Riverine and desert animals in predynastic Upper Egypt: material culture and faunal remains

Volume I

Xavier Droux
Lincoln College

A thesis presented for the degree of
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at the University of Oxford
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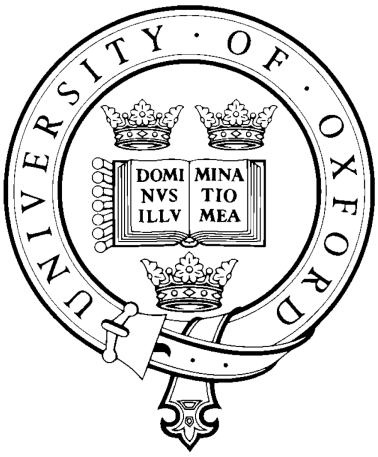

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Abstract

Animals were given a preponderant position in Egyptian art, symbolism, and cultual practices. This thesis centres on the relationship between humans and animals during the predynastic period in Upper Egypt (Naqada I–IIIB, 4th millennium BCE), focusing on hippopotamus and crocodile as representatives of the Nile environment and antelope species as representatives of the desert environment.

Depictions of these animals are analysed and compared with contemporary faunal remains derived from activities such as cult, funerary, or every day consumption. The material analysed covers several centuries: temporal evolutions and changes have been identified. The animals studied in this thesis were first used by the Naqada I–IIB elites as means to visually and practically express their power, which they envisioned in two contrasting and complementary ways. The responsibilities of the leaders were symbolised by the annihilation of negative wild forces primarily embodied by antelope species. In contrast, they symbolically appropriated positive wild forces, chief among them being the hippopotamus, from which they symbolically derived their power.

Faunal remains from after mid-Naqada II are few, depictions of hippopotamus disappeared and those of crocodile became rare. Antelope species became preponderant, especially on D-ware vessels, which were accessible to non-elite people. However, toward the end of the predynastic period, antelope species came to be depicted almost exclusively on high elite material; they lost their individuality and became generic representatives of chaotic forces that the leaders and early rulers had to annihilate in order to maintain control and order.

This thesis is dedicated to
The memory of my father Daniel Droux

Who passed away too soon to see this work accomplished,
But to whom I owe my appreciation for nature and wild animals.
May childhood memories of stalking alpine ibex, chamois,
And other wild goat (but no hippo!) in the Swiss Pre-Alps never perish.

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"It's a dangerous business, […] going out your door […].
You step into the Road, and if you don't keep your feet,
There's no knowing where you might be swept off to."

J.R.R. Tolkien
The Lord of the Rings

Acknowledgements

Reading a letter, back in 1999, from Dr Helen Whitehouse — letting me know that I would have the opportunity to do an internship at Oxford's Ashmolean Museum the following summer was a source of intense excitement, and the beginning of quite an adventure. Little did I expect that "going out my door" for a two-week stay would ultimately lead me into the Road of doctoral research at Oxford. I therefore first would like to extend my deepest gratitude to Dr Whitehouse, former Senior Assistant Keeper at the Department of Antiquities of the Ashmolean Museum, for the offered opportunity, allowing me to discover the world of museums from behind the scenes, and teaching me so much about collections care. The generous scholarship awarded by the Berrow Foundation was the key that allowed me to embark on the DPhil journey itself and I am profoundly grateful to the Foundation and to its benefactor, the Marquise de Amodio. Research travels were undertaken thanks to financial support from the Lincoln College Graduate Fund and the Griffith Egyptological Fund.

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1 Background and context

Since Flinders Petrie first uncovered remains that predate the first Egyptian dynasty, when he undertook excavating cemeteries at Naqada in 1894 (Spencer 2011), most of the material culture of the predynastic period has derived from burials. The most common grave offerings were pottery vessels (Bard 1988) and those with painted decorations, of White cross-lined and Decorated classes, dominate the corpus of two-dimensional artistic depictions of the period (Graff 2009a). The majority of painted vessels of both classes are decorated with geometric designs; those with figural motifs show that wild animals played an important role in the mindset of the predynastic Egyptians. This is echoed in rock art, which appears to be overwhelmingly dominated by animal figures, although figural petroglyphs may have been recorded with more consistency than non-figural elements (see e.g. Storemyr 2009; Hardtke 2012a).

The significant place given to wild animals in predynastic art was not constrained to two dimensional media such as painted or incised vessels, ceramic boxes, human figurines, linen, palettes, tomb wall, and rock art. These wild animals were also represented in the forms of free-standing figurines, pendants, zoomorphic vessels and palettes, as well as figurines carved atop combs and hairpins. The predynastic corpus of imagery of wild animals is vast, and cannot be studied as a whole in this thesis. Therefore, I chose to concentrate my research on a selection of animal species representative of the two opposing environments of Egypt: the hippopotamus and crocodiles that are both amphibious animals that lived in the Nile River and its immediate surroundings, and the antelopes that lived in the various desert environments of Egypt, from the fringes of the Nile Valley to more remote areas. Other wild species from these environments were known to the predynastic Egyptians and used by them, both in life and material culture. However, I chose the hippopotamus, crocodile, and antelope species because they are all found in zooarchaeological assemblages that can be compared with a large body of depictions in the contemporaneous material culture. I do not limit “antelopes” to species of the

antilopinae sub-family, but use this term to describe all species of wild horned quadrupeds of the *Bovidae family*, excluding the aurochs (see §4.1).

In this thesis, each species is first introduced by a brief zoological summary highlighting the principal characteristics of the animals. The relationships between the predynastic Egyptians and these species are best understood through the dichotomy between the depictions they created of the animals and the faunal remains that derive from the actual use they made of the same animals. Analysing both aspects independently and comparing them shows that the species I selected were not treated equally, both in nature and art, and were not seen as mere token of "the wild" with interchangeable values. Temporal evolution was also noted, with a distinct difference in the use of animal species in imagery between the early predynastic (Naqada I–IIB) and the later predynastic (Naqada IIC–IIIB).

From the Badarian period onward (Brunton & Caton-Thompson 1928, 6; Anderson 1992), and throughout the Naqada period, the Upper Egyptian societies became increasingly stratified, with the emergence of ruling elites. Evidence for elites is not strong until at least Naqada IC and is clearer from early Naqada II. Members of elites are separated from the general population; they maintain structural inequality and restrict access to some material and symbolic resources. Archaeologically, the presence of elite groups in predynastic Egypt has been identified primarily in funerary contexts through various factors including effort or labour necessary for tombs building, craft specialisation, the treatment of the dead, and the creation of separate mortuary areas for different social classes (see e.g. Wilkinson 1996; Midant-Reynes 2000, 198; Anderson 2006, 10–15, 242–3; Wengrow 2006, 72–123; Hartung 2010). Elite activities have also been identified in settlement contexts, in areas described as loci of ritual activities, at Hierakonpolis and Mahasna (Holmes 1992, 44; Anderson 2006; Friedman 2009a; Friedman et al. 2011; Linseele et al. 2009).

In general, faunal remains of wild species are rare among predynastic Egyptian zooarchaeological assemblages; the food economy was already based largely on agriculture, including animal husbandry (Linseele et al. 2009). Fishing seems to have played a secondary role at most sites, although fish may be

underrepresented in the assemblages because their small bones tend to survive less well than larger mammalian bones (Wheeler & Jones 1989, chap. 5, 151); numbers of fish bones are also influenced by sampling and excavation methods (Linseele et al. 2009, 115 and note 30). In comparison, remains from wild hunted animals, including those studied in this thesis, are much more incidental, but a statistical analysis shows that species such as hippopotamus and crocodile were almost exclusively used in contexts that can be argued to be of elite activities, while gazelles were more freely hunted and likely eaten, suggesting that access to some desert species was less controlled by the elites. However, this finding stands in sharp contrast with other antelope species, such as hartebeest, the remains of which have only rarely been found in archaeological contexts, as well as ibex, oryx, and addax, which are virtually absent from the faunal record. The absence of bones from these species in predynastic assemblages may in part be explained by geographical considerations (the addax and oryx were probably seldom seen in the vicinity of the Nile Valley; see below). However, it seems that hunting them, and especially the ibex, may not have been allowed. This suggests that the ibex had a special status that the iconography does not explicitly make clear.

The frequent imagery of wild animals shows the importance that the predynastic Egyptians gave to the species studied in this thesis on a symbolic level, and this contrasts markedly with the incidental place of hunted animals among the faunal assemblages. Authors have had varied views about the use of animal imagery, among other motifs, in predynastic art, especially on painted vessels. Graff (2009a, 16–18) summarised the history of research on painted vessels, but she doesn't distinguish between C-ware and D-ware vessels; most of her summary concentrates on the latter. It is most probable that the decoration of either class of vessels should not be looked at in a linear or literal way: C-ware vessels were not intended to be depictions of a natural environment (Hendrickx & Eyckerman 2010, 127; Hartung 2010, 111–2), but like D-ware vessels, represent a symbolic or ritual space.

Considering the material culture of the early predynastic (pre-Naqada IIB), virtually all the provenanced objects discussed in this thesis were made for elites.

Despite the apparent large number of objects catalogued here, they are extremely rare among the material culture of the time, and were found predominantly in the richest burials and in cemeteries, or areas thereof, reserved exclusively for the use of the ruling elites. Much attention has been paid to the complex hunting and victory scenes painted on C-ware vessels. They are widely recognised to be symbolic depictions of the general concept of "order over chaos" (Baines 1995; Hendrickx 2006a; Hartung 2010; Hendrickx & Eyckerman 2010; Raffaele 2010; Hendrickx 2011a). Hippopotamus, crocodile, and antelopes all figure in these scenes, but as I will describe, in very different proportions compared to the other manifestations of these species in the material culture as a whole. In mobile art, hippopotamus was the most frequently depicted of the species studied in this thesis (pre-Naqada IIC). Because it was only rarely shown as animal of prey, I will argue here that if elites used wild animals and their imagery to symbolically represent power, they did so in more complex ways than previously described.

Representing their power on a symbolic level was a major concern for the early predynastic leaders. In life, they exercised authority over the human population living in the territories they controlled, while in art they mostly made use of the non-human world as a means to represent that power. The survey of all depictions of hippopotamus, crocodile, and antelope in the material culture leads me to consider that the symbolic "control over chaos" theory is only one of two aspects that predynastic elites intended to represent, and that these two aspects are complementary and, in a way, cyclical.

In this cycle, the "control over chaos" aspect that has been the subject of much study, is seen as the *object* of the power of predynastic rulers during Naqada I–IIB. This aspect was predominantly expressed through the symbolic destruction, or annihilation, of some wild species, chief among them being antelope species and crocodile. The former were mostly shown as prey animal hunted by dogs, and the latter often in close proximity with nets. Destroying and controlling wild forces was a symbolic way to represent the responsibilities of the elites in daily life, which included, among other duties, the safekeeping of the settlements and their populations (Hartung 2010, 111–2). There are a few scenes

in which the object of power is shown in the form of human prisoners rather than animals, thus representing this aspect much more literally. The hippopotamus too was sometimes shown as prey animal, and therefore as a negative force, especially on a few scenes on C-ware vessels and an incised palette where the animal is shown harpooned. However, these occurrences are rare, and they have been given more prominence in the literature than they appear to have had for the predynastic Egyptians (e.g. Hartung 2010; Hendrickx & Depraetere 2004; Roche 2014).

The hippopotamus, in fact, is the main wild animal used in material culture to express the second aspect of the cycle, that of the source of the leaders' power. It is likely that the impressive size, fierceness, and strength of the animal were the main positive aspects that the rulers wanted to appropriate symbolically. They did so by representing the animal on a large number of C-ware vessels – those where the animal is not shown hunted – and modelling and carving vessels, figurines, and palettes in the shape of the hippopotamus. Species not studied in this thesis, such as elephant and aurochs, may also have been considered in the same light (see Friedman 2004 for the elephant in predynastic times). It is possible that the rare depictions of crocodiles and antelopes that are not shown hunted can also be considered as positive forces that the elites wanted to appropriate symbolically.

It may seem contradictory that animal species could be used for representing both aspects of power: appropriation on the one hand, and annihilation on the other hand. However, even if an animal such as a hippopotamus was respected because of its strength and fierceness, there is no doubt the predynastic Egyptians were at the same time perfectly aware of the risks posed by this animal. It appears that for leaders, hippopotami, crocodile, antelope species, and probably other wild animals, embodied both positive aspects that they wished to appropriate and negative ones that they wanted to annihilate. Because Naqada I–IIB lasted more than two centuries (Dee et al. 2013), it seems natural that the relationships the elites had with these wild species underwent small variations that cannot be pinpointed because the material culture can only be broadly dated. Variations may also have been

geographical; for example, cases where the hippopotamus is seen as a negative force, and therefore the object of hunt, are almost entirely limited to the region of Abydos.

Depictions of the annihilation of chaotic forces are not as numerous as those connected to the appropriation of wild powers, and they are found almost exclusively in two-dimensional art: crocodile and antelopes were only rarely used as models for three-dimensional objects. The two aspects of the cycle of power do not exclude that a few depictions had exceptional meaning, such as the hippopotami painted on the bellies of figurines of seated women, where the maternal behaviour of the hippopotamus cow may have been symbolically depicted. Hippopotamus-shaped pendants may also have had apotropaic value for their owners, but this is not in conflict with the idea of power appropriation.

The transition between Naqada IIB and Naqada IIC brought important changes in material culture that were recognised very early (Petrie 1920). Although this development was first thought to result from influence from Mesopotamia, it is now generally accepted that cultural evolution through the fourth millennium BC was continuous (e.g. Hendrickx & Eyckerman 2010). In the material culture, the most visible change was the rapid replacement of C-ware vessels with D-ware vessels, because of which the evolution of predynastic art is generally considered as consisting of two consecutive styles (Midant-Reynes 2000; Ciałowicz 2001; Hendrickx & Eyckerman 2010). D-ware vessels are much more standardised, and the subject matter represented on them contrasts markedly with C-ware depictions. As stressed by Graff (2009a, 17), authors who conducted essentially descriptive approaches to the vessels have had contrasting views as to how the principal elements of the decoration should be interpreted (Capart 1905; Vandier 1952; Baumgartel 1960; Asselberghs 1961). It is now generally accepted that the representational system is to be understood on a symbolic level, although what it actually represents has divided researchers. There are two main opposing views in the older literature: for some, the painted decorations are funerary in nature (e.g. Capart 1905; Hornblower 1930; Morgan 1920; Brunner-Traut 1975); for others, these scenes are cultic in nature (e.g. Arkell 1959; Aksamit 1981; Monnet Saleh 1983). All types of decoration do not

necessarily belong to the same group: Graff (2009a) lists several types of possible scenes including ritual ones, while Hendrickx and Eyckerman (2010, 129) considers that boat-scenes are funerary in nature. According to Hendrickx (2011a, 247), the difference between C-ware and D-ware is due to the development of "a specific iconography related to the hereafter on Decorated pottery". This implies that from Naqada IIC onward, painted vessels no longer served the same symbolic purpose as earlier and that motifs painted on them were chosen according to concerns with the afterlife.

In this scenario, the power-related iconography of the earlier predynastic is mostly replaced with depictions that appear to be more religious and, probably funerary, in nature. The wild species selected to figure in these scenes changed, and those that remained were given new and different values. Most notable is the absence of the hippopotamus: between Naqada IIC and Naqada IIIB it was only represented on a small number of objects that cannot be securely dated to that period and may indeed be older. The crocodile did not play a significant role during that period either: it was mostly depicted on a few D-ware vessels of possible special function. In contrast, antelopes became the most often represented of the species studied in this thesis; they were predominantly painted on vessels of the D-ware type, but were almost never shown as prey animals. A change in antelope species is observed as well: the addax appears and becomes one of the most common species on D-ware vessels along with the ibex. On C-ware vessels, animals were usually the main motifs in the decoration, but on D-ware vessels they often occupy a secondary role; boats and humans are much more widespread among the later class-ware than the earlier.

D-ware is around three times more numerous than C-ware (see spreadsheet on CD attached to the thesis), and it was produced during a shorter time period, so that it appears that D-ware vessels were more widely accessible for the predynastic Egyptians than C-ware vessels had been. There is, generally speaking, little surviving evidence for elite groups during Naqada IIC–D: the Painted Tomb at Hierakonpolis may be an exception, and although the main motifs of its decoration are large boats, the rest of it consists mostly of hunting

scenes, which would appear to continue the earlier theme of *annihilation* of chaotic forces.

All these transformations predate the unification of Egypt and the rule of a single king over the country. Toward the very end of the predynastic and the establishment of the first dynasties, it appears that animal imagery was for a time restricted mostly to ceremonial objects that have been recovered among material from early dynastic temple deposits. The hippopotamus, absent since the end of Naqada IIB, reappeared, but did not become common; antelopes became less frequent, although they were often carved on ceremonial greywacke palettes. A different range of wild animals, not previously common in the repertoire, became more frequent. This signifies that, for a second time, a considerable shift happened in the use and meaning of the species studied in the thesis, which appear then to have played a different religious, cultic, or ceremonial role.

The role of animal depictions in rock art during Naqada I–IIB is more difficult to understand. One issue is the dating of the scenes; those who have tentatively developed relative chronologies base their systems on comparisons with mobile art from the Nile Valley, such as painted vessels (Huyge 2002; Lankester 2012, 70–5). It is, however, uncertain that when some scenes ceased to be represented in mobile media they necessarily also stopped being depicted in rock art. Moreover, decoration on artefacts from the Nile valley probably represent only a portion of the artistic repertoire of the time, which was likely painted on walls, fabrics, of which the painted Gebelein linen is the only survivor, and other organic media, such as wooden boxes. Evidence that the plastered walls of above-ground funerary structures in Hierakonpolis' elite cemetery HK6 were painted, sometimes with figural motifs, has also been found (see e.g. McNamara & Droux 2006; Droux & Friedman 2007; Friedman 2008a), and these decorations were likely predecessors of the Painted Tomb at Hierakonpolis, in which the largest preserved painted tableau of predynastic times was found (Naqada IIC; Quibell & Green 1902, 20–1, pl. LXVII, LXXV–IX).

Another issue raised in the study of rock art is the origin of those who made these representations. Rock art at sites near the Nile valley, often found

near settlements such as Hierakonpolis, was almost certainly created by inhabitants of the valley and low desert. This is less certain for rock art found deeper in the deserts. Groups living in the desert are likely to have been responsible for a proportion of rock art scenes. The two populations must have interacted and influenced each other. However, similarities between some rock art and decorated artefacts from the Nile Valley probably indicate that people living along the Nile made those petroglyphs. They may have travelled into the deserts for various reasons, for example to procure raw materials (Storemyr 2009, 140–2), for hunting expeditions (Storemyr 2009, 142–3; Lankester 2012, 78), or travel to access the Red Sea or other remote areas (Storemyr 2009, 143–4). Hendrickx (2011a, 253–4) is of the opinion that desert hunting, especially when taking place far away from the Nile Valley was undertaken by members of elites who could abstain from agricultural work for several days at a time. He also suggests that hunting played an important social role for the cohesion of elite groups. These different aspects may not be mutually exclusive: it is probable that when travelling through the wadis for any period of time, only the minimal amount of food was carried from the Nile Valley, and game would have been hunted as a means to supplement the diet. Similar to painted vessels, rock art is not merely descriptive: animals that are not desert residents have been found, such as hippopotamus and crocodiles, and boats figure prominently. The symbolic reading of the scenes is difficult, and it is possible that when they created rock art scenes and tableaux, the predynastic Egyptians used motifs they were familiar with, but adapted the values and meanings of the figures to the specific context of the desert and to their reasons for being there.

After the detailed analysis of the material and faunal evidence relating to each animal species selected for this study, my discussion chapter (§5) offers a synthesis on interactions between the predynastic Egyptians and these wild animals, both as attested through skeletal remains and as depicted in images. The principal questions I seek to address throughout this thesis are the following. How did people, principally elites, formulate their interactions with these animals pictorially, and how does the zooarchaeological record inform us on direct interactions in practice, and what divergences are there between images

and direct contact? How did these interactions develop in the context of the emergence of an increasingly complex and unequal society? How and to what ends did the elites exploit the world of wild animals ?

Briefly, the context within which these questions need to be sited, was one of marked change. The subsistence economy of the predynastic period in Upper Egypt was based increasingly on agricultural resources. Wild animals, in particular antelopes, lost their material significance, yet they gained additional symbolic importance. During the early predynastic (Naqada I–IIB), symbolism attached to wild animals was broader and was applied to a wide variety of media. By contrast, in the context of increased inequality and uniform production of Naqada IIC–D, the availability of such symbols became more restricted (Wengrow 2006, 151–76) and they were ultimately appropriated by the Naqada III elite, under whom the choice of media was limited to highly prestigious objects, such as ivory knife handles and stone palettes decorated with carved raised relief.

1.1 Chronology

The formative period of the Egyptian state covers roughly a millennium prior to the emergence of the First Dynasty. The dating system adopted throughout this thesis follows the relative chronology of Hendrickx (1996; 2006b), which is a development of the chronologies of Petrie (1901a, 4–12) and Kaiser (1957). The predynastic period is preceded by the Badarian period. No excavated cemetery shows continuous use over the transition between these two periods, despite their similar archaeological characteristics (Hendrickx 2006b, 71). Recent research into absolute chronology of the predynastic and early dynastic periods shows that the end of the Badarian coincides, or is at least very close, to the beginning of Naqada I (Dee et al. 2013).

The predynastic period itself is divided into three phases (Naqada I–III); these are further divided into 12 sub-phases (see Figure 1).[1] The differentiation

[1] Following detailed study of material excavated in Naqada I burials in cemetery U at Abydos, Hartmann (2011) has proposed to extend the Naqada I with two new sub-phases (Naqada ID–E), that would replace Naqada IIA–B in the terminology. However, the author cautions that “such

between Hendrickx' phases IID1 and IID2 is discarded, following the results obtained at Adaima and the re-investigation of the excavation at Armant by Buchez (2011b). No material studied in this thesis is assigned to Naqada IA, a phase for which evidence is limited to a small group of tombs in cemeteries U and E at Abydos (Hendrickx 2006b, 74; Hartmann 2011). Therefore, objects broadly dated to "Naqada I" are assumed to date to "Naqada IB–C".

I do not use absolute chronology in this thesis, because all the objects and their archaeological contexts are dated according to relative chronologies in the literature. Although the chronology established by Dee et al. (2013; Dee et al. 2014) can be useful and is an important step[2] toward a rigorous absolute chronology of the predynastic period, excavated material culture should not be attributed to broad absolute date ranges without this material or samples associated with it being subjected to scientific analysis and dating. However, one significant result is that Naqada IIC–D may have lasted only 5 to 6 generations and thus is thought be shorter than Naqada IC–IIB as well as Naqada IIIA1–IIIB.

<table>
<tr><th>Petrie 1899, 1920</th><th colspan="3">Kaiser 1957, 1990</th><th colspan="3">Hendrickx 1996, 1999, 2005
Relative</th><th>Absolute</th><th>Dee et al. 2013, Tab. 1
BCE 95% hpd range</th></tr>
<tr><td></td><td colspan="3">Badarian</td><td colspan="2">Badarian</td><td></td><td>4489/4266 to 3896/3616</td></tr>
<tr><td rowspan="3">Amratian
(SD 30-37)</td><td rowspan="3">Naqada
Stufe I</td><td>a</td><td rowspan="3">SD 30-38</td><td rowspan="3">Naqada
Phase I</td><td>A–B</td><td rowspan="3">4000/3900
–3600</td><td rowspan="3">3731–3550 trans. IB/IC</td></tr>
<tr><td>b</td><td>C</td></tr>
<tr><td>c</td></tr>
<tr><td rowspan="6">Gerzean
(SD 38-62)</td><td rowspan="6">Stufe II</td><td>a</td><td rowspan="2">SD 38/40-
45</td><td>(II)</td><td>A</td><td rowspan="2">3562–3367 trans. IIB/IIC</td></tr>
<tr><td>b</td><td>(II)</td><td>B</td></tr>
<tr><td>c</td><td rowspan="4">SD 40/45-
63</td><td rowspan="4">Phase II</td><td>C</td><td rowspan="4">3600–3350</td></tr>
<tr><td>d1</td><td rowspan="3">D</td></tr>
<tr><td>d2</td></tr>
<tr><td rowspan="3">Semainean
(SD 63-76)</td><td rowspan="8">Stufe III</td><td>a1</td><td rowspan="8">SD 63-80</td><td rowspan="8">Phase III</td><td rowspan="2">A1</td><td rowspan="3">3377–3238 trans. IID/IIIA</td></tr>
<tr><td rowspan="2">a2</td></tr>
<tr><td>A2</td><td rowspan="3">3350–3150</td></tr>
<tr><td>b1</td><td rowspan="2">B</td></tr>
<tr><td>b2</td><td rowspan="3">3218–3035 Aha (1st Dyn)</td></tr>
<tr><td rowspan="2">1st 2nd dynasties
(SD 77-84)</td><td>c1</td><td>C1</td><td>3150–3100</td></tr>
<tr><td>c2</td><td>C2</td><td>3000–2920</td></tr>
<tr><td></td><td>c3</td><td>D</td><td>from 2920</td></tr>
</table>

Figure 1. Proposed relative and absolute chronologies of the Badarian, predynastic, and early dynastic periods.

serious changes to the nomenclature […] require further discussion and additional data from other cemeteries" (Hartmann 2011, 936).

[2] See also Hassan (1985) and Midant-Reynes (1999) for research on absolute chronologies.

1.2 Geographical and temporal limits

The subject matter of this thesis is limited both geographically and temporally. I focus on the predynastic period of Upper Egypt, more specifically Naqada I–IIIB. Objects relevant to the selected species dating to the Badarian period have been included in the catalogue, because they show that using animal shapes for decorating and shaping objects was not initiated during the Naqada period. According to Dee et al. (2013, Tab. 1), the Badarian may have lasted longer than the Naqada period but the Badarian period has not been divided in sub-phases, so that the temporal distance between the Badarian objects in the catalogue and the early Naqada cannot be estimated. Not all types of Badarian objects with animals continued to be made during the Naqada period, so that continuity cannot be established for all aspects of the material culture; obvious examples are carved ivory spoons with handles ending with animal figurines, which have only been found in Badarian contexts. Hippopotamus, crocodile, and antelope imagery of the early dynastic period and early Old Kingdom is briefly mentioned in the relevant sections, with the aim of demonstrating that despite the chronological focus of this research, these animals did not cease to be utilised by the Ancient Egyptians at the end of the Naqada period.

With regard to faunal remains, the assemblages taken into consideration are listed in Figures 7 and 8; Lower Egyptian remains are mentioned for comparison, but are not studied in detail.

With regard to Upper Egyptian material culture, the catalogue in Volume II is as exhaustive as possible, but it does not include rock art, which I discuss in the text for comparative purposes. I do not include in this thesis objects made from raw materials derived from the animal species studied, such as hippopotamus ivory artefacts.

