copper model tools might actually have been connected with the economic activities of Old Kingdom women. These arguments will be discussed in the following paragraphs.

### ***The tomb of Nefer (AS 68d) in Abusir South***

The latest Old Kingdom female burial with copper model tools was documented at Abusir South at the concession of the Czech Institute of Egyptology. Among the tombs of Princess Sheretnebtj's relatives, tomb AS 68d was explored in 2012 (Bárta 2013; Bárta *et al.* 2014; Vymazalová and Dulíková 2012; 2014). The entrance of the tomb was flanked by two uninscribed limestone *naoi* depicting two men and a woman, most probably the tomb owners. This rock tomb originally contained three false doors and four shafts. Two false doors were stolen sometime after the completion of the tomb, together with some contents from the serdab. However, four statues were left in the serdab, including one dyad depicting a couple: Nefer with his wife Neferhathor.

The southernmost false door, which was completely preserved, was intended for the funerary cult of Nefer and his wife. The openings of both shafts were located in front of this false door. Shaft 2 of the tomb was excavated during the autumn season in 2012. It is 6.5 m deep and the burial chamber had been disturbed, but it contained some remains of the original burial equipment: a large white limestone sarcophagus containing the skeleton of the chamber owner, and faience beads from one or two collars. More finds were positioned on the eastern outer side of the sarcophagus: cattle bones, a copper bowl with copper model tools, four limestone canopic jars, two beer jars, and three wooden models of ships. Except for the wooden model ships, the artefacts are representative of typical Old Kingdom elite burial equipment. Dated

contexts with wooden model ships have so far been identified only for the late 6th dynasty (Stephens 2012, 3). On the other hand, ships were included in offering lists already in the 4th dynasty, namely on the sarcophagus of Prince Minkhaf (Smith 1933).

The skeleton was examined by a physical anthropologist, who identified the individual as a woman over 50 years of age at the time of death. The gender was indicated by a fragment of the pelvis bone with the preauricular sulcus. The deceased was about 156 cm tall and had in life suffered from teeth problems and arthrosis of the mandibular neck. Her skeleton underwent apparent degenerative changes due to ageing, but it is interesting to note that this woman did not do any hard physical labour during her life, as can be seen by the absence of enthesopathic changes on the bones (Havelková 2013).

### *Social status of Nefer and Neferhathor*

The woman buried in Shaft 2 was most probably Neferhathor, the tomb owner's wife. Neferhathor bore the title 'king's acquaintance' and two others which connected her with the cult of the goddess Hathor (Begelsbacher-Fischer 1981, 53–78; Galvin 1981), *i.e.* 'priestess of Hathor in all her (cult) places' and 'priestess of Hathor, Lady of the nehet-shrine'. The shrine of Hathor existed in the late 5th dynasty somewhere in Abusir or Saqqara (Begelsbacher-Fischer 1981, 57). Neferhathor's husband was an important official who participated in the economic spheres of the Old Kingdom state. He bore several scribal titles ('overseer of scribes of royal documents', 'scribe of the royal documents'), titles connected with the storage of commodities ('overseer of the two treasuries', 'overseer of the two granaries') and organization of work for the king ('overseer of scribes of the crews', 'under-supervisor of scribes of the crews', 'overseer of a gang of craftsmen'). Nefer was also a 'property custodian of the king' and 'one who is privy to the secret', the titles decreasing in importance in the latter half of the Old Kingdom (see Bárta *et al.* 2014). We can conclude that Nefer and Neferhathor as members of the elite played an important part in the country's economic administration (Strudwick 1985, 251–299) and in Hathor's cult.

### *Copper finds from the burial chamber of Shaft 2*

Fragments of a few copper model tools were found at the bottom of Shaft 2 (find no. 189/AS68d/2012; Fig. 4.1). They indicate that the original assemblage was larger and that some of the pieces might have been stolen. The remains included one bowl and several copper model tools (find no. 193/AS68d/2012; Fig. 4.1). The weight of the whole corpus is presently almost 100 g, with the bowl weighing about 50 g. The assemblage contained a complete axe blade (24 × 34 mm, weight 2.4 g), seven complete chisel blades (lengths 66–72 mm, widths 3–3.5 mm, weights 1.2–2.1 g), a complete adze blade (52 × 9 mm, weight 1.7 g), and a complete saw blade (89 × 11 mm, weight 2 g), together with more than 20 additional fragments of these tool types (a selection of them can be seen in Fig. 4.1 and their identification in Fig. 4.8). The copper tools had been placed inside the bowl, which was partially damaged on one side. Only the chisel blades bore the remains of their wooden handles.

