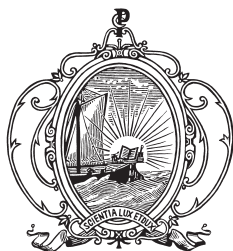


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TWINNED HIPPOPOTAMUS FIGURINES OF THE PREDYNASTIC PERIOD

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The subject of this paper is a series of stone figurines carved in the shape of hippopotami from the back of which protrude circular 'rims'. The research presented here shows that these objects were created (and presumably used) as pairs, each member being identical. The pairing of objects is not unique to these particular figurines, but it appears to be a phenomenon generally restricted to objects related to or in the image of hippopotami. On the other hand, deliberate twinning has been rarely observed and suggests specific or special motives in the creation of these identical sets of figurines.

Introduction

The hippopotamus was physically the largest inhabitant of the Egyptian Nilotic environment until it progressively began to disappear north of the First Cataract at the end of the 17th century AD (Manlius 2000: fig. 81). In the Predynastic period, the hippopotamus held an important place in the corpus of animal images. Its first appearances are rooted in the earlier Badarian period, and it became the most widely-represented animal during the Naqada IC–IIB period. The reasons for its prominence at this time and then its subsequent loss of popularity in the Naqada III period remain unclear.

To set the hippopotamus-shaped figurines that are the subject of this paper into the context of contemporaneous hippopotamus depictions, the following discussion considers only those representations that can with a good degree of confidence be attributed to the period from the Badarian to the Naqada IIC period. During this time, the hippopotamus was rendered in two and three dimensions in a wide variety of media, including pottery, ivory and stone. The hippopotamus was painted on at least 37 White cross-lined (C) ware vessels and is the only animal represented on 20 of them (see Graff 2009). In the majority of other cases, it is shown with other denizens of the Nilotic environment (crocodiles on ten vessels, fish

on three and turtles on two).¹ Perhaps also reflecting the natural setting, they often appear in multiples: the hippopotamus is represented in pairs on 12 vessels, but individually only on ten. A group of three hippopotami appears on six vessels, four on eight vessels, and a single example depicts five of these animals. Reflecting their interaction with human society, the hippopotamus is shown being hunted on 13 vessels with and without explicit human actors. The hippopotamus hunt also appears on the Gebelein shroud (Galassi 1955: 9–11, figs. 1, 5, pl. 1), incised on palettes (Asselberghs 1961: 264, 314–317, cat. nos. 69–70) and in rock art (e.g., Darnell this volume: fig. 1).²

The hippopotamus was also rendered in three dimensions in clay with varying levels of skill. Small figurines are appended to the rims of a few ceramic vessels (Ayrton & Loat 1911: 11, 26, pl. 11.3; Quibell 1905: 120, pl. 24; Hayes 1953: fig. 14; Brunton 1948: 13, 100, pls. 8, 12.7) and an elliptical Polished-red bowl standing on four legs has a single hippopotamus figure at its centre (Cairo, unpublished). A series of 18 independent clay figurines or fragments thereof have also been recorded³ (e.g., Payne 1993: 21, cat. nos. 53–55, fig. 14; Dreyer et al. 1998: 84, 96, pl. 4a), although it is not always possible to identify the animal precisely (e.g., Hartung this volume: fig. 2).⁴ Four zoomorphic vessels⁵ shaped into the form of a hippopotamus are also known in Black-topped (B), Polished-red (P) and Decorated (D) ware, each with a prominent vessel

¹ Other animals, such as bulls, elephants, horned quadrupeds (possibly ibex and addax), as well as a scorpion and birds are also shown more rarely on C-ware vessels.

² Rock art will not be further discussed due to issues regarding its dating.

³ I question the Predynastic attribution of a number of figurines standing on flat bases (e.g., Bothmer 1948) and do not include them in this count.

⁴ Two objects do not fit well within the category of figurines: A. Tony-Révillon (1950) suggested that the first one (de Morgan 1897: 128, fig. 413; Behrmann 1989: Dok. 12b), found in Toukh, could be a table or tray, possibly used in a ritual context. The same could be said of the object from el-Mahâsna now in Brussels, which has a flat back and some of the characteristics of a hippopotamus body (see Eyckerman & Hendrickx this volume: fig. 46).

⁵ I question the identification as hippopotamus for four zoomorphic vessels of marl fabric decorated with scenes of harpooning, i.e., Hendrickx & Depaetere 2004: table 1: Oxford E.2802; Oxford 1924.326, Cairo CG 2147 and Brussels E.6197. They have therefore not been included in this count. It should also be noted that Oxford E.3267 in table 1 of Hendrickx & Depaetere (2004) is not a vessel but a hollow clay figurine (Payne 1993: cat. no. 52); the body is not closed and there is a wide opening along the bottom of the object, making it unusable as a container. In addition, the last entry in their table, the vessel formerly in the McGregor collection is now in the Ashmolean Museum (Payne 1993: cat. no. 1202) and is made of stone, not ceramic, and I believe its identification as a hippopotamus should be rejected.



Fig. 1. Ceramic hippopotamus, Munich ÄS 7181
(after Grimm & Schoske 2000: cat. 17).

neck of varying height extending upward from the mid-back of the animal (Fig. 1); a shape with possible significance for the subject of this paper (Dreyer et al. 2000: 60, 69–70, fig. 9, pl. 6b; Wiese 2001: cat. no. 1; Grimm & Schoske 2000: cat. no. 17; D ware vessel unpublished⁶).

Surprisingly, ivory, a material widely employed in Predynastic times and mainly derived from hippopotamus tusks, was used relatively rarely for creating artefacts in explicit hippopotamus form. Less than 20 such objects are known, compared to 413 tusks and tags in this material (Hendrickx & Eyckerman this volume: table 1). These ivory objects include one small figurine probably originating from the top of an ivory comb (Petrie 1920: pl. 46.4; Drenkhahn 1987: 31, cat. no. 17) and a complete comb said to be of elephant ivory (New York MMA 55.144.2).⁷ There is also the unique ivory wand with hippopotamus figures carved along its

⁶ The latter two were not included in Hendrickx & Depraetere 2004: table 1. One is in the Staatliches Museum Ägyptischer Kunst in Munich (ÄS 7181); the other is in a private collection and was formerly displayed in the Roemer-Pelizaeus Museum, Hildesheim (information kindly provided by Bettina Schmitz).

⁷ Two additional objects can probably also be added: an ivory comb (UC 5615, Petrie 1920: pl. 29.1) and an ivory pin (UC 15178, Petrie 1920: pl. 8.2); however, the identification of the animals remains in question, as the heads of both are missing.

edge from HK6 at Hierakonpolis (Droux & Friedman 2007; Hendrickx & Eyckerman this volume: fig. 13)⁸ and three identical schematically rendered pendants from Badari grave 3823 (Naqada IC), each with a knob protruding from the middle of the animal's back, presumably for suspension (Brunton & Caton Thompson 1928: 51, 118, pls. 33, 34.4; Payne 1993: cat. no. 1980). A pair of tiny ivory hippopotamus figurines (1.7 cm) without knobs is also known from Mesaid Tomb 10 (Boston MFA 11.297–298).