1.3 Evidence and methods

The material culture relating to the species studied in this thesis is listed in Volume II; in the text, numbers in **bold** refer to objects of the catalogue. This material was collected by various means. Published excavation reports proved valuable for the provenanced material, and I benefited from personal

information from Renée Friedman about Hierakonpolis and Ulrich Hartung about Abydos. I also consulted a wide range of published museum catalogues and antiquities sale catalogues. The increasing number of museum collections made available digitally through online catalogues and highlights was a decisive help in acquiring information and images of objects. I have examined personally almost two-thirds of the 380 objects of the catalogue. As mentioned in the Preliminary notes to Volume II, the inclusion of an object is not a guarantee of its authenticity, and it is likely that some fakes are present. For each object, a bibliography that is as full as easily accommodated is included.

1.3.1 Faunal remains

Zooarchaeological remains found in predynastic Upper Egyptian sites have become the focus of large-scale studies over the last twenty years or so. Midant-Reynes stated that the study of the zooarchaeological material from Adaima was the first to consider the entirety of the faunal remains (Midant-Reynes et al. 1993, 364). Van Neer and Linseele have been instrumental in analysing and publishing an increasingly large amount of data, not only at Adaima (Van Neer 2002), but also at Hierakonpolis (e.g. Friedman et al. 2011; Linseele et al. 2009; Baba et al. in preparation), in the Naqada-Khattara region (Gautier & Van Neer 2009), and at other sites in Upper Egypt (e.g. Mahgar Dendera, Van Neer 2001). Faunal remains produced by excavations in the settlement area at Mahasna have also been the subject of intensive study by Rossel (2007). Smaller faunal samples, such as those recovered at Armant, have also been published (Boessneck & von den Driesch 1994). The article “special animals from special place?” (Linseele et al. 2009) proved an invaluable resource for the treatment of zooarchaeology: so far it is the only summarising and comparative study that incorporates material from a large selection of sites in Upper Egypt, together with data from Lower Egypt. In these zooarchaeological studies, the bones of each animal species are usually counted (see e.g. Linseele et al. 2009, Tab. 2),[3] and the species are grouped by activities, such as stock keeping, game hunting, fishing, crocodile

[3] Statistics are limited to number of identified bones; minimum number of individual animals represented by those bones have not been calculated.

catching, collecting molluscs (see e.g. Linseele et al. 2009, Tab. 3, 6), so that various aspects of the predynastic economy can be compared.

Faunal remains from the predynastic sites taken into consideration in this thesis are discussed in §1.5, and remains from species of interest here are presented in more detail in each relevant section (§2.2, 3.2, and 4.2). All these assemblages have been subjected to modern analysis.

1.3.2 C-ware and D-ware vessels

Predynastic painted vessels of both C-ware and D-ware classes are the two media that have received most attention. Aspects of C-ware vessels were studied particularly by Finkenstaedt (1980), who concentrated on identifying regional styles of C-ware paintings and paid particular attention to the hippopotamus motif. Hendrickx (1998), and later Graff (2007a), have concentrated on motifs likely to represent animal skins stretched on poles, of which two examples may be present on C-ware vessels. Human figures have been studied by Graff (2004). Navajas Jiménez (2005; 2009; 2012) examines different animal species and hunting scenes on the same medium. Global studies aiming at cataloguing C-ware vessels were produced by Petrie (1921, pl. XX–XXV) and Graff (2009a, cat. 1–176, 181, 577–592), but this type of painted pottery has never been studied globally on its own.

D-ware has received more attention. Newberry (1913), and later Aksamit (2006), listed scenes with boats and standards; Gilbert (1999) enlarges this to all boat scenes. Hendrickx (2000) studies D-ware vessels with ostriches, and later (2002b) those with human figures. Graff (2009b) concentrates on female representations and their association with the Naqada plant. She has also studied other motifs, such as the addax (Graff 2003) and ritual scenes (2011). As noted above, the animal skin motifs found mostly on D-ware vessels have been studied by Hendrickx (1998) and Graff (2007a). Architectural elements in the corpus have also been studied (Graff et al. 2011). Petrie (1921, pl. XXXI–XXXVII) and Graff (2009a, cat. no. 178–576, 593–646) published extensive catalogues of D-ware vessels. Selected motifs found on both types of painted vessels have also

been examined, such as the possible orycterope (see below for alternative interpretations; Graff & Manlius 2003; Graff 2007b).

Because C-ware and D-ware vessels form a very large part of the material I studied, I collected a non-exhaustive corpus of such vessels that bear any type of decoration (see spreadsheet on CD attached to the thesis). It is beyond the scope of this thesis to discuss these vessels in detail. However, in order to set the vessels utilised in this thesis – those bearing depictions of hippopotami, crocodiles, and antelopes – in context, it is necessary to give an overview of both classes of objects.

As of 31st December 2014, the corpus I have assembled amounts to 494 C-ware vessels (Figure 2), 63 C-ware sherds, and 3 C-ware bird-shaped objects (all from Naqa ed-Deir, not included in the figures). The D-ware corpus contains 1,348 vessels and fancy-shaped vessels (Figure 5), as well as 210 sherds. I do not discuss the sherds of either class of objects in this section, both because the full composition to which they belong cannot be established and, further, because several sherds may derive from a single vessel; to include the sherds could artificially increase the numbers of some vessel types or the numbers in regions where the sherds have been found.[4]

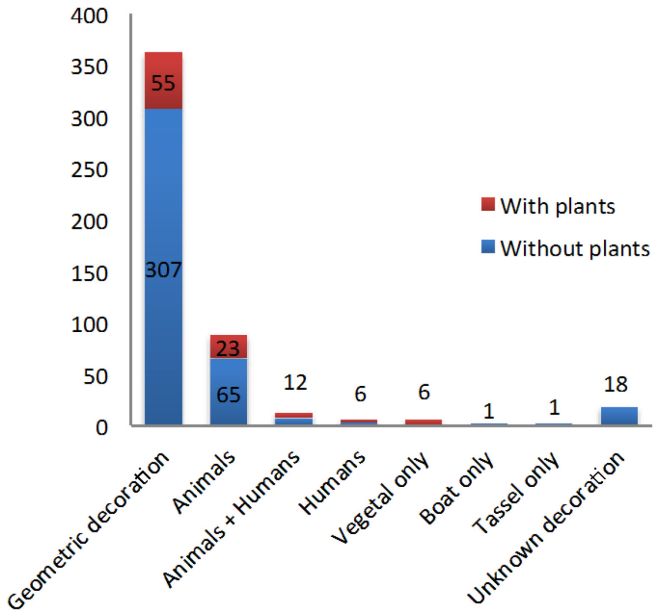


Figure 2. Frequency of motifs painted on C-ware vessels, with indications of the presence of plant decoration.

[4] I am aware that this selective practice has diminished the role of settlement finds, since most of those are sherds.

As can be seen in Figures 2 and 3, C-ware vessels are predominantly decorated with geometric designs (362 vessels, 73.3% of the corpus); vegetal motifs, often long vertical plant stems with short leaves (the common reed?), are incorporated into 55 of the vessels with geometric designs. The rest of the corpus is dominated by scenes containing animal species (100 vessels in total, 20.2% of the corpus), which are found together with human figures in 12 cases. Vegetal motifs are incorporated in the decoration of a quarter of the vessels with animals that do not show humans (88 vessels). Humans are found on 18 vessels but are shown without animals on just six. Although vegetal motifs are found in association with most other motifs, they are the only decorative elements on six vessels, of which only one has a known provenance. There are only two vessels which stand alone from the corpus: one oval plate is decorated with details of a boat, seen in top view, and one bowl with three tassel designs (see also note 19 for a brief discussion of the tassel design).

		Provenance	No provenance	%
Geometric decoration	n	202	160	73.28%
n = 362	%	55.80%	44.20%	
Animals	n	50	38	17.81%
n = 88	%	56.82%	43.18%	
Animals + Humans	n	9	3	2.43%
n = 12	%	75.00%	25.00%	
Humans	n	3	3	1.21%
n = 6	%	50.00%	50.00%	
Vegetal only	n	1	5	1.21%
n = 6	%	16.67%	83.33%	
Unknown and other	n	10	10	4.05%
n = 20	%	50.00%	50.00%	
TOTAL	**n**	**275**	**219**	100.00%
n = 494	**%**	**55.67%**	**44.33%**	

Figure 3. Types of C-ware vessels decorations, with indications of the proportions of provenanced material.

This overview of C-ware vessels shows how rare depictions of the animals studied in this thesis are. The most numerous, those of hippopotami, only amount to 7.3% of this corpus (36 complete or near-complete vessels); crocodiles are represented half as often (18 vessels, 3.7%). Depictions of antelope species as a group are more numerous than crocodile (24 vessels, 4.9%), but each species is represented only rarely: 9 vessels have ibexes (1.8%), 7

Barbary sheep (1.4%), perhaps 5 oryxes (1%), and 4 hartebeest and gazelles (less than 1% each).

Regarding D-ware vessels, I am as yet uncertain of the character of the decoration on 40 of them. For the 1,307 others, the decoration is primarily geometric (61.4%; Figures 4, 5). The variety of geometric designs cannot be detailed here, but spirals and wavy lines are predominant, and other motifs, such as continuous scales (or feathers), dots, thick commas, chequered patterns, etc., have also been noted.

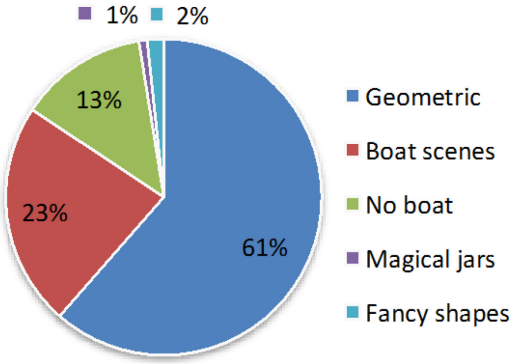


Figure 4. Distribution of D-ware decoration by type (n=1307).

The majority of the remaining D-ware vessels have figural decoration (36.9% of the corpus of D-ware vessels), of which 62% are "boat scenes" (22.9% of the corpus of D-ware vessels; see §4.3.2.6) and over a third are figural without boats (13.2% of the corpus od D-ware vessels). There are a further few "magical jars", which are a small group of vessels that share similar characteristics such as shape (type D78, Petrie 1921), probable date (Naqada IID–IIIA), and animal motifs (primarily vertical snakes and scorpions, also ibex and crocodile; see §3.3.1). These magical jars are rare, representing only 2.3% of the vessels with figural decoration and 0.8% of the corpus of D-ware vessels. The rest of the vessels with figural motifs are decorated with various associations and combinations of the so-called Naqada plant (Graff sign V2), bushes (Graff sign V1), human and animal figures, and a few other motifs.

The fancy-shaped vessels are predominantly zoomorphic: eleven have the shape of a bird, three that of a pig, and three that of a fish. There are also three rectangular boxes and two boat "models" with red-painted decoration. One of

the boxes and two of the bird-shaped vessels are decorated with "boat scenes" similar to those observed on "regular" vessels, including one with antelopes.

		Provenance	No provenance	%
Geometric		472	331	61.44%
n = 803		58.78%	41.22%	
Figural	Boat scenes	139	160	22.88%
	n = 299	46.49%	53.51%	
	No boat	94	78	13.16%
	n = 172	54.65%	45.35%	
	Magical jars	7	4	0.84%
	n = 11	63.64%	36.36%	
Fancy shapes		12	10	1.68%
n = 22		54.55%	45.45%	
Total		**724**	**583**	**100.00%**
n = 1307		**55.39%**	**44.61%**	
Unknown type		33	7	
n = 40		82.50%	17.50%	
Total D-ware		**757**	**590**	
n = 1347		**56.20%**	**43.80%**	

Figure 5. Types of D-ware vessel decoration, with indications of the proportions of provenanced material.

If one looks at the motifs individually (Figure 6),[5] it is immediately clear that the main figural element by far is the boat. It is followed by two vegetal elements: the fan-shaped bush (Graff sign V1; 186 occurrences, of which 136 are in boat scenes) and the Naqada plant (Graff sign V2; 161 occurrences, of which 104 are in boat scenes). The bush also figures on two magical jars and at least one vessel of undetermined type. The ostrich is the most frequent animal; it is found almost equally on boat scenes (64 vessels, including two bird-shaped vessels) and other figural scenes (62 vessels), and it is also present on four other fancy-shaped vessels and four magical jars. The so-called animal skin stretched on a stick (Graff sign P1) comes next; it is only occasionally found outside the corpus of boat scenes (6 vessels out of 87), and it is often depicted with two cabin designs (rarely only one; Graff sign P2), therefore also appearing mostly in boat scenes (63 vessels out of 67). Human figures are not frequent; they appear on 42 boat scenes (including one bird-shaped vessel), one other fancy-shaped vessel, and 13 other figural scenes.

[5] I do not take into consideration here the wavy lines, triangles, or series of "sss" designs, for which I haven't a precise number, but which are found, in various combinations, on most vessels.

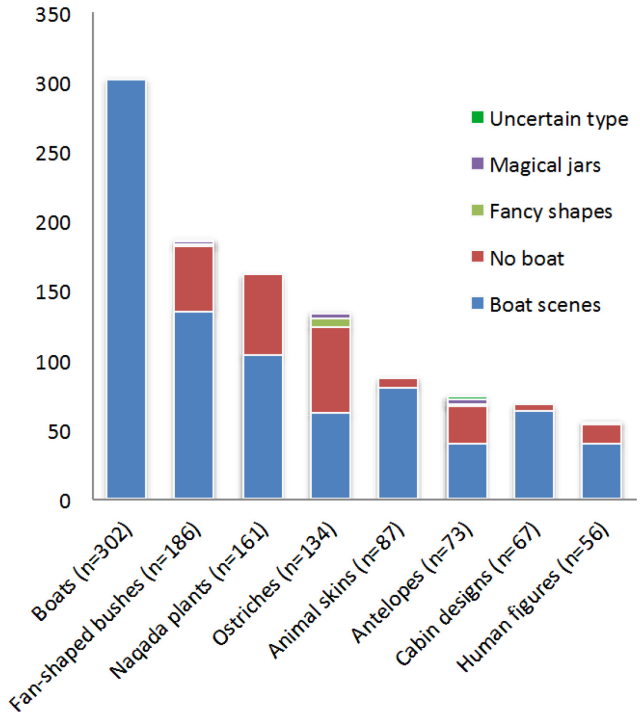
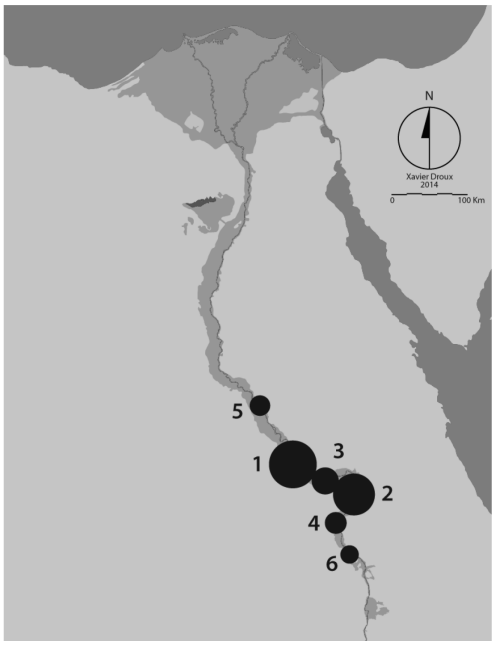


Figure 6. Frequency of the main figural elements on D-ware vessels, with proportions of type of scenes they belong to.

The various species of antelopes are more frequently depicted than human figures or cabin designs. As discussed in detail in a later chapter (§4.3.2.6), they appear more often among boat scenes, but they are also found in other figural scenes, on fancy-shaped D-wares, on magical jars, and in one scene of undetermined type. By comparison, the crocodile is much rarer. It is only painted on nine D-ware vessels that are known to me, of which six are “magical jars”, as well as one boat scene and two “animal scenes”. The hippopotamus is never found on D-ware vessels.

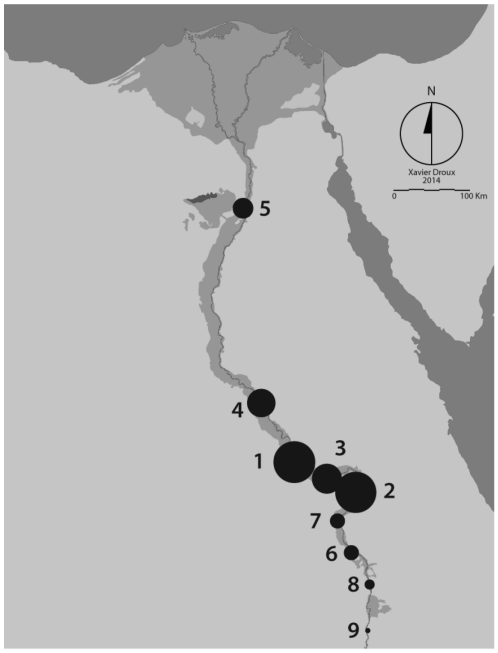
Finally, in order to compare the provenance of vessels of interest here with the general distribution of C-ware and D-ware vessels, I have established two maps showing the principal areas from which these vessels come (Maps 1 and 2). From south to north, these regions are: Aswan, el-Kubanieh – Gebel Silsileh, el-Hosh, Abu Zeidan – Hierakonpolis, Adaima, el-Kab, Mamariya – Gebelein, Armant, Mohalla – Naqada, Ballas, Naqa el-Hai, Toukh, Zawaida, Khattara, Khozam – Abadiya, Diospolis Parva, Hiw, Semaineh, Gebel el-Tarif, Beit Allam, Sahel el-Baghlia – Abydos, el-Amra, Mahasna, Mesaid, Naqa ed-Deir, Aulad Yahya – Badari, Hammamiya, Matmar, Mostagedda, Qau el-Qebir – Gerzeh, Abusir el-Meleq, Haraga.



1. Abydos region (38.15%)
2. Naqada region (29.26%)
3. Abadiya region (12.22%)
4. Gebelein region (7.78%)
5. Badari region (7.04%)
6. Hierakonpolis (5.56%)

Map 1 Geographical distribution of C-ware vessels in Upper Egypt.

The regions of Abydos, Naqada, and Abadiya produced the largest quantities of both types of vessels, to the extent that, together, these three regions represent almost 80% of all C-ware vessels, and 71% of all D-ware vessels. More archaeological work has been undertaken in this area of Egypt, and in consequence the proportion of material from there is probably higher than it was in antiquity. Following the expansion of the Naqada culture, D-ware vessels are found at a larger number of sites than C-ware vessels; this is also the case with vessels studied in this thesis.



1. Abydos region (28.84%)
2. Naqada region (27.68%)
3. Abadiya region (14.78%)
4. Badari region (13.19%)
5. Gerzeh region (6.23%)
6. Hierakonpolis region (3.62%)
7. Gebelein region (3.62%)
8. Gebel Silsileh (1.59%)
9. Aswan region (0.43%)

Map 2 Geographical distribution of D-ware vessels in Upper Egypt.

In the relevant sections (§2.6, §3.5, §4.5), the geographical distribution of painted vessels with depictions of hippopotami, crocodiles, and antelope species are compared with the general distribution patterns of the ceramic ware classes presented above. This comparison makes it possible to observe concentrations of depictions of species in certain regions that differ from the overall distribution of the ware classes and therefore reflect deliberate choices of species, highlighting their significance in these regions. Hippopotamus and crocodile depictions on C-ware vessels are much more numerous in the region of Abydos than would be predicted by the overall distribution of C-ware vessels in that area. Antelope depictions on C-ware vessels with a known provenance are not numerous enough to be statistically significant. Analysis of D-ware distribution patterns is most telling for addax representations, which differ notably from the overall geographical distribution of D-ware vessels: the regions of Abadiya and Abusir el-Meleq appear to have made more use of the addax than might be predicted, while the complete absence of provenanced vessels with addaxes from the Badari region is surprising. By comparison, ibex depictions follow more closely the overall pattern of distribution of D-ware vessels, with the exception of Badari, where they are better represented than average. The contrast between the higher proportion of D-ware depictions of ibexes at Badari and the absence of addaxes there may signify a deliberate choice of the former species over the latter in that area, but because numbers of vessels are low, this figure must be considered with caution.

1.3.3 Rock art

Rock art depictions of the animal species studied in this thesis are not easily described and discussed, because information about and illustrations of only a minority of the reported occurrences have been fully published. I take into consideration rock art in the Eastern Desert (Winkler 1938; Rohl 2000; Judd 2009; Morrow & Morrow 2002; Morrow et al. 2010) and the Nile Valley, especially the region between Aswan and Kom Ombo (Gatto et al. 2009; Storemyr 2009; 2012), Hierakonpolis (Hardtke 2013b), and the Qena bend of the Nile (Darnell & Darnell 2002). Rock art in the Western Desert, which appears to be less widespread, is sometimes mentioned but not discussed in detail, because

information is less systematically available than for the Eastern Desert, despite recent articles covering some of its aspects (Hendrickx et al. 2009a; Riemer 2009; Ikram 2009). Other sites are mentioned in the text, but these have not been studied in as much detail. Hippopotamus (§2.6) and crocodile (§3.5) petroglyphs are discussed in more depth than those of antelope species (§4.3.5), because the large number of occurrences of antelopes is beyond the scope of this thesis, and their species identification is not often assured. For these species, I only give general numbers and patterns that can be inferred from publications (see also Lankester 2013). For maps of the wadi systems of the Eastern Desert, see Volume II (pp. 3–6).

1.4 Climatic and geographical considerations

The species studied in this thesis are dependent on two different aspects of the climate. Each antelope species listed in §4.1 is adapted to a specific environment, but broadly speaking their survival depends on the degree of aridity of the desert; in contrast, crocodile and hippopotamus depend on variations to the Nile regime.

During the predynastic period, the eastern and western Egyptian deserts were or became hyper-arid. Between the late 5th millennium BC and the early 2nd millennium BC, the northern limits of the summer monsoon rain gradually moved southward, roughly from the latitude of Faras-Buhen to that of Sedeinga-Sesebi in northern Sudan (Kuper et al. 2007, fig 1, B, C). The portion of desert under the influence of Mediterranean climate, with seasonal rains, simultaneously decreased, remaining only a thin band along the coast and the Nile Delta (Kuper et al. 2007, fig. 1 D, E; Kuper & Kröpelin 2006). The deserts immediately adjacent to the Upper Egyptian portion of the Nile Valley are not likely to have received significantly more precipitation than today, which is below 1mm per year (Wendorf et al. 2007, 203–4), and can be considered to have been roughly as bleak as in modern times (Butzer 1999, 198).

Under these arid conditions, the hartebeest and Soemmerring's gazelle, which cannot survive in the dry desert (Osborn & Osbornová 1998, 172, 179) were the antelope species that probably lived the closest to the predynastic

Egyptians. It is likely that populations of these species, which diminished because of hunting and competition with domestic herds, came under additional stress during late Naqada I because of the lowering of underground water levels, linked to the "cutting down of the bed of the Nile" (Ginter & Kozłowski 1994, 138). This paleoecological phenomenon increased the aridity of the elevated ridges of the low desert, having an adverse impact on the habitable land surface available for both animals and humans. This change is reflected archaeologically by the abandonment of the settlements situated on these ridges at the end of Naqada I, such as Adaima (Buchez 2011a), Armant (Buchez 2011a; Ginter & Kozłowski 1994, 138–9), and Khattara (Hays 1984).

Further away in the deserts, but in places not too far from the Nile Valley, populations of ibex and Barbary sheep probably lived in wadis and cliff areas (Osborn & Osbornová 1998, 181, 190). Their nocturnal feeding habits, "camouflage" coat, and steep habitat probably limited direct contact. The oases of the western desert also provided a suitable habitat for species reliant on open water resources. Species such as the oryx and white gazelle, which are adapted to live in the furthest reaches of the desert, may have been seen only rarely near the Nile Valley, unlike the dama and dorcas gazelles, which must have been more regular visitors. However, there is no reason to suppose that observation was limited to the Nile Valley and its immediate surroundings. Egyptians also likely encountered them while travelling in the desert.

The evolution of the flow of the Nile river is more difficult to understand from the literature. The inundation is induced by the monsoon rains on the upper Blue Nile basin. There are recorded variations in these latitudes at the end of the humid phase (Tierney & deMenocal 2013), but it is likely that during the fourth millennium BC the annual Nile flood in Egypt was broadly comparable with the historic recordings (Butzer 1984), because no abrupt change has been recorded. Under these conditions, the hippopotamus and the crocodile would have been able to find suitable habitat all along the Nile valley and in the Delta (Osborn & Osbornová 1998, 144).

The ability to see an animal species regularly may have influenced the choice of species depicted on mobile artefacts in the Nile Valley: the oryx was

rarely shown, but the hippopotamus and crocodile, which were encountered during river activities such as fishing, were frequently represented. However, analysis of the frequency of depictions of each species during the early predynastic (pre-Naqada IIC) and the later predynastic (Naqada IIC–IIIB) identify variations that are not likely to have been influenced by whether the Egyptians had contacts with the species or not. For example, hippopotamus depictions are fifteen times more numerous during the early predynastic than later, while there is no reason to consider that the animal populations had drastically diminished over the course of the predynastic period. Their numbers may have slightly decreased because of pressure from human population, but hippopotamus bones dating to Naqada IID–IIIC show that the species was still present during the later predynastic. Another comparison shows the distance between natural reality and artistic choices: the popularity of ibex depictions increased four-fold between the early and later predynastic, while those of Barbary sheep, which live in a similar environment, remained constant, although they were never as frequent as those of ibex.

1.5 Archaeological contexts of faunal remains

In this section, I present a brief overview of the settlement contexts from which faunal remains of the animal species studied in this thesis have been excavated, in order to demonstrate the rarity of these remains by comparison with other species, such as domestic animals and fish, and to show in what sorts of context – domestic, industrial, or elite/ritual – they have been found. The relative frequency of remains among faunal assemblages that has been established will be contrasted with frequencies of depictions of the species in the relevant sections. From south to north, these sites with well-studied faunal assemblages are Hierakonpolis, Adaima, Armant, el-Abadiya 2, the Naqada-Khattara region, Mahgar Dendera 2, and Mahasna. At Hierakonpolis, locality HK6 is the only cemetery at which wild species under discussion have been firmly identified.

For each site, the relative importance of the main sources of animal products – stock keeping (cattle, sheep, goat, pig), fishing (primarily Nile perch, catfish, tilapia), river hunting (crocodile, hippopotamus, softshell turtle), and

desert hunting (primarily all the antelope species discussed in this thesis, hare, giraffe, fox species) – is summarised in Figure 7. These four groups usually comprise between 93.7% and 99.3% of the faunal assemblages at the sites studied (remains of dogs or molluscs, for example, are not included); the only notable exception is area 7000 at Adaima, where percentage is lower at 82.2% because of the large number of molluscs there (see §1.5.2).