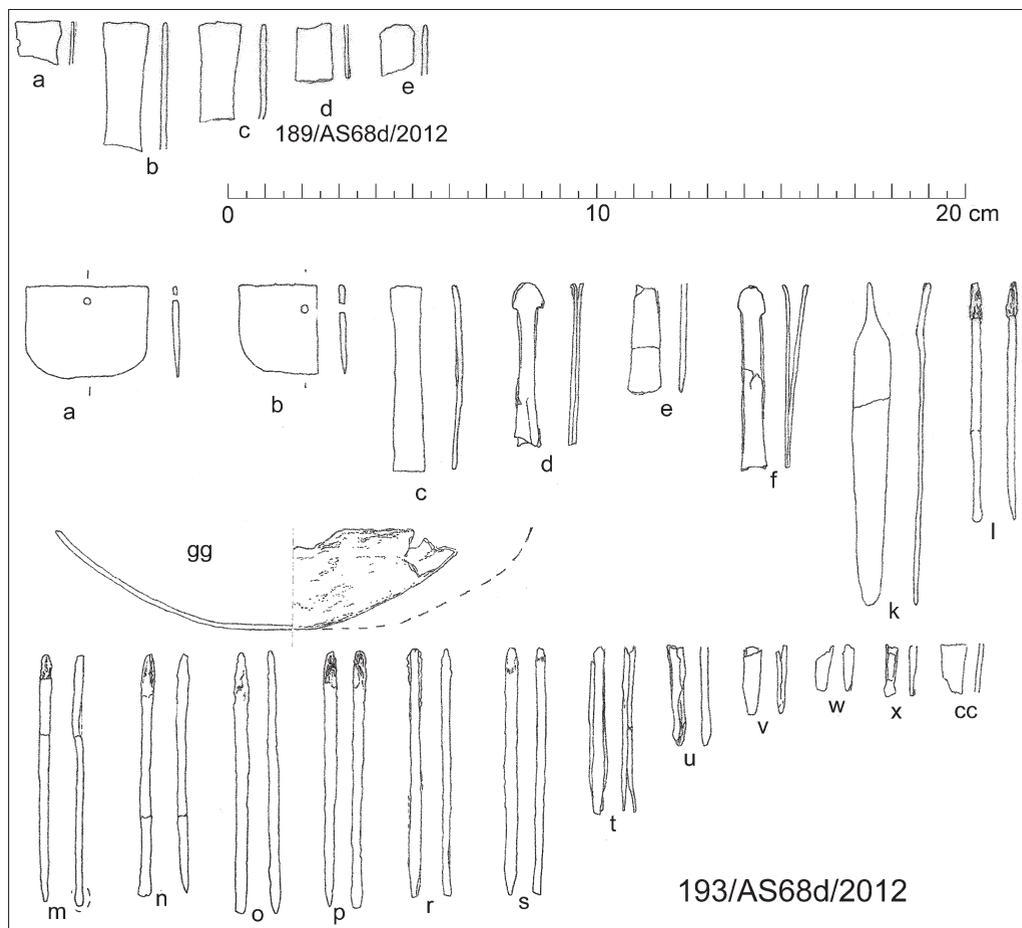


Figure 4.1: Copper artefacts from the burial equipment of tomb AS 68d, Shaft 2, identified as the burial of Neferhathor. Drawing by Martin Odler; Valéria Uramová.

### ***Old Kingdom female burials with copper model tools***

The following paragraphs will examine in detail the Old Kingdom burial assemblages of women that contained copper (model) tools, in order to explain the presence of the copper model tools in Neferhathor's burial equipment. These contexts have been preserved by chance, but there are some recurring patterns in the contents of the burial equipment. These patterns might have been the results of similar cultural practices (Parker Pearson 1999, 84), assuming that these contexts were created meaningfully (Meskell 1999b, 177).

Fourteen Old Kingdom female tombs have been found with burial equipment that contained copper model tools and, in one case, supposed full-size tools (Table 4.1). Copper model tools were included in the burial equipment of queens, princesses, and women of the elite, e.g. Nensedjer-ka, whose husband is not mentioned in her tomb at Giza (a common feature of Old Kingdom tombs of women, see Roth 1999).

Table 4.1. Old Kingdom female burials with copper tools and copper model tools  
(spans pages 42 and 43 and continues across pages 44 and 45).

Burial equipment no.	Site and part of site	Feature	Owner	Social status	Date
1	Giza – Cemetery G I S	G 7000 X	<i>Htp-hr.s</i>	queen, wife of Snofru, mother of Khufu	Dynasty 4, the reign of Khufu
2	Giza – Eastern cemetery of Khufu	G 7530-7540	<i>Mr.s-ḥnh III</i>	queen	Dynasty 4, the reign of Khafre [Callender]
3	Giza – Western field, cemetery G 4000	G 4140	<i>mrt-it.s</i>	princess	Dynasty 4, middle or late [PM]
4	Giza – Central field	G 8250, tomb of princess	–	princess, daughter of Rakhef [Hassan]	Dynasty 4, end [PM]
5	Giza – Western field	G 4970	<i>Hntt-k3 Hnt(y)</i>	wife of <i>nswt-nfr</i>	Dynasty 5, beginning of or middle [PM]; Dynasty 5, early, the reign of Sahure [Kanawati]
6	Abusir Central – minor royal cemetery	pyramid complex Lepsius 24	burial chamber of pyramid Lepsius 24	queen	Dynasty 5, the reign of Raneferef or Niuserre [Krejčí]
7	Abusir Central – Djedkare's family cemetery	tomb AC15	<i>Hkrt-nbty</i>	princess	Dynasty 5, the reign of Djedkare Isesi [Verner]
8	Abusir, cemetery of pyramid of Niuserre	Tomb of <i>wsr-k3=f-ḥnh</i>	chamber of the wife, <i>wsr-k3=f-ḥnh</i>		Dynasty 5, the reign of Niuserre
9	Abusir – Abusir South	AS68d, tomb of Nefer	<i>Nfr-hwt-hr</i>	most probably wife of Nefer	Dynasty 5, the reign of Djedkare Isesi [Vymazalová – Dulíková]

Titles	Context	Context description	Bibliography	Figure
<i>mwt nšwt-bity</i> ; for other titles see Callender (2011, 63–4)	primary	toilet utensils were found in the reconstructed inlaid box, tools were left on two places in the chamber with the burial equipment of Queen Hetepheres	Reisner and Smith (1955, 36–47, figs 36–37, 38, 45; pls. 30a–c, 40a, c, d); Radwan (1982, 45, Taf. 21: 120), Callender (2011, 60–66)	7
<i>hmt nšwt mrt.f, zšt nšwt nt ht.f</i> ; for other titles see Callender (2011, 121–3)	secondary	found in the debris on the floor of burial chamber	Dunham and Simpson (1974, 23, Fig. 16b), Callender (2011, 119–29)	7
<i>zšt nšwt nt ht.f</i>	secondary	found in the debris on the floor of burial chamber	Reisner (1942, 464, fig. 279, pl. 58f), PM III 1, 124	7
no preserved title	primary	On the photo of tomb in burial chamber, near the mouth of sloping corridor in the eastern side of burial chamber. Around the waist of the deceased: a copper belt plated with sheet gold. Besides this lot of golden jewellery.	Hassan (1953, 5, pl. VI: B); PM III 1, 239–40	7
<i>iry(t) ht nšwt, hm(t)-ntr Nt, hm(t)-ntr H wt-hr</i>	secondary	in the filling of the northern shaft, belonging to the wife of Nsw-nfr	Junker (1938, 166)	8
no preserved title	secondary	found scattered in various places on the floor of burial chamber of the pyramid and under the level of the floor in some cases	Krejčí <i>et al.</i> (2008, 121–127, figs 4.81b–4.87)	8
<i>zšt nšwt nt ht.f mrt.f</i> ; for other titles see Verner and Callender (2002, 13)	primary	near the north-eastern corner of the sarcophagus	Verner and Callender (2002: 45)	8
	secondary	found in debris southwards from sarcophagus, together with fragments of ceramic and stone vessels and faience beads	Borchardt (1907, 116)	
<i>iry(t) ht nšwt, hm(.t)-ntr Hwt-hr m šwt.š nb(wt), hm(t)-ntr n H wt-hr nb(t) nht</i>	secondary	found eastwards from the sarcophagus inside a copper bowl	Vymazalová and Dulíková (2012; 2014), Bárta (2013), Bárta <i>et al.</i> (2014)	8

Table 4.1. Old Kingdom female burials with copper tools and copper model tools (continued).