The remaining ivory objects are what may be classified as potential containers, although whether this was their primary or even actual function is a matter of discussion (see Hendrickx & Eyckerman this volume), and what, if anything, they contained is unknown. The earliest, dating to the Badarian period and actually carved from elephant ivory, is a naturalistic depiction of a hippopotamus with a deep hollow bored into its back, the opening of which is framed by a raised and splayed-out rim (Spencer 1993: 25, fig. 8; Brunton 1937: pls. 23.3, 24.48). Eight other objects are composed of hippopotamus tusk, probably lower incisors, at the tip of which a small hippopotamus figure has been carved so that it appears as if the tusk or 'container' is emerging from the middle of the animals' back, much like the zoomorphic pottery vessels mentioned above (Table 1; see also Hendrickx & Eyckerman this volume: type A.4.a; fig. 12). The tusks are hollow, but it is unclear whether they were at least partly hollowed out manually or if the tusk's natural pulp cavity was sufficient. Nevertheless, no solid tusks were carved in this fashion and it should be noted that the conical shape of the tusk emerging from the hippo's back has been artificially created by carving away from the exterior a significant amount of ivory (Fig. 2). In all cases, around the

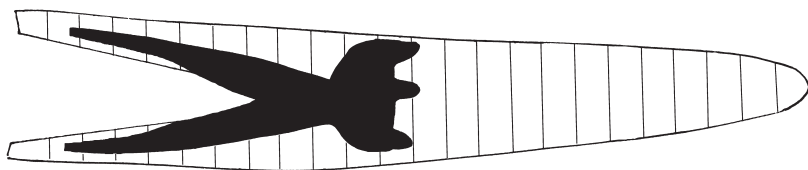


Fig. 2. Hypothetical reconstruction of hippopotamus incisor used for the production of a tusk with carved figurine at the tip (redrawn after Krzyszkowska 1990: fig. 28; Payne 1993: cat. no. 1972).

⁸ The ivory 'wand' from Hierakonpolis HK6 Structure 07 was found together with another wand of similar size, but this was too poorly preserved to determine whether it originally had similar decoration.

opening, or 'rim', are several drilled holes. Where the provenance is known (el-Mahâsna H43 and Mesaid 25), these tusks occur as pairs of identical twins and may be directly related to the stone figurines, which are the main subject of this paper, as discussed further below.

Collection	Provenance	Dimensions (cm)	
		H	L
Oxford, Ashmolean Museum, 1909.109	el-Mahâsna Tomb H45	11.0	2.8
Cairo, Egyptian Museum	el-Mahâsna Tomb H45	Not preserved	
Ayrton & Loat 1911: 12, 27–28, pl. 13.2.			
Boston, Museum of Fine Arts, MFA 11.287	Mesaid Tomb 25	9.5	4.5
Boston, Museum of Fine Arts, MFA 11.288	Mesaid Tomb 25	8.7	4.0
Museum of Fine Arts online catalogue.			
Abydos, site magazine	Abydos Tomb U-233	16.3	NP
Hartung this volume, pers. comm.			
Paris, Musée du Louvre, E. 22902	Ex Curtis coll.	5.5	2.9
Tardy 1977: 57.			
Unknown, private collection	Bought in Abydos	Unknown	
Hornblower 1927: 243, pl. 55.3.			
Brussels, Royal Museums of Arts and History, E. 7123	Unknown	7.7	
Hendrickx & Eyckerman this volume: fig. 12.			

Table 1. Tusks with hippopotamus figurine at the tip.

Stone is the most frequently used medium for carving three-dimensional hippopotamus representations: 71 examples are known. The outline of the hippopotamus body has been used to shape at least eight slate palettes (e.g., Petrie 1901: 33, pls. 5, 9.4),⁹ as well as three flint figurines

⁹ There are also seven additional palettes that portray an animal with a rotund body, but the heads, legs, feet and, most notably, the tails, which are long and curve upwards, do not accord with the usual hippopotamus iconography and have therefore not been included in this count (e.g., Baduel 2008: fig. 6; Podzorski 1994: pl. 47; Piotrovsky 1974: cat. no. 1).

(Friedman 2000; Hendrickx et al. 1997–1998).¹⁰ Six zoomorphic vessels were carved of limestone, red breccia and calcite alabaster with an open receptacle making up the body of the animal (Hendrickx & Depaetere 2004).¹¹ The opening is not framed by a rim, but most examples have holes bored around the edges for the attachment of a lid (cf. hippopotamus-headed lid in the Ashmolean Museum; Payne 1993: cat. no. 1208). At least 15 figurines carved from various stones are mainly of small dimensions (e.g., Droux & Friedman 2007: 8, 16; Quibell & Green 1902: 50, pl. 64.5; Smith 1942: 16–17, fig. 3). Some of these were pierced and apparently used as pendants.¹² Four other figurines have a knob on their backs and are discussed further below. However, among hippopotamus images in stone, by far the most frequent are the figurines, often in pinkish limestone, which share the common feature of a ‘rim’ protruding from the middle of the animal’s back. As demonstrated below, they also share the characteristic of having been created as identical pairs.

Stone figurines with ‘rims’ on their backs

This category of artefacts includes at least 38 figurines (Tables 2–3). The circular rims protruding from the back of the animals suggest that this category should be associated with the zoomorphic vessels; however, the bodies of the hippopotami are solid and only the areas encircled by the rims are hollowed, albeit the drilled depressions are only a few millimetres deep. With the exception of one figurine, the rims are always pierced by a series of holes, usually four. The silhouette of the hippopotamus, although generally true to nature, is stylised and the characteristic features of the animal tend to be rendered in a similar way on all of the figurines. The mouth is represented by a longitudinal groove, the ears, eyes and nostrils by small protuberances. A small hole is sometimes drilled in the ears and nostrils. The legs are usually short and the belly slightly rounded to sometimes quite prominent. In the majority of cases, a short triangular tail is carved at the rear. Pink or red limestone was the raw material of choice, possibly because it was reminiscent of the colour

¹⁰ The date of the flint figurine from Kahun (Petrie 1890: 30, pl. 8.22) is unclear; rather than being an heirloom, it might originate from the Middle Kingdom.

¹¹ There is a vessel of similar form carved of wood, but its date is uncertain (Glanville 1926: 56, fig. 4, pl. 8.4).

¹² A small pendant excavated at Badari is the only hippopotamus-shaped figure known to have been carved from shell (Brunton & Caton Thompson 1928: 6, 16, 27, pls. 8, 24.15).

of hippopotamus skin (Hendrickx & Depraetere 2004: 812), which has a rosy tinge due to the secretion of a viscous substance providing antibiotic and solar protection (Eltringham 1999: 20–21; Saikawa et al. 2004). The stone can sometimes appear brown in colour, but in such cases the surface has been altered by a patina. Only three figurines were carved in calcite alabaster (Table 2: Nos. 6a–b; Table 3: No. 16).¹³

As is demonstrated below, these figurines were conceived as twins, which are identical, despite slight differences resulting from craft production. The dimensions of each member of each pair are almost equal, varying only by a few millimetres. The known examples all have a similar range of dimensions, the majority being 6 to 7 cm long. The overall similarities between the pairs suggest that only a few workshops produced them.

Excavated figurines

The provenance is known for only eight of the figurines, all of which come from disturbed graves (see Table 2). Four figurines were discovered as pairs. A first pair (Fig. 3; Table 2: Nos. 1a–b) was recovered from the rich elite burial B101 at Abadiya. Both figurines were published together in conjunction with other finds from the tomb (Petrie 1901: 33, pl. 5), including a matched set of clay hippopotamus figurines, a hippopotamus-shaped palette and several tusks. J. Capart (1905: 177, fig. 138) illustrated the figurines again, without emphasising their similarity or that they formed a pair. N. Massoulard (1949: pl. 53.3) mentioned only one of them (No. 1a), while both A. Behrmann (1989: Dok. 20bc) and



Fig. 3. Nos. 1a–b, Ashmolean E.945–946
(Photo by X. Droux, courtesy of Ashmolean Museum, Oxford).