Figure 8 reports the exact number of bones of each of the species studied here, also indicating the percentage of the whole assemblage they constitute. Faunal assemblages are limited to identified bones, and exclude intrusive materials. Although the minimum number of animals represented by these remains would be more revealing than the number of bones noted in the figure, such numbers cannot be inferred either from the published data or from the unpublished data to which I have had access. This limitation restricts analysis of the relative importance of different species within the assemblage of an archaeological site; moreover, the numbers of bones per species vary; for example, crocodiles have a large number of bony dermal scutes and vertebrae. Comparisons of the relative importance of individual species across sites, however, remain valid. For example, one hippopotamus is said to provide as much meat as 60 sheep, and antelopes as much as 3 to 12 sheep, depending on the species (Pyke 1970, 30–1, fig. 2.5). However, even if these ratios are taken into consideration, it is clear that meat from hunted animals can only account for a small portion of all meat eaten in predynastic times. Hunted animals would also have proved a valuable source of other products, such as hides, tusks, oil, etc.

The various phases identified at HK11 Operation G are not detailed in the tables below but are discussed in §1.5.1 (see also Figures 9, 10). Ensembles 1008, 1010, and 1014 excavated at Adaima are not included in the tables, although their faunal assemblages contained remains from animals discussed in this thesis. These remains are, however, discussed in the text and detailed in the relevant sections for each species. For Mahasna, published faunal data does not offer an exact count for each excavated block, so that in Figure 7 only the whole assemblage from that site is used; in Figure 8, the proportions for each species

found in Block 3 at Mahasna cannot be determined. Blocks 1 and 4 from Mahasna are not included in these figures.

Remains of gazelles have been reported as being found in several upper Egyptian cemeteries, but where these bones have been re-analysed they have been identified as sheep or goat, not gazelle (Strandberg 2009, 161). Concerning the remains from Naqada (Petrie & Quibell 1896; Flores 2003) and Wadi Digla (Moustafa 1953; Boessneck et al. 1989, 120), doubts about the identification of the faunal remains have recently been raised (Gautier & Van Neer 2009, 36; Van Neer et al. 2015). Since it cannot be confirmed that any gazelle bone was indeed present in predynastic burials, these remains are not further discussed here.

			Stock keeping	Fishing	River hunting	Desert hunting
Hierakonpolis	HK29 n ID bones: 2328	Naqada IIA–C	90.3%	6.6%	0.7%	1.0%
	HK29A Wall Trench n ID bones: 3323	Naqada IIB–C	47.5%	31.5%	10.1%	7.0%
	HK29A modified silts n ID bones: 2006	Naqada IIA–C	37.6%	39.4%	10.0%	9.7%
	HK29A Floor dep. n ID bones: 285	Naqada IID– IIIA1	40.4%	44.9%	4.6%	7.0%
	HK29A sands above. n ID bones: 321	Naqada IIIB–IIIC1	32.1%	52.0%	5.0%	8.1%
	HK29A all n ID bones: 5935		43.0%	35.9%	9.4%	8.0%
	HK11 Operation G n ID bones: 930	Naqada IC–IIC	76.9%	17.1%	0.8%	1.8%
	HK11C, test A n ID bones: 825	Naqada IC–IIB	79.8%	18.9%	0.0%	0.6%
	HK11C Operation A n ID bones: 847	Naqada IIC and later	85.5%	11.8%	0.7%	1.1%
	HK11C Operation B n ID bones: 1837	Naqada IC–IIB	75.6%	16.5%	5.6%	1.2%
	HK11C Sq. C3–4 n ID bones: 1172	Naqda IIC–III	68.8%	29.1%	0.3%	0.7%
	HK11C A+B+C3–4 n ID bones: 3856	Mid-Naqada II	75.7%	19.3%	2.9%	1.0%
Adaïma	"Zone des limons" n ID bones: 5701	Naqada IIIC1 (?)	67.5%	23.0%	1.5%	3.5%
	Ensemble 1002-1003 n ID bones: 496	Naqada I–mid Naqada II	92.1%	4.2%	0.2%	1.0%
	Ensemble 1001+ext n ID bones: 2604	Late Naqada I–Naqada III	64.1%	28.5%	0.3%	0.8%
	8000 n ID bones: 453	Naqada IIA–BC	71.1%	22.3%	1.3%	0.7%
	7000 n ID bones: 611	Late Naqada I–Naqada III (?)	63.7%	17.5%	0.7%	1.0%
	Adaima all areas n ID bones: 11424		69.5%	22.4%	1.0%	2.1%
Armant MA 21/83 n ID bones: 693		Badarian (?)– Naqada IIC	78.9%	12.3%	0.3%	5.9%
el-Abadiya 2 n ID bones: 556		Naqada IA–IB	73.4%	10.6%	0.2%	10.6%
Naqada-Khattara	KH3B n ID bones: 462	Naqada IIA–B	74.5%	22.3%	0.2%	0.9%
	KH3C n ID bones: 99	Unknown	78.8%	17.2%	0.0%	1.0%
	KH3 (general) n ID bones: 1321	Naqada IIA–B (?)	76.8%	19.2%	2.4%	0.4%
	KH7 n ID bones: 47	Naqada IIA–B	80.9%	12.8%	0.0%	2.1%
Mahgar Dendera 2 n ID bones: 1105		Badarian-early Naqada I	11.4%	82.1%	0.5%	2.0%
Mahasna (All blocks) n ID bones: 5262		Naqada IC–IICD	35.1%	56.3%	6.5%	0.3%

Figure 7. Summarizing table indicating the relative importance of stock keeping, fishing, river hunting, and desert hunting for each settlement site. After Linseele et al. (2009), Anderson (2011), Baba et al. (in preparation), Van Neer and Linseele (unpublished data), Friedman and Baba (pers. comm.).

			Hippopotamus	Crocodile	Dorcas gazelle	Dama gazelle	Gazella sp.	Barbary sheep	Hartebeest	Ibex	Antelope sp.
Hierakonpolis	HK29	n	3	9	15			3			
	n ID bones: 2328	%	0.13%	0.39%	0.64%			0.13%			
	HK29A Wall Trench	n	21	103	144	3		18			
	n ID bones: 3323	%	0.63%	3.10%	4.33%	0.09%		0.54%			
	HK29A modified silts	n	18	70	132	2		7	1		
	n ID bones: 2006	%	0.90%	3.49%	6.58%	0.10%		0.35%	0.05%		
	HK29A Floor dep.	n	2	9	18						
	n ID bones: 285	%	0.70%	3.16%	6.32%						
	HK29A sands above.	n	3	11	22	1					
	n ID bones: 321	%	0.93%	3.43%	6.85%	0.31%					
	HK29A all	n	44	193	316	6		25	1		
	n ID bones: 5935	%	0.74%	3.25%	5.32%	0.10%		0.42%	0.02%		
	HK11 Operation G	n	6	1	7			6		1	
	n ID bones: 930	%	0.65%	0.11%	0.75%			0.65%		0.11%	
	HK11C, test A	n			2	1		1			
	n ID bones: 825	%			0.24%	0.12%		0.12%			
	HK11C Operation A	n	4	2	3			3			
	n ID bones: 847	%	0.47%	0.24%	0.35%			0.35%			
	HK11C Operation B	n	84	15	6			8			
	n ID bones: 1837	%	4.57%	0.82%	0.33%			0.44%			
	HK11C Sq. C3–4	n	1		8						
	n ID bones: 1172	%	0.09%		0.68%						
	HK11C A+B+C3–4	n	89	17	17			11			
	n ID bones: 3856	%	2.31%	0.44%	0.44%			0.29%			
Adaima	"Zone des limons"	n	10	31	128	8		21	3		
	n ID bones: 5701	%	0.18%	0.54%	2.25%	0.14%		0.37%	0.05%		
	Ensemble 1002-1003	n		1	2			2			
	n ID bones: 496	%		0.20%	0.40%			0.40%			
	Ensemble 1001+ext	n		4	3			3			
	n ID bones: 2604	%		0.15%	0.12%			0.12%			
	8000	n	1	5	3						
	n ID bones: 453	%	0.22%	1.10%	0.66%						
	7000	n		3	5						
	n ID bones: 611	%		0.49%	0.82%						
	Adaima all areas	n	12	51	144	8		27	3		
	n ID bones: 11424	%	0.11%	0.45%	1.26%	0.07%		0.24%	0.03%		
Armant MA21/83		n			35						
	n ID bones: 693	%			5.05%						
el-Abadiya 2		n			49				5		
	n ID bones: 556	%			8.81%				0.90%		
Naqada-Khattara	KH3B	n			3						
	n ID bones: 462	%			0.65%						
	KH3C	n							1		
	n ID bones: 99	%							1.01%		
	KH3 (general)	n			2						
	n ID bones: 1321	%			0.15%						
	KH7	n			1						
	n ID bones: 47	%			2.13%						
Mahgar Dendera 2		n			13						
	n ID bones: 1105	%			1.18%						
Mahasna	Block 3	n	2	2			11	2			3
	n ID bones: NA	%	NA	NA			NA	NA			NA
	All blocks	n	2	3			12	2			4
	n ID bones: 5262	%	0.04%	0.06%			0.23%	0.04%			0.08%

Figure 8. Summarizing table indicating the distribution of faunal remains of the species discussed in the thesis; n refers to the number of bone specimens. After Linseele et al. (2009), Anderson (2011), Baba et al. (in preparation), Van Neer and Linseele (unpublished data), Friedman and Baba (pers. comm.).

1.5.1 Hierakonpolis

Faunal remains have been found at all excavated localities within the archaeological area at Hierakonpolis. In the low desert along the edge of the floodplain, the predynastic settlement covered a large area, of which several sectors have been examined. Two of these produced a significant amount of material worthy of consideration here: HK29 and HK29A. Further up the main wadi, Wadi Abu Suffian, locality HK11C revealed a number of structures associated with industrial food preparation activities (Operations A and B, Squares C3–4), and locality HK11 an area of domestic activities (Operation G). Faunal remains were also found in the elite cemetery HK6, where complete animals were buried.

At **HK29**, Hoffman (1980) uncovered the remains of the house and workshop of a potter. A rectangular, semi-subterranean house with a wooden superstructure was erected near a pottery kiln. Activities in this area date to the range Naqada IIA–C. Faunal remains amounted to 2,328 bones, of which 30 come from species under discussion here (Linseele et al. 2009, tab. 3). The vast majority of the assemblage derives from stock keeping, accounting for just over 90% of the remains; the rest is dominated by fish (6.6%), which is one of the smallest concentrations of fish bones at any predynastic site. Hunting is marginal; species from the desert environment (1.0%) are slightly better represented than riverine species (0.7%).

HK29A has attracted much attention since it was first excavated. Sometimes termed a predynastic “temple”, it is more properly described as a ceremonial centre or a locus of ritual activities (Friedman 2009a, 79). Work took place there in 1985–1989 (see e.g. Hoffman 1986; Friedman 1996), 2002 (Friedman et al. 2002; Friedman 2003), and 2008 (Friedman & McNamara 2008). The current understanding of the multi-phased architectural complex, summarised below, is based on Friedman (2009a).

The first phase of use of this structure (Friedman 2009a, fig. 8) involved an oval courtyard with three successive layers of floors (a–c), flanked on its north side by a wall of wooden posts set in a wall trench and on its south side by a

wooden structure with at least three rows of four posts. Cleaning of the courtyard led to occasional depositions of refuse from the ritual activities in the area of the "modified silts" (MS), located north of the wooden wall, which is set in a wall trench (WT1). The earliest remains, found in oblong pits in the modified silts, date to Naqada IIA–B (Linseele et al. 2009, 134), indicating that the structure may have been in use as early as Naqada IIA; Phase 1 continued into Naqada IIC. A large amount of refuse was found within the wall trench. This material was likely deposited there when the wooden posts were dug out in order to replace the existing wall with one of mudbrick during the second phase. This building work necessitated filling in the trench, and refuse from the courtyard may have been used, as well as refuse previously deposited in the area of modified silts, as well as refuse perhaps heaped up against the wall.

Almost 90% of the faunal assemblage at HK29A can be attributed to the first phase of use, because it was recovered from the modified silts (2,006 bones) and wall trench (3,323 bones; Linseele et al. 2009, table 2). The majority of the remains derive from stock keeping and fishing, although this proportion is lower than at any other predynastic site (Figure 7; MS: 77%; WT1: 79%).[6] Stock keeping is better represented in the wall trench than in the modified silts (47.5% vs 37.6%), which stands in contrast to fishing (31.5% vs 39.4%). Numbers of bones derived from animals hunted in the river (MS: 10%; WT1: 10.1%) and in the desert environment (MS: 9.7%; WT1: 7%) are significantly higher than at any other predynastic site.[7] Together, the modified silts and wall trench produced 519 bones from species under consideration here; these bones constitute 45.7% of all the remains taken into consideration for the thesis, and 88.7% of those from HK29A.

The second phase of use of the ceremonial centre (Friedman 2009a, fig. 9) was not limited to the replacement of the wooden wall by one of mudbrick. The courtyard floor was re-plastered (floor d), and four substantial wooden posts were set up on the south edge of the courtyard, probably replacing the earlier

[6] Only Adaima 7000 shows a lower percentage of combined remains derived from stock keeping and fishing; see below.

[7] Only el-Abadiya 2, of an earlier date, produced a similar proportion of faunal remains derived from desert hunting, but river hunting is noticeably low there; see below.

wooden building. The faunal material under consideration (285 bones, 29 of them from species studied here) comes from the deposits immediately above the courtyard, dated to Naqada IID–IIIA1. As with the material from the earlier phase, it probably originated from ritual activities taking place in the courtyard. Above this deposit, a thick, heavily disturbed layer of sand with intermixed layers of charcoal constitutes the final phase of occupation of the area. This phase, which is dated by pottery to Naqada IIIB–IIIC1, and possibly extended into the Second Dynasty (Friedman, pers. comm.), produced a faunal assemblage of 321 bones, of which 37 are of interest for this thesis. It is not certain whether, or to what extent, the courtyard was still in use at that time. I only mention these remains here because the differences between the assemblages are likely to reflect the evolution of ritual activities on the site through time (Linseele et al. 2009, 134). While remains of fish became the most numerous during the second (44.9%) and last (52%) phases, bones of animals hunted in the riverine environment decreased in importance and are, in proportion, less than half as numerous as earlier (4.6% and 5%). This change is not evidence for an overall decline of interest in hunted animals: remains of species hunted in the desert are still numerous and increased during the last phase from 7% to 8.1%. These upward trends are the opposite of those for remains derived from stock keeping, which decreased from 40.4% during phase 2 to 32.1% during the last phase.

The second major area of settlement at Hierakonpolis is located further away from the floodplain, some 1.5 kilometres up Wadi Abu Suffian. Together, localities HK11 and HK14, both on the east side of the wadi, cover some 68,000m^2.

At **HK11**, excavations revealed a multi-phased area with a domestic structure, termed Operation G, that was in use during Naqada IC–IIC (Friedman et al. 2002). A house built of wooden posts, with stone-lined hearths, was inhabited during the earlier phase (Phase I). Food production was evidenced for this phase in the form of a quartzite grinding stone and storage pits. After Naqada IC, there may have been a period of abandonment (Phase II) during which refuse pits were dug through the floor of the Phase I house. Later, the layout of the area was modified (Phase III); a well-preserved fence of posts and

matting was constructed, and a new habitation floor was made to the north of the earlier house. During Phase IV, a midden accumulated along the fence, later being covered by a new floor (Phase V). Midden deposits continued during Phase V, demonstrating the keeping of cattle and domestic animals there. The latest activity is dated to Naqada IIC (phase VI), when a large refuse pit was dug through the earlier levels; the structure had probably been abandoned by that time. As detailed in Figure 9, the sizes of the assemblages of animal bones for the various phases vary greatly. The material as a whole amounts to 930 bones, of which 21 are of interest for this thesis. Stock keeping consistently represents the largest part of the assemblages, appearing to decrease slightly over time before a sharp increase during Phase VI. In contrast, fishing is more important during Phases III–V but absent during Phase VI. River hunting is represented during Phases II–III, but only minimally. Desert hunting is more present, especially during phase VI. However, the small size of the assemblage from Phase VI (12 bones) means that these differences are not statistically significant.

Phases I and V did not reveal any bone belonging to the species studied in this thesis (Figure 10). Relevant material comes equally from Phases II and III (six bones each), and phases IV and VI (one bone each). A trash pit (C4), located some distance away, could not be attributed to a specific period of the site. It is of interest here only because it contained the sole bone of an ibex to have been found in a predynastic context in Upper Egypt. Six other antelope bones are not attributed to a specific phase of the site.

At **HK11C**, located at the southern end of the HK11 general area, several structures and contexts that produced faunal remains of interest here have been excavated. Current understanding of the development and uses of the various excavated features is based primarily on Baba and Friedman (in press) and Baba et al. (in preparation).[8]

[8] The list of faunal remains compiled by Linseele et al. (2009, Table 3) only incorporates bones excavated during the 2003 season at HK11C (Op. A–B). Unpublished results of analyses carried in 2009 are added to obtain the final figures presented here (Van Neer and Linseele, pers. comm.).

			Hippopotamus	Crocodile	Dorcas gazelle	Barbary sheep	Ibex
HK11, Operation G	Phase I	n					
	n ID bones: 44	%					
	Phase II	n	3		1	2	
	n ID bones: 108	%	2.78%		0.93%	1.85%	
	Phase III	n	1		3	2	
	n ID bones: 252	%	0.40%		1.19%	0.79%	
	Phase IV	n				1	
	n ID bones: 53	%				1.89%	
	Phase V	n					
	n ID bones: 53	%					
	Phase VI	n				1	
	n ID bones: 12	%				8.33%	
	Trash pit C4	n					1
	n ID bones: 78	%					1.28%
	Other	n	2	1	3		
	n ID bones: 330	%	0.61%	0.30%	0.91%		
	Total	n	6	1	7	6	1
	n ID bones: 930	%	0.65%	0.11%	0.75%	0.65%	0.11%

Figure 9. Relative importance of stock keeping, fishing, river hunting, and desert hunting at Operation G. After Linseele and Van Neer (unpublished data).

			Stock keeping	Fishing	River hunting	Desert hunting
HK11, Operation G	Phase I n ID bones: 44	Naqada IC–IIA	86.4%	11.4%	-	2.3%
	Phase II n ID bones: 108	Naqada IC–IIA	83.3%	9.3%	2.8%	2.8%
	Phase III n ID bones: 252	Naqada IIA–IIB (?)	74.2%	19.0%	0.4%	2.0%
	Phase IV n ID bones: 53	Naqada IIB	77.4%	15.1%	-	1.9%
	Phase V n ID bones: 53	Naqada IIB–IIC (?)	73.6%	18.9%	-	-
	Phase VI n ID bones: 12	Naqada IIC	91.7%	-	-	8.3%
	Trash pit C4 n ID bones: 78	Unknown	62.8%	34.6%	-	1.3%
	Other n ID bones: 330	Unknown	78.8%	15.5%	0.9%	1.5%
	Total n ID bones: 930	Naqada IC–IIC	76.9%	17.1%	0.8%	1.8%

Figure 10. Distribution of faunal remains of the species from Operation G discussed in this thesis; n refers to the number of bone specimens. After Linseele and Van Neer (unpublished data).

Operation B (Baba 2008; 2009) is a roughly rectangular structure that was in use during Naqada IC–IIB. In the lower level (6 x 8.5m), the east part of the structure was used as a kiln for the firing of pots, mostly straw-tempered Nile silt modelled-rim jars, while the west part of the structure contained a set of six vats for brewing beer. It is likely that during this phase the beer was then stored in the jars fired in the same structure. Debris and trash from this phase of activity were discarded to the north, eventually forming a substantial mound. In the upper level of Operation B, the brewing of beer ceased, although pot making continued, while walls of wooden posts to the west are possible remains of the potter's workshop or house.

Operation A (Takamiya 2008; 2009) is a rectangular semi-subterranean structure (7 x 3m) nearer to the edge of the wadi. This building was dedicated exclusively to the production of beer, and it contained between eight and ten vats. It was in use during Naqada IIC or later, contemporary with the structure excavated in Squares C3–4 also at HK11C.

Structure C3–4, is subrectangular mudbrick structure measuring about 9 by 7.5 m (Baba 2012; 2013; 2014; Van Neer & De Cupere 2014). It is located on top of the mound of debris that was deposited from the beer and pottery production in Operation B (first phase of use). It was in activity at least during Naqada IIC, and was dedicated to meat processing. Remains of domestic animals – predominantly cattle – and fish were abundant; a few bones from wild species were also identified. The character of the remains suggests that the animals were prepared inside the building, with the meaty parts being taken for consumption elsewhere (Van Neer & De Cupere 2014).

The animal remains found in Operation A and Operation B cannot be related to the nature and use of these structures. They are most likely intrusive, and may have originated from Structure C3–4, which is located uphill from the two Operations, or conceivably from unexcavated structures nearby. It is suggested that HK11C was established to service the elite cemetery (Harlan 1992, 17) and that meat and beer were consumed at HK6 (Baba et al. in preparation). The majority of the assemblage from Structure C3–4 consists of remains derived from stock keeping (68.8%), with fishing also important (29.1%).

In contrast, river hunting (0.3%) and desert hunting (0.7%) are rare. The assemblages from this structure and those from Operation A and Operation B can be considered together, because they are likely to have all originated from structure C3–4. For the present, they are thought to date broadly to mid-Naqada II, and are more likely to be roughly contemporaneous with the first phase of use of the ceremonial centre HK29A than with the later phases of activity at that locality (Friedman pers. comm.). As can be seen in Figure 7, fishing is less well represented in the Operations (A: 11.8%; B: 16.5%) than in the food-processing structure. This may be due to the very good preservation of the lower level of that structure, from which almost 80% of the assemblage came (Baba et al. in preparation). However, it is more difficult to explain the large concentration of hippopotamus and crocodile bones in operations A and B, while a single hippopotamus bone and no crocodile bone was found within Structure C3–4. Thus, river hunting is proportionally better represented in Operation B than in Structure C3–4, although the hippopotamus bones from Operation B appear to belong mostly to the legs of a single individual (?).

Considered together (see Figure 7), the assemblage from the Operations (A and B) and Structure C3–4 consists mostly of bones derived from stock keeping (75.6%) and fishing (19.3%). River hunting (2.9%) is better represented than desert hunting (1.0%). Of the 3,856 bones recovered, 134 come from species studied in this thesis (Figure 8); only 9 of those were found in Structure C3–4.

Test A, located roughly 30 meters to the south-west of Operation A and Operation B, is a refuse mound that was excavated by Harlan (1982). This 2m by 3m test revealed a well-preserved stratigraphy up to 2.15m deep. These midden deposits had been “built up through the dumping of small amounts of refuse” at a time (Harlan 1982, 18). They are probably associated with a semi-circular feature excavated in nearby Test B, both most likely predating the intensive use of Operation B (Fahmy et al. 2011; Baba & Friedman in press). The faunal assemblage of Test A (825 bones) consists almost exclusively of remains deriving from stock keeping (79.8%) and fishing (18.9%; see Figure 7). Evidence of hunting is the scarcest of all the sites studied here (see Figure 8): there are no remains

from animals hunted in the river, and only 4 bones from animals hunted in the desert (Linseele et al. 2009, table 6).

Hierakonpolis is the only site at which faunal remains from animal species studied in this thesis have also been found in a funerary context, in the predynastic elite cemetery HK6. The majority of animals buried there were domestic, including at least 77 animals derived from stock keeping (44% of the assemblage) and 60 dogs (a third of the assemblage; Van Neer et al. 2015, Tab. 1). The rest of the assemblage consists of animals derived from desert and river hunting; no remains of fish have been found in the cemetery. Desert hunting represent just under a fifth of the assemblage, and is composed of a wider variety of species than in settlement contexts: at least 10 species have been identified, including two elephants (Majer 2009; Friedman 2011b). Of relevance to this thesis is the burial of one hartebeest and a few bones of Barbary sheep (burial not yet identified). River hunting is only represented by two crocodiles and three hippopotami (less than 3% of the assemblage).

Several animal species were sometimes buried together (e.g. Tomb 12, which contained 7 baboons, a Jungle cat, and a new-born hippopotamus; Van Neer et al. 2004), and some tombs contained several individuals of the same species (e.g. Tomb 49, which contained at least 12 cattle; Droux 2011b). Sometimes a single animal was buried in its own tomb (e.g. elephant in Tomb 33; Majer 2009). Not all tombs were reserved for animals: mixed burials with humans and animals have also been found (e.g. Tomb 46 that contained a man and a hartebeest; Majer 2011).

In sum, hunted animals, both from the river and desert environments – including representatives of the species studied in this thesis – have been found in different contexts at Hierakonpolis. HK29A, a locus of ritual activities and HK6, a cemetery, are elite in nature. Some contexts are not immediately identifiable as elite, but their close proximity to HK29A and HK6 suggests that they might be considered as elite-related (HK29, HK11C). A minority of the remains were found in contexts that are likely more mundane, such as HK11, Operation G, and HK11C, Test A. Remains derived from river hunting represent 12 to 13 times

larger proportions of the assemblages in elite contexts than in mundane contexts and those derived from desert hunting 4.5 to 13 times higher.

1.5.2 Adaima

Adaima was excavated by a team directed by Béatrix Midant-Reynes between 1989 and 2003 (Midant-Reynes et al. 1990; Midant-Reynes et al. 1991; Midant-Reynes et al. 1992; Midant-Reynes et al. 1993; Midant-Reynes et al. 1994; Midant-Reynes et al. 1997; Midant-Reynes et al. 1998; Midant-Reynes et al. 2002). The predynastic settlement was built on a Nile silt substrate to the north and on a sandy substrate to the south. Large-scale clearances and smaller excavations were made in both areas: several excavation units produced material relevant to this thesis. A gravelly terrace was also investigated (Midant-Reynes et al. 2002, 74–5).

The northern part of the site, along the edge of the modern cultivation, was built over a layer of Nile silt substrate. The largest area excavated there, termed by the excavators "Zone des limons" was excavated between 1997–2000 and covers 2,550 m^2, spread over the grid squares 1020/17 to 1090/13.[9] At least three distinct zones of occupation were identified. One is an area of silos and rectangular basins considered to be the possible remains of houses despite the absence of hearths or postholes (zone A, Midant-Reynes et al. 2002, 73); this may have been in use during the early First Dynasty (Naqada IIIC1), although the chronology is difficult to establish. An oval depression with a flat floor perhaps served for threshing grain (zone B, Midant-Reynes et al. 2002, 73). Finally, an area of gardens leading to a small irrigation canal extends to the south (zone C, Midant-Reynes et al. 2002, 74). Over half of the faunal assemblage at Adaima comes from the "zone des limons" (5,701 bones). Remains derived from stock keeping (67.5%) and fishing (23%) are the most common, but desert hunting (3.4%), and to a lesser degree river hunting (1.5%), are more prominent there than elsewhere at Adaima, even when the relatively large size of the area is taken into consideration. Some 206 bones from species studied in this thesis

[9] This area is marked as "AD97–98" on the map in Midant-Reynes and Buchez (2002, ill. 3); for the detail of the squares, see de Vliegher and de Dapper (2002, 188, fig. 19).

were found in this area (see Figures 7, 8), which significantly represents 80.8% of the bones of interest found at Adaima. The presence of such a concentration of bones of wild animals may perhaps be due to the area's having been used for a long period. It is also possible that specialised activities focusing on hunted species were performed in this area, although perhaps at a later date than at the other sites discussed here. The finds could also reflect a use related to the elite – if not the same elite as in the main settlement centres such as Hierakonpolis, at least the segment of population that had authority within the village of Adaima (see Bard 1988, 54).