Burial equipment no.	Site and part of site	Feature	Owner	Social status	Date
10	Giza – Western field, cemetery G 4000	G 4631	<i>Nn-šdr-kꜣ(.i)</i>		Dynasty 5 [PM], Dynasty 5, reign of Userkaf [clay sealing in burial chamber]
11	Giza – Western field	D208, shaft 9			Dynasty 5, the reign of Niuserre [Steindorff]; Dynasty 5–6 [PM]; Dynasty 5, late – Dynasty 6, early [Spiekermann]
12	Saqqara, Teti pyramid cemetery	pyramid of Iput	<i>ipw.t</i>	queen, mother of Pepy I	Dynasty 6, the reign of Teti
13	Saqqara, pyramid cemetery of Pepy I	pyramid of the Western Queen		queen	Dynasty 6, the reign of Pepy I
14	Giza – Western field	G 5070, shaft 315		wife of the owner of tomb most probably	Dynasty 6 [Junker]; late Dynasty 5 – early Dynasty 6 [Haag <i>et al.</i> ]

Several contexts from Table 4.1 require detailed discussion. It is assumed that the objects found in Structure G7000x at Giza belonged to the burial equipment of Queen Hetepheres. As far as copper model tools are concerned, the burial of Hetepheres at Giza is not a standard burial of a member of the Old Kingdom elite, a trait which might be added to the ‘unique features’ of this context (Münch 2000). It seems that the craftsmen left their own tools in the burial chamber instead of copper model tools, which started to appear at the beginning of the 4th Dynasty at Meydum in Mastaba 17 (Petrie *et al.* 1910, 4, pl. XI: 7).

In the case of Tomb G 8250, the excavator assumed that the woman was a princess, but this conclusion has not been corroborated by any find from the tomb (Table 4.1: 4). Nevertheless, the tomb and its contents indicate that she was a member of the elite.

Two women in the table have been identified as such after the excavator’s assumption (Table 4.1: 6, 14). The pyramid of Lepsius no. 24 at Abusir is a type of archaeological structure built in the Old Kingdom for queens, mostly queen mothers (e.g. Jánosi 1996; Krejčí *et al.* 2008, 146–150). However, the name of the owner was not found during the excavation. Because of the

Titles	Context	Context description	Bibliography	Figure
<i>iry(t) ht nswt, hm(t)-ntr Nt, hm(t)-ntr Hwt-hr</i>	secondary	found in the debris on the floor of burial chamber	Reisner (1942, 497, fig. 304a; pl. 64f); PM III 1, 134	8
	primary	The opening of shaft 9 was located in the pillar hall of the tomb. The models were found in front of longer side of sarcophagus, on its eastern side, together with calcite and copper vessels. Gilded copper headband was found in the same chamber.	Steindorff and Hölscher (1991, 103); <a href="http://www.giza-projekt.org/Mastaba/Mastaba_D207_208.html">http://www.giza-projekt.org/Mastaba/Mastaba_D207_208.html</a> ; Spiekermann (2011, 43–46)	8
	secondary	Found on the debris of limestone fragments, filling up to the level of sarcophagus burial chamber	Firth and Gunn (1926, 12, fig. 6); PM III 2, 396–7, Callender (2011, 235–238)	
	secondary	Found in the eastern part of partly destroyed burial chamber	Leclant – Clerc (1990, 364–365, fig. 36–37); Labrousse – Albouy (1999, 144), Callender (2011, 235–238)	
	primary	Eastwards from the burial and on the southern end of the burial goods, in the ceramic bowl and on the floor of the chamber	Junker (1944, 61–2, Taf. XI), Haag <i>et al.</i> (2013, 226–227, 246–247)	8

position of the pyramid in the royal necropolis, she might have been the spouse of Raneferef or Niuserre. Tomb G 5070 belonged to an official with lower status and contained two undisturbed burial chambers in shafts 315 and 316 (Table 4.1: 14). The excavator assumed that a wife of the tomb owner was buried in the second shaft.

Burial customs changed during the 4th Dynasty in terms of the demonstration of ‘conspicuous consumption’, which was transferred to the tomb building itself, *i.e.* tomb superstructures. Conversely, burial equipment became rather poor and the substructures more modest in scale and elaboration (Roth 1993b). The ostentation phase was replaced by relative simplicity in the goods accompanying burials (Parker Pearson 1999, 86–87). Copper tools first appeared in burial equipment of queens and princesses in the 4th Dynasty, as demonstrated by the Giza findings (Fig. 4.2). In the 5th dynasty, they also began to be included in the burial equipment of officials’ wives. For the 6th dynasty, the models have been found in equipment belonging to two queens at Saqqara (Table 4.1: 12, 13) and to the wife of an official at Giza (Table 4.1: 14).

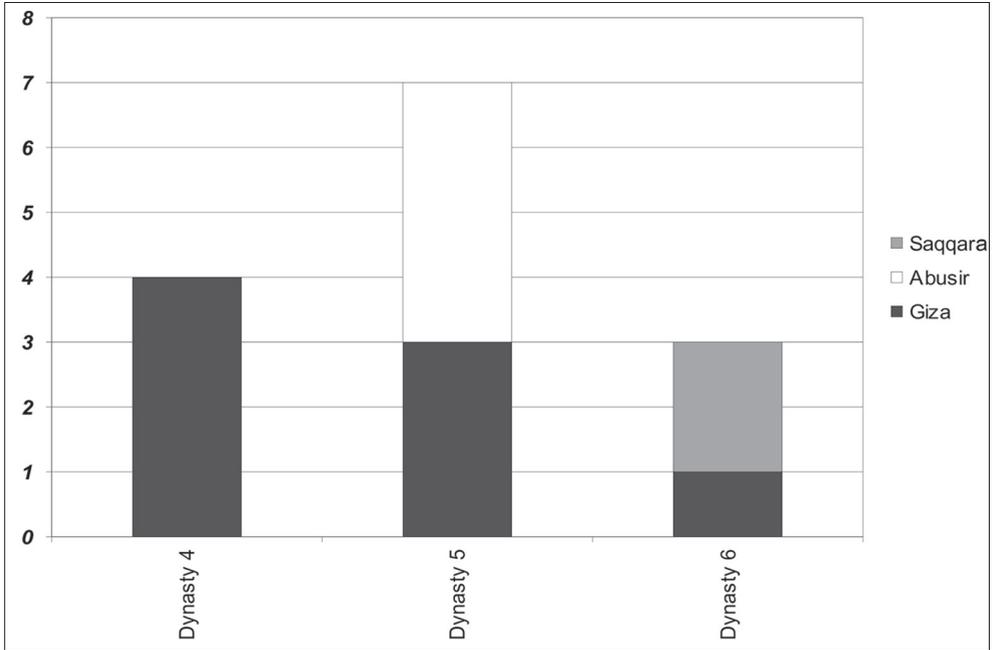


Figure 4.2. Sites with Old Kingdom female burials with copper tools and copper model tools.