¹³ For stone identification see Klemm & Klemm 2008: 147.



Fig. 4. Nos. 2a–b, ROM 935.20.42–43
(Photo courtesy of Royal Ontario Museum, Toronto).

J.C. Payne (1993: 239, cat. nos. 1976–1977) catalogued them in sequence, but did not notice that they formed a twinned pair. Although the tomb was plundered, the abundance of material, including several vessels, dates it to the Naqada IC–IIA period.

The second pair of excavated hippopotamus figurines (Fig. 4, Nos. 2a–b) was found in Tomb 1451 at Armant (Mond & Myers 1937: 38–42, pls. 16.2, 21.1451; Behrmann 1989: Dok. 14ef). The excavators discussed the rim extensively (see below), but did not focus on the pairing of the figurines. Particular to this pair are the massive foreheads, unlike other paired figurines in this corpus. Although no pottery was recorded in this grave, it likely dates to Naqada IC–IIA based on its location in the cemetery and the neighbouring burials (i.e., Tombs 1438, 1461, 1488).

The four other examples with provenance were recovered as single finds, all again from disturbed burials. One was found at Naqada in Tomb 1475 (Table 3: No. 14; Capart 1905: 177, fig. 138; Baumgartel 1970: pl. 45; Payne 1993: 239, cat. no. 1978) and another is from Naga ed-Dêr Tomb 7119 (Table 3: No. 15; Lythgoe & Dunham 1965: 69–70, fig. 27j). It is possible that the other member of the pair in both cases was lost during plundering.

The two remaining provenanced figurines were excavated at Gebel el-Tarif in May 1896 (Fig. 5; Table 3: Nos. 12–13). According to a manuscript of J. de Morgan,¹⁴ E. Brugsch ordered a member of the Antiquities Service to conduct rescue excavations at Gebel el-Tarif, which was being

¹⁴ The manuscript is in the archives of the Musée des Antiquités nationales in St-Germain-en-Laye, Fonds Morgan.



Fig. 5. Nos. 12–13, Cairo CG 14450–14451
(Photo by Ahmed Amin, courtesy of Egyptian Museum, Cairo).

badly plundered. When the finds were brought to the museum at Giza, de Morgan noted that the objects were mixed with those from a nearby Pharaonic cemetery and that “no scientific observation had been made.” The note ends with a handwritten list of the objects in which only one limestone hippopotamus figurine is mentioned; however, in his publication, he mentions two (de Morgan 1896: 150–151, fig. 372; 1897: 129–130, fig. 452). Both figurines were registered with the same number in the *Journal d’Entrée* and J. Quibell (1905: 268–269, pl. 57) catalogued them in sequence, as does Behrmann (1989: Dok. 14lm).¹⁵ Although similar, they are not a pair and it is most probable that they each came from different burials, their twin not recovered.

Figurines in collections

Of the 30 hippopotamus figurines with rims for which no archaeological context is known, ten entered museum collections as pairs. The first pair was purchased in Egypt by W.M.F. Petrie (Fig. 6; Table 2: Nos. 3a–b; Capart 1905: 177, fig. 138; Petrie 1920: 12, pl. 9.29, 9.31; Behrmann 1989: Dok. 14d, j). The year of acquisition is uncertain, but No. 3a was published in 1896 and is annotated as coming from Gebelein (Petrie & Quibell 1896: pl. 60.22). Both figurines, which have exaggerated square muzzles (somewhat similar to Nos. 10a–b), are in the Petrie Museum (UC 15195–15196).

The Reverend Chauncey Murch sold a pair of twin hippopotamus figurines to the British Museum in 1906 (Fig. 7; Nos. 4a–b). Detailed information about their modern history is lacking, but Murch formed his

¹⁵ A. Tony-Révillon (1950: 50, fig. 3) briefly mentioned No. 13, but she transposed numbers CG 14450 and CG 14451.



Fig. 6. Nos. 3a–b, UC 15195–15196
(Photo by X. Droux, courtesy of Petrie Museum, London).



Fig. 7. Nos. 4a–b, BM EA 43066–43067
(Photo by X. Droux, courtesy of British Museum, London).

collection after he moved to Egypt in 1883 or 1884.¹⁶ The figurines were probably sold to the museum together with a collection of scarabs (Bierbrier 1995: 302). Their heads have a distinctive appearance, with very thin muzzles. Placed side by side, the curve of the bodies are so similar that it is probable that they were carved together from a single piece of limestone that was split in two.

Another unpublished pair of figurines was offered to the Castle Museum and Art Gallery in Norwich, UK, by Ethel Mary and Helen Caroline Colman in 1921 (Fig. 8; Nos. 5a–b). Their father, Jeremiah James Colman, bought some artefacts in Egypt in 1897–1898, mostly in

¹⁶ In 1892, W. Budge (1920: 333–334) mentions the presence of Rev. Murch in Qena at a time when Predynastic antiquities from Abydos, Naqada and el-Amra were first available on the market; however, there is no certainty that the hippopotamus figurines were acquired at this time.



Fig. 8. Nos. 5a–b, Norwich 1921.27.129ab
(Photo courtesy of Castle Museum and Art Gallery, Norwich).

Luxor. No information about the purchase of these objects is known; the collector did not mention them in the few letters that he wrote from Egypt, which were later published by his daughter (Colman 1905: 417–420).

A further pair of twinned figurines, carved in calcite alabaster, was donated to the Ashmolean Museum in 1945 by C. Martin Mitchell, who gave no information about their provenance or purchase (Fig. 9; Nos. 6a–b; Payne 1993: 239, cat. nos. 1974–1975, fig. 82; Hornemann 1951–1969: no. 1707).

Another pair was formerly part of the Kofler-Truniger Collection in Lucerne (Fig. 10; Nos. 7a–b; Behrmann 1989: Dok. 14hi). There is no information about their history prior to their arrival in the Swiss collection. No. 7a was subsequently given to the Staatliche Sammlung Ägyptischer Kunst in Munich in 1970 (Müller 1970: 185; Müller & Wildung 1976: 16; Grimm & Schoske 2000: 52, cat. no. 90). The second figurine, whose present location is unknown, was published by H.A. Schlögl (1978: 22, cat. no. 36).

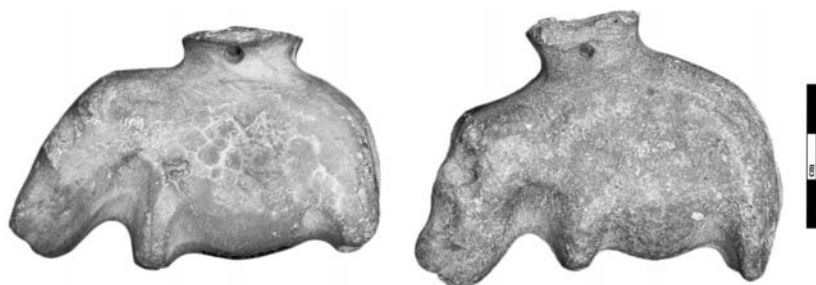


Fig. 9. Nos. 6a–b, Ashmolean 1945.130ab
(Photo by L. McNamara, courtesy of Ashmolean Museum, Oxford).