Ensemble 1002–1003 (Midant-Reynes et al. 1991, 237–9; Midant-Reynes et al. 1992, 141–2; Midant-Reynes et al. 1997, 204), also located on the Nile silt substrate, covered over 500 m^2. This area revealed three rectangular structures, with floors of hard compacted mud, wooden superstructures, and possible related storage of grain. The chronological sequencing of the three structures is unknown, but they are generally dated to late Naqada I to mid Naqada II. The faunal assemblage (494 bones) from this Ensemble derives overwhelmingly from stock keeping (92.5%). Fishing and hunting (both riverine and desert) were less important there than elsewhere at Adaima: only three bones from species studied in this thesis were recovered (see Figures 7, 8).

Immediately to the east of this zone, Ensemble 1008 covers 100 m^2 (Midant-Reynes et al. 1991, 141–2). No structure or significant concentration of material was identified. Also of interest is a sondage of 25 m^2 (Ensemble 1010) that revealed an area with habitation structures built of mud, visible as depressions dug into the Nile silt substrate. No date was proposed for this sondage. Further to the east, in a small excavated area of 50 m^2 (Ensemble 1004), R-ware pottery was found in-situ; this ensemble has not been attributed to a date more specific than "predynastic" (Midant-Reynes & Buchez 2002, 10). The faunal remains from these three areas are not included in Figures 7 and 8, because of their small sizes (45, 46, and 160 bones respectively); remains from stock keeping and fishing constitute the majority of the bones. There are no remains derived from desert hunting in Ensemble 1008, and no evidence of river hunting in Ensembles 1004 and 1010. Each ensemble only produced a single

bone of interest for this thesis (hippopotamus, dorcas gazelle, and Barbary sheep respectively).

In the southern part of the site, further away from the floodplain, Ensemble 1001+ext (Midant-Reynes & Buchez 2002) is the largest excavated area of settlement that had been built on the sandy substrate. A surface of 900 m^2 was investigated in 1990–1996, revealing remains of wooden post structures. Because of the unstable nature of the sandy ground, the inhabitants resorted to various methods for strengthening their buildings, including setting the bases of the posts in buried ceramic vessels, as well as hardening the sand around the posts. Stones and sherds were also used as reinforcements (Midant-Reynes & Buchez 2002, 41–8). Because of these techniques, remains of the wooden structures could be identified, notably Structure C1, an oblong building with semi-circular ends (Midant-Reynes & Buchez 2002, 37–40). Understanding the relations between most of the other identified post emplacements is difficult, and it is also difficult to reconstruct other buildings. But as the excavators pointed out, these could have been light fences or simple wind screens rather than elaborate houses, although several semi-circular features may be parts of structures that were originally similar to C1 (Midant-Reynes & Buchez 2002, 38). The area was in use from late Naqada I to Naqada III (Midant-Reynes et al. 1994, 345; Midant-Reynes & Buchez 2002, 574).

The faunal assemblage of Ensemble 1001+ext (2,604 bones) is the second-largest at Adaima. Remains derived from stock keeping form the majority (64.1%), and fishing is a little more prominent than elsewhere at the site (28.5%). Desert hunting (0.8%) and river hunting (0.3%) are poorly represented (see Figure 7), with only 10 bones from species studied in this thesis having been recovered in the area (see Figure 8).

To the northwest, area 8000, excavated in 2000–2002, covers 200 m^2 (Midant-Reynes et al. 2002, 76–7). An oval ashy area was identified as a large habitation (U1), some 8x4m, with a superstructure built of wooden posts and an associated large limestone grinding table. It was in use during Naqada IIA–B/C. The faunal assemblage (453 bones, see Figure 7) is derived primarily from stock keeping (71.1%) and fishing (22.3%). River hunting (1.3%) is a little better

attested than desert hunting (0.7%). In total, nine bones from species studied in the thesis were recovered in this area (see Figure 8).

On the gravelly terrace, area 7000 was also excavated in 2000–2002. It covers 210 m^2. The installations, consisting of hearths and postholes, some of the latter reinforced with mud, are similar to those observed in Ensemble 1001+ext and are likely to have been in use in the same period (Late Naqada I–Naqada III). The faunal assemblage (611 bones, see Figure 7) contains the highest concentration of bivalves (14.4%) found at any predynastic site in Upper Egypt. Remains derived from stock keeping (63.7%), fishing (17.5%), river hunting (0.7%), and desert hunting (1%), altogether make the lowest proportion of any assemblage. This area produced only eight bones from species studied in this thesis.

Because it is difficult to establish the exact period of use of the areas described above, it is sensible to consider the material from Adaima as a whole. Of the 11,424 faunal bones recovered, those derived from stock keeping form the majority (69.5%), followed by fish remains (22.4%). River hunting (1%) is less well attested than desert hunting (2.1%). This pattern is the same in all areas except area 8000 and Ensemble 1008, where river hunting is represented by more bones than desert hunting. This is not, however, statistically significant, particularly for Ensemble 1008 where the assemblage is very small.

1.5.3 Settlement near Armant MA21/83

In 1984–1988, a settlement in the vicinity of Armant was explored by Ginter and Kozłowski (1994). Two areas were excavated on low desert hillocks near the edge of the cultivation (sites MA21/83 and MA21A/83), several kilometres away from the high desert plateau. The Nile is currently some 8 kilometres from the site, which would have been close to the water during the inundation only, although the bed of the river may have shifted eastward since MA21/83 and MA21A/83 were occupied.

The first area, MA21/83, covered 178 m^2 and the second, MA21A/83, covered 83 m^2. Between the two, a trench of 35 m^2 revealed a palisade that may have separated the settlement from the floodplain (Ginter & Kozłowski 1994, 1–

2). Three phases of habitation were identified, from the Badarian (perhaps intrusive from nearby) to Naqada IIC (Ginter & Kozłowski 1994, 135; detailed 14C chronological results: 118–23). At site MA21/83, identified features dated to the earliest phase of occupation consist of hearths and storage and refuse pits (Ginter & Kozłowski 1994, 25–7). A structure of wooden posts was identified for the second phase of occupation, again alongside storage and refuse pits (Ginter & Kozłowski 1994, 27–32). The same pattern continued during the latest phase, to which three semi-circular features are attributed (Ginter & Kozłowski 1994, 32–4). No remains contemporary with the earlier, Badarian phase mentioned above were identified at site MA21A/83. Structures of wooden posts were erected during the second phase, but not during the last phase. Hearths and pits were also noted. No information is given about the exact context in which the faunal remains were found (see comment by Ginter & Kozłowski 1994, v, n. 1).

The faunal assemblage (693 bones, see Figure 7) is dominated by remains of stock keeping (78.9%) and fishing (12.3%), but bones from hunted animals are relatively well represented, especially from desert species (5.9%), perhaps indicating that the gently sloping low desert hillocks were good hunting grounds. In contrast, riverine species are barely represented (0.3%), perhaps influenced by the distance to the river, although the proportion of fish remains clearly shows that those living in the settlement used products from the river. Only 35 bones of interest to this thesis were recovered, all of them of dorcas gazelle (see Figure 8).

1.5.4 El-Abadiya 2

The early predynastic settlement at el-Abadiya 2 (Vermeersch et al. 2004) had been partly destroyed by land reclamation at the time of its discovery in 2001. The estimated surface of the site is 1200 m^2, of which two areas of 12 m^2 each were excavated. Both areas were similar, but the northern one was already partly destroyed, with its upper layer removed in preparation for irrigation. No remains of built structures could be identified, but the presence of one hearth in each area suggests a site of domestic occupation (Vermeersch et al. 2004, 221–5). The site was occupied during Naqada I, perhaps only for short periods (Vermeersch et al. 2004, 260–1). The faunal assemblage is best considered all

together, because the site did not offer any stratigraphic entities (Vermeersch et al. 2004, 263). The 556 bones (see Figure 7) show a lower proportion of remains derived from stock keeping (73.4%) and fishing (10.6%) than usual. As at Armant MA21/83, bones from hunted desert species (10.6%) make up an appreciable part of the remains, and they are much better represented than bones from river prey (0.2%). This may reflect the distance between the settlement and the river, which today flows at nearest four kilometres away. The landscape west of el-Abadiya slopes gently for some distance before reaching the desert plateau, which may have provided good hunting grounds. Even if fish remains are somewhat lower than at most sites, they show that some fishing took place on the river. Of the 54 bones of interest here, none comes from species hunted in the river (see Figure 8).

1.5.5 Naqada-Khattara region

Several sites of predynastic domestic occupation have been identified and investigated on the west bank of the Nile, between the modern towns of Danfik in the south and Ballas in the north. Petrie and Quibell discovered the so-called North and South towns of Naqada in the late 19th century (Petrie & Quibell 1896, 1–2), while Jacques de Morgan (1896; 1897) collected material from so-called kitchen-midden, rightly attributing it to the prehistoric period. During two surveys in the 1970s, Hassan and Hays (Hays 1976) located and mapped seven predynastic settlement areas (KH1, KH3–KH7);[10] they also mapped the North and South towns. Faunal remains of interest here were recovered from two of these sites: KH3 and KH7 (Gautier & Van Neer 2009, 35–6).

Site KH3 (Holmes 1989, 193–4) is a settlement area covering an estimated 30,000 m^2, spreading over 17 mounds of midden, of which 327.5 m^2 were tested before more detailed excavations were made in three areas. Mound **KH3B** was explored in 1978 and 1980, but it appears that some material was recovered earlier from there (area named 75/3B in Gautier & Van Neer 2009, fig. 1). Details for the 1978 season indicate that an area of 21 m^2 was excavated. The features

[10] Originally numbered 75/1 to 75/7. De Morgan had visited some of these sites, although the exact correspondence between his work and theirs is not certain; see e.g. Holmes (1989, 194). Site KH2 was a disturbed late predynastic to early dynastic cemetery.

in this area are limited to hearths and small mud-lined pits. The settlement was occupied during Naqada IIA–B (Hassan & Matson 1989, 309), although the different areas may be of slightly different dates (Friedman 1994, 511). The faunal assemblage (462 bones, see Figure 7) was divided between the upper and lower levels (see Figure 11), showing that over time stock keeping became more prominent while fishing diminished sharply. River hunting is only attested for the upper level, while remains derived from desert hunting are scarcer there than in the lower level. Only three bones (all from dorcas gazelle) are of interest here (see Figure 8).

				Stock keeping	Fishing	River hunting	Desert hunting
KH3B	**Lower Level n ID bones:**	**122**		**59.0%**	**37.7%**	**0.0%**	**1.6%**
	Upper level n ID bones:	**340**		**80.0%**	**16.8%**	**0.3%**	**0.6%**
	Total n ID bones:	462	Naqada IIA–B	74.5%	22.3%	0.2%	0.9%

Figure 11. Details of the distribution of the faunal remains found at KH3B. After Gautier and Van Neer (2009), Table 1.

Gautier and Van Neer also noted bones from mound **KH3C**, but the only detailed information about that area is the carbon-dating of a charcoal sample (Hassan 1984). The faunal assemblage (99 bones, see Figure 7) is again dominated by stock keeping (78.8%) and fishing (17.2%), in proportions similar to the upper level of KH3B. A single bone from KH3C from a desert species studied in this thesis was present, and none from riverine species (see Figure 8).

Finally, bones from antelopes were excavated in **KH3** in 1981, but their exact provenance is not indicated. This assemblage (1,321 bones, see Figure 7) is unlike the two previous ones only in that river hunting is attested by 2.4% of the material; only two bones come from species studied in this thesis (see Figure 8).

Settlement **KH7** (Holmes 1989, 195–5) covers a smaller area of 2,100 m^2, of which 16 m^2 were excavated; surface collections were also made in four areas of 25 m^2 each. The only feature revealed was a large pit. KH7 is the oldest known settlement in the Naqada region (Hassan & Matson 1989, 310), but it is chronologically very close to KH3B (see Friedman 1994, 511, who suggests that

KH4 could be older than KH3). The faunal assemblage is much smaller than at KH3B (47 bones, see Figure 7). Remains derived from stock keeping form a higher proportion than at KH3B (80.9%) and those from fishing a lower one (12.8%). Desert hunting is attested by a single bone from a species studied in this thesis (2.1%); river hunting is not attested (see Figure 8).

In general terms, desert hunting is rare at all these sites; rarer still is evidence for river hunting, despite fish remains showing that the Khattara people used river products.

1.5.6 Mahgar Dendera 2

The small settlement of Mahgar Dendera 2 (Hendrickx et al. 2001) was located on the low desert, above a sandy substrate. It was the focus of a rescue excavation in 1987, after it had been partly destroyed by quarrying. An area of 250 m^2 was investigated, revealing remains of structures built of wooden posts, hearths, storage vessels, etc. It was not possible to determine the relations between the postholes, so that structures could not be reconstructed (Hendrickx et al. 2001, 19). The site was occupied during the Badarian and early Naqada I (Hendrickx et al. 2001, 14C dates, see 89–90).

Because the site did not offer precise stratigraphic entities, its faunal assemblage of 1,105 bones (see Figure 7) is best considered all together (Hendrickx et al. 2001, 91). Remains derived from fishing are the highest proportion of any predynastic site in Upper Egypt (82.1%), while those derived from stock keeping are the lowest (11.4%). River hunting (0.5%) appears less common than desert hunting (1.1%), but both are rare. Although this site is earlier than others discussed here, the inverse ratio of stock keeping to fishing is better explained by seasonality of use than by period. The site probably served as a fishing camp that was occupied temporarily at low Nile (Hendrickx et al. 2001, 103–4). The faunal assemblage clearly demonstrates that the focus of activities on the river did not increase the proportion of bones from wild animals living in the river other than fish, so that hippopotamus or crocodile hunting cannot be considered as a side activity of fishing. The site produced 13 bones of interest to this thesis, all of dorcas gazelles (see Figure 8).

1.5.7 Mahasna

Following testing and mapping at Mahasna in 1995–1996, David Anderson (2006; 2011) directed one season of excavation at the site in 2000. An area of 405 m^2 (Anderson 2011, 8) was excavated, divided into nine "blocks". Together, these produced a faunal assemblage of 5,262 bones (Anderson 2006, 180). Only Blocks 1, 3, and 4, concentrated on the north side of the site, produced faunal material from species under consideration here.

Block 1 (Anderson 2006, 71–89), covering 108 m^2, was identified as a multi-phase domestic structure and dated to Naqada IC–IIA (Phase IA) and IIA–IIB (Phase IB). This was built of wooden posts, with associated living floors and hearths. One burial (phase IC), possibly looted during the predynastic period, was also identified. Only two bones from species studied in this thesis were found in Block 1. They belonged to an antelope, not identified to species level (Anderson 2011, 20), and to a crocodile (Anderson 2006, 208).

Block 3 (Anderson 2006, 97–123; 2011) is the largest of the excavated blocks, covering 162 m^2. It was identified as a multi-phased settlement area, in use during Naqada IC–IIC, and is characterised by the remains of a large structure built with wooden posts. Material culture included fragments of at least 5 to 7 anthropomorphic and 22 zoomorphic figurines (Anderson 2006, 216–30; 2007; 2011, 14–19). The presence of these led the excavator to interpret the structure as a locus of ritual activity (Anderson 2011, 24–5), a conclusion supported by the presence of faunal remains from hunted wild species, most of which were found within this block (Anderson 2006, fig. 6.27; 2011, 19–22). Of the 22 bones from species studied in this thesis, 19 come from Block 3 (see Figure 8). Comparisons have therefore been made with the faunal assemblage at Hierakonpolis HK29A; the large wooden posts of habitation phase 3D (Anderson 2006, table 5.5) are comparable in diameter with posts at Hierakonpolis (HK29A, HK6), suggesting that the structure they belonged to was of substantial size and probably served a special purpose (most of it is unexcavated).

Block 4 (Anderson 2006, 123–32) is smaller, covering only 54 m^2. Several phases of occupation were identified, ranging between Naqada IC and Naqada

IIB. Several hearths and ash deposits were interpreted as indicative of food processing, possibly in connection with a wooden structure identified by Garstang in an earlier excavation. A single bone (a gazelle not identified to species level) belongs to a species studied in this thesis.

Because the faunal remains from Mahasna are not specified for each block, only general trends in the whole assemblage can be identified. Unlike most predynastic sites in Upper Egypt, fishing (56.3%) is more salient than stock keeping (35.1%). At HK29A too, fishing was more important than stock keeping (except in the remains found in the wall trench), but only the assemblage from the sands above the courtyard shows proportions similar to those at Mahasna; in the modified silts and in the floor deposits, fishing and stock keeping are closer to being on a proportional par, perhaps reflecting similar feasting choices. At Mahasna, river hunting is much more prominent than desert hunting, as is shown mainly by the high number of softshell turtle remains found in Block 4 (Anderson 2006, fig. 6.43); most other remains of prey animals come from Block 3.

1.5.8 General considerations on faunal remains

In conclusion, faunal remains from settlement contexts in Upper Egypt that are clearly not related to elites show minimal use of wild animals. River and desert hunting are not represented equally: the former represents 0% to 1.3% of the assemblages, the latter 0.4% to 2.1%. Three non-elite assemblages show different patterns. Site KH3 (general) has a higher proportion of river hunting remains (2.4%), with softshell turtle more prominent there than usual. Desert hunting is better represented at Armant (5.9%) and el-Abadiya 2 (10.6%) than at other non-elite sites; this may be due to the function of those sites, which may have served as temporary hunting camps.

By comparison, HK11C, which has perhaps served for the preparation of food products consumed during funerary feasts at HK6, and is therefore considered as associated with elite activities, has a higher proportion of river hunting (2.9%), but desert hunting is not markedly high (1%). It is also suggested that HK29 may have been used in connection with nearby ritual area HK29A, but

river hunting is quite low, at 0.7%, and the proportion of desert hunting remains is similar to that at HK11C. What makes these two areas stand out from the non-elite settlement patterns is not so much the proportions of river and desert hunting remains, but the choice of species among the bones: the presence of hippopotamus, crocodile, and to a lesser degree of Barbary sheep indicates that something special was taking place in these areas. At Adaima, the "Zone des limons" also stands out, with river hunting just higher than at other non-elite sites (1.5%) and desert hunting more so (3.5%). In this area, a concentration of hippopotamus and crocodile bones was observed, and ritual activities may have taken place there.

Areas that are certainly loci of elite activities, HK 29A and Mahasna Block 3 also stand out because of the selection of species there, such as hippopotamus and crocodile. But generally speaking, proportions of remains derived from river and desert hunting are higher there than anywhere else. At HK29A, they amount to 9.4% for the former and 8% for the latter. The same proportions cannot be established for Block 3 at Mahasna, but wild species were mostly found in that Block.

The study of faunal remains allows us to establish the wild animal species with which the predynastic Egyptians had direct contact, even if minimally. Distribution of these remains points to a definite elite interest in wild animals, but one which does not always accord with the artistic record. In the following chapters, I investigate these differences for the hippopotamus, crocodile, and antelope species which I selected for study in this thesis.

2 The hippopotamus

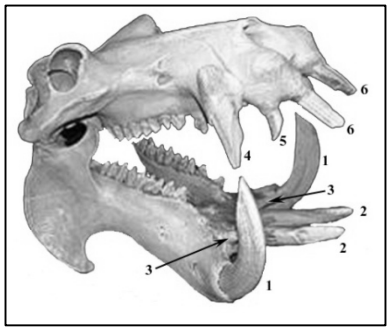
2.1 Zoological background

General information about the hippopotamus is drawn primarily from IUCN (IUCN SSC Hippo Specialist Subgroup et al. 2008) and Osborn and Osbornová (1998, 144–8). A member of the *Hippopotamidae* family, the *Hippopotamus amphibius* was the second largest animal of the predynastic landscape in Egypt, after the elephant, which was more rarely seen. The hipppopotamus cow grows until the age of 25 years, when it reaches an average maximum weight of 1,500 kgs. The bull does not stop growing and reaches an average maximum weight of 1,700–1,800 kgs at the age of 35 years, but exceptionally heavy individuals have been noted, with weights of up to 3,200 kgs (Eltringham 1999, 9–12, figs. 2.2, 2.3). Now extinct throughout Egypt, in the Predynastic period this mammal was likely present all along the Nile Valley, in the Fayum, and in the Delta. Susceptible to the heat, the hippopotamus needs to spend a large part of the day submerged in water, as its skin dries and cracks if exposed to the sun for too long. However, it seems that young individuals are less sensitive to the sun (Jeannin 1945, 117; Manlius 2000, 61). The reddish pigment secreted by the hippopotamus's skin, commonly called "blood-sweat", is in reality neither sweat nor blood (Eltringham 1999, 20–1; Hendrickx & Depraetere 2004, 812), but a secretion that provides antibiotic protection and a sunscreen effect (Saikawa et al. 2004). The nostrils, eyes, and ears are all situated high on the head and the muzzle, so that they remain above the water while the rest of the body can be completely submerged. Usually, the hippopotamus rests in shallow water with its feet on the ground and does not float; it avoids places where the current is too strong. It is common for the hippopotamus to share its space with the crocodile, except during the mating season, when the reptile maintains a safe distance. The extent of its habitat diminished when the Nile was at its lower levels, increasing the conflicts between the hippopotamus and humans.

The hippopotamus does not eat any aquatic vegetation, but feeds on grass, fallen fruits, or other terrestrial vegetation; it can travel for many kilometres from the river in its nocturnal search for food (Eltringham 1999, 35). Highly

gregarious, the hippopotamus lives in groups of up to 30 or 40 individuals organised according to a system of mating territoriality. One male, which monopolises a length of shoreline and river bank, heads a group that consists exclusively of females and immature males. Fights can occur between a territorial male and a younger male challenging its dominance. The older male first displays its jaw in a "yawn" to threaten the other animal. Since the hippopotamus' jaw contains long incisors and impressive canines (see Figure 12), the matter is usually settled by this display of strength. However, fights can take place, resulting in severe injuries (Eltringham 1999, 49–50). Young hippopotami usually stay in the company of the females of their herd (Dibloni et al. 2009, 391), both when moving on firm ground and in the water, where they can be seen resting on females' backs. The females also protect their offspring fiercely (Post 2000, 14–1, 153–4); this aggressiveness can result in attacks on humans (see below) or on other animals such as the crocodile.

The mouth of the hippopotamus contains 26 teeth, of which 6 pairs of tusks, shown in Figure 12, are particularly prominent and grow continually (Krzyszkowska 1990, 38–9, fig. 14). Because this mammal is exclusively a herbivore, these tusks mainly play a defensive role – against the lion for example, which is the most dangerous predator of the hippopotamus on firm ground – and, for the males, help them establish and guarantee their dominance.



1 Lower canines
2 Large lower incisors
3 Small lower incisors
4 Upper canines
5 Small upper incisors

Figure 12. Hippopotamus skull with the six pairs of tusks indicated. After www.learnanimals.com.

The curved lower canines are impressive: they can weigh up to 1.5 kilograms each, and grow to a length of up to 50 centimetres in the case of a mature bull; they are usually smaller in the cow. It is these tusks, together with

the straight incisors, that provided some of the raw material used by the ancient Egyptians for carved objects such as figurines, decorated tusks (an object of unclear significance but clearly of importance given their prevalence in predynastic Egypt; Hendrickx & Eyckerman 2011) cosmetic items, furniture elements, or vessels.

The hippopotamus comes into conflict with humans in two ways. On the river, it represents a direct danger for people taking part in fishing or any other activity on or near the Nile, as demonstrated by recent research in Burkina Faso (Dibloni et al. 2009) and in Kenya. There, Post (2000, 140–2) collated testimonies from people who suffered material losses as well as injuries; the animal proved deadly in some instances. It can overturn and cause damage to light boats (Post 2000, 152–3). On land, hippopotami can run for short distances at up to 45 km/h, and can easily overtake anyone trying to escape a close encounter. The hippopotamus also poses a major problem for agriculture: the harvest can be compromised when a herd of hippopotami tramples over a cultivated area or feeds on the crop (Post 2000, 142). The animal can also disrupt animal husbandry (Post 2000, 150–1). It would not be surprising if the hippopotamus also destroyed light wooden structures such as fences, although no such damage has been reported in recent research.

2.2 Faunal remains in archaeological context

Zooarchaeological remains of hippopotami have been found in assemblages at various ancient sites. Uerpmann (1987, table 7) published an overview of hippopotamus bones discovered in a geographical zone encompassing Egypt, Sudan, the Near East, and modern Turkey. Behrmann (1989, Dok. 1 and 2)[11] limited her list to bones found in Egypt. For predynastic Upper Egypt, hippopotamus bones have been found only at Hierakonpolis, Adaima, and Mahasna (Linseele et al. 2009). From the summarising table (Figure 8), it is clear

[11] The author mentioned remains from Tell el-Dab'a and Elephantine (Dok. 2g) that are much later than the predynastic period. Additionally, Dok. 2f describes New Kingdom remains from Qau el-Kebir and Badari; the correct reference is Brunton (1930, 18, 20). New finds of hippopotamus bones that post-date the predynastic period include several deposits in the settlement area at Tell Edfu that are attributed to the New Kingdom and Second Intermediate period (Moeller 2010, 96; 2011, 113).

		River hunting		Hippopotamus		
		n	%[1]	n	%[2]	Distribution
Hierakonpolis	HK29	16	0.7%	3	18.75%	1.92%
	HK29A Wall Trench	336	10.1%	21	6.25%	13.46%
	HK29A modified silts	200	10.0%	18	9.00%	11.54%
	HK29A Floor dep.	13	4.6%	2	15.38%	1.28%
	HK29A sands above.	16	5.0%	3	18.75%	1.92%
	HK29A all	565	9.4%	44	7.79%	28.21%
	HK11 Operation G	7	0.8%	6	85.71%	3.85%
	HK11C Operation A	6	0.7%	4	66.67%	2.56%
	HK11C Operation B	99	5.6%	84	84.85%	53.85%
	HK11C Sq. C3–4	4	0.3%	1	25.00%	0.64%
	HK11C A+B+C3–4	109	2.9%	89	81.65%	57.05%
Adaima	"Zone des limons"	87	1.5%	10	11.49%	6.41%
	Ensemble 1008	2	4.4%	1	50.00%	0.64%
	8000	6	1.3%	1	16.67%	0.64%
	Adaima all areas	116	1.0%	12	10.34%	7.69%
Mahasna Block 3		148	NA	2	1.35%	1.28%
Mahasna all blocks		340	6.5%	2	0.59%	1.28%
Total		1153	3.42%	156	13.53%	100.00%

Figure 13. Relative importance of remains derived from river hunting (%[1] of whole assemblages, cf. Figure 7); relative importance of hippopotamus bones (%[2] of river hunting remains); geographical distribution of hippopotamus bones among predynastic settlements. Remains from cemetery HK6 are not included here.

that remains of hippopotami form only a tiny proportion of the zooarchaeological assemblages to which they belong. Figure 13 details the relative importance of hippopotamus bones among assemblages of hunted riverine species (hippopotamus, crocodile, and softshell turtle), which varies markedly both between and within archaeological sites.