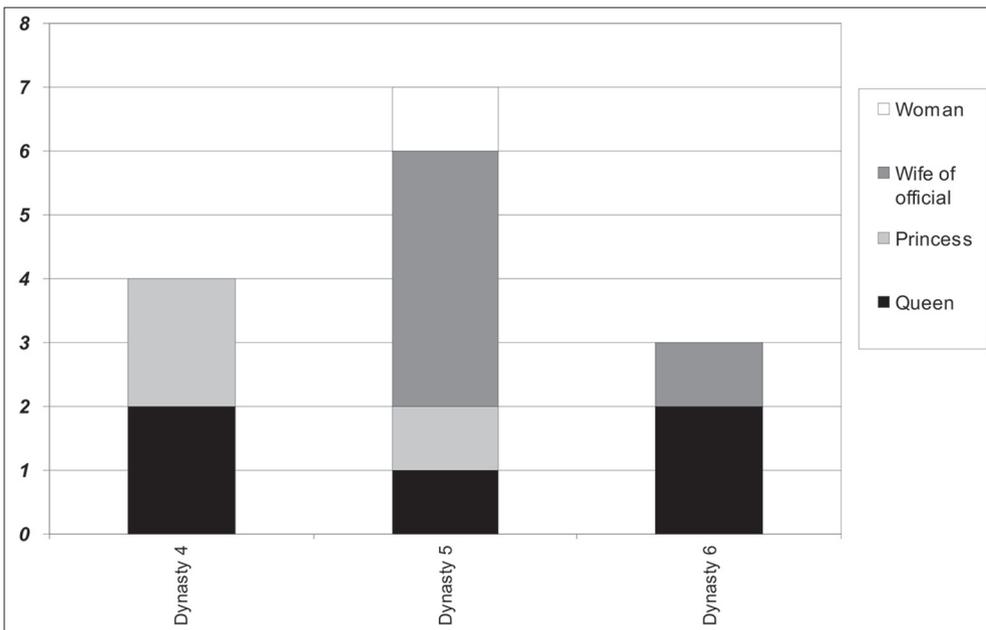


Figure 4.3. General social status of Old Kingdom female burials with copper tools and copper model tools.

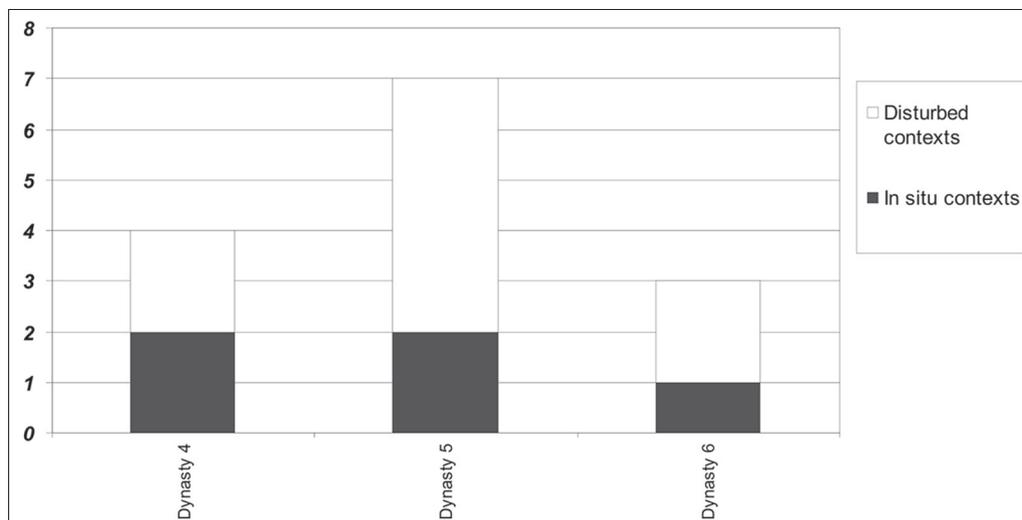


Figure 4.4. Archaeological contexts of Old Kingdom female burials with copper tools and copper model tools.

Model tools in women's burials have so far been identified only in assemblages from the Memphite necropolis. When the titles of the women were preserved, they were mostly connected with the service of the goddesses Hathor (Begelsbacher-Fischer 1981, 53–78; Galvin 1981) and Neith (Begelsbacher-Fischer 1981, 111–120). Due to the lack of preserved titles in other contexts, the identification of social status is possible only for queens, princesses, and officials' wives (Fig. 4.4). In some cases the titles of the husbands are known, *e.g.* Userkafankh was a nomarch and overseer of all royal works (Table 4.1: 5; Strudwick 1985, 72–73) and Nefer-ihy was the overseer of the tomb builders (Table 4.1: 11). Nefer from Abusir South (AS 68d) bore a higher status than Nefer-ihy and a lower one than Userkafankh.

#### *The identification of copper model tools*

The interpretation of model tools in scholarly works is by no means uniform. They have been identified as surgical or mummification tools by some archaeologists (*e.g.* El-Sawi 1979, 72), or as precursors of foundation deposits (this interpretation was first criticised in Brunton 1947). The terminology used in excavation reports might have caused an incorrect evaluation of the artefacts, *e.g.* the identification of the tools in the monograph on the pyramid Lepsius 24 at Abusir is incorrect (Table 4.1: 6). Although the models from the pyramid of the western queen at Saqqara were described in the text, the published photograph makes it possible to identify that the 'crochets' ('hooks') were, in fact, wooden model hafts of adzes (Table 4.1: 13).