	Current location	Provenance	Dimensions (cm)		
			L	H	W
1a	Oxford, Ashmolean Museum, E.945	Abadiya Tomb B101	7.2	4.5	2.1
1b	Oxford, Ashmolean Museum, E.946	Abadiya Tomb B101	7.4	4.5	2.5
	Payne 1993: cat. nos. 1976–1977, fig. 82.				
2a	Toronto, Royal Ontario Museum, 935.20.42	Armant Tomb 1451	5.4	4.0	1.8
2a	Toronto, Royal Ontario Museum, 935.20.43	Armant Tomb 1451	6.0	4.5	
	Mond & Myers 1937: 38–42, pls. 16.2, 21.1451ab.				
3a	London, Petrie Museum, UC 15195	Gebelein (?), bought by Petrie	7.2	5.2	2.0
3b	London, Petrie Museum, UC 15196	Gebelein (?), bought by Petrie	7.1	4.6	1.8
	Petrie 1920: 12, pl. 9.29, 31.				
4a	London, British Museum, EA 43066	Unknown, ex Rvd. C. Murch coll.	7.4	5.8	2.0
4b	London, British Museum, EA 43067	Unknown, ex Rvd. C. Murch coll.	7.3	5.6	2.0
	British Museum online catalogue.				
5a	Norwich, Castle Museum and Art Gallery, 1921.37.129a	Naqada (?), ex Colman coll.	5.7	4.2	1.6
5b	Norwich, Castle Museum and Art Gallery, 1921.37.129b	Naqada (?), ex Colman coll.	5.4	4.0	1.3
	Unpublished.				
6a	Oxford, Ashmolean Museum, 1945.130a	Unknown, ex C. Martin Mitchell coll.	7.8	4.9	2.3
6b	Oxford, Ashmolean Museum, 1945.130b	Unknown, ex C. Martin Mitchell coll.	7.8	5.6	2.0
	Payne 1993: cat. nos. 1974–1975, fig. 82.				

7a	Munich, Staatliches Museum Ägyptischer Kunst, ÄS 5852	Unknown, ex Kolfer-Truniger coll.	6.0	4.8	
7b	Unknown	Unknown, ex Kolfer-Truniger coll., S. 644	6.4	5.4	
7a: Grimm & Schoske 2000: cat. no. 90. 7b: Schlögl 1978: cat. no. 36.					
8a	Zürich, University archaeological coll. 3905	Unknown, bought in Luxor, 1904	7.1	6.0	2.8
8b	Brussels, Royal Museums of Art and History, E.2334b	Unknown, bought in Luxor, 1905	7.2	6.4	2.8
8a: Wild 1948: 24–31, pl. 1a. 8b: Bozet 2009: cat. no. 85.					
9a	Zürich, University archaeological coll. 3906	Unknown, bought in Luxor, 1904	6.2	3.5	2.0
9b	Brussels, Royal Museums of Art and History, E.2334a	Unknown, bought in Luxor, 1905	6.3	3.3	1.9
9a: Wild 1948: 24–31, fig. 27δ. 9b: Unpublished.					
10a	London, Petrie Museum, UC 71630	Unknown, bought by Petrie	6.8	5.3	1.5
10b	Cambridge, Fitzwilliam Museum, E.A. 21	Unknown, bought by Petrie, 1899	7.1	5.2	
10a: Petrie Museum online catalogue. 10b: Fitzwilliam Museum online catalogue.					
11a	London, British Museum, EA 57742	Unknown, ex R. Bethell coll.	7.0	4.7	2.3
11b	New York, Metropolitan Museum of Art, MMA 23.2.30	Unknown, ex R. Berenes coll., bought from H. Carter	7.4	4.4	2.2
11c	Birmingham, City Museum and Art Gallery, 1969W4701	‘es-Saoniyeh’, ex MacGregor coll.; ex Wellcome coll.	8.2	5.1	2.5
11a: Donadoni Roveri & Tiradritti 1998: cat. no. 170. 11b: Metropolitan Museum online catalogue. 11c: Sotheby’s 1922: 115, lot 886.1.					

Table 2. Twinned hippopotamus figurines with rims.

	Current location	Provenance	Dimensions (cm)		
			L	H	W
12	Cairo, Egyptian Museum, CG 14450; JE 31448	Gebel el-Tarif, de Morgan exc. 1896	7.0		
	Tony-Révillon 1950: 50, fig. 3.				
13	Cairo, Egyptian Museum, CG 14451; JE 31448	Gebel el-Tarif, de Morgan exc. 1896	6.5		
	De Morgan 1896: 150–151, fig. 372.				
14	Oxford, Ashmolean Museum, 1895.139	Naqada, Tomb 1475	6.1	3.8	1.3
	Payne 1993: cat. no. 1978, fig. 82.				
15	Unknown	Naga el-Dêr, Tomb 7119	Unknown		
	Lythgoe & Dunham 1965: 69–70, fig. 27j.				
16	Birmingham, City Museum and Art Gallery, 1969W4700	Unknown, ex Wellcome coll.	4.6	3.2	2.6
	Hornblower 1927: 245–246, pl. 55.4–5.				
17	Unknown, private collection	Unknown, ex Borowski coll.	5.1		
	Christie's 2005: cat. no. 3.				
18	Berlin, Ägyptisches Museum, 14147	Naqada (?), accessioned in 1898	8.0	5.6	
	Scharff 1931: 127, cat. no. 627, pl. 21.				
19	Leiden, Rijksmuseum van Oudheden, F1939/5.1	Unknown, bought from H. Burg, 1939	6.5	4.9	2.6
	Schneider & Raven 1981: cat. no. 5.				
20	Paris, Musée du Louvre, E.14233	Unknown	6.2	4.6	3.1
	Louvre Museum online catalogue.				

21	Ipswich, Museum Services, IPSMG R.1932-25.28	Unknown, ex E.J. Schwartz coll.	4.9	3.2	1.6
	Ipswich Museum Services online catalogue				
22	Unknown, private collection	unknown, ex private coll., Germany	7.5	4.4	2.8
	Christie's 2010: cat. no. 343.				
23	London, Petrie Museum, UC 15796	Unknown, ex MacGregor coll.	6.7	5.3	2.8
	Petrie Museum online catalogue.				
24	Barcelona, Museu Egipci, number unknown	Unknown	–	4.8	
	Museo Egipcio De Barcelona 2004: cat. no. 7.				
25	New York, Metropolitan Museum of Art, MMA 07.228.62	Unknown	7.6	5.1	2.7
	Unpublished.				
26	New York, Metropolitan Museum of Art, MMA 23.2.29	Unknown	7.0	5.1	2.3
	Unpublished.				

Table 3. Unpaired hippopotamus figurines with rims.



Fig. 10. No. 7a, Munich ÄS 5852 (Photo courtesy of Staatlicher Sammlung Ägyptischer Kunst, Munich). No. 7b, location unknown (after Schlögl 1978: 22, cat. no. 36).

Newly identified pairs

The corpus of hippopotamus figurines with rims includes 20 further objects held in various private and public collections. Examination of these has revealed four additional pairs of twins, which are now divided among different collections. The similarities among the reconstructed sets are striking and their modern histories offer additional evidence for their original pairing.¹⁷

Two figurines, purchased in Luxor in 1904, were part of the former Bally-Prior Museum in Schönenwerd, Switzerland (Figs. 11–12; Table 2: Nos. 8a, 9a: Wild 1948: 24–31, fig. 27δ, pl. 1ab; Behrmann 1989: Dok. 14no). They are different from each other and obviously do not form a pair. I was recently able to trace their present location in the archaeological collection of the University of Zürich.¹⁸ Two hippopotamus figurines in the Royal Museums of Art and History in Brussels (Figs. 11–12; Table 2: No. 8b, No. 9b; Bozet 2009: 137–138), also non-identical, are the exact counterparts for the two in Zürich and were purchased in Luxor at about the same time (1905 according to the RMAH register).