2.2.1 Faunal remains at Hierakonpolis

The vast majority of hippopotamus bones from predynastic times found in Upper Egypt come from Hierakonpolis (91%). They have been found at four distinct localities. First, at locality **HK29A**, 44 hippopotamus bones were found (see Figure 13). The largest group (21 bones) was recovered from the wall trench (Naqada IIB–C). Significantly, in this wall trench, remains derived from river hunting (10.1%) constitute the highest proportion of any assemblage under consideration here. However, hippopotamus bones are not numerous among

them (6.25% of this group), softshell turtle constituting the majority of the river hunting assemblage (63%; see Linseele et al. 2009, tab. 2). In the adjoining "modified silts" (Naqada IIAB–C), 18 hippopotamus bones were also found. River hunting is almost as well represented there as in the wall trench (10%), and hippopotamus bones form a slightly larger part of the assemblage of this group (9%), which again is dominated by softshell turtle (56%; see Linseele et al. 2009, tab. 2). The assemblages derived from river hunting found in the floor deposits in the courtyard (Naqada IID–IIIA1), and in the sands above it (Naqada IIIB–IIIC1) are small, and therefore statistically less significant. Evidence for riverine hunting diminished by half: two hippopotamus bones came from the floor deposit and three from the sand above. In their majority, the remains of hippopotamus from HK29A belonged to young individuals (Linseele et al. 2009, 124), which were however older than those buried at HK6 (see below).

Just three hippopotamus bones were recovered at **HK29,** dated to Naqada IIA–C (Hoffman 1980). Remains derived from river hunting were not especially common there (see Figure 13), and those from hippopotami form under a fifth of that group (18.75%), which is dominated by crocodile and, to a lesser extent, softshell turtle. These bones are possible remains of food consumption, although the proximity of the ceremonial centre HK29A may play a role in their presence there. It seems unlikely that they are connected to the production activities of the locality.

Six hippopotamus bones were found at **HK11 Operation G** (Naqada IIA–B; see Figure 13). They come from the occupational phases II (3 bones) and III (1 bone), with the other two bones not attributed to a specific phase (see Figure 10). A single crocodile bone (not attributed to a specific phase) and no remains of softshell turtle have been recovered from Operation G, so that hippopotamus bones constitute the largest part of the assemblage derived from river hunting (85%).

At HK11C, 84 hippopotamus bones have been identified among the assemblage of Operation B. Those analysed in 2003 (12 bones) mostly come from the hind feet of adult animals, in contrast to the young individuals present at HK29A and HK6. At Operation A, hippopotamus bones are very rare; the four

identified bones include one talus and one vertebra. As noted in §1.5.1, these bones, which were found in the upper layers of both operations, are probably intrusive, originating from the nearby structure excavated in Squares C3–4, which was in use during the second half of the Naqada II period. To date, a fragment of a long bone is the only hippopotamus bone to have been found within this structure (Baba et al. in preparation). If all the 88 bones from Operations A and B did come from Structure C3–4, the only hippopotamus bone found within the structure may show that larger and more visible bones, such as those of hippopotami, were more likely to be removed during cleaning of the floor (Linseele et al. 2009, 134). However, further excavations in Structure C3–4, or in areas nearby, are likely to modify this picture.

In the elite cemetery **HK6**, three hippopotami buried as whole carcasses have been found. Two of them could be associated with their original burial. In Tomb 12, dated to Naqada IC–IIA, a three-day old hippopotamus was buried together with seven baboons and a wild cat (Adams 2000, 33, with bibliography; Van Neer et al. 2004, 82–4, 109; Linseele et al. 2007; 2008). A second individual was found in Feature H (2009). This is a mat-lined pit subsidiary to Tomb 32, a human burial dated to Naqada IIA–B (Van Neer & Linseele 2009; Pieri & Friedman 2009; Friedman et al. 2011). This hippopotamus was aged between five and eight months at death. Its milk incisors were observed, protruding from the bone of the right premaxilla, which shows that it was old enough to graze and survive without its mother (Van Neer et al. 2015). The presence of a fractured, but healing, fibula (Van Neer 2009) suggests that it was kept in captivity for some time. This possibility is reinforced by the fact that at this age the animal does not yet need to spend most of its time submerged in water (Jeannin 1945, 117; Manlius 2000, 61) and can survive without its mother's milk. In the area around Tomb 2, remains of a third hippopotamus, aged between six months to one year, were found in spoil (Hoffman 1982b, 41, 48–50; Van Neer et al. 2004, 74, 76, 109). Its original burial is unknown and its precise date cannot be ascertained. However, current evidence suggests that wild animals were only buried at HK6 Naqada IC–IIB (Van Neer et al. 2004, 126).

The burial of these three hippopotami and other wild animals at HK6 are unique physical examples of ritual use of this species in a funerary context, just as the remains at HK29A are evidence for usage in rituals of a different, non-funerary nature.

2.2.2 Faunal remains at Adaima

Twelve hippopotamus bones have been recovered from the settlement of Adaima (see Figure 8). Over three quarters of these were found in squares 1030/17–1040/16–17, which corresponds to area A of the "Zone des limons" (10 bones; Midant-Reynes et al. 2002, 73; van Neer and Linseele, unpublished data). This area was primarily identified as a zone of silos, which can hardly explain the presence of hippopotamus remains. They may, however, be associated with the rectangular sunken floors found in the same area, which are identified as the possible remains of houses (see §1.5.2). The faunal assemblage deriving from river hunting is larger here than in other areas of Adaima, except for Ensemble 1008, but still not voluminous (87 bones; see Figure 13). Softshell turtle bones represent just over 52% of this group, and crocodile bones are three times as numerous as hippopotamus bones.

Only two hippopotamus bones come from the southern part of the site. One was found in square 1008, for which no specific use could be identified, and one in the oval house U1 in square 8002. The latter is the only bone from a hunted species associated with this house. Faunal remains from hunted riverine animals were rare in both Ensembles 1008 and 8000; the relative importance of hippopotamus in Ensemble 1008 is not statistically significant because of the small size of the faunal assemblage there. In Ensemble 8000, the relative importance is similar to that in the zone des limons.

2.2.3 Faunal remains at Mahasna

Among the small sample of faunal remains from wild species at Mahasna, two hippopotamus remains were identified: one unfused radius belonging to a very young individual, and an unworked tooth fragment, both from Block 3 (Anderson 2011, 21). The relative importance of the assemblage from hunted riverine species cannot be established for the block (see §1.5.7), but hippopotamus

bones form a very small minority of this group, on a par with the crocodile, because bones from softshell turtles account for over 97% of the remains (see Figure 13). For Mahasna as a whole, the proportion of hippopotamus remains is 0.59%. A fragment of raw ivory could be included or could belong to the material culture of the site.

2.2.4 Comparison with Lower Egypt

The Lower Egyptian cultures, which partly predate the Naqada culture, seem to have made more use of the hippopotamus (Linseele et al. 2009, table 6). Neolithic hippopotamus remains from the Fayum were found on Kom W (Caton-Thompson & Gardner 1934, 34), in a small assemblage of bones from prey animals. In the area of sites T and O, a complete skeleton was noted (Caton-Thompson & Gardner 1934, 83) while at site N a partly preserved hippopotamus skeleton still had an arrow head embedded in its ribs, showing clearly that it had been hunted (Caton-Thompson & Gardner 1934, 84). Hippopotami were also noted elsewhere in the Fayum,[12] and new excavations at Kom K uncovered 4 hippopotamus bones.[13] At Sais, a hippopotamus skull fragment is mentioned among the zooarchaeological assemblage of phase Ib, dated to the late Neolithic (Wilson 2014, 305).

At sites on the Nile Delta margins, hippopotamus bones are the most frequent remains of hunted animals, especially at Omari (Boessneck & von den Driesch 1990, 100, Tab. 1), but less so during the earlier phases of Merimde (von den Driesch & Boessneck 1985, 35, Tab. 15). However, most of the subsistence of the Lower Egyptians at that time derived from various plants, stock keeping, and fishing (Wetterstrom 1996, 60–2; Wengrow 2006, 90); remains derived from hunting activities are marginal, representing less than 4% of the assemblages (see also Mączyńska 2013, 104–5). The inhabitants of Maadi seem to have made practical use of hippopotamus bones, as two femurs might have served as anvils

[12]Four bones were found at site E29H2 on Kom W and one possible hippopotamus bone at site E29G3 (Gautier 1976). Twenty-six bones from a butchered hippopotamus were noted at site QS XI/81 (von den Driesch 1986, 2, tab. 1), and 29 bones were recorded at site FS1-B (Wenke et al. 1988, 42, table 1).

[13]Linseele et al. (2014, with tab. 2) have compiled the faunal assemblages of the excavations led by the University of California at Los Angeles, the Rijksuniversiteit Groningen, and the University of Auckland.

(Boessneck et al. 1989, 107–8). At Merimde, hippopotamus tibiae were used to build entrance steps inside some huts (Vandier 1952, 111–112; Behrmann 1989, Dok 1a). One of the oldest zoomorphic figurines in Egypt, also from Merimde, was carved from the rib of a hippopotamus. This piece, which may represent a deer, was found in a vessel together with a bracelet fragment and a three-piece object, both also carved out of hippopotamus ivory, as well as a group of stone axes (Eiwanger 1988, inv. II.1166, 46, 104, pls. 56, A; 2007, 73, fig. 100).

Several remains of hippopotamus have been recorded at Tell el-Farkha; they are mostly teeth and tusk fragments, as well as a few bones from the legs, all dating to phases 4–6 (Naqada IIIA1–IIID; Abłamowicz 2012, 420–1).

2.2.5 Discussion of the faunal remains

Archaeozoological remains suggest that the hippopotamus did not commonly figure in the diet of predynastic Upper Egyptians, somewhat in contrast with the situation in Lower Egypt and the Fayum in rather earlier periods. Each animal killed in a hunt could have provided a large amount of food (Midant-Reynes 2000, 111),[14] as well as several tusks for carving of varied items. Objects carved out of ivory have often been considered as the prerogative of the elite, and their presence in burials as markers of elite status; however, this cannot be determined for sure and is beyond this thesis.[15] The use of hippopotamus skin and fat is attested for later periods in medical texts such as Papyrus Ebers (Behrmann 1996, 56–8), and this practice could have existed in predynastic times, so that a practical use of hippopotamus products at HK29 and HK11C cannot be entirely ruled out. However, the additional presence of crocodile bones in these assemblages suggests that this is not likely to be the case.

Nearly 30% of recorded hippopotamus bones come from contexts of elite activities, such as Hierakonpolis HK29A and Mahasna Block 3. If the food prepared at HK11C (Str. C3–4, Ops. A–B) was intended for elite funerary rituals at HK6 (Baba et al. in preparation; Harlan 1992, 17), and if the close proximity of

[14] Pyke (1970, 30–1, fig. 2.5) suggests that one hippopotamus provides as much meat as 60 sheep.

[15] Access to hippopotamus tusks is seen as a marker of wealth already in Neolithic times (Salvatori 2008, 123).

HK29 with HK29A is significant, then over 88% of hippopotamus bones in settlement contexts could be linked to elite activities. Only the few bones from Operation G at HK11, and those at Adaima, appear to be in entirely non-elite contexts. However, the noted concentration of bones from wild hunted species in the "Zone des limons" at Adaima may suggest that some activities perhaps linked to the elite, possibly at village authority level, took place there too. If this were the case, the proportion of hippopotamus bones that cannot be considered as linked to the elite would reduce to 8%.

Regardless of the exact nature of hippopotamus use at Adaima, hippopotamus hunting appears to have been mostly in the control of elites, or at least the products of the hunts seem to have been used mostly for elite-related activities. Whether members of the elites played active roles during hippopotamus hunts or were only the organisers and instigators of the hunts is unknown and cannot be determined through archaeology or iconography. This extremely dangerous and aggressive animal could only be hunted by groups. A set of photographs by Wilfred P. Thesiger illustrating a hippopotamus hunt with traditional weapons in southern Sudan in 1938 shows at least a dozen men, holding spears and harpoons, taking part (Pitt Rivers Museum, Oxford, inv. No. 2004.130.32852.1–32859.1). Roche (2014, 73) mentioned a traditional hunt on the river Niger, filmed by Jean Rouch in 1951, during which the hunters used more elaborate harpoons, with retractable wooden staves attached to ropes and floaters. Depictions on C-ware vessels and in rock art show similar weapons being used to take down a mature hippopotamus. These specialised weapons may not have been readily available to non-elite people.

Almost 90% of hippopotamus bones date to before Naqada IID if one includes those from HK11C (Ops. A and B, Structure C3–4), which are only broadly dated to mid-Naqada II (Friedman, pers. comm.). It is not possible to determine the proportion of remains that are contemporaneous with the large amount of hippopotamus-related material produced during Naqada I–IIB (see below), but it is significant that only 10% of the remains date to the later part of the predynastic period.

The importance of the hippopotamus in predynastic Egypt is not limited to its role in the provision of food, or use in ritual. Its ivory was employed extensively for the production of luxury and/or ritual goods, which were probably the prerogative of elites. It is not possible to know what proportion of predynastic ivory objects was carved out of hippopotamus tusks, as the type of ivory of which they are made has not been systematically studied. There is also sometimes confusion between ivory and bone as raw materials. In the Louvre museum, analysis of the small sample of objects (100 objects) showed that 70% were made of hippopotamus ivory, 8% of elephant ivory, and 22% of bone (Acquaviva 2000). However, it is not possible, for lack of comparative study, to determine if these proportions reflect predynastic use of the raw materials as a whole, but it does show that hippopotamus ivory was more readily used than elephant ivory or bone. With regard to objects carved in bone, to my knowledge, no specific analysis has been conducted to identify which animal species they were from. Non destructive zooarchaeology mass spectrometry is a technology that would provide such information (Hounslow et al. 2013).

Hippopotamus tusks and tags carved out of ivory were sometimes deposited in tombs, often in pairs or larger groups. Hendrickx and Eyckerman (2011) list no fewer than 420 such items, and since their publication, four pierced tusks were excavated in Tomb 72 at Hierakonpolis (Droux & Friedman 2014). It is thus clear that hippopotamus ivory was an attractive material, which was used extensively in predynastic Egypt.[16] Although the tusks could have been removed from dead animals found in the floodplain or on river banks, the material was probably also – if not mainly – obtained through hunting, which was purposed to acquire food and animals for rituals, as well as ivory.

It is difficult to get a full picture of the importance of the hippopotamus in early predynastic Egypt. Its meat and ivory were most likely acquired through

[16] Unworked hippopotamus tusks were already used as containers during Neolithic times, as attested in burials of the Dongola Reach in Sudan (Pöllath 2008). Plain hippopotamus tusks were also used in Badarian times (Hendrickx & Eyckerman 2011, 503, catalogue, type A1): five tusks were found at Badari, of which two come from the elite cemetery 5100 (Brunton & Caton-Thompson 1928, 5–7, 11, 12, 15), and one tusk comes from the apparently richly furnished tomb of a woman at Mostagedda (tomb 428; Brunton 1937, 53). At Matmar, a group of six unworked tusks was found just under the surface in settlement context 2110 (Brunton 1948, 6), perhaps a deposit of raw material (Midant-Reynes 2000, 158).

hunting, and almost exclusively for the privilege of the elites. Whether the hunters themselves were members of the elites cannot be determined, but because the products of the hunt were destined to these elites, it is likely that, in most cases, they organised and controlled the hunts.

2.3 Overview of the hippopotamus in the material culture

The hippopotamus was widely represented in predynastic time, and the appended corpus contains 173 objects. The hippopotamus' shape has been incised and painted on a variety of materials, and objects were carved or modelled into a hippopotamus shape. Numerous C-ware vessels bear hippopotamus motifs, while the animal is also found on a painted box, on the Gebelein linen, and on seated female figurines. A few vessels and palettes have the silhouette of the hippopotamus incised on their surface, while other vessels have small clay figurines applied to their rims. The massive animal's shape also inspired potters and other artisans – or their patrons – who created hippopotamus-shaped vessels, both in clay and in stone, and more rarely in wood. Carved hippopotamus tusks, with a small pachyderm at the tip, are reminiscent in shape of the clay vessels with a long neck, but could hardly have served as such. Also of uncertain use are the hippopotamus-shaped stone figurines, often coupled in pairs, with a small rim on the back. A number of other hippopotamus figurines were modelled in clay, or carved in stone and ivory. Cosmetic palettes and flint figurines were sometimes also shaped as hippopotami. A few additional objects have figurines in the shape of the animal's silhouette on their top, such as ivory and wooden combs and a hairpin, while others (included in the Varia section of the catalogue) have puzzling shapes likely inspired by the hippopotamus.

During the predynastic, the hippopotamus was only represented during a limited period of time and no longer figured in animal imagery between Naqada IIC and the early dynastic period; the few hippopotamus figurines in the early dynastic temple deposits are insufficient to asses a temporal development in their depictions.

2.3.1 Two-dimensional depictions

Just over a quarter of hippopotamus depictions are two-dimensional (49 objects, 28.5%). The majority have been found on vessels of the C-Ware class, of which thirty-six examples are known and on three individual sherds of the same ware class (Figure 14).[17] This represents 7.3% of the whole corpus of C-ware vessels, but 36% of those with animal depictions on them (see Figure 3). They are presumed to all date to Naqada IB–IIA, the date range attributed to C-ware pottery in general. Although the silhouettes of the animals are usually quite stylised, with exaggeratedly squared muzzles, their identification as hippopotami is always certain. The bodies are preferably filled with chevron designs or cross-hatching. Details of the heads can include the ears, eyes, nostrils, and protruding tusks. Only on three vessels do the hippopotami bear all these details together (**1.8**, **1.10**, **1.57**), while on five others, none is shown (**1.3**, **1.9**, **1.11**, **1.58**, **1.62**). On the 20 vessels that show protruding tusks, the mouths of the hippopotami are always closed. On **1.39**, it is not clear what anatomical details are rendered by the rounded protuberances. None of the sherds have fully preserved heads, so that the presence of these details on them is not certain.

Similarities between some vessels are strong enough to suggest that they were painted by the same person, or at least in the same workshop. Graff (2009a, 113–4) groups nine bowls with hippopotami together. However, despite sharing general similarities, it cannot be said that they were all made by the same person. Three bowls and probably one sherd (**1.3**, **1.9**, **1.11**, **1.68**) showing series of hippopotami with their bodies filled with cross-hatching, certainly belong together; details such as the rendering of the hind legs also closely resemble each other. Unfortunately, they do not have a certain provenance. Two beakers, of which one was found at Naqa ed-Deir (**1.47**, **1.48**) were also most likely painted by the same person, who used the same chevron designs for some of the silhouettes on both vessels (Graff 2009a, 118). It seems that a bowl from

[17] Vessel S.1825, in the Fondazione Museo delle Egizie in Turin (Scamuzzi 1965, pl. VI; Behrmann 1989, Dok. 23a; Graff 2009a, cat. 73), is not included here. It is one of three C-ware vessels bought in Egypt by Schiaparelli (see notes 39, 53) which have suspicious painted decorations which I consider to be modern additions onto authentic Red-polished vessels. On S.1825, the five animals can only be supposed to be hippopotami, so approximate is their rendering.

Mahasna (**1.20**) should be included in that group, despite the different shape of the vessel and the absence of the crocodiles. In contrast, two vessels found together in tomb U-415 at Abydos (**1.63**, **1.64**) have hippopotami that are rendered in two completely different styles, and the same is true of the human figures present on both vessels. This shows that similar vessels were destined to different cemeteries, and that different painters were involved in the preparation of the equipment of a tomb.

The hippopotamus is the only animal represented on exactly half of the vessels. The scenes depicted on the 18 other vessels are sometimes more elaborate and include other animals such as the crocodile on 11 vessels (**1.8**, **1.19**, **1.30**, **1.32**, **1.41**, **1.46–1.48**, **1.56–1.58**), the turtle on two (**1.19**, **1.33**), and fish on four (**1.3**, **1.11**, **1.19**, **1.48**). Other animals include the bull (**1.64**), horned quadrupeds such as ibex and gazelle (**1.62**, **1.63**), and a few others (scorpion, birds, dogs). On vessel **1.46**, hippopotami and crocodiles are depicted on the interior of the beaker. This scene mirrors the decoration on the outside of the vessel, which contains two elephants and two bulls. The two sides of the vessel may represent the different environments of importance to the predynastic Egyptians, each showing the largest animals in these landscapes. A bowl from Abydos (**1.19**) stands out by the variety of animals depicted, which are associated with numerous other motifs, making it the most complex scene. Because these include a wild donkey and a dog, the desert and riverine environments are merged together. Two other vessels from the same site (**1.62**, **1.63**) share this characteristic, showing antelopes and dogs together with hippopotami. In other vessels, the environment is either not indicated, or strictly riverine, as indicated by the presence of the common reed, fish, crocodile, and perhaps wavy lines which may represent water. The hippopotamus is more commonly represented in pairs (12 vessels). It is otherwise shown individually or in groups of four (8 vessels each) and in groups of three (7 vessels). One example (**1.11**) has seven hippopotami. The number of animals painted on the vessels to which the three listed sherds belong cannot be established.

The hippopotamus is hunted on fourteen vessels; so far as can be seen, none of the sherds bear depictions of hunting scenes. Harpoons are the weapon

of choice for this type of hunt and are systematically represented, unlike the hunters themselves, which appear on only six vessels. Although the hippopotamus hunt was by necessity a group activity, there is never more than one hunter shown harpooning an animal; on **1.33**, a man harpoons one hippopotamus while two other figures are not taking an active part in the hunt; on **1.64** the three hippopotami are hunted by one man each. This is not the only detail inconsistent with real hunting events; these were likely to take part on the river rather than on firm ground, but a boat is only shown once (**1.19**; see below for example on palette **4.17**). There may be a second occurrence of a boat on the oval bowl **1.30**: a standing man holds the harpoon that is connected to the muzzle of the hippopotamus, and a cross-hatched design partly overlaying him (?) may be a boat, seen in top view (Hendrickx & Eyckerman 2010, 128). The overlaying may mean that the man stands on the boat.

On **1.19**, the harpoons are thrown from the boat, seen in profile, which does not carry any visible human figures, so that the hunters themselves are not shown. There are seven other vessels on which the hunters are not depicted but represented by their weapons, in this case the harpoons. Vessels **1.32**, **1.62**, and **1.63** should perhaps be added to the list of those depicting hunted hippopotami, although these animals are not directly targeted. On the first example, a net is used for the capture of a crocodile, while on the other two dogs are chasing antelopes. But the crocodile and antelopes hunt may, by extension, also be applied to the hippopotami, following the interpretation of Hendrickx and Eyckerman (2010). If this is the case, the dogs and the net symbolically represent the hunt and the hunters, and apply to all the wild animals depicted, regardless of the lack of realism as to the weapon used or environment the hunt takes place in. On the bottles **1.63** and **1.64**, buried together in tomb U-415 at Abydos, the hippopotamus hunts are equated with the taking of human captives according to Hendrickx and Eyckerman (Hendrickx & Eyckerman 2012, 32).

A hippopotamus is painted on one of the sides of a rectangular ceramic box from el-Amra (**3.1**). Although Graff (2009a, cat. 171) included it in her list of C-ware vessels, this box does not belong to that class of ware. It is a rough ceramic with organic temper and the motifs are painted in black. The design visible

behind the animal's head was interpreted as a harpoon by Behrmann (1989, Dok. 30), while Payne (1993, 79) understood it as a harness. Re-examination of this objects revealed that the drawing in Payne's catalogue (Payne 1993, fig. 32) is not accurate. There are traces of paint above the animal's neck, but it looks more like a solid rectangular area, with an oblique left side. The paint is not very well preserved, so that the exact contours on the right side are not certain, and the meaning of this shape is perplexing. It seems unlikely to represent the killing of the animal, either as a weapon or as flowing blood. It may tentatively be seen as a float, perhaps attached to the extremity of a harpoon, to allow the hunters to trace and follow the targeted hippopotamus until it dies. But this remains uncertain, because there is no visible trace of the harpoon itself on the scene.

Hippopotami have been painted on the abdomen of two limestone figurines representing seated women, in both cases facing toward the belly (**3.3**, **3.5**).[18] The head of the hippopotamus on **3.5** is not preserved, but that on **3.3** shows protruding tusks. Other animals are painted on both figures. **3.3** bears the depiction of a male Barbary sheep attacked by two dogs, while the scene is less clear on **3.5**. It is possible that a dog is shown attacking an antelope. Although these figurines have no known provenance, the style of the painting of the animals, especially on **3.3**, closely resembles that of C-ware vessels, so that they likely date to the same period. The last painted representation is to be found on the Gebelein painted linen (**3.2**). A poorly preserved scene seems to represent the harpooning of a hippopotamus. This scene may be connected with net fishing (?), depicted further to the right. Together, the two motifs might symbolise the mastering of the wilderness. It does not seem plausible that the hunt refers to a real activity here, because the human figure harpooning the animal possibly wears a mask (Galassi 1955, 10; contra Behrmann 1989, Dok. 34, for whom the strange design appended to the head might represent the beard or hair), which seems to suggest a ritualised activity. The preserved fragment is not

[18] I consider a painted limestone figurine, in the collections of the Royal Ontario Museum (number unknown, seen on display) to be a modern forgery, and do not included it in the catalogue. The treatment of the hair, carved out of the stone rather than added in a different material (and stylistically closer to the tripartite wig of later statues) is suspicious. The decoration is similar enough to the figurine in New York (**3.5**) to suggest that it is a modern imitation of this object.

large enough to ascertain the exact context of the scene, but the linen as a whole may depict a ritual.

Four vessels with incised decoration have representations of hippopotami, all dating to Naqada IC–IIB (**4.2**, **4.6**, **4.10**, **4.13**). In three cases, the animal is the only motif on the vessel. The décor of **4.10** is more complex. The hippopotamus is associated with an ibex incised near parallel lines, which are potentially a very schematic boat (Midant-Reynes 1994, 231, note 15), and a tassel.[19] Its neck is marked with incised vertical lines, which may indicate that the animal was killed, with blood flowing from the throat. These incisions can be paralleled by two parallel grooved lines on the neck of a hippopotamus palette (**8.3**, see below). However, because the incisions are so schematic, they could potentially represent a collar or leash, and therefore indicate that the animal was kept captive. Evidence for such treatment of hippopotami has been found at Hierakonpolis (see §2.2.1), although the animal was attached at the rear foot rather than the neck, so that this interpretation for the incised lines is only tentative.