The evidence is sufficient to identify these artefacts as copper model tools, which is also the most frequent interpretation in publications (earlier discussions by Junker 1944, 58–60, and Hassan 1948, 39–43). Crafts using tools made of copper blades and wooden hafts and handles belonged to a specific category in ancient Egypt, best defined in *The Teaching of Khety* (Quirke 2003). The main Old Kingdom evidence for this comes from offering lists (Barta 1963), which

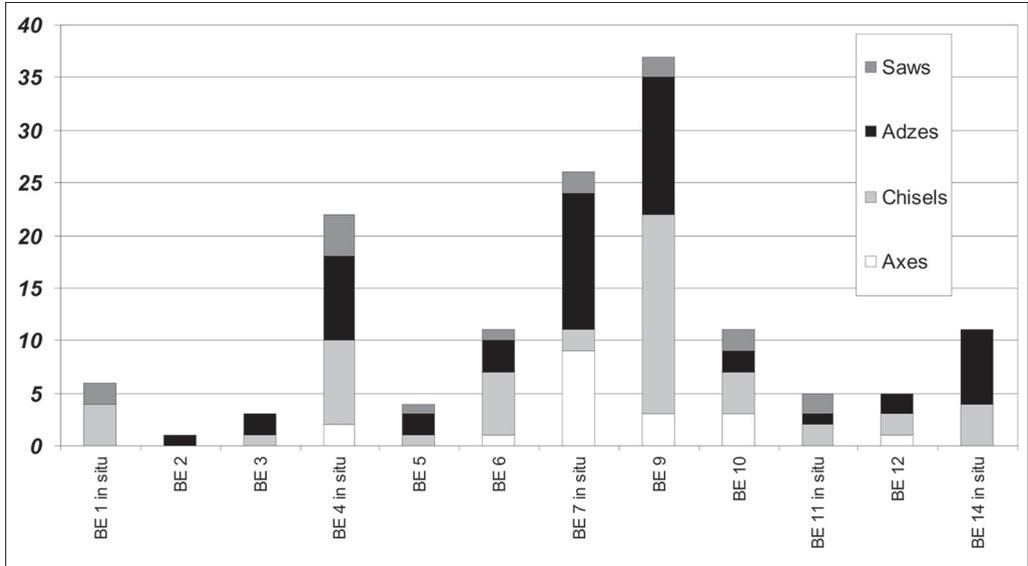


Figure 4.5. Contents of the assemblages of Old Kingdom female burials with copper tools and copper model tools.

make it possible to establish the contents of the tool assemblages (Drenkhahn 1976, 117), although copper tools appear to have been a marginal feature (only four examples from the 3rd to the 5th dynasty have been found, (Barta 1963, 45–46). The lists reveal that the assemblages contained axes, chisels, adzes, and saws. With one exception, these tools have been correctly identified already by Junker and Hassan in the 1940s. Saws used to be identified as knives in the past, but a comparison with Old Kingdom iconographic sources and later models of saws without teeth (*e.g.* Winlock 1955, pl. 69) points to their correct identification. The assemblages match the tools used in Old Kingdom tomb scenes with carpenters, shipwrights, and sculptors (Drenkhahn 1976; McFarlane and Mourad 2012). This identification of copper tools enables us to compare the contents of the female burials mentioned above.

Analysis of the axe blades in the British Museum catalogue of ancient Egyptian axes (Davies 1987) demonstrated that, without notion of the chemical composition, it is sometimes impossible to discern model tools from full-size tools. The size of some models is comparable to the full-size tools, but their intended use might be revealed by the difference in alloy. The artefacts big enough to be used as full-size tools have to be identified as models only tentatively (as in the context BE 2 on Fig. 4.7).

In the New Kingdom, the tools became part of the Mouth-Opening ritual, while during the Old Kingdom only adzes were used for it (Roth 1993a, 74–77). However, this addition appeared in the Pyramid Texts only in the 6th dynasty.

### *Cosmetic and sewing tools*

Cosmetic tools (mostly mirrors and razors) were omitted in Old Kingdom offering lists and not often included in burial equipment. Although modern archaeologists tend to group artefacts

made of the same material into one etic category, ancient Egyptians' emic categories might have been defined in other ways. Models of razors and mirrors are very rare, as Old Kingdom Egyptians used real mirrors and razor blades in their burial equipment. Other objects appeared occasionally, such as tweezers or the earliest preserved part of a hair curler (Fig. 4.5). Cosmetic spatulas were tear-shaped objects without a blade and probably served as later kohl-sticks (Figs 4.7, 4.8: I; Vandier d'Abbadie 1972, 155–161). A rounded form of kohl-stick appeared in the 6th dynasty at Edfu (Vandier d'Abbadie 1972, 160, no. 715).

Razors were used for shaving body hair of both men and women in Old Kingdom society and had the distinct shape of a handle with a blade (Montet 1933). Razors with semi-circular blades appeared in burial equipment both in the form of models and actual tools. Flat rectangular artefacts with trapezoid section have been interpreted as razor blades as well.

Examples of sewing tools, such as needles (Vogelsang-Eastwood 1995, 35–36), were an optional part of tool-sets, and they appear throughout the Old Kingdom in several burials. It is impossible to discern the intended model needles from the real size needles without an analysis of the chemical composition of artefacts.

#### *Model tools in the archaeological contexts*

No single rule exists for the selection of the assemblage contents and individual variations occur. Four essential tool types included axes, adzes, chisels, and saws, but their number varied (Fig. 4.5).

The burial equipment of Hetepheres contained life size chisels and saws. The burials of the unknown princess and princess Khekeretneby's are roughly comparable in their contents and in the number of model tools. Only a few models were placed in the burial equipment of the wife of the official Nefer-ihy, who was positioned on a lower social level than Khekeretneby, and was buried roughly in the same period.

Cosmetic tools were apparently lacking in the assemblages dating to the 4th and 5th dynasties (Fig. 4.6). One exception is royal burial equipment. Queen Hetepheres was buried with a substantial number of golden and copper razors, one golden cosmetic spatula, and one copper needle. On the other hand, the burial of the unnamed and supposed princess from Giza from the late 4th dynasty contained no cosmetic tools. The wife of the official Nefer-ihy had one model razor and one spatula. Thus, cosmetic tools were a possible but not a regular part of burial assemblages until the 6th dynasty.