The figurines of pair Nos. 8a–b (Fig. 11) are intact except for minor chips on the rim and surface. The heads of the hippopotami are scarcely

¹⁷ While I have examined most, but not all, of the figurines described in this section, their authenticity is strongly suggested by the early date of their purchase in Egypt and by their pairing, which has not been previously described in the literature.

¹⁸ I thank Jean-Luc Chappaz (Museum of Art and History, Geneva) for his advice and Elena Mango (archaeological collection, University of Zürich) for forwarding information on the objects and their photographs. Both figurines still have their former Bally-Prior Museum numbers painted in white on one side (5861 for No. 8a and 5862 for No. 9a).



Fig. 11. No. 8a, Zürich 3905 (Photo by S. Hertig, Archäologisches Institut, Universität Zürich). No. 8b, Brussels E.2334b (Photo by X. Droux, courtesy of the Royal Museum of Art and History, Brussels).



Fig. 12. No. 9a, Zürich 3906 (Photo by S. Hertig, Archäologisches Institut, Universität Zürich). No. 9b, Brussels E.2334a (Photo by X. Droux, courtesy of the Royal Museum of Art and History, Brussels).

distinct from the bodies. The mouths are indicated as half open by a longitudinal groove. The eyes, nostrils and ears appear as small protuberances. The legs are much shorter than their prominent bellies, making it impossible for the figurines to stand upright. The rims protruding from the backs are grooved and pierced by four holes each. The dimensions of the two objects are similar (Table 2).

The twin figurines Nos. 9a–b (Fig. 12) are not as well preserved; their rims are largely lost. The mouths are shown as half open by a wide longitudinal groove; the eyes, ears and nostrils appear as small protuberances. The nostrils are also drilled. The legs are short and of equal length. The tails are not indicated. The rims surround a hollowed out area and are pierced by four holes each. It is likely that all four figurines were bought from the same antiquities dealer in Luxor and that the two pairs were split when they were sold.



Fig. 13. No. 10a, UC 71630 (Photo by X. Droux, courtesy of Petrie Museum, London). No. 10b, Cambridge E.A. 21 (Photo courtesy of Fitzwilliam Museum, Cambridge).

A third new pair (Fig. 13) is divided between the Petrie Museum (No. 10a) and the Fitzwilliam Museum in Cambridge (No. 10b). Both figurines were purchased by Petrie at the end of the 19th century, but nothing more is known. No. 10a still bears an unidentified sales tag reading 395/6 on one side, while No. 10b was accessioned by the Fitzwilliam Museum in 1899. Both are in good condition and carved in pink limestone with concentric veining. The heads are squared; the ears and eyes are represented by small protuberances. The nostrils are just slightly indicated on the muzzle. The figurines can stand on their short legs and have carved triangular tails. The rims surround hollowed out areas and are pierced by four holes.

The final group of figurines (Fig. 14) appears to consist of three identical objects, although it is more likely that the fourth member of the set, forming two distinct pairs, has not yet been identified or retrieved. One is in the British Museum (No. 11a; Donadoni Roveri & Tiradritti 1998: 176–177, cat. no. 107), the second one is in the Metropolitan Museum of Art in New York (No. 11b), and the third is in the Birmingham City Museum and Art Gallery (No. 11c). The history of their acquisition in Egypt is unknown, but they were all acquired by collectors before or in the very first years of the 1920s. They reached their present locations independently, but within a few years of each other. The first figurine was sold to the British Museum in 1925 by Richard Bethell; the second one was bought by the collector Randolph Berenes from H. Carter some time before 1922 and acquired by the Metropolitan Museum at the 1923 Sotheby's auction (London, June–July 1923).¹⁹ The last figurine was part

¹⁹ Information kindly provided by Isabel Stuenkel, Metropolitan Museum of Art, New York.



Fig. 14. No. 11a, BM EA 57742 (Photo by X. Droux, courtesy of the British Museum, London). No. 11b, MMA 23.3.30 (Photo courtesy of Metropolitan Museum of Art, New York). No. 11c, Birmingham 1969W4701 (Photo by X. Droux, courtesy of the Birmingham City Museum and Art Gallery).

of the MacGregor Collection and bought at the 1922 Sotheby's auction (1922: 115, lot 886.1) by Mr Stow, who was bidding on behalf of Sir Henry Wellcome. In 1969, the Wellcome Trust gave many Egyptian artefacts to the Birmingham Museum, including the hippopotamus figurine.²⁰

The three figurines are in very good condition; their heads are large, with the mouths represented half open by a longitudinal groove. The ears have a small depression drilled in their centres, and the eyes appear as small protuberances. The tips of the muzzles are turned upward, probably as a way of indicating the prominent nostrils. Triangular tails are carved at the rear. All three figurines are finely carved from the same pink limestone. Nos. 11a and 11c share a similar pattern of white veining, which suggests that they form a pair and were carved from the same block of stone, in which case No. 11b would belong to a different pair for which the counterpart is still missing. Nevertheless, the similarity between the

²⁰ The figurine still bears its MacGregor Collection accession number painted on one side (3334). No mention of it or of a second hippopotamus figurine, which was part of the same lot, has been found in the Wellcome Trust Library archives.

objects indicates that they have been carved by the same person. The rims are all placed toward the front of the figurines, which is also distinctive. The rims are hollowed out, but pierced by an unequal number of holes: four on the figurines in the British Museum and the Metropolitan Museum, and three on the one in Birmingham.

Out of a total of 38 known figurines, there are only 15 remaining for which no counterpart is currently known (Table 3). It is therefore likely that a twin was originally created and as more figurines are identified, further pairing should be possible in the future.

Figurines with ‘knobs’ on their backs

A few other Predynastic hippopotamus-shaped figurines share some formal similarities with the ‘rimmed’ figurines owing to the projections emerging from their backs; however, as these projections are not hollowed out, they cannot be considered as rims, but should be seen as ‘knobs’. The narrowing at the base of the knobs suggests that a string could easily have been attached for suspension. These figurines are on average smaller than those with the rims, with the exception of an unprovenanced figurine in New York which is larger (8.2 cm). Three of these ‘knobbed’ figurines are carved of pink limestone (Petrie Museum UC 10058; British Museum EA 57741; New York MMA 10.176.102). Only the one in the Petrie Museum is published and has a known provenance: Hammamieh, Area A6, no. 130 (Brunton & Caton-Thompson 1928: 102–103, pl. 73.176), but its dating is uncertain. These figurines have unequal dimensions and cannot be associated in pairs.

Another hippopotamus-shaped object of steatite, which has a transverse-pierced knob on its back, was not carved in the round, but is flat and largely two-dimensional (Petrie Museum UC 15197; Petrie 1914: pl. 40.235c, 1920: 12, pl. 9.30). This piece is a close parallel to a slate palette in Boston (MFA 03.1477, Smith 1942: 16–17, fig. 3). Also rather two-dimensional are the three small ivory figurines with knobs on their backs from Badari (mentioned above), which are the only items in this class clearly made in multiples.

Discussion

The figurines discussed in this paper have been singled out of the corpus of hippopotamus representations because of the peculiar rims projecting

from their backs and because, as demonstrated above, they were deliberately created as sets of identical twins.