Finally, two hippopotami are incised on cosmetic palettes, both without provenance. On **4.17**, a man harpoons one hippopotamus, while a second is pictured alone at the other end of the palette. On the same surface, a gazelle is attacked by a hyena (?). This is one of only two, possibly three depictions of a hippopotamus hunt in which a boat was depicted; the scene is however not realistic, given that this type of hunt was a group activity and only one hunter is

[19] The tassel design is also found on several C-ware vessels. Graff (2009a) lists five examples: cat. 74 (**1.19**, hunting scene), cat. 80 (no animals), cat. 123 (no animals), cat. 143 (with bulls), cat. 147 (**1.51**, with a gazelle). There are at least two additional vessels: one without animals (Naqa ed-Deir 7179, Berkeley PAHMA 6-4328, Lythgoe & Dunham 1965, 101–2, fig. 42 g), and one with a hartebeest (**1.25**, see below). The same design is painted on one side of a ceramic box (**3.1**) and incised on a large B-ware vessel (**4.10**). This tassel design has not been the object of a specific study, and was considered by Graff as four distinct signs are (Graff 2009a, "female figure" Hf7, "flower bud" V6, and unidentified signs NI5, NI54). There is a certain resemblance between this sign and an element hanging at the prow of the boat on **1.19**. Because a boat is also represented on the box **3.1** and potentially on **4.10**, the tassel may have a nautical origin or association, and when it is depicted on its own, it may perhaps be understood as symbolic representation of a boat as a whole. One design on the painted linen from Gebelein may be similar: it appears as a brown-painted frame of large dimensions, manned by a standing man, from which several wavy lines appear to be hanging. Patch (2011, 38, cat. 35), interpreted it as a net used for hunting crocodiles (rather than fish as has been previously suggested). Unfortunately, because the decoration below the "net" is not preserved, its function or purpose in this scene remains uncertain.

represented. The similarities between this representation and some C-Ware vessels suggest that these artefacts are contemporaneous, especially as the diamond-shaped palettes are the most frequent ones during Naqada I (Ciałowicz 1991, 38). On **4.21**, a crocodile and a hippopotamus stand next to each other.[20] They do not immediately appear as prey, but because material such as malachite was repeatedly ground over their silhouettes, to the extent that they were partly erased, it can be understood that the "practical" action of grinding replaced the depiction of harpoons, humans, or boats, so that the animals are, in effect, disempowered.

[20] The hippopotamus had not been noticed by Scharff, who published the palette. I saw it while examining the object in the Ägyptisches Museum, and made a sketch of the figure. Since my visit in Berlin, the palette has been subjected to Reflectance Transformation Imaging photography, and a more detailed view of the hippopotamus will be published in due course (R. Kuhn, pers. comm.).

Hippopotami on C-ware vessels					
catalogue	# of Hippopotami	# of Crocodiles	Other animals	Hunting scene	
				Human	Weapon
1.01	1				
1.02	2				
1.03	4		Fish		
1.04	1				2 harpoons
1.06	1				
1.07	1				
1.08	2	1			
1.09	4				
1.10	2				1 harpoon
1.11	7		Fish		
1.12	2				4+2 harpoons
1.13	2				1+1 harpoons
1.16	2			YES	1 harpoon
1.19	1	1	Donkey fish birds dog turtle scorpion		4 harpoons, 1 boat
1.20	3				
1.23	2				
1.30	1	1		YES	1 harpoon
1.32	3	1			
1.33	2		2 turtles	YES	1 harpoon
1.35	3				
1.37	3				
1.38	3			YES	1+1 harpoons
1.39	2			YES	2+2 harpoons
1.40	4 (+2 figs)				1 harpoon (?)
1.41	2	1	Birds		
1.44	1		Birds		
1.46	2	2	2 elephants 2 bulls		
1.47	4	6			
1.48	4	5	Fish		
1.50	1				1 harpoon (?)
1.56	3	1			1 harpoon
1.57	4	5			
1.58	2	1			
1.62	4		3 ibexes		(4 Dogs)
1.63	4		1 ibex 1 gazelle	(YES)	(1 Dog)
1.64	3		Bull	YES	1+1+1 harpoons
sherd 1.67	1				
sherd 1.68	1				
sherd 1.70	1				

Figure 14. C-ware vessels and sherds with depictions of hippopotami.

2.3.2 Tusks, zoomorphic vessels, and associated figurines

Eight carved tusks with hippopotamus figurines at their tip are known (**6.1**–**6.8**). They belong to Hendrickx' tusks and tags type A.4.a (Hendrickx & Eyckerman 2011, 500–1, 508, fig. 1, fig. 12). Each is carved from a hippopotamus tusk, likely a lower incisor (Droux 2011a, 352, fig. 2). The small figurine at the bottom is carved from the same solid piece of ivory, not added as might appear at first sight. The upper part of the tusk is hollow, at least partly because of the presence of the natural pulp cavity, although it is possible that the cavity was at least sometimes enlarged, or regularised. A series of holes is drilled at close intervals just below the rims. This is not certain for **6.8** because of its state of preservation. It seems that these holes were not used to suspend the tusks, but more probably to attach a cover. Undecorated hollow tusks sometimes featured similar series of holes around the rim (e.g. Donadoni Roveri & Tiradritti 1998, 154, cat. 55; Hendrickx & Eyckerman 2011, catalogue, type A2). In tusks recently excavated in tomb 72 in the elite cemetery HK6 at Hierakonpolis, preserved yellow ochre in the cavities suggests that these tusks could be used as containers (Droux & Friedman 2014; Friedman & Droux 2014), confirming that other examples, some listed by Payne (1992, 237), probably had similar use. Thus, the tusks with the hippopotamus figurines may be elaborately decorated containers.[21] These tusks also have an upward orientation, with the open ends of the tusk toward the top. By contrast, numerous tusks decorated at the tip (Baumgartel 1960, 57–65) with anthropomorphic designs (Nowak 2004, 891-6), loops (e.g. Payne 1993, fig. 81), or combinations of both (Hendrickx & Eyckerman 2011, types A.5.a and A.6) have a downward orientation, with the open end of the tusks extending toward the base of the objects. These tusks were mostly carved from straight incisors, although sometimes the canines were also used (Hendrickx & Eyckerman 2011, 510).

[21] Horn (2014) has recently suggested that the principal function of many hippopotamus-shaped objects was to contain malachite, and the evocation of such containers granted magical access to their contents; he uses this argument to elaborate a connection between Badarian and Naqadian cultural practices. However, the holding of pigments in hippopotamus tusks is also known from the Neolithic Nubian mortuary sphere and may represent common cultural origins (Pöllath 2008).

Petrie (1901a, 21) proposed to see the tusks as instruments of "magic operation, such as the catching of a man's spirit in a tusk", but for Needler (1984, 346) they had a protective function. Her argument was based on the presence of the loop at the tip of the tusks, which are not present on the tusks under consideration here, so that such function may not be applied to all the tusks. Moreover, the use of a common raw material doesn't imply a shared meaning for all types of tusks, and the difference of orientations and decorative motifs certainly discredits this idea. But the fact that the "upward" tusks were possibly used as containers doesn't mean that they would be devoid of any symbolic meaning. Indeed, the trouble and care taken to carve these tusks, especially those with the hippopotamus figurines at the tip, suggests that they were significantly more than decorative, especially since they were also imitated in clay (see below).

The tusks and tags listed by to Hendrickx (2011, catalogue, 536–63) were often found in pairs, but sometimes as single elements, or in larger groups. The new set fount at HK6 contained four tusks (Friedman & Droux 2014; Droux & Friedman 2014, 4–5). Similarly, the tusks with the hippopotamus figurines were twice found in pairs (**6.1**/**6.2** and **6.3**/**6.4**), and once alone (**6.5**), although tomb U-233, from which this later tusk came, was disturbed (Hartung, pers. comm.). The tusk **6.8** was purchased at Abydos, and may well come from that site. In fact, because the projection above the figurine is so long, it can tentatively be suggested that this figurine is the twin of **6.5**. However, the current location of this object, if it is still in existence, is not known, so that its dimensions are also unknown. It is also important to note that the five tusks with hippopotamus figurines with a known provenance were all found in a very restricted region of the Nile Valley, i.e. the region of Abydos (see §2.6).

The shape and possible function as containers for the ivory tusks, if not their pairing, may also have inspired the production of clay zoomorphic vessels shaped as hippopotami. None was published until the late 1990's, so this is a newly discovered category of artefacts: the only excavated example (**5.9**) was published in 2000 (Dreyer et al.). There are four delicately modelled vessels known so far (**5.7**–**5.10**). Their necks, which protrude from the animals' backs,

are much longer in the first two examples and almost limited to the rim in the last one. The closed shape of these vessels implies that they were intended to contain a liquid. In each case, the animal is rendered fairly naturalistically, leaving no doubt as to its identification.[22] The date of **5.9** has been established from the context of its discovery to Naqada IIA. The other vessels can be roughly attributed to a period according to the technique used to make them. **5.7** is a black-topped vessel, and is therefore likely to belong to Naqada I–early Naqada II; as an example of P-Ware, vessel **5.8** can tentatively be dated to Naqada II; with its painted decoration in the D-ware technique, **5.10** may date from Naqada IIC–D. The authenticity of this last example is questionable because of this late date (see §2.5).

There are two known hippopotamus-shaped zoomorphic vessels carved out of organic materials. Vessel **5.19** is carved out of wood, but its date and authenticity are quite uncertain: if it is a genuine antiquity, it may date to the New Kingdom. Vessel **5.18** was shaped from a block of elephant ivory, and was excavated in a Badarian period grave. Along with three other Badarian objects, it is the earliest depiction of the hippopotamus in the mobile art of the Nile Valley. With its narrow opening, it may have been designed to contain a liquid, but its small size may indicate that it contained more precious materials, such as ointments or ground malachite paste (Baumgartel 1960, 58; Horn 2014, 51). In this way, its use was likely similar to the later seven zoomorphic vessels carved in

[22] Three zoomorphic clay vessels, Cairo Museum, CG 2147 (von Bissing 1898a); Ashmolean Museum, AN.1896-1908.E. 2802 (Abadiya, tomb B 387, Petrie 1901a, pl. XIV, 67; Payne 1993, 113, cat. 927); Brussels MRAH, E. 6197 (Murray 1911, 24, pl. XXII, 8), as well as a fragment of a fourth one (Payne 1993, 113, cat. 928), have aroused controversy regarding their identification, and are still often considered to be hippopotami (see e.g. Hendrickx & Depraetere 2004, table 1). Careful examination of the objects reveals that the heads of these animals are modelled with elongated muzzles, rounded snouts pointing upward, and ears shaped unusually. None of this is consistent with the iconography of the hippopotamus. In fact, Murray (1911, 24), Vandier (1952, 308, fig. 216), Bourriau (1981, 31, cat. 39), and Payne (1993, 113, cat. 927, fig. 50) suggested that hedgehogs were perhaps represented, but with some doubts. Behrmann (1989, Dok. 39b) went back to von Bissing's original argument, considering the pictorial decoration on the vessels as indicative of the environment in which the animals lived, therefore identifying them as hippopotami. The two animals which could fit the general shape of the vessels are the pig (*sus scrofa*) and the hedgehog. The domesticated pig is commonly found in archaeological excavations (Linseele et al. 2009, summarising table); on contrary, the wild pig's presence in Egypt is only attested at Buto, and it might have been confined to the Delta (Boessneck et al. 1989, 101; von den Driesch 1997; Manlius & Gautier 1999, 575). Hence, the domestic pig seems to be the most likely identification for these vessels, although Hendrickx and Depraetere (2004, 809) do not consider this option.

stone (**5.11**–**5.17**), of which only two have a known provenance (**5.13**, **5.14**).[23] In the first example from Naqada, dated to Naqada IIA, only the lid is preserved; the vessel itself may have been shaped as the hippopotamus' lower body. The second vessel, from locality HK29A at Hierakonpolis, cannot be dated more specifically than Naqada IIA–1st Dynasty, the period of use of that locality. A fragmentary vessel (**5.15**) is unique in having two carved hippopotamus heads on top of each other. The shape of the heads is similar to that of the other stone vessels, with incised lines indicating the folds of the skin on the muzzles. In contrast with the clay vessels, these probably contained more precious materials (Hendrickx & Depraetere 2004, 815): they are rather small and of a much more valuable and labour-intensive raw material, while their shape suggests that the content was either dry or viscous. They were probably intended for some sort of ointment or cosmetic. Finally, an elephant-shaped pink limestone vessel in the British Museum (Glanville 1926, 54–6, pl. XIII, 1-3) is considered by Friedman (2004, 153, n. 7) to have represented originally a hippopotamus and have been re-carved as an elephant. This object is not included in the catalogue, because its original form is no longer visible.

Stone figurines shaped as hippopotami are numerous. Among them, thirty-seven share a peculiar characteristic: they bear, on the top of the back, a protuberance that is hollowed out and pierced by a few holes. The representation of the animal itself is naturalistic (**7.1**–**7.37**). Those found in well documented excavations come exclusively from burials, in which they were generally deposited in pairs of identical twins (**7.1**/**7.2**, **7.3**/**7.4**). The two examples from Gebel el-Tarif (**7.23**, **7.24**) may not form a pair. De Morgan offered so little information that the precise context of their discovery is unknown, and they could have been found in separate burials. **7.25** and **7.26** had

[23] The identification of a few stone vessels is problematic. One in the Ashmolean Museum (AN 1922.75) was described by Murray (1911, 42, pl. XXII, 7) as a hippopotamus. Payne (1993, 144, cat. 1202, fig. 57) identified it as a hedgehog, but without certainty. A vessel in the Petrie Museum (UC 15737) was not identified by Petrie (1920, 36, pl. XXXV, 44 and XLII, 207), nor by Donadoni Roveri and Tiradritti (1998, 180, cat. 113), while it is described as a pig on the Petrie Museum Website. This vessel has a close parallel in the Detroit Institute of Arts (inv. no. 90.1S12964), which has been described as either "a baboon, a bear, or a dog" by Michael Hoffman et al. (1988, cat. 29, 115). It is possible that the artisans imitated the style of zoomorphic clay vases, carving a head protruding out of the vessel's body. In these cases, the shapes of the heads point towards the identification as pigs (see note 22).

no counterpart in their tombs but both burials were disturbed, so that the second member of each pair could have been displaced. Most of the examples with a rim that were bought on the antiquities market were also sold as pairs (**7.5**/**7.6**, **7.7**/**7.8**, **7.9**/**7.10**, **7.17**/**7.18**, probably **7.15**, **7.16**). It was then probably the custom and not the exception to bury the dead with a pair of figurines, so that it seemed worth trying to match figurines bought individually and located in different collections in order to reassemble the original pair. This has been successful in two cases where the shape of the figurines leaves no room for doubt (**7.11**/**7.12**, **7.13**/**7.14**). Three figurines are remarkably similar, and may form a trio, or two pairs, of which the fourth element is missing (**7.19**–**7.21**). Figurine **7.22** is also shaped like the pair **7.17**/**7.18**, but its smaller dimensions may indicate that it belongs to another pair, rather than in a trio with these two figurines. Additionally, there are eleven figurines that have no known counterpart (**7.28**–**7.37**), but some of them might be matched in future.

Patch (2011, 39) suggests that the figurines may represent pregnant hippopotami. Some of the figurines do have exaggeratedly rounded bellies (especially **7.11**/**7.12**), but some don't (e.g. **7.3**/**7.4**). Given the general similarities shared by all the figurines belonging to this group, it would appear surprising if some were representing pregnant hippopotamus cows, and some not. Moreover, when looked at frontally, the figurines do not have particularly rounded bodies. For these reasons, it seems unlikely that pregnant hippopotami were represented.

The material used for these figurines was carefully chosen. Twenty-eight are made of limestone, which is most often of different shades of pink. Although the present colour of the stone may have been altered by the patina, it seems likely that colour played an important role in the choice of material: as noted by Hendrickx and Depraetere (2004, 812), the Egyptians might have intended to imitate the red-pink viscous substance secreted by the hippopotamus (see §2.1). However, a few figurines are not made of pink limestone: three are in calcite alabaster (**7.9**, **7.10** and **7.27**) and one in steatite (**7.30**). The exact identification of the stone used for **7.34** is unclear, but it nevertheless has a pinkish tint. This is the only figurine with a hollowed out rim that was not drilled with holes.

These stones figurines may be imitations in stone of the hippopotamus tusks with hippopotamus figurines at the tip (contra Horn 2014, 56). The long tusks protruding from the backs of the little hippopotamus figurines, with the pulp cavity and drilled holes at the open extremity are mirrored in an abbreviated fashion by the rims of the stone figurines, which are similarly hollow and pierced with small holes. Thus, they are symbolic representations of possible containers, and may potentially allow magical access to the material – malachite or otherwise – originally contained or intended to be contained within them.

2.3.3 Pendants, figurines on vessels, and free standing figurines

Eleven figurines have a protuberance on their back, but of a different kind from those seen above. These are not hollowed out, and in order to avoid confusion between these figurines and the previous group, it is helpful to characterise the present group as having a "knob" rather than a "rim". Shaping the knobs is far less time-consuming than carving, drilling, and piercing the rims, and their purpose could be more practical: strings passed around the grooved base of the knobs could be used to suspend the figurines. The rock drawing from "Dominion behind Thebes" (see above) suggests that these figurines could have been worn as pendants (Wengrow 2006, 70). However, this rock drawing could equally represent hunters with painted or tattooed hippopotami on their chests, so that a direct reference to the stone figurines is not evident. Two of the figurines' knobs are pierced transversally by four holes (**7.38**/**7.39**). These figurines clearly form a pair, and may be more closely related to the previous category, despite the differences in the design of the knobs. They are carved in calcite alabaster, while three others are carved in pink limestone (**7.40**–**7.42**). **7.46**, is carved in greywacke and bears a rectangular knob pierced by a single hole. It is most likely that this pendant was designed to represent the hippopotamus figurines with the rims on their back and not the animal (see also Horn 2014), but in a two-dimensional way. A slate palette shaped as a lion, now in the Musées Royaux d'Art et d'Histoire in Brussels (E. 6155, Naqada?), bears a similar knob on its back. **7.47** has almost the exact same shape, but it is carved in steatite, a much softer stone that is easier to work with, so that it may possibly be a modern copy of **7.46**. The remaining four figurines are all made out of hippopotamus ivory.

Three of them come from a single burial excavated at Badari (**7.68**–**7.70**), and form a trio. The last one (**7.73**) has no known provenance.

Three other figurines were also used as pendants. They are pierced by a single hole, located in two examples near the middle of the back of the animal (**7.43**–**7.45**). The first one, which is the only excavated example, is carved out of calcite alabaster, and **7.44** is in pink limestone. **7.45** is carved out of steatite, but is has a rather unusual shape and may not be genuine. A single hippopotamus-shaped pendant is known for the Badarian period (**7.75**). It is uniquely carved out of shell, and was found together with other beads, leaving no doubt that it was worn. Because the suspension hole was drilled between the legs, in profile, the pendant would have hung upside down when worn, and the material left between the feet can either suggest that the animal stands on a small platform, or that the legs are bound (Andrews 1981, 19), although this appendage may be purely practical.[24]

Freestanding figurines of hippopotami are also well documented. Some are carved in stone (**7.48**–**7.53**), but the majority are modelled in clay (**7.54**–**7.67**).[25] A few examples in ivory (**7.71**, **7.72**, **7.74**) are also known.

Only one of the figurines in stone has a provenance (**7.48**). It was found in the south-east corner of the columned hall Structure 07 in the elite cemetery HK6 at Hierakonpolis, and dates to Naqada IIB. An ivory wand (**11.1**) was found in close proximity. This object, made from a single, thin plaque of ivory freed from

[24] A Badarian pendant in green chrysoprase from Mostagedda (British Museum EA 62167) is shaped as a hippopotamus with stumpy legs with suspension hole drilled between them, and a tag on top the back is considered by Horn as a representation of a hippopotamus-shaped vessel perhaps similar to **5.18** (Brunton 1937, 38, pl. XXII, 39, XXXIX, 21A2; British Museum online catalogue ; Horn 2014).

[25] I reject the predynastic date often attributed to nine clay figurines of hippopotami standing on bases (Boston, MFA 48.252, Bothmer 1948, 64, fig. 1; Basel, Antiken Museum, private loan, Wiese 2001, 32, cat. 7; Hildesheim, RPM 5389, Martin-Pardey 1991, 6, 104–5; Riga, Museum of Foreign Art, F-4360, Berlev & Khodjash 1998, 1, pl. I.8; Leiden, Rijksmuseum van Oudheden, F1979/7.1, unpublished; Unknown private collections, Royal-Athena Galleries 2003, 69, cat. 194; Bonhams 2003, 7, cat. 10; German private collection, unpublished). None has a known provenance, and the attribution to the predynastic is based primarily on the article by Bothmer (1948). However, not a single excavated animal figurine standing on a base can be dated to this period, unless several animals were grouped together, such as the cattle found in tomb a56 at el-Amra (British Museum, EA 35506, Randall-MacIver & Mace 1902, pl. IX.1). It is likely that the nine hippopotamus clay figurines are “cruder” variations of the popular blue faience hippopotamus figurines of the Middle Kingdom.

the length of a large hippopotamus lower incisor, had two pairs of hippopotami carved on its upper edge, and is unique in Egypt. These animals are quite stylised, but their heads, with their large and squared muzzles, confirm the identification. A second wand, probably without carved figurines (although this is uncertain because of the poor state of preservation of the wand), was found nearby. Other animal representations, including a malachite falcon and an ibex knapped in flint were found in the same structure (Droux & Friedman 2007; Friedman 2010), which is presumed to be a funerary temple. The material found within it had most likely a ritual significance (Friedman 2010). The authenticity and attribution to the predynastic period of the other figurines in stone are not certain. The choice of stone is not homogenous, in contrast with the figurines with the rims on the backs. In fact, none of the figurines is carved in pink limestone. Instead, steatite (**7.48**), serpentine (**7.49**), limestone (**7.53**), and possibly dacyte porphyry (**7.51**–**7.52**), and calcite alabaster (**7.50**) have been used. The figurines are carved with varying degrees of realism, and the shapes of the fragmentary objects remain unknown (**7.53**, **7.67**). **7.53** could belong to a stone vessel, rather than a figurine, but this remains uncertain. Two of the figurines are pierced. There is a drilled hole under the belly of **7.48**; **7.50** is pierced twice, but throughout the body. Animal figurines with drilled holes are not uncommon and could have been displayed on a stick or some other kind of support (e.g. Payne 1993, fig. 4, cat. 16). The figurines **7.51**/**7.52** are the only figurines of hippopotami in stone without a rim or a knob on their backs that are designed as a pair of twins. Their archaeological provenance is not known, but they were purchased together at el-Kab.

The provenance of the clay figurines is generally better known. All those that can be dated were made before Naqada IIC. It is not certain that figurines **7.58**, and **7.59** represent hippopotami. The former, excavated in tomb U-239 at Abydos, is too poorly preserved to be certain of its original contours, but it likely formed a pair of twins with **7.57**, and can be considered to be a hippopotamus; no illustration of the latter has been published. The pairing of figurines in clay is also attested at Abadiya in tomb B 101 (**7.54**/**7.55**). That tomb contained a third clay figurine (**7.56**), which is slightly different from the other two, so that it

remains unclear whether a trio was intended. Another trio of figurines in the Petrie Museum has no known provenance (**7.63**–**7.65**). One of the most anatomically correct figurines (**7.62**) is also the only object of the corpus to represent a hippopotamus with an open mouth (although the figurine in flint **9.3** may also share this particularity, see below), and it is the largest figurine. It is not made out of a solid lump of clay, but is hollow. However, it could not have served as a vessel because the opening was on the underside of the belly. In contrast with this superb example of predynastic craftsmanship, three other freestanding artefacts in clay are more puzzling. The strangest one was found by de Morgan, in an area of settlement at Hierakonpolis (**11.8**). It may be a clumsy figurine of a hippopotamus, but it is so schematic and angular that it cannot be identified definitively. Alternatively, it may have been modelled with the same intentions as **11.6** and **11.7**, although it is much smaller. These two objects appear to be small tables, or trays, standing on four legs but with a flat surface where the animal's back should be. These flat surfaces may have been used for the deposition of small offerings or the pouring of libations. In one case (**11.7**), the head of a hippopotamus is quite realistic, although too flat. In the second case (**11.6**), it looks as if only the lower jaw of a hippopotamus was represented, with its protruding tusks. Unfortunately, their date is not known, because neither has an archaeological provenance. A further clay figurine was found near tomb 11 in the elite cemetery HK6 at Hierakonpolis (not in catalogue; Adams 2000, 96, cat. 158, 297, fig. 11); this plundered large rectangular mud brick-lined tomb dates to Naqada III (Adams 2000, 26–7, with references) but may have been inserted into an older tomb dating to Naqada I–II, as seen elsewhere in the cemetery (Friedman 2005b). A large number of Naqada I–II material was found near tomb 11 (Adams 2000, 27), so that there is some uncertainty as to the date of the hippopotamus figurine. Adams (2000, 96) notes the possibility that the figurine dates to the earlier predynastic by comparison with numerous dated examples, but also that the "nature of the figurine is similar to that of other animal models found in and around" tomb 11, so that it may date to Naqada III. Although the figurine is much more stylised than the examples found more recently at Abydos (**7.57**, **7.58**), the similar treatment of the surface of the clay, coloured with a red

wash, may be an argument toward dating the HK6 figurine to Naqada I–early Naqada II.

There are three freestanding figurines carved in ivory. Two of them, forming a pair of identical twins, were found in the same tomb at Mesaid (**7.71**, **7.72**). Their bodies are decorated with incised chevrons that were originally filled with black matter, in a way similar to the ivory trio from Badari (**7.68**–**7.70**). **7.74** has an unusual silhouette, with a particularly elongated muzzle that ends with a flat snout. Given its dimensions and that the tips of both legs are apparently broken, it is possible that it was originally carved at the top of a comb.

Six vessels were decorated with figurines of hippopotami standing on their rims (**1.40**, **5.1**–**5.5**). The figurines are not dissimilar in style from the freestanding figurines in clay, and they are roughly contemporary; all the vessels with a provenance date to Naqada IIA at the latest (**5.1**, **5.2**, **5.4**). Three of the vessels belong to the C-ware category. In two cases, the figurines themselves are decorated with white paint. On **5.2**, the paint is used to emphasize the details of the heads, and also decorates the bodies with parallel zigzags. On **5.5**, the details of the heads are also painted, but lines running around the rear legs may represent the tethers used to keep animals in captivity. This may be a symbolic rendering of the practice attested in one case at Hierakonpolis (see §2.2.1). As for the beaker **1.40**, which has several hippopotami painted on the body, it appears that the two figurines on the rim are rather crudely executed, and not painted. The P-ware vessel **5.1** is the only one on which hippopotamus figurines are seen with a modelled crocodile. The presence of both species is a reflection of the combination more commonly found on C-ware vessels (see Figure 14). The beaker **5.5** belongs to the less common group of white-washed and red-painted C-Ware vessels, with two additional hippopotamus figurines on the rim (for a parallel, see Payne 1993, 112, cat. 913). Very few vessels with figurines of other animals have been found, so that the hippopotamus was clearly given a special treatment (see e.g. C-ware vessel with elephant figurines, Berlin ÄS 22388; Scharff 1931, 120, pl. 11).