#### *A change during the 6th dynasty*

As suggested by Lilyquist (1979), mirrors began to appear in the 6th dynasty burial assemblages of men and women. This change might have been a reflection of the broader patterns in burial customs of the eastern Mediterranean (Philip 2006, 161). The practice shifted from the rather abstract copper model tools to implements used for personal hygiene (reversing the process described by Meskell 1999a). The female burials of the 6th century that have survived undisturbed generally contained no copper model tools, with a few exceptions (perhaps preserving the older custom, which continued in some high status contexts even during the Middle Kingdom: Grajetzki 2014). One exception is the burial assemblage of the so-called western queen at Saqqara (Table 4.1: 13). Another burial excavated in Giza (Table 4.1: 14), with a rather 'transitional' assemblage, contained copper model tools and a possible model mirror (which is at the Kunsthistorisches

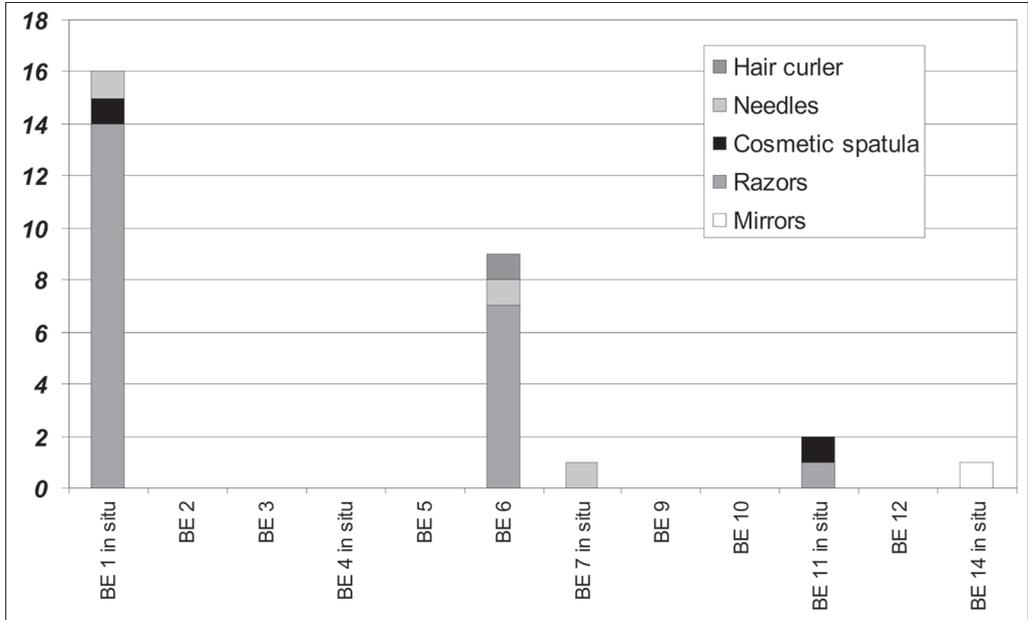


Figure 4.6. Cosmetic tools found together with Old Kingdom female burials with copper tools and copper model tools.

Museum of Vienna, but could not be securely identified). A further burial in Giza, shaft 688 (Junker 1947, 153, Abb. 75), supposedly of a woman and undisturbed, contained a full-size mirror, confirming that the model tools were omitted from burials in the late 6th dynasty. Another difference between mirrors and model tools was that the mirror discs provided a surface for inscribing the titles and the name of the owner, while model tools were often uninscribed.

The change in burial equipment also appeared in the Memphite necropolis as well as in provincial cemeteries. A different practice seems to have appeared at Edfu, Mastaba IX, where the deceased of the northern chamber was equipped with a metal washing set, a mirror, and model tools. The southern chamber, which supposedly belonged to the wife of the tomb owner, contained only a metal mirror and a washing set (Alliot 1933, 36–38, figs 81–82, pl. XXXV). Alliot, as well as Seidlmayer (1990, 59), assigned a late 5th dynasty date to this tomb, yet the mirrors in the tomb equipment might rather be indicative of the 6th dynasty.

The burial chamber of tomb BE 7 at el-Kab, also from the 6th dynasty, contained a copper washing set, while the burial chamber of the Hathor priestess Iretnakht contained a mirror with an inscription identifying her (Limme 2008, 21–22, figs 22–25). This type of inscription on mirrors allow us to identify more female burials, *e.g.* at Hu (Lilyquist 1979, 12; Petrie 1901, 38, pl. XXXI) and at Zawiyet el-Mayitin (Piacentini 1993, 68; Vandier d'Abbadie 1972, 177, fig. 780). Other examples can be found at Balat: the tomb of Ima-Pepy, the burial of Igit (a supposed spouse of the governor), the burial of an eight-year-old girl named Idut, who was already designated with the titles 'priestess of Hathor' and 'king's acquaintance' (Valloggia 1998, 146–147), and the women from the tomb of Khentika (Castel *et al.* 2001, 196–198).

Earlier excavators assumed that the burial belonged to a woman whenever a mirror was included in the equipment, however this is not quite the case (for New Kingdom see Meskell 1999b, 192). Mirrors, together with model tools, were part of men's burial equipment as well, *e.g.* at Balat in the Tomb of the governor Medunefer (Valloggia 1986). If two chambers are preserved and the lesser one also contains a mirror, the identification of a female burial is possible (as in the case of tomb AS 65 at Abusir South, Dulíková *et al.* 2011).

### ***Copper tools in female burials***

#### *Administrative control of copper*

Iconographic evidence shows that the amount of metal ore and end products was controlled by the administration during the Old Kingdom (Eyre 1987, 13). One possible example of the weighing of copper (model) adze blades was found on a block fragment from the tomb of Kaemrehu at Giza, now in Copenhagen (Altenmüller 1986; Mogensen 1930, fig. 42). The copper blades were piled on one bowl of the scales, showing the weighing of several artefacts at once. Old Kingdom weighing stones bore the names of kings and officials, indicating that the control of the metal amount was decentralised to officials responsible for the control of the craftsmen. Two names preserved on weighing stones could be interpreted as feminine, but the evidence is not decisive enough to confirm any participation of female officials in the weighing (Cour-Marty 1997, weighing stones nos. 13, 16).

Models were certainly cheaper due to the amount of metal used, as pointed out by Grajetzki (2003, 19) and Swain (1995, 36). However, model tools were repeatedly hammered and annealed into their shape (Maddin *et al.* 1984) using the same *chaîne opératoire* as for the real tools, though on a smaller scale. The creation of the model tools was a time-consuming activity. This effort might have been increased by the production of wooden model handles, though they were often omitted (*e.g.* in the assemblage of Neferhathor, only the chisels once had wooden model handles). This omission indicates that the most important part of the tool was the copper blade.