The rims are usually pierced by four drilled holes. The purpose or meaning of these rims has not been explained convincingly. Several propositions have been put forward, some of which have almost comical connotations. This is particularly the case for the hypothesis of M. Beadnell quoted and rejected by O. Myers (Mond & Myers 1937: 38), which proposed that the rims represented young hippopotami resting on the backs of their mothers. Although such a phenomenon can be commonly observed in nature, this association with the rims, which bear no resemblance to baby hippopotami, is highly unlikely. Myers then goes on to present the case “for the domestication by the Predynastic Egyptians of the hippopotamus, or at least for its confinement to certain areas during the breeding season” (Mond & Myers 1937: 42). Developing this further, he suggested that the pierced rims on the figurines represented a howdah (riding seat) so that the animal could be mounted for use during crocodile hunts (Mond & Myers 1937: 38–42). Although faunal remains recently excavated at Hierakonpolis indicate that young hippopotami were captured alive and at least one was kept captive for some time before its death and subsequent burial in the elite cemetery at HK6 (Van Neer & Linseele 2009; Friedman et al. this volume), the training of this animal as a hunting mount bears no further consideration.

More realistic suggestions include that of Petrie (1920: 12), who interpreted the figurines on the basis of their pierced rims as ‘plug-pendants’ for water skins, given their similarity to the stone cones with drilled holes around the upper edge (Hendrickx & Eyckerman this volume: type C, figs 26–27). However, as discussed by S. Hendrickx and M. Eyckerman (this volume), there is no evidential basis for this interpretation of the stone cones, and such a usage seems especially impractical for the rimmed hippopotamus figurines.

G.D. Hornblower (1927: 243–245) presented the possibility that the rims may have derived via a degenerative evolution from the tusks with carved hippopotamus figurines at their tip (see Table 1; Fig. 2) and in a subsequent phase, the rimmed figurines then developed into the hippopotamus-shaped stone vessels with wide openings at their back (cf. Hendrickx & Depaetere 2004: table 1).²¹ As noted in Mond & Myers (1937: 38), this

²¹ A further update to the list of hippopotamus-shaped vessels presented in Hendrickx & Depaetere (2004: table 1) involves an example illustrated by Petrie (1920: 36, pls. 35.44, 42.207), which can now be located in the Petrie Museum (UC 15737). As

evolution cannot be supported by the chronology of the objects in question, especially since a hippopotamus-shaped ivory vessel with rim is already known from the Badarian period (BM EA 63057, discussed above). Furthermore, the question of whether the tusks with hippopotamus figurines at their tips were used as containers, as the stone vessels clearly were, is far from resolved (cf. Baumgartel 1960: 58); yet, their resemblance to the ceramic hippopotami with the vessel necks emerging from the back (Fig. 1) is intriguing and requires further consideration. For the moment, however, whether the piercing around the rims could have been used to affix a functional lid is irrelevant for the stone hippopotamus figurines as the size of the depressions framed by the rims is far too small to have contained any material, liquid or solid. Nevertheless, the connection between the tusks with the carved hippopotamus figurines at their tips and the rimmed stone figurines is strongly suggested by the fact that both classes of artefact appear as identical pairs.

If the perforations around the rims of the stone hippopotamus figurines served any practical purpose at all, and considering the effort taken to produce the piercing, it is likely that they did have a function, the remaining explanation involves suspension. A string or leather thong threaded through the holes may have allowed them to be hung up or tied together, or both. The size and weight of the stone hippopotamus pairs make it unlikely, but certainly not impossible, that the figurines were worn on the body. Indeed, it is notable that on items clearly of use for body ornamentation (i.e., combs and pins), the hippopotamus is rarely depicted in comparison to birds and other quadrupeds (Martín del Río Álvarez & Rosales 2004). Nevertheless, pendants or beads in hippopotamus form are known: the figurines with knobs on their backs in ivory and stone are much more likely to have been used as pendants, as a string can easily be tied around the projection and their generally small size range would have made them less cumbersome to wear. It should be noted, however, that figural amulets/pendants are rare in general until the Naqada IIC period when bovine head pendants appear (Hendrickx 2002: appendix F). With respect to figural body ornamentation, it is interesting to note the rock drawing from 'Dominion behind Thebes' published by J.C. Darnell (2002: 145, pl. 88; Hendrickx et al. 2009: fig. 23), which depicts a group of hunters

mentioned earlier, the last item on their list, formerly in the McGregor Collection, is now in the Ashmolean Museum (Payne 1993: cat. no. 1202) and is made of stone, not ceramic. The identification of both of these objects as hippopotami, in my opinion, should be rejected.

in feathered caps, two of which bear a pair of confronting hippopotami on their chests. While these are possibly etched into the leather of their garments, as Darnell suggests, they are among the very few depictions of figural body ornamentation in predynastic art,²² and remarkably depict the hippopotami in pairs.

The significance of pairing is unknown, but this phenomenon is not restricted to the figurines with rims. It is also observed in other artefacts all directly related to the hippopotamus, especially tusks and tags, which preferentially occur in sets of two or three, but sometimes more (see Hendrickx & Eyckerman this volume: table 2). Although the members of these sets are often similar, among the tusks and tags it appears that little stress has been placed on the creation of distinct sets of identical pairs. Especially with regard to the sets of tusks with the ring and knob at the top (Hendrickx & Eyckerman this volume: type A.6), the much-discussed composition of the pair (Baumgartel 1960), which are outwardly similar, but include one solid and one hollow example, seems to imply a deliberate desire for a difference between the two.

By contrast, the stone hippopotamus figurines with the rims appear to have been manufactured and distributed as identical pairs, each pair more or less distinct from the next. The only other class of object consistently exhibiting the same interest involves the ivory tusks with carved figurines at their tips (Table 1).²³ Given this association, it is possible that the rims on the stone figurines are a deliberate evocation or ‘telescoped’ imitation of the tusk emerging from the back of the twinned ivory examples. It is

²² The figural motifs (including hippopotami) painted on a series of clay female figurines, if representative of reality at all, probably reflect tattoos or body paint rather than amulets or jewellery (Keimer 1948; Baduel 2008; Hendrickx et al. 2009: 212, fig. 22). The clearly indicated bracelets and necklaces on these figurines are all composed of geometric elements only.

²³ Other examples of twinning are rare. Three clay figurines excavated in tomb B101 at Abadiya are similar to each other (Petrie 1901: 33, pl. 5), and two of them clearly form a pair (Ashmolean Museum E.948–949, Capart 1905: 177, fig. 138; Payne 1993: 21, cat. nos. 53–54, fig. 14): their dimensions only differ by 1 mm, and their legs and muzzles have been modelled in exactly the same manner. There are remains of red pigments on both. The third figurine (Ashmolean Museum E.947; Payne 1993: 21, cat. no. 55, fig. 14) is quite similar, but slightly larger and modelled differently. It seems that it was also originally covered with a red coating. Two figurines in the Ägyptisches Museum in Berlin (15717–15718), carved in the same type of porphyritic stone, also form a near identical pair (Scharff 1929: pl. 21.105–106; Kaiser 1967: 11, cat. nos. 49–50). They were bought together in Egypt in 1901 and are said to come from the area of Elkab. Finally, there is the above-mentioned trio of ivory figurines from Badari Tomb 3823, at least two of which are identical, and the pair of tiny ivory figurines from Mesaid Tomb 10, which are very similar but may not be exactly identical in their decoration (Boston MFA 11.297).

worth mentioning again that the tusks with figurines were carved from hippopotamus incisors and the internal depression is formed originally by the natural pulp cavity of the tooth. The presence of the natural pulp cavity on both members of the set excludes the use of a single tusk for both of them, although only a small portion of the tusk was utilised and a large amount of ivory was lost in the process of rendering the figurine at the tip (see Fig. 2). As both members of the pair are hollow, it is likely that the raw material derived from the incisors of the same animal.