2.3.4 Greywacke palettes and flint figurines

Eight palettes are shaped as hippopotami; only two of these have a known provenance (**8.1**–**8.2**).[26] Only the first one, excavated in tomb B101 at Abadiya, can be securely dated, to Naqada IC–IIA. Although the animal's shape might seem a very suitable outline for a palette, hippopotamus palettes represent less than 2% of the more than 460 zoomorphic palettes identified so far. These palettes are relatively naturalistic, the finest examples being **8.1**, **8.3**, and **8.4**. In one case (**8.7**), a horizontal element protruding from the animal's rear may represent a harpoon. If this is correct, it is the only example of hunting/harpooning outside the corpus of two dimensional depictions. Palette

[26] A series of seven other zoomorphic cosmetic palettes have previously been identified as hippopotami. One is from Deir el-Ballas (tomb 17; Cairo, JE 88136, Podzorski 1994a, 303; 1994b, pl. 47) and one is from Zawaida (St-Germain-en-Laye 77.709c, Musée des Antiquités Nationales 1982, 148; Baduel 2008, 1064–5, fig. 6). The other objects have no known provenance: British Museum EA 29416, EA 67650, EA 58336; Cairo, Egyptian Museum, JE 53560; St Petersburg, State Hermitage Museum, 2669. Piotrovsky (1974, cat. 1) did not question the identification of the animal of the Hermitage palette as a hippopotamus, nor does Baduel (2008, 1064). However, Behrmann (1989, Dok. 19 a-c), who mentioned only three of these palettes, correctly excluded them from her corpus of representations of hippopotami. The shapes of the heads backs, muzzles, legs, paws, and most notably the tails – which are long and curve upwards – do not correspond to the iconography of the hippopotamus. Palette EA 58336 needs further discussion. Its back does not have a concave curve like the other palettes, because of a tag pierced for suspension that protrudes from it, and the shape of the head is closer to that of a hippopotamus than in the other examples. However, the long and wide tail seems to rule out the identification as a hippopotamus. The palette EA 67650, recently published by Patch (2011) as a lion closely resembles the silhouette of the lion impressed on a vessel recently excavated at Hierakonpolis cemetery HK6 (Droux & Friedman 2014, 5), and these palettes are likely all depicting felids, or perhaps composite animals, especially in the case of EA 58336.

Two other palettes have also sometimes been identified as hippopotami, but they are likely shaped as elephants. The first one, Ashmolean Museum AN 1895.859, was described upon discovery as an elephant by Petrie and Quibell (1896, 43). But Vandier (1952, 380–1, fig. 257, 5) and Payne (1993, 239, cat. 1979, fig. 82) considered it to be a hippopotamus, despite noting a close resemblance between this palette and the intact elephant palette in the Museum of Art and History in Geneva (inv. no. D1168; see Wild 1948, pl. II). Behrmann (1989, Dok. 18.5) stated that the identification is uncertain. Finally, Renée Friedman (2004, 153) was not convinced by the identification as an elephant, although she suggested that the person who carved it might have had only a "hazy recollection of what an elephant actually looked like". In view of the concave curve of the animal's back, there is little doubt that Petrie and Quibell were correct. The second palette, found at Naqada, was also described upon its discovery as an elephant (Petrie & Quibell 1896, pl. XLVII, 5; current location unknown). However, Vandier (1952, 380, fig. 257, 2) included it in the group of hippopotamus representations, as did Behrmann (1989, Dok. 18.2), but with the comment that this is uncertain. Friedman (2004, 153) confirmed the identification as an elephant, which is beyond doubt for me.

Vandier (1952, 380, fig. 257, 3, 6) included two additional palettes in his corpus of hippopotamus representations, as did Behrmann (1989, Dok. 18.3, 18.6), while adding that the identification is uncertain. However, the features of the animals depicted by these palettes are not well enough defined to point towards a specific identification.

8.3 has two grooved lines across its neck that might also represent that the animal was killed or rendered harmless.

Like palettes, flint figurines are also "flat" objects, but this is where the similarities between the two classes of objects end. Other than the difference in material, the techniques and use have nothing in common. Flint figurines form a small category. Only forty-six have been identified so far (Hendrickx et al. 2003, tab. 1),[27] of which only twenty-two have a known provenance. The majority comes from the site of Hierakonpolis, where ten figurines were found at the elite cemetery HK6 (Hoffman 1982a, 146–7, pl. VIII.1; Adams 2002b, 22–3, fig. 6, 7; Friedman 2005a, 5, 16, 32; 2006, 8, 16; Droux & Friedman 2007, 8, 16, 32; Friedman 2011b, fig. 4.17), and three in other areas of the concession (Needler 1984, 365–7, fig. 292 a, b; Friedman 2000, 14). Three figurines bought at el-Kab are also said to come from Hierakonpolis (Schweinfurth 1903). There are four flint figurines that are hippopotamus-shaped (**9.1**–**9.4**). It is possible that another fragment, found in locality HK11 at Hierakonpolis, is from a hippopotamus figurine, but only a leg and part of the body are preserved, and this fragment is not included in the catalogue (Friedman 2000, 14). The flint figurines tend to give naturalistic outlines executed with a high degree of skill: in the case of the figurine **9.2**, the nostrils are shaped. Attributing the hippopotamus figurines in flint to a specific period is difficult, because **9.1** was a surface find at HK6 and the other ones were purchased. Figurines found elsewhere at HK6 have generally been found in contexts suggesting that they may predate Naqada IIC (see below), and this date is confirmed by comparisons with materials and manufacturing techniques with lithic weapons such as arrowheads, lances, and knives found in dated contexts within the cemetery (Nagaya 2011). Flint figurines were also found at other sites in Egypt, such as Naqada (Musées de Marseille 1990, 87, no. 432; Karlshausen & De Putter 2000, 131, cat. no. 23), Abydos, below the Osiris temple and at Umm el-Qaab (Petrie 1902a, 12, pls. XIV, XXVI, nos. 292–4), Kahun (Petrie 1890, 30, pl. VIII, 22; 1892b, 127, 30, pl. VIII, 22; 1902b), and Coptos

[27] Twenty-six other figurines in flint, shaped as birds, are likely to all be modern creations, as attested by Scharff (1929, 68), who witnessed such figurines being made in and sold in the area of Luxor. The identification by Casini (1988, 129, fig. 92.1) of a flint implement from South Saqqara as a fish is not likely.

(Capart 1905, 153, fig. 115; Petrie 1920, pl. VII, 6),[28] probably date to the first dynasty, but it cannot be excluded that they were old heirlooms at the time of their depositions.

2.3.5 Combs and hairpins

According to the preliminary results of the research undertaken by Martín del Río Álvarez and Almenara Rosales (2004), combs and hairpins are more often than not decorated with figurines on their extremities. The majority of these figurines are zoomorphic. In the limited sample of 256 objects listed, only one possible comb (Naqada, tomb 1649, UC5615)[29] and one hairpin (here **10.17**) bore figurines of hippopotami. Additional combs have been identified since (**10.1**–**10.4**). Only **10.1** was excavated. It comes from the elite cemetery HK6 at Hierakonpolis, tomb 72, and can be dated to Naqada IIA–IIB. Possible traces of burning across the body of the hippopotamus, on one side, created a small indent on the middle of its back. This can be either interpreted as deliberate act to symbolise the killing of the animal, or accidental damage.[30] Evidence of burning have indeed been observed around the tomb, but not inside it (Droux & Friedman 2014). The comb **10.2**, possibly from Abydos, resembles the Hierakonpolis comb, and is likely to be contemporaneous. The two wooden combs, in contrast, may date to a later period, and the authenticity of **10.4** can even be questioned. The ivory figurine **7.74**, could originally have belonged to a comb, although this is not certain. The hairpin **10.17** is the only known one with the figurine of a hippopotamus carved at its top. Its date is unknown, and in the absence of comparative material, it is difficult to ascribe it to a specific period.

The tradition of decorating the extremities of some ivory objects with animal figurines can be traced back to the Badarian period, when large spoons, a

[28] There is also a possible giraffe head knapped in flint, from Coptos, but the identification is uncertain (2002b, 14).

[29] Because the head of the animal is missing, it is impossible to ascertain the identification as a hippopotamus, but see Martín del Río Álvares (2014). This object is therefore not included in the catalogue.

[30] Detailed observation by field conservator R. Jaeschke in 2015 suggests that the traces were the result of burning; the dark coloration appears to follow the growing lines of the ivory, and the dent on the back of the animal may be because the ivory plaque was taken from a section of the tusk near the end of the pulp cavity.

type of object not found during the Naqada period, were produced. The handle of one such spoon (**11.2**) is decorated with two hippopotamus heads facing opposite directions. Another Badarian spoon, excavated in tomb 5457 (Brunton & Caton-Thompson 1928, 13, pl. XXII) may also have two hippopotamus heads carved at the end of its handle. However, these heads are at the end of two elongated curved projections, so that the identification is uncertain; the excavators did not offer any suggestion.

2.4 The pairing phenomenon

Among the material discussed above, there are several cases where the objects have been intentionally created as identical twins. The most obvious ones are the ivory tusks with small hippopotamus figurines at their tips and the stone figurines with rims on their backs. Two of these pairs were excavated (**7.1**/**7.2**, **7.3**/**7.4**), and demonstrate that the twins are remarkably similar in style, and were most certainly carved by the same hands. Several pairs were purchased, but the close similarity between the two elements of these pairs guarantees that they come from the same burials (**7.5**/**7.6**, **7.7**/**7.8**, **7.9**/**7.10, 7.17**/**7.18**). On one occasion, it is likely that two pairs of hippopotamus figurines were in the possession of a merchant in Luxor at the same time, but one element of each pair was sold to a buyer in 1904, the other elements in 1905. Again, because the figurines were so similar within each pair, it is possible to put them back together, despite the pairs being split between Zurich and Brussels (**7.11**/**7.12**, **7.13**/**7.14**, Droux 2011a) It is most likely that the figurines **7.15**/**7.16** were also bought together by Petrie, but there is no proof of this. A few more objects are most likely to form pairs, or trios, although they found their ways to their current museum collections independently (**7.19**–**7.21**). Two examples, excavated in Gebel el-Tarif **7.23**/**7.24**), do not appear to form a pair; the records do not allow to determine if they came from the same burial, or to which extant the burial(s) was disturbed. The figurine from Naqada (**7.25**) was also found alone in its tomb. As for **1.26**, from Naqa ed-Deir, it was the only object remaining inside a very plundered tomb. In time, it is possible that other hippopotamus figurines matching those may be found in collections or appear on the antiquities market,

allowing to reconstruct the original pairs. The same is likely true for the other figurines that are not yet in pairs (**7.27**–**7.37**).

The function of these figurines and of their rims has been discussed ever since they were first discovered. Writing about **7.1**/**7.2**, Petrie (1920, 12) considered them to be "plug pendants" for water skins, because of similarities with cones with drilled holes around the upper edge (Hendrickx & Eyckerman 2011, type C, fig. 26–27). However, the interpretation of these cones as such is questioned (Hendrickx & Eyckerman 2011, 517–8), although they have been found in association with leather bags (Scharff 1929, 180–3). For this reason, and because of their impractical shape, it is most likely that the hippopotamus figurines with rims were not "plug pendants". When publishing the pair found at Armant (**7.3**/**7.4**), Mond and Myers (1937b, 38–42) considered other possibilities. They correctly ruled out Mr Bidnell's idea according to which the rim could represent a young hippopotamus on the back of its mother, as can sometimes be seen in nature. In contrast, they suggested that the rim could be the representation of a howdah; this riding seat was supposedly put on the back of domesticated hippopotami, so that they could be mounted by hunters preying on crocodiles. Despite the evidence of hippopotami kept in captivity prior to their burial at HK6 (see §2.2.1), the training of this animal as a hunting mount bears no further consideration (Droux 2011a, 369). In the same passage, Mond and Myers also noted that the drilling of the holes is more labour-intensive than is necessary if their use was restricted to suspension. The size and weight of these figurines also rules out their use as pendants, which would have been particularly impractical. Furthermore, the small size of the depressions inside the drilled rims seems to exclude their use as containers. Mond and Myers (1937b, 38–9) also rejected Hornblower's views (1927, 243–5), according to which the stone vessels with rims were the result of a degenerative evolution from the ivory tusks, and that the stone vessels with wide openings then evolved from the figurines with rims. This is confirmed by the dates in the corpus: almost all these objects date to Naqada IC–IIA, and a hippopotamus-shaped vessel was produced much earlier, during the Badarian period (Droux 2011a, 369–70).

The key in understanding the rims on the stone figurines is to consider them together with the tusks with figurines, because both types of objects relate directly to the hippopotamus, and both were produced in set of matching twins. The exact significance of the pairing may remain unknown, but in my opinion, it is likely that the concept originated with the raw material used for the creation of the ivory tusks with figurines. The incisors exist in pairs in the jaw of the animal, and the presence of the natural pulp cavity in both elements of the twinned tusks with figurines excludes the use of a single incisor cut in two halves. On the contrary, both incisors had to be taken and worked. The stone figurines with rims are not copies of the ivory tusks translated into a different material, although they are likely to be deliberate evocations of them. Because the stone figurines served a different purpose, and did not function as containers, there was no need for an extended projection on the backs of the animals. But in order to evoke a similar symbolic value, the projection was echoed in an abbreviated form by the pierced rims and shallow depressions (Droux 2011a, 371). The geographical distribution of these objects may also offer some explanation. The tusks with figurines come from a discrete region of the Nile Valley encompassing Mahasna, Mesaid, and Abydos, so that they may have been a regional specialty. In contrast, the figurines with rims on their backs are not found in this area, with the exception of **7.26**. This artefact is included in this group solely on the basis of the single published photograph. It is not impossible that it is in fact a pendant with a drilled knob. Its present location is unknown, so that I could not examine the object myself. But its presence at Naga ed-Deir does not preclude a geographical divide between the production and use of the tusks and the figurines. This explanation does not necessitate a chronological evolution to be valid: these ideas and concepts coexisted at the same time. Although archaeologically excavated examples haven't shown any derived practical use for the rims, it can be tentatively suggested that strings of organic material, such as leather, could have been passed in the drilled holes in order to link the twins of each pair together.

There is other limited evidence of groups of identical objects in the corpus. A pair of twinned freestanding ivory figurines was found at Mesaid (**7.71**/**7.72**), a

trio at Badari (**7.68**/**7.69**/**7.70**), a pair of clay figurines at Abydos (**7.57**/**7.58**), and a pair or a trio at Abadiya (**7.54**/**7.55**/**7.56**). A further pair of stone figurines has no archaeological provenance (**7.51**/**7.52**). The presence of two C-ware bottles of similar shapes and representational scheme (**1.63**/**1.64**) in the same tomb at Abydos may also be seen in the same light. Finally, a rock drawing published by John Darnell (2002, 145, pl. 88), located at "Dominion behind Thebes", shows two hunters with a pair of hippopotami on their chests. This rock carving may be an illustration of a pair of hippopotamus figurines worn as pendants, or amulets, although other explanations are possible. For example, the animals could be painted or tattooed on the hunter's torso. As stressed above, it is unlikely that figurines worn as pendants were those with rims on their backs. In any case, such rims are not visible on the rock drawing.

The use of the same raw material for the production of tusks and tags that do not bear depictions of hippopotami (Hendrickx & Eyckerman 2011) did not always result in the creation of identical twins, although pairs and groups of multiple similar objects were important. It is unlikely that a unique concept, or idea, was 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 tusks shape or raw material, in some manifestation meld with other imagery, such as bovine, bird, or human (Droux 2011a, 372). While they occur and were evidently used in pairs or multiples, these are not always or explicitly identical. In some cases, the differences are clearly intentional. For example, pairs of hippopotamus tusks with a ring and knob at the top (Hendrickx & Eyckerman 2011, type A6) are very similar in appearance, but they are the combination of one solid tusk with one that is hollow (Baumgartel 1960). 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, ivory, or, in lesser measure, in clay. This suggests a somewhat different conceptual base or usage from tusks and tags (Droux 2011a, 371).

2.5 Frequency and temporal evolution of the production of hippopotamus-related material

The previous section describes the 173 objects shaped as hippopotami or bearing depictions of hippopotami. Of these, 47% are securely dated, at least into a broad period (Figure 15). These include all the C-ware vessels and sherds, which by definition belong to Naqada IB–IIA. A significant proportion of the artefacts (43%) date to Naqada IB–IIB. It is likely that all the tusks with figurines, all the stone figurines with rims on their backs, and the seated female figurines with painted decoration also date to this period. The incised palette **4.17** is not dated by context, but its shape indicates that it too is likely to date to Naqada IB–IIB. According to Ciałowicz (1991, 25), the majority of rhomboidal palettes (34 out of 40) date to Naqada I and Naqada II, with several examples overlapping I/II and a small number II/III, so that rhomboidal palettes are not very likely to date either to early Naqada I or late Naqada II. Regner (1996, 14–15) follows a similar dating system. If one accepts these hypothesis, only 30% of the corpus would remain undated, and two thirds of the objects would date to Naqada IB–IIB. Because this is speculative, only firm dates are included in the tables. The four artefacts that date to the Badarian period (**5.18**, **7.60**, **7.75, 11.2**) show that the tradition of using the hippopotamus as a model started early on in Upper Egypt (see also note 24).

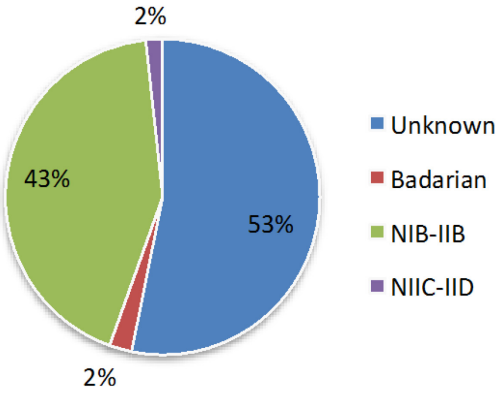


Figure 15. Chronological distribution of all hippopotamus-related artefacts (n=173).

A detailed examination of the dated material (Figure 16) demonstrates that its production started in Naqada IB (17%), reaching its peak in Naqada IC (39%). It diminished during Naqada IIA, but remained important (29%). This is in sharp contrast with Naqada IIB, when it abruptly became rare (11%). There is hardly

any attestation of the hippopotamus in the material culture of the following periods. The five known exceptions are given here. A painted zoomorphic vessel (**5.10**) is dated to Naqada IIC–D because it is decorated with the D-ware technique. The painted motifs are limited to wavy lines and a "ladder-like" design. This vessel has no known provenance, and one may question its authenticity in the light of its anomalous character in relation to the rest of the corpus. A pink limestone figurine with a rim on the back (**1.25**) was found in tomb 1475 at Naqada, which dates to Naqada IIC. However, it is not certain that this is the tomb in which the figurine was originally buried, because Petrie, in his notebook, mentioned that the figurine was found in the "redeem", the disturbed fill of the tomb. By comparison with other figurines in that material with a rim on the back, it is more likely that this figurine dates to Naqada IC–IIA. A pierced pendant (**7.43**) is dated to Naqada IID, but it comes from a disturbed burial and could be intrusive, or it may have been buried a long time after it was made. The last examples are a pair of twinned figurines in ivory (**7.71**/**7.72**), dated to Naqada IIB–IIC by their context. Within that span, they are likely to date to Naqada IIB, by comparison with all the dated pairs of twins in various materials, as well as with the three ivory figurines from Badari (**7.68**–**7.70**) which are decorated with incised lines. If these datings are correct, no predynastic representation of a hippopotamus can be securely dated later than Naqada IIB.[31]

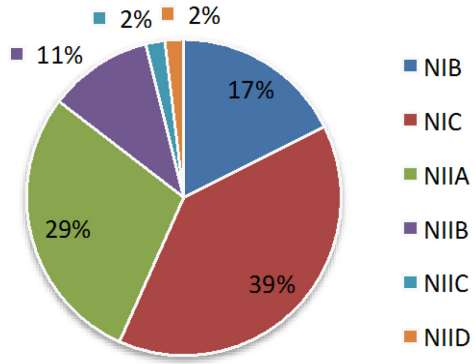


Figure 16. Detailed chronological distribution of the dated hippopotamus-related material, excluding the Badarian period (n=77).

[31] Graff (2007a, 263) mentions a hippopotamus hunting scene on D-ware vessel. However, she refers to the C-ware vessel found at Nag el-Alawna, cat. **1.33**. This view is also partly caused by my rejection of four zoomorphic vessels with red-painted decoration as being shaped as hippopotami (see note 22).

The lack of hippopotamus representations between Naqada IIC and the Early Dynastic period is not due to a general absence of depictions of animals. Rather, the hippopotamus was deliberately not depicted, for example in the imagery on D-ware vessels, where the riverine elements are almost limited to boats and a few vessels with crocodiles, or on knife handles of Naqada IID–IIIA2.

Hippopotamus-related artefacts do not reappear until the Early Dynastic period, where they form a small part of the material from the temple deposits. Hendrickx and Depraetere (2004, table 2) have published a fairly complete list of these objects. Bussmann (2010a) offered some differences, corrections, and additions, including different species identifications (UC 11007 is considered to be a pig by Bussmann and a hippopotamus by Hendrickx and Depraetere) and material identification (e.g. Bussmann's H5024 is said to be of limestone but listed as faience by Hendrickx and Depraetere). These two studies show that hippopotamus figurines were found at four sites. Between two and four figurines come from the Main Deposit at Hierakonpolis, between ten and fourteen from Abydos (rooms M64, M65/89, M96, and uncertain location), three from Elephantine (of uncertain date, between dynasties 0 and 11), and two from Tell Ibrahim Awad in the Delta. In view of the large volume of material recovered from these temple deposits, it is clear that the hippopotamus was rarely depicted, especially in comparison to animals such as baboons.

Three, possibly four, seal impressions found at Abydos dating to First Dynasty king Den bear depictions of hippopotami (Roche 2014, 77, Tab. 3). On one, there are three figures of the king and his serekh (Petrie 1901b, pl. VII, 5, 6; Kaplony 1963, pl. 93, Abb. 364; Roche 2014, seal no. 4, fig. 4). The king is shown spearing a hippopotamus in one scene, and wrestling the same animal in another; in the third scene, the king holds a mace and a spear or harpoon. On another very similar seal impression the area where the speared animal might have been is not preserved but was likely also a hippopotamus (Kaplony 1963, pl. 94, Abb. 365; Roche 2014, Tab. 3, seal no. 5 and n. 67). More recently, two further seal impressions with hippopotamus were found at Abydos. One puts in parallel the king harpooning a hippopotamus and a set of decapitated prisoners (Müller 2008; 2014; Hendrickx & Förster 2010, 829–30, fig. 37.4) and the other,

probably dating to the reign of Djer, shows a standing man – probably the king, without name – lifting a hippopotamus above his head (Dreyer et al. 2013, 26–31, figs. 13–15). These seal impressions show that the ritual hunt of the hippopotamus is, at that time, reserved for the king. The pose of the king, standing with his legs apart, holding a long stick-harpoon in his raised hand, and coils of a rope-harpoon in the other, was later used for figures of hunters in the decoration of mastabas walls during the Old Kingdom and remained characteristic of this hunt at least until the New Kingdom (see e.g. Säve-Söderbergh 1953, figs. 1, 5–6, 9). During the Old Kingdom, reliefs in non-royal mastabas often included hippopotami in scenes in which the tomb owner and other members of his household are shown standing on papyrus boats (Behrmann 1989, Dok. 74–104, with references). The hippopotamus is often the only animal which is speared or harpooned. They are sometimes shown biting, probably killing, crocodiles (e.g. Behrmann 1989, Dok. 78, 87a, 90b-c), while crocodiles are sometimes depicted behind female hippopotami in the process of giving birth, as if the reptiles are waiting to seize and eat the new-born hippopotami (e.g. Behrmann 1989, Dok. 90, 93a-b). This latter motif is not attested before the sixth dynasty. The harpooning of the hippopotamus is not limited to private monuments, as demonstrated, for example, by the scenes from the mortuary temple of Pepi II at Saqqara (Behrmann 1989, Dok. 94). During the Old Kingdom, the hippopotamus appears in short mostly as an archenemy, a negative and chaotic force. This contrasts markedly what was observed for the early predynastic, and shows the limits of applying historic concepts to predynastic phenomena, especially if continuity of representations cannot be established.

In sum, the predynastic Egyptians made frequent use of images of hippopotami but this animal no longer appeared in the corpus after Naqada IIB until the late predynastic and early dynastic period, when it re-emerged in primarily ritual and royal contexts. Given the long period of absence of hippopotamus imagery during Naqada IIC–IIIC, it may not be correct to assume continuity and direct links between hippopotamus symbolism during the early dynastic and early predynastic periods. Thus, imagery of each period should be

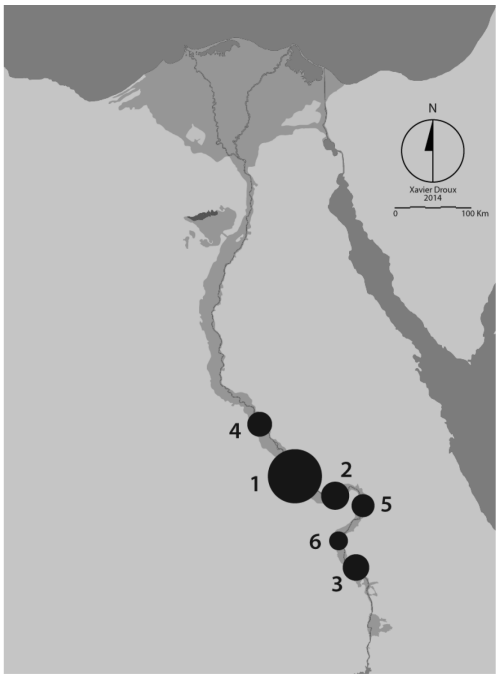
analysed independently; the meaning that was given to the hippopotamus during the early dynastic period is beyond the scope of this thesis and is not studied in detail; symbolism of the early predynastic is developed in §5.1.

2.6 Geographical distribution of hippopotamus-related material and rock art

All four artefacts showing hippopotami that are attributed to the Badarian period have a known provenance: three are from Badari and one from Hammamiya.[32] In contrast, the proportion of objects produced during the Naqada period that can be attributed with certainty to an archaeological site is a little over 40%. It is difficult to assess the impact that this gap in information may have on an analysis of the geographical distribution of the material, because archaeological sites have not been plundered or excavated uniformly throughout Upper Egypt. Some trends can nonetheless be observed, and these are unlikely to be coincidental.

Just over half of the provenanced objects come from the region of Abydos (including Mesaid, Mahasna, Naqa ed-Deir, el-Amra, and Nag el-Alawna). This is by far the highest concentration of material; in comparison, the rest appears to be dispersed more or less evenly throughout the area that shared the culture. The region of Abadiya (including Gebel el-Tarif and Hiw) is the one where the second largest numbers of objects were found. This is significant, because of its close geographical proximity with the region of Abydos. Indeed, the short stretch of the Nile Valley between Abadiya and Naqa ed-Deir produced nearly 65% of the material. The northern limit of distribution is the region of Badari (including Matmar, Mostagedda, and Hammamiya), where almost the same amount of material was found as in the region of Naqada. Gebelein and Armant have produced much less hippopotamus-related material – just four objects. The southernmost region where such material has been found is that of Hierakonpolis (including Adaima), which has produced eight objects (see Map 3), the third highest concentration.