Another variable feature might have been the gilding of the copper model tools (or even golden artefacts, as in the royal assemblage of Hetepheres), creating another status difference among assemblages. Gilding was preserved on the models from the tomb of the vizier Ankhmahor at Saqqara (Kanawati and Hassan 1997, 34–35, 72, pl. 40). However, this practice is not preserved very often, and the copper model tools from disturbed contexts might have been stripped of their golden foil. Fragments of foil remained in some contexts, *e.g.* in the pyramid Lepsius 24 (Table 4.1: 6; and gilded copper vessels with find nos. 53/J/94 and 67/J/94). A gilded *nms.t* vase was found in the pyramid of the Western Queen at Saqqara (Table 4.1: 13).

#### *Model tools in female burials*

Some of the expected differences among the burials of diverse statuses concern the form and quantity of burial goods (Binford 1971, 21) visible in Old Kingdom archaeology as well (Roth 1995, 50). The original weights of the model tools are impossible to measure because they changed over time. Differences can be found, however, in other metric properties of the artefacts, *e.g.* by comparing the size of models and tools. This is apparent for the 4th dynasty assemblages, where adze blades belonging to a queen were bigger than adze blades belonging to princesses

(Fig. 4.7). Nevertheless, this evidence is not sufficient to rule out the evolution of the shapes and their diminishing sizes throughout the 4th dynasty.

The size and some typological differences are also noticeable among the assemblages from the 5th and the 6th dynasty (Fig. 4.8). The burial equipment associated with nos. 5, 10 (early 5th dynasty), and 7 and 9 (reign of Djedkare Isesi) might be contemporary. Size differences could be observed in the case of axe blades, adze blades, chisels, and model razor blades. The morphological features of the artefacts are adjusted to the size of those models, *e.g.* the distance of each bulge on the cross-cut chisels. Specimens from undisturbed contexts show that the tool assemblages were standardized in size, with very little variation (Eerkens and Bettinger 1997; standardization of Old Kingdom artefacts was recently examined for pottery by Warden 2013). Some contexts also show size categorization in the models, probably reflecting the different sizes

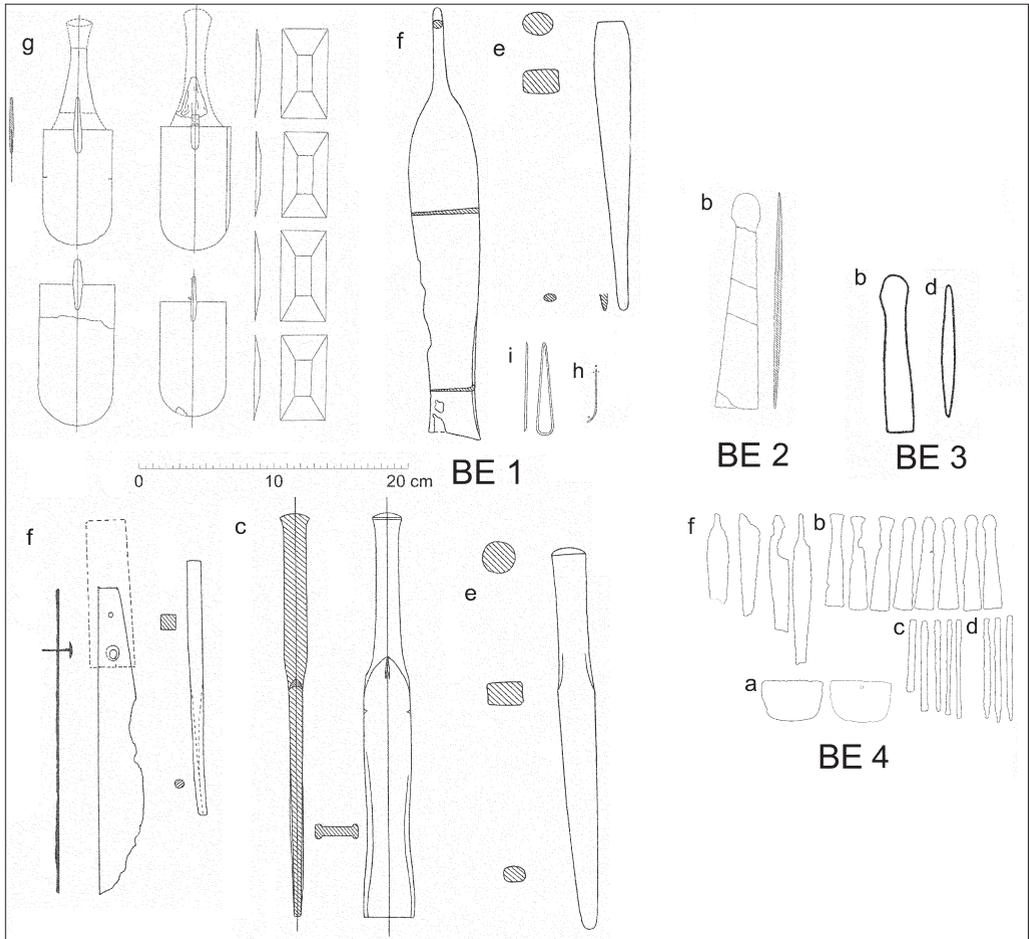


Figure 4.7. Tools and model tools from 4th dynasty archaeological contexts. Key: BE – burial equipment number in Table 4.1, a – axe blades, b – adze blades, c – flat chisels, d – cross-cut chisels, e – picks, f – saw blades, g – razors, h – needles, i – cosmetic spatula. The sources of the drawings are cited in Table 4.1. The drawings of contexts 1–3 were published with the kind permission of the Museum of Fine Arts, Boston.