As hippopotami were present throughout the Nile Valley, particularly in areas where shallow waters sheltered them from the strong current of the river, the ancient Egyptians were certainly aware of their habits. This animal is gregarious and lives in groups of up to 30–40 individuals, organised according to a territorial system of mating. One male, monopolising a length of river bank, heads a group that consists exclusively of females and immature males (Estes 1991: 222–226; Eltringham 1999). Obviously, this pattern of grouping does not result in there being salient pairs.

If the association between the hippopotamus-tipped ivory tusks and the stone figurines with rims is valid, the origin of the twinning could then be linked to the material used. The tusks may have been produced as pairs of identical twins because of their direct relationship to the naturally paired incisors found in the hippopotamus jaw. Thus, if the stone figurines with rims are deliberate evocations of the ivory tusks with carved hippopotamus figures, the idea behind the twinned pairs would be the same. However, the use of the same raw material for tusks and tags unadorned with hippopotamus figurines did not result in the deliberate creation of identical twins, although pairs or multiples were obviously of importance (see Hendrickx & Eyckermann this volume).

Thus, the same concepts or purposes may not lie behind the large variety of objects, in various media, that take the hippopotamus as the referent for their imagery or evocation. Indeed, it seems notable that tusks and tags, connected to the hippopotamus by their tusk shape or raw material, in some manifestations meld with other imagery (bovine, bird or human). While they occur and were evidently used in pairs or multiples, these are not always or explicitly identical. On the other hand, twinning seems to be of importance for objects which maintained a direct connection with the hippopotamus by reproducing its form, whether in stone or ivory, and suggests a somewhat different conceptual base or usage from tusks and tags.

The consistent pairing of twin figurines as seen in the context of the hippopotamus-shaped objects discussed in this paper is a unique phenomenon

in the material culture of Predynastic Egypt. It is unlikely to be merely an accident of the mode of manufacture. Instead, this practice suggests that the objects evoking or portraying the hippopotamus, the most popular motif of the Naqada I–IIB period, are not simply variations on a single theme and that a more detailed and nuanced approach is required for their analysis.

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Bibliography

- ASSELBERGHS, H., 1961. *Chaos en beheersing: documenten uit het aeneolithisch Egypte*. Leiden.
- AYRTON, E.R. & LOAT, W.L.S., 1911. *Pre-dynastic cemetery of el-Mahasna*. Egypt Exploration Fund 31. London.
- BADUEL, N., 2008. Tegumentary paint and cosmetic palettes [in:] MIDANT-REYNES, B. & TRISTANT, Y. (eds.), ROWLAND, J. & HENDRICKX, S. (coll.), *Egypt*

- at its origins 2. Proceedings of the international conference 'Origin of the State. Predynastic and Early Dynastic Egypt', Toulouse (France), 5th–8th September 2005.* Orientalia Lovaniensia Analecta 172. Leuven: 1057–1090.
- BAUMGARTEL, E.J., 1960. *The cultures of prehistoric Egypt II*. London.
- BAUMGARTEL, E.J., 1970. *Petrie's Naqada excavation: A supplement*. London.
- BEHRMANN, A., 1996. *Das Nilpferd in der Vorstellungswelt der Alten Ägypter. Teil I, Katalog*. Europäische Hochschulschriften 38 Archäologie 22. Frankfurt.
- BIERBRIER, M.L., 1995. *Who was who in Egyptology*. London.
- BOZET, N. (ed.), 2009. *Aux origines de pharaon*. Guides archéologiques du Malgré-Tout 85. Treignes.
- BRUNTON, G., 1937. *Mostagedda and the Tasian culture*. London.
- BRUNTON, G., 1948. *Matmar*. London.
- BRUNTON, G., & CATON THOMPSON, G., 1928. *The Badarian civilisation and predynastic remains near Badari*. Egyptian Research Account & British School of Archaeology in Egypt 30. London.
- BOTHMER, B., 1948. A Predynastic Egyptian hippopotamus. *Bulletin of the Museum of Fine Arts, Boston* 46: 64–69.
- BUDGE, E.A.W., 1920. *By Nile and Tigris. A narrative of journeys in Egypt and Mesopotamia on behalf of the British Museum between the years 1886 and 1913*. Volume II. London.
- CAPART, J., 1905. *Primitive art in Egypt*. London.
- CHRISTIE'S, 2005. *Ancient Egyptian art from the Harer family trust collection*. New York.
- CHRISTIE'S, 2010. *Antiquities, 29 April 2010*. London.
- COLMAN, H.C., 1905. *Jeremiah James Colman, a memoir*. London.
- DARNELL, J.C., 2002. Opening the narrow doors of the desert: Discoveries of the Theban Desert Road Survey [in:] FRIEDMAN, R. (ed.), *Egypt and Nubia. Gifts of the desert*. London: 132–155.
- DONADONI ROVERI, A.M., & TIRADRITTI, F., 1998. *Kemet: alle sorgenti del tempo*. Milan.
- DRENKHahn, R., 1987. *Elfenbein im alten Ägypten: Leihgaben aus dem Petrie-Museum London*. Hannover.
- DREYER, G., HARTUNG, U., HIKADE, T., KÖHLER, E.C., MÜLLER, V. & PUMPENMEIER, F., 1998. Umm el-Qaab. Nachuntersuchungen im frühzeitlichen Königsfriedhof 9./10. Vorbericht. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 54: 77–167.
- DREYER G., VON DEN DRIESCH, A., ENGEL, E.-M., HARTMANN, R., HARTUNG, U., HIKADE, T., MÜLLER, V. & PETERS, J., 2000. Umm el-Qaab. Nachuntersuchungen in frühzeitlichen Königsfriedhof 11./12. Vorbericht. *Mitteilungen des Deutschen Archäologischen Instituts Abteilung Kairo* 56: 43–129.
- DROUX, X. & FRIEDMAN, R. 2007. The columned hall at HK6 and other wonders. *Nekhen News* 19: 7–9.
- ELTRINGHAM, S.K., 1999. *The hippos: Natural history and conservation*. London.
- ESTES, R.D., 1991. *The behavior guide to African mammals: Including hoofed mammals, carnivores, primates*. Berkeley-Los Angeles-London.
- FRIEDMAN, R., 2000. Figures in flint. *Nekhen News* 12: 14.