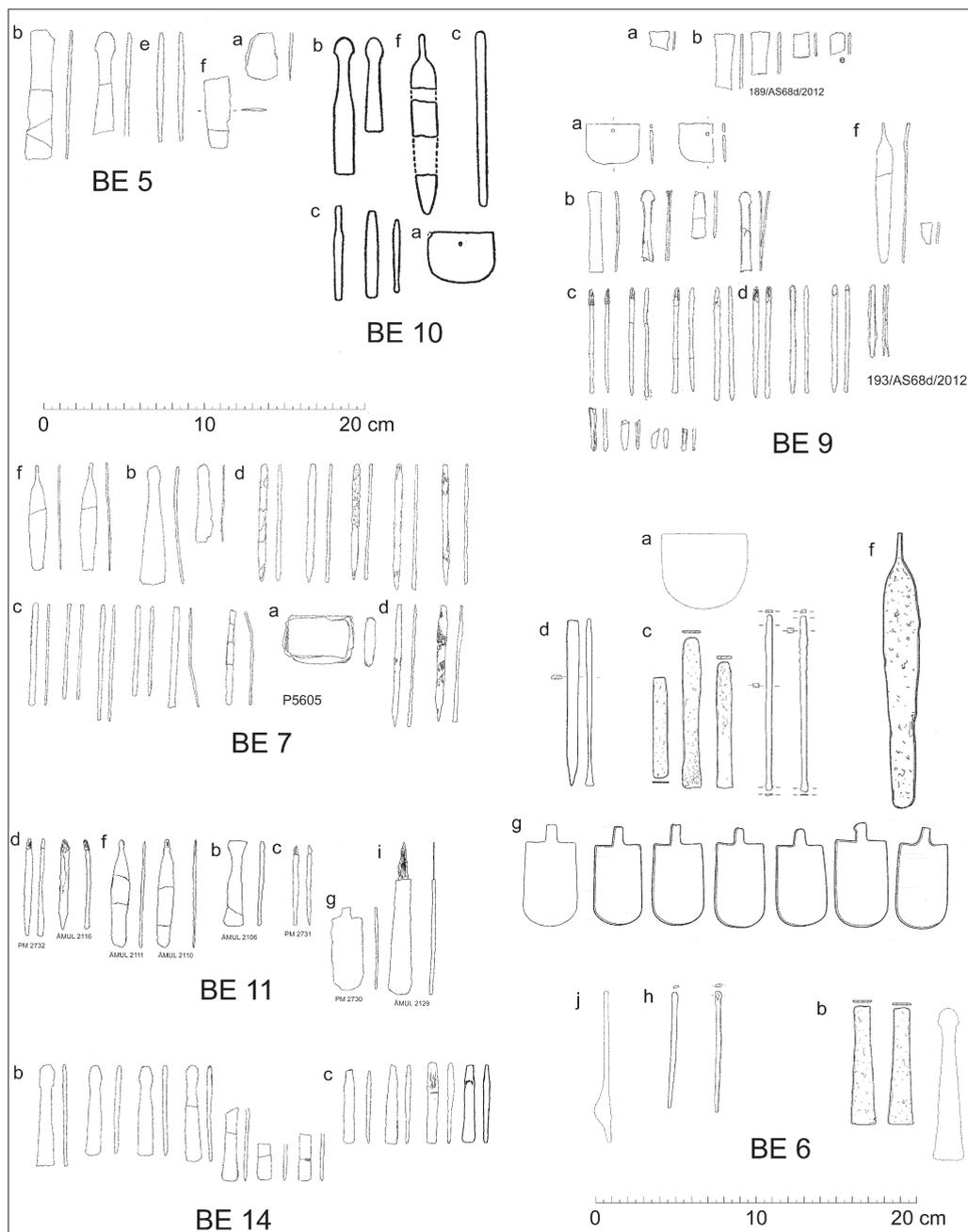


Figure 4.8. Model tools from 5th and 6th dynasty archaeological contexts. Key: BE – burial equipment number in Table 4.1, a – axe blades, b – adze blades, c – flat chisels, d – cross-cut chisels, e – picks, f – saw blades, g – razors, h – needles, i – cosmetic spatula, j – part of a hair curler. The sources of the drawings are cited in Table 4.1. The drawings of context 10 were published with the kind permission of the Museum of Fine Arts, Boston.

of the tools in real life (Fig. 4.8: burial equipment 6, 10). Model handles or hafts were frequently excluded, but they appear for instance at Abusir and Giza (Fig. 4.8: 9, 11). A comparison of the size of the razors shows that Hetepheres had life-size razors in her burial equipment, whereas 5th dynasty razors were more often models with no apparent practical use. It is impossible to discern the variances related to any specific workshops or to determine different sources of the copper ore without the analyses of the chemical composition of the tools. However, variability appears already in the artefact morphology.

### ***The interpretation – tools in the Old Kingdom female burials***

Full-size tools were already present in Early Dynastic burial equipment of royal tombs, tombs of high officials, and subsidiary graves interpreted as graves of artisans (Davis 1983). Copper model tools continued as symbols of attached craft specialisation (Brumfiel and Earle 1987) since the Early Dynastic times, as a sign of the patron-craftsman relationship. The owner was a member of the elite, who could order craftwork from the craftsmen. Model tools and model tool blades were the symbols of either the most expensive or the most frequent part of the transaction. Written sources mentioning Old Kingdom transactions between patrons and craftsmen were collected by Wilson (1947, 238–243) and Müller-Wollermann (1985, 142–144). The documents also contain information about the economic activity of women. The administrative status of women in written sources was more visible during the Old Kingdom than in later periods, but this could be a result of differing source preservation (Bryan 1996, 39). Just like men, Old Kingdom women could order craftwork, either a small piece, such as a statue, a false door, or an offering basin, or larger works, such as tombs (Robins 1993, 164; Fischer 2000, 8–9). As members of the elite, women were provided with tools for their craftsmen in the afterlife, which indicated their ability to be benefactors of craftwork. The corpus is too small to confirm that the wives of men engaged in the organization of work were more likely to obtain a set of copper model tools in their burial equipment.

Size differences can be seen among the model tools, probably a result of the actual social status of the deceased. The differences might also be a result of the local availability of model tools. The copper model tools were provided either by the royal administration or by the private tomb-owner. However, this hypothesis must be the subject of further analysis (trace element and lead isotope analyses). The provision by the tomb owner himself is more probable, due to the existence of weighing stones with names of officials mentioned above. The occurrence of jewellery in burials, often made as copper core artefacts gilded by foil, might be an evidence of royal honorary gifts (Butterweck-AbdelRahim 2002, 4–34) with religious connotations, which might be even more substantial than its material value (Wilde 2013). The most important physical property of copper artefacts for Old Kingdom Egyptians, the weight, is no longer applicable due to the changes in the artefacts during their post-depositional history.

### ***Conclusion***

Copper model tools were included in Old Kingdom burial equipment of wealthy women. This custom has so far been confirmed for Old Kingdom female burials only at the Memphite necropolis. The latest addition to this corpus is an assemblage from the burial of Neferhathor at

Abusir South, Tomb AS 68, Shaft 2. It contains the models of common tools used by craftsmen: axes, adzes, chisels and saws. Copper tools were included in offering lists, though there were no rigid rules for their inclusion in burial equipment. They were symbols of attached craft specialization and the patron-craftsman relationship. They represented the most expensive element of the tool assemblages and they have often been found without model handles. Size differences among the copper model tools are visible, but the interpretation is unclear due to the lack of archaeo-metallurgic analyses of the artefacts.

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