- FUNDACIÓ ARQUEOLÒGICA CLOS – MUSEO EGIPCIO DE BARCELONA (ed.) 2004. *Damas del Nilo. Mujeres y diosas del antiguo Egipto*. Barcelona.
- GALASSI, G., 1955. *Preistoria e protostoria mediterranea. L'arte del più antico Egitto nel Museo di Torino*. Rivista dell'Istituto Nazionale d'Archeologia e Storia dell'Arte, Nuova Serie A.4. Rome.
- GLANVILLE, S.R.K., 1926. Egyptian theriomorphic vessels in the British Museum. *Journal of Egyptian Archaeology* 12: 52–69.
- GRAFF, G., 2009. *Les peintures sur vases de Naqada I–Naqada II. Nouvelle approche sémiologique de l'iconographie prédynastique*. Egyptian Prehistory Monograph 6. Leuven.
- GRIMM, A. & SCHOSKE, S., 2000. *Am Beginn der Zeit: Ägypten in der Vor- und Frühzeit*. Schriften aus der Ägyptischen Sammlung 9. München.
- HAYES, W.C., 1953. *The scepter of Egypt. A background for the study of the Egyptian antiquities in the Metropolitan Museum of Art. Part I. From the earliest times to the end of the Middle Kingdom*. New York.
- HENDRICKX, S., 2002. Bovines in Egyptian Predynastic and Early Dynastic iconography [in:] HASSAN, F.A. (ed.), *Droughts, food and culture: Ecological change and food security in Africa's later prehistory*. New York-London: 275–318.
- HENDRICKX, S. & DEPRAETERE, D., 2004. A theriomorphic Predynastic stone jar and hippopotamus symbolism [in:] HENDRICKX, S., FRIEDMAN, R.F., CIAŁOWICZ, K.M. & CHŁODNICKI, 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', Kraków, 28th August–1st September 2002*. Orientalia Lovaniensia Analecta 138. Leuven: 801–822.
- HENDRICKX, S., HUYGE, D. & ADAMS, B., 1997–1998. Le scorpion en silex du Musée royal de Mariemont et les silex figuratifs de l'Égypte pré- et proto-dynastique. *Les Cahiers de Mariemont* 28–29: 6–33.
- HENDRICKX, S., RIEMER, H., FÖRSTER, F., & DARNELL, J.C., 2009. Late Predynastic/Early Dynastic rock art scenes of Barbary sheep hunting from Egypt's Western Desert. From capturing wild animals to the 'Women of the Acacia House' [in:] RIEMER, H., FÖRSTER, F., HERB, M. & PÖLLATH, N. (eds.), *Desert animals in the eastern Sahara: Status, economic significance and cultural reflection in antiquity*. Proceedings of an international ACACIA workshop held at the University of Cologne, Germany. December 14–15, 2007. Colloquium Africanum 4. Köln: 189–244.
- HORNBLOWER, G.D., 1927. Some predynastic carvings. *Journal of Egyptian Archaeology* 13: 240–246.
- HORNEMANN, B., 1951–1969. *Types of ancient Egyptian statuary*. Copenhagen.
- KAISER, W. (ed.), 1967. *Ägyptisches Museum Berlin*. Berlin.
- KEIMER, L., 1948. *Remarques sur le tatouage dans l'Égypte ancienne*. Mémoires de l'Institut d'Égypte 53. Cairo.
- KLEMM, D. & KLEMM, R., 2008. *Stones and quarries in Ancient Egypt*. London.
- KRZYSZKOWSKA, O., 1990. *Ivory and related materials: An illustrated guide*. London.
- LYTHGOE, A.M. & DUNHAM, D., 1965. *The Predynastic cemetery N7000. Naqa-ed-Dêr. Part IV*. University of California publications in Egyptian Archaeology 7. Berkeley-Los Angeles.

- MANLIUS, N., 2000. Biogéographie et écologie historique de l'hippopotame en Egypte. *Belgian Journal of Zoology* 130: 59–66.
- MARTÍN DEL RÍO ÁLVAREZ, C. & ROSALES, E.A., 2004. An analysis of the theriomorphic representations on combs and hairpins from the Predynastic period [in:] HENDRICKX, S., FRIEDMAN, R.F., CIAŁOWICZ, K.M. & CHŁODNICKI, 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'*, Kraków, 28th August–1st September 2002. *Orientalia Lovaniensia Analecta* 138. Leuven: 881–889.
- MASSOULARD, E., 1949. *Préhistoire et protohistoire d'Égypte*. Travaux et mémoires de l'Institut d'Ethnologie 53. Paris.
- MOND, R. & MYERS, O.H., 1937. *The cemeteries of Armant I*. Egypt Exploration Society 42. London.
- DE MORGAN, J., 1896. *Recherches sur les origines de l'Égypte. L'âge de la pierre et les métaux*. Paris.
- DE MORGAN, J., 1897. *Recherches sur les origines de l'Égypte. Ethnographie préhistorique et tombeau royal de Négadah*. Paris.
- MÜLLER, H.W., 1970. Berichte der Staatlichen Kunstsammlungen, Neuerwerbungen. Staatliche Sammlung Ägyptischer Kunst. *Müncher Jahrbuch der Bildenden Kunst* 21: 181–186.
- MÜLLER, H.W., & WILDUNG, D., 1976. *Staatliche Sammlung Ägyptischer Kunst*. 2nd ed. Munich.
- PAYNE, J.C., 1993. *Catalogue of the predynastic Egyptian collection in the Ashmolean Museum*. Oxford.
- PETRIE, W.M.F., 1890. *Kahun, Gurob, and Hawara*. London.
- PETRIE, W.M.F., 1901. *Diospolis Parva: the cemeteries of Abadiyeh and Hu*. Egypt Exploration Fund 20. London.
- PETRIE, W.M.F., 1914. *Amulets*. London.
- PETRIE, W.M.F., 1920. *Prehistoric Egypt*. Egyptian Research Account & British School of Archaeology in Egypt 31. London.
- PETRIE, W.M.F. & QUIBELL, J.E., 1896. *Naqada and Ballas*. Egyptian Research Account & British School of Archaeology in Egypt 1. London.
- PIOTROVSKY, B. (ed.), 1974. *Egyptian antiquities in the Hermitage*. Leningrad.
- PODZORSKI, P.V., 1994. *The northern cemetery at Ballâs in Upper Egypt: A study of the Middle and Late Predynastic remains*. Salinas.
- QUIBELL, J.E., 1905. *Catalogue Général des antiquités égyptiennes. nos. 11.001–12.000 et 14.00–14.754. Archaic objects*. Cairo.
- QUIBELL, J.E. & GREEN, F.W., 1902. *Hierakonpolis II*. Egyptian Research Account & British School of Archaeology in Egypt 5. London.
- SAIKAWA, Y., HASHIMOTO, K., NAKATA, M., YOSHIHARA, M., NAGAI, K., IDA, M. & KOMIYA, T., 2004. The red sweat of the hippopotamus. *Nature* 429: 363.
- SCHARFF, A., 1929. *Die Altertümer der Vor- und Frühzeit Ägyptens II*. Mitteilungen aus der Ägyptischen Sammlung, Staatliche Museen zu Berlin 5. Berlin.
- SCHARFF, A., 1931. *Die Altertümer der Vor- und Frühzeit Ägyptens I*. Mitteilungen aus der Ägyptischen Sammlung, Staatliche Museen zu Berlin 4. Berlin.
- SCHLÖGL, H.A., 1978. *Geschenk des Nils: Ägyptische Kunstwerke aus Schweizer Besitz*. Basel.

- SCHNEIDER, H.D. & RAVEN, M.J., 1981. *De Egyptische Oudheid – Rijksmuseum van Oudheden*. Leiden.
- SMITH, W.S., 1942. *Ancient Egypt as represented in the Museum of Fine Arts*. Boston.
- SOTHEBY'S, 1922. *The MacGregor Collection of Egyptian antiquities*. London.
- SPENCER, A.J., 1993. *Early Egypt: The rise of civilization in the Nile Valley*. London.
- TARDY, H.L., 1977. *Les Ivoires: Evolution décorative du 1er siècle à nos jours*. Part 2. Paris.
- TONY-RÉVILLON, A., 1950. A propos d'une statuette d'hippopotame récemment entrée au Musée de Boston. *Annales du Service des Antiquités de l'Égypte* 50: 47–63.
- VAN NEER, W. & LINSEELE, V., 2009. Healed animal bones at HK6. *Nekhen News* 21: 11–12.
- WIESE, A., 2001. *Antikenmuseum Basel und Sammlung Ludwig: Die ägyptische Abteilung*. Sonderbände der Antiken Welt. Mainz am Rhein.
- WILD, H., 1948. Choix d'objets pré-pharaoniques appartenant à des collections de Suisse. *Bulletin de l'Institut Français d'Archéologie Orientale* 47: 1–58.