[32] A pendant not included in the catalogue, from tomb 1208 at Mostagedda also dates to the Badarian period (Brunton 1937, 38, pl. XXXIX, 21A2, XXII, 39; Horn 2014).



1. Abydos region (36 objects)
2. Abadiya region (9 objects)
3. Hierakonpolis (8 objects)
4. Badari region (7 objects)
5. Naqada region (6 objects)
6. Gebelein / Armant (4 objects)

Map 3 Geographical distribution of predynastic material culture relating to the hippopotamus (n=70).

The distribution patterns are certainly influenced by the fact that more archaeological work has taken place in the region of Abydos, especially by Petrie and others when the cemeteries were less disturbed. However, a look at the distribution of the C-ware vessels shows that the patterns shown in Map 3 are meaningful, and that the hippopotamus was important in the region of Abydos. Of the twenty C-ware vessels with a provenance, almost all come from that region, ten from Abydos itself and eight others from sites nearby, so that 90% of C-ware vessels with hippopotami come from that region. Only two vessels come certainly from outside this region, having been found in the Badari region, one at Matmar and one at Mostagedda. This stands in sharp contrast with the geographical distribution of the corpus of C-ware vessels (all types of decoration, see spreadsheet in CD attached to the thesis and §1.3.2). Only 38% of all C-ware vessels were found at Abydos or sites nearby. Because the proportion of those with hippopotami is much higher than this figure (90% vs 38%), it is clear that the hippopotamus was deliberately chosen for decoration, and played an important role in the imagery on local C-ware vessels in the region of Abydos. Moreover, the site of Abydos itself produced only 23 C-ware vessels, of which 78% bear depictions of hippopotami. Provenanced C-ware vessels with depictions of other species studied in this thesis are less numerous, and the smaller the groups, the

less statistically meaningful is the geographical distribution. However, concentrations of C-ware with crocodiles, ibexes, and hartebeest are also abnormally high at Abydos (see below). In contrast, it is remarkable that Naqada region, where 29% of C-ware vessels were found, did not produce a single vessel of that class with hippopotami or crocodiles.

Finkenstaedt pointed out the "energetic [and] fanciful" decorations characteristic of the region of Abydos and noted that "the entire atmosphere of the Abydos vessels is one of the appeasement of the savage forces of nature, epitomized by dangerous, powerful animals such as the hippopotamus and the crocodile which is here confirmed" (Finkenstaedt 1980, 117) . Her assessment is in parts confirmed by the discoveries made at in cemetery U at Abydos since her publication: new vessels with hippopotami and crocodiles have been uncovered. But I do not interpret these scenes in the same way.

The distribution of stone hippopotamus figurines with rims on their backs, which form the only other large group in the corpus, is less distinctive, in part because most of them have no archaeological provenance. The eight objects for which sufficient information is available are spread over an area between Armant and Naqa ed-Deir. Perhaps surprisingly, these objects are virtually absent from the region of Abydos, in contrast with the pattern of C-ware observed above. The sole exception, **7.26**, found at Naqa ed-Deir, is only tentatively included in the group (see below). If further examination of this figurine revealed that it is a pendant, the distribution of figurines with rims on the back would be limited to the Qena bend of the Nile, between Armant and Abadiya. The distribution of ivory tusks with hippopotamus figurines at the tip is limited to a small area: they have been found only at Mahasna, Mesaid, and Abydos.

This brief survey of the provenances shows that the hippopotamus was more commonly depicted in the northern part of the material's range: three quarters of examples, both images on ceramics and three-dimensional figures, come from the area between Matmar and Abadiya.

The distribution of faunal remains of hippopotami (see §2.2) exhibits a completely different pattern. The vast majority of bones come from

Hierakonpolis, and they are absent from all other sites except for Adaima and Mahasna. These two different categories of evidence may show that the hippopotamus was comparably important at Hierakonpolis and at Abydos, but that the animal may have been approached in very different ways: whereas the species was much depicted in the north, it was used as a living being in the south. However, this picture may misrepresent the reality to some extent, because more cemeteries have been excavated in the region of Abydos while settlement archaeology is lacking there, except at Mahasna. By contrast, several settlement localities at Hierakonpolis and Adaima have been investigated.

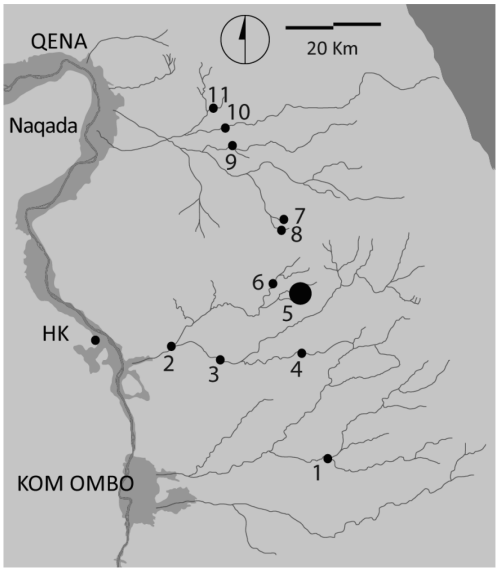
Whereas hippopotamus depictions in material culture are numerous, those in the rock art corpus are rare. In his survey of the Wadi Hammamat region, Winkler (1938) recorded four locations with hippopotamus petroglyphs. This number has increased to at least 23 rock art sites in the Eastern Desert following exploration of wadi systems further south (Judd 2009, 16). Lankester (2013, 28–9) has added a few sites, bringing the total of individual depictions to 30 (Lankester 2013, 28, tab. 3.1), while stressing that this species is the least common in the Eastern Desert. I have identified 22 of these sites, of which 15 have been described to some extant or illustrated (Map 4; see Volume II for general maps with wadi names).[33]

The southernmost hippopotamus petroglyphs in Egypt were found in Wadi Shait (no. 1, not described, see note 33), and in Wadi Midriq (Lankester 2013, 29, fig. 3.2). The location of this site is not certain, so that it is not indicated on Map 4. The animal, with its silhouette fully pecked and tusks protruding from the mouth, is harpooned by a hunter holding the weapon; the extremity of the rope is attached to the prow of a well-detailed boat with ornate bow and prow.

There are 17 sites in the central wadi system (nos. 2–6). At the closest site to the Nile valley in Wadi Abbad (no. 2), a hippopotamus is incised on a rock

[33] Sites for which no description or illustration is available are: Wadi Shait, possibly later than predynastic (no. 1; Judd 2009, 16, site SH8); Wadi Abu Mu Awad and Wadi Umm Salam (no. 5; Morrow et al. 2010, 63–8, site SAL 14, 72, site SAL 18) as well as an uncertain number of sites in the same region; Wadi Abu Wasil (no. 8; Winkler 1938, 8, site RME 26; Červíček 1986, 22; Rohl 2000, 115, site MA 1); Wadi Hammamat (no. 10, two sites close to each other; Winkler 1938, 4, site RME 6; Morrow et al. 2010, 220–2, site HAM 3); Wadi el-Atwani (no. 11; Winkler 1938, 6, site RME 16; Morrow et al. 2010, site ATW 2); see Judd (2009, map 4).

panel with several other figures, including humans, dogs, and birds (Morrow et al. 2010, 165–6, ill. F, site BAR 1). The contours of this animal, which are rendered more realistically than was usual during the predynastic period, seem to suggest a later date (Lankester 2013, 29). In Wadi Mia, at Kanais (no. 3), a hippopotamus with a pecked silhouette is represented in front of a boat, and may be followed by a dog; although this could indicate that the animal was hunted, the relationship with the possible dog is not certain (Weigall 1909, pl. XXX; Červíček 1974, 59, no. 270; Behrmann 1989, Dok. 9g, seen by myself). Hippopotami are usually shown hunted with harpoons and not by dogs; on two C-ware vessels from Abydos (**1.62**, **1.63**), dogs are incorporated in scenes with hippopotami, but the latter are not the direct objects of the hunt. Further west, in Wadi Barramiya (no. 4), there is a small figure of a hippopotamus isolated on a rock surface (seen by myself, perhaps indicated in Judd, 2009, map 4).



Map 4 Distribution of hippopotamus depictions in rock art of the Eastern Desert. After Judd (2009, map 4).

An uncertain number of sites are concentrated in Wadi Umm Salam; seven of these can be described. Two hippopotami with bodies decorated with pecked marks were found at site SAL 4 (Rohl 2000, 57–8, ill. 4, site MG-1; Morrow et al. 2010, 47–8, ill. A). Other animals, including elephants and ibexes, belong to the same tableau, to the right of which is an open rectangular shape that may be a hunting trap (?) or a pen. At site SAL 5, a hippopotamus also with its silhouette filled with pecked marks, is harpooned from behind by a man holding the

weapon (Rohl 2000, 56, site CT-1; Morrow et al. 2010, 49–50, ill. C). At site SAL 7, a hippopotamus with a simple silhouette is depicted near a dog, but the dog has a different patination, which suggests that the two figures are not contemporary (Rohl 2000, 60–3, site MAM-1; Morrow et al. 2010, 51–3, ill. N). At site SAL 11, only the schematic outline of a hippopotamus is pecked; the animal and others in the tableau are not hunted (Morrow et al. 2010, 57–9, ill. L). SAL 37 seems to bear a peculiar depiction that includes a man standing on a boat holding two harpoons that are connected to a hippopotamus head, rather than a complete hippopotamus body as is usual (Lankester 2013, 29). It is not clear if the figure was damaged or left unfinished; alternatively, the head my be a token of the complete animal, or represent the emerged part of a hippopotamus, the rest of the body being "hidden" under water. At site SAL 40, a hippopotamus with a fully pecked silhouette is faced by another animal touching (or biting ?) its muzzle. It may be a dog at a large scale, or a second hippopotamus, but if the latter, its shape is unusual (Morrow et al. 2010, 95–6, ill. C). At site SAL 46, a hippopotamus with a fully pecked silhouette is followed by an animal, possibly a dog; the patination appears different, suggesting that the two figures were not made at the same time (Morrow et al. 2010, 102, ill. D).

In Wadi Abu Mu Awad (no. 5; site MUA 11), to the north of Wadi Umm Salam, a hippopotamus with a silhouette similar to the one at site SAL 7 (see above) is speared twice and also harpooned. The weapon ends with circular feature probably representing the coil of the rope (Judd 2009, 16; Morrow et al. 2010, 118–9, ill. F). The final identified site in the central wadi system is in Wadi Shelul (no. 6), where an animal that has been described as a hippopotamus should perhaps not be included in the list, because it appears to have a neck mane, which is alien to hippopotamus imagery (Morrow et al. 2010, 133–4, site SHA2, ill. C). It may be a wild donkey faced by an archer and it is perhaps later than the predynastic period.

In the northern wadi system, a complex tableau located in Wadi el-Qash is the rock art site with hippopotami that has probably attracted the most attention (no. 9, Winkler 1938, pl. XIV, site RME 18; Behrmann 1989, Dok. 9c, d; Morrow & Morrow 2002, 226–7; Hendrickx et al. 2009b, 173–4, fig. 4; Lankester

2013, 29). Three hippopotami are shown on the panel, all in different styles and perhaps not made at the same time. Two on the left are hunted by several men. The upper one, which has a fully carved body, is harpooned twice, and the animal below, of which only the silhouette is incised, is harpooned four times. All the weapons are held by hunters, except one that connects the back leg of the lower hippopotamus to a boat. The relationship with the boat is uncertain, however, because several motifs are superimposed, and the reading of the scene is limited by Winkler's chalking of a selection of motifs. The hippopotamus to the right of the panel has its body decorated with cross-hatchings; it is harpooned twice, perhaps three times, but the weapons do not appear to be held by hunters. In Wadi Mineh, a hippopotamus with a dotted body is also harpooned; it is not clear if a human figure nearby should be considered as the hunter, because he doesn't hold the weapon (no. 7, Winkler 1937, fig. 8; Winkler 1938, 8, site RME 25A; Rohl 2000, site PC3, 160, upper ill.; Behrmann 1989, Dok. 9a).

Closer to the edges of the Nile floodplain, hippopotamus depictions in rock art are also rare, and those mentioned below are all found to the west of the Nile, except in a small khor tributary of Wadi Abu Subeira (opposite Kubaniyeh). There, a hippopotamus is harpooned by a hunter who holds the weapon (site Kass 1, also known as CAS-2, wall XXIII, not illustrated; Gatto et al. 2009, 162).[34] Five images of hippopotami have been found on rock surfaces at Hierakonpolis (Hardtke 2010; 2013a; b, 105–7). At Locality 10–09 (near HK11C), a hippopotamus, isolated on a slab near a stone hut circle, is shown with crosshatched body and a line extending down from its muzzle. This line is unlikely to represent the tusks but may perhaps be seen as a harpoon, although it would be shorter than usual (Hardtke 2013b, 106, fig. 2). The image of a hippopotamus was found at Locality 10–17, isolated on a slab, but near representations of a bull, donkey, and boat. This hippopotamus is much smaller than the one at Locality 10–09, but it is more detailed, with a close-meshed hatching decorating the body and oblique lines the head; the tusks protrude from the mouth (Hardtke 2013b, 106, fig. 3). A line connected to the tip of the

[34] At least one, and perhaps two hippopotamus rock drawings were mentioned by Storemyr (2008, 156–7, figs. 3.7, 4.2) at site CAS-6, on the northern edge of Wadi Abu Subeira, in the upper parts of the cliffs; this rock art may date to the late Paleolithic, and is not discussed here.

muzzle may represent a harpoon, but as with the previous image, this is not certain. In neither instances is it clear that the animals are hunted. Three further petroglyphs of hippopotami have been found in Wadi el-Pheel on isolated rocks, now in the middle of a path (Hardtke 2013a). They are faintly preserved: only their outline appears incised, but it is likely that their bodies were decorated with hatchings or cross-hatchings. One of these hippopotami is struck by a harpoon in the head. The northernmost hippopotamus petroglyph was found in the region of Abadiya where it is shown among wild animals such as cattle and dogs; the site was not illustrated and cannot be further discussed (Winkler 1938, 9, site RME 30). However, Darnell (2009, 88–9) discovered two further sites with images of hippopotami in the Qena bend of the Nile, in a Wadi called Was-Ha-Waset (WHW). One animal, its body decorated with close-meshed cross-hatching, is struck in the head by a harpoon (site WHW 353; Darnell 2009, 88–9, fig. 8). The rope of the weapon is represented by a wavy line ending in a double loop which is held by the hunter, shown with his arms raised. There is a boat nearby, but its connection with the hunting scene is uncertain. At the second site, two hunters, with branches or feathers on their heads, bear small depictions of confronting hippopotami incised on their chests (WHW 90, 84; Darnell 2002, 145–6, fig. 17, pl. 88; 2009, 88–9; Hendrickx et al. 2009a, 217–8, fig. 23; Droux 2011a, 370–1). Darnell suggests that these figures were etched in leather garments worn by the hunters, but they can also tentatively seen as pendants: pairing of identical figurines has been observed in predynastic art (see §2.4).

Deeper in the Western Desert, hippopotamus appears less frequently in rock art, but one example discovered near Kharga Oasis has been published (Ikram 2009, 77, fig. 13); the animal may be harpooned, but this is not clear from the published photograph.

The observed concentration of hippopotamus depictions in the central wadi system of the Eastern Desert shows that the hippopotamus had a special significance there: 45% of sites where that animal was pecked or incised in the Eastern Desert have been recorded in Wadi Umm-Salam (10 out of 22), while only 20% of all sites are located in that wadi (46 out of 222; Lankester 2012, 68, tab. 5.1). The same concentration was observed for the crocodile (see §3.5) and

antelopes (see §4.3.5). It is difficult to ascertain the date of these images: several may be later than the predynastic (nos. 1, 2, 6). The complex panel at Wadi el-Qash has been dated to Naqada I–II and is probably contemporaneous with C-ware vessels, while the observed superimpositions of motifs demonstrate that some elements are older than others (Midant-Reynes 1994; Hendrickx et al. 2009b). The same is true for WHW 353; the hippopotamus and hunter can be compared with styles found on C-ware vessels, and are likely contemporaneous, but the boat and animal figure nearby that overlap may date to different periods. If the pairing of the small hippopotamus figurines at WHW 90 and 84 is meaningful, then these drawings likely date to Naqada IC–IIA, by comparison with paired stone hippopotamus figurines (Droux 2011a). The hippopotamus petroglyph in Wadi Mineh can also be compared with a representation on a C-ware vessel (**1.38**), and by analogy can be dated to the same general period (Rohl 2000, 160). The two rock art examples found at Hierakonpolis most probably also date to the early predynastic and are contemporaneous with C-ware. Not only is the cross-hatching on their silhouettes characteristic of that period, so also are the tusks protruding from the mouth of the hippopotamus at locality 10–17. The dates of the incised drawings at Aswan and Abadiya are less certain, because they have not been illustrated.

The proportion of petroglyphs representing hunted hippopotami is not certain. Of the 15 described depictions in the Eastern Desert, this is the case six times. Among Nile Valley rock art, hippopotami are perhaps hunted in five examples, leaving only two images where the animals are clearly not prey. This number is higher if one takes into consideration the small hippopotamus figures on the chests of the hunters at site WHW 90 and 84.

The presence of aquatic species among the rock art of the desert clearly shows that the purpose of these images was not to illustrate activities taking place in the wadis. Similarities observed between rock art and material culture of the Nile Valley shows that shared conceptual contexts, so that rock art should be considered in the same light as predynastic objects (Hendrickx 2011a, 251); therefore, hippopotamus hunting scenes in rock art may have a similar significance to hunting scenes in other media, such as C-ware vessels. However,

Darnell (2009, 88–9) sees the mixing of riverine and desert elements as a means to "neolithicizing the desert", which he understands as the appropriation of the desert margins into the cultures of the Nile valley. Darnell also suggests that the presence of harpooned and lone depictions of hippopotami allow to transform the desert medium into a simulacrum of the Nile. This interpretation may be going too far, but it is probable that these rock art scenes symbolised the power of the elites taking part in the hunt, but in the specific context of actual hunting expeditions in the desert, they may mark either wishes for fruitful outcomes of these hunts, or they may show that hunters have been successful, which are in a way both expressions of power over wilderness. Both interpretations are, at any rate, not contradictory. In contrast, depictions of hippopotami outside the hunting context may represent the power and strength that hunters hoped to benefit from in order to catch prey. These views depend largely on who was responsible for the rock art; scenes with riverine species are more likely to have been done by Nile Valley dwellers, but whether they necessarily belonged to elites as suggested by Hendrickx (2011a) is not certain. If rock art was made by ordinary people, it is possible that an otherwise mostly elite-controlled iconography was more freely available far away from the valley; this would not necessarily alter the symbolism of the images.

3 The Crocodile

3.1 Zoological background

General information about the crocodile is drawn, primarily, from IUCN (Crocodile Specialist Group 1996; IUCN-SSC Crocodile Specialist Group 2014) and from Fergusson (2010). A member of the *Crocodylidae* family, the Nile Crocodile was a prominent inhabitant of the predynastic landscape. This animal grows continually throughout its life; it is a sexually dimorphic species, and the largest male specimens can exceptionally reach a length of 6 meters. Data collected by Hutton (1986, table 2, individuals N74 and N76) shows the largest male individual studied at just over 4 meters, while the largest female had reached 3.34 meters. This has to be contrasted with the estimated age of these animals. The male was 47 years old, while the female was 63 years old. Another female (N78), that was almost the same age as the male crocodile mentioned here, measured 3.1 meters, or nearly 25% less than the male. The specimens studied by Ngwenya et al. (2013, table 1, fig. 1) were all of smaller dimensions, but offer an insight in the weight of the crocodile. The largest male, at only 2.61 meters of length, was weighed at 90 kgs. The relation between weight and length is exponential, so that larger individuals have been recorded to weigh over 1000 kgs (Pooley & Gans 1976, 114).

The modern range inhabited by the *Crocodylus niloticus* covers most of the African continent, with the exceptions of the Sahara belt, eastern Somalia, western South Africa, and south-western Botswana. In Egypt, crocodiles faced a near extinction because of hunting and human activities in the earlier part of the 20th century. Since the building of the Aswan High Dam, they are no longer found naturally north of the Dam, but they thrive in Lake Nasser, where large specimens have been observed. They are a protected species in the wild, where they remain a target for poachers, and are also raised in farms (Shirley et al. 2012).

The preservation status of the species is considered as “least concerned” by the IUCN in its habitat range, but this has not been updated since 1996. Moreover, it appears that *Crocodylus niloticus* may in fact encompass two

different subspecies. Biomolecular analyses (Hekkala et al. 2011) based on the comparison of DNA samples of crocodiles from most of its modern range suggest that there is an "eastern range" *Crocodylus niloticus niloticus*, and a "western range" *Crocodylus niloticus suchus*. Further study may also decide if the two subspecies should in fact be considered as two individual species, which would change the view on their preservation status. For Egypt, the analyses incorporated crocodile DNA from both Late Period specimens (and possibly predynastic, see Hekkala et al. 2011, 4206), and modern animals from Lake Nasser. An unexpected result, not especially emphasised by the researchers, is that the subspecies present in Egypt in antiquity is identified as *C. n. suchus*, while the modern animals belong to the *C. n. niloticus*. This difference may be explained by the supposition that both subspecies can live in the same environment, and possibly together at the same time.

Crocodiles represent an important source of danger for human populations living in proximity with rivers. This would also have been the case along the Nile in predynastic times. Today, around 300 attacks on humans (likely far less than total number of incidents) are reported each year, with 63 % having fatal outcomes. The majority, 92% of these attacks, take place either in water or on the banks of rivers or lakes (IUCN-SSC Crocodile Specialist Group 2014). This is for the vast range habitat of the species; it is impossible to estimate the impact that crocodiles would have had during predynastic times, although it likely that the percentage of fatal outcomes would have been much higher.

Young crocodiles have been observed stranded and isolated out of their river environment, in vulnerable positions, after recessing flood (ElMahi 1992, 157). The same is likely to have happened in predynastic times at the end of the annual inundation season, so that crocodiles may have been captured under these safer circumstances rather than from the Nile (see 3.2.1).

But for populations used to living in proximity of the large saurian, observation certainly helped prevent dramatic encounters. For example, crocodiles do not feed during colder periods, even if plentiful food is available, making attacks less likely to happen in winter. Because they have low metabolic rates, crocodiles need to spend a fair amount of time basking in the sun in order

to store solar energy. This allows even large specimens to survive for long periods even in the absence of food source (Pooley & Gans 1976, 115–7), and ancient Egyptians likely noticed that they were not likely to attack at these times. Crocodiles are at their most dangerous when hunting for prey, and when protecting their offspring. They have demonstrated complex social collaborative attitudes, both for hunting (and when transporting carrion), and for protecting their nests and youths. Virtually no animal living in, or drinking from, rivers and lakes, is safe from crocodiles. This animal undergoes an ontogenetic shift in diet through its lifetime (Fergusson 2010, 85), so that the bigger it grows, the larger is its prey. Insects, snails, and frogs, will be eaten by young offspring, but older crocodiles will take on animals as large as antelopes or buffaloes, but without loosing their ability to feed on lesser prey when necessary (Pooley & Gans 1976, 117–8).

Morphologically, Nile crocodiles are perfectly adapted to their environment, and very effective hunters. Their head comprises elongated jaws with an impressive series of sharp conical teeth, designed to "penetrate and hold, rather than cut and chew" (IUCN-SSC Crocodile Specialist Group 2014). Characteristic of the crocodiles is the protruding fourth lower tooth, visible at all times. The muscles responsible for shutting the mouth are extremely powerful, although the mean bite force exerted by the *Crocodylus niloticus* is not as high as that of other species (Erickson et al. 2012, Table 1). It is nevertheless said that "two strong people equipped with an assortment of levers are required to force open the mouth of a 1m long crocodilian", which is not especially large (IUCN-SSC Crocodile Specialist Group 2014). In contrast, the muscles responsible for opening the mouth are quite weak, allowing a man to easily keep a crocodile's mouth shut. A rubber band is said to be enough to do so (IUCN-SSC Crocodile Specialist Group 2014), and it is likely that, in antiquity, a rope could be used to the same effect. This, again, likely played an important role in the capture of animals (3.2.1)

When submerged, and therefore when hunting for prey, crocodiles have the ability to be aware of the environment outside the water by having only their eyes and nostrils emerging from the water. This allows them to prey on animals

not only inside the river, but also on those standing on the banks, drinking water. It also means that they can remain unnoticed by humans if careful attention is not paid, rendering activities on the river banks and on small boats dangerous enterprises.

3.2 Faunal remains in archaeological context

Remains of crocodiles have been found in exactly the same archaeological sites as hippopotamus bones (see §2.2), although their provenances vary within the sites. They are more numerous than those of hippopotami, but their presence is still rare at any one site, either in Upper or Lower Egypt. The presentation below, as well as the data in Figures 7 and 8, are based primarily on Linseele et al. (2009, table 3) and unpublished data from Van Neer and Linseele; no other overview of crocodile faunal remains in predynastic Egypt has been published.

		River hunting		Crocodile		
		n	%[1]	n	%[2]	Distribution
Hierakonpolis	HK29	16	0.7%	9	56.25%	3.28%
	HK29A Wall Trench	336	10.1%	103	30.65%	37.59%
	HK29A modified silts	200	10.0%	70	35.00%	25.55%
	HK29A Floor dep.	13	4.6%	9	69.23%	3.28%
	HK29A sands above.	16	5.0%	11	68.75%	4.01%
	HK29A all	565	9.4%	193	34.16%	70.44%
	HK11 Operation G	7	0.8%	1	14.29%	0.36%
	HK11C Operation A	6	0.7%	2	33.33%	0.73%
	HK11C Operation B	99	5.6%	15	15.15%	5.47%
	HK11C A+B+C3–4	109	2.9%	17	15.60%	6.20%
Adaïma	"Zone des limons"	87	1.5%	31	35.63%	11.31%
	Ensemble 1002–1003	1	0.2%	1	100.00%	0.36%
	Ensemble 1001+ext	7	0.3%	4	57.14%	1.46%
	8000	6	1.3%	5	83.33%	1.82%
	7000	4	0.7%	3	75.00%	1.09%
	Adaima all areas	116	1.0%	51	43.97%	18.61%
Mahasna	Block 1	NA	NA	1	NA	0.36%
	Block 3	148	NA	2	1.35%	0.73%
	All blocks	340	6.5%	3	0.88%	1.09%
Total		1153	3.42%	274	23.76%	100.00%

Figure 17. Relative importance of remains derived from river hunting (%[1] of whole assemblages, cf. Figure 7); relative importance of crocodile bones (%[2] of river hunting remains); geographical distribution of crocodile bones among predynastic settlements. Remains from cemetery HK6 are not included here

3.2.1 Faunal remains at Hierakonpolis

Just over 80% of all crocodile bones found in predynastic settlement contexts come from Hierakonpolis. They have been found at four distinct localities: HK29A, HK29, HK11, and HK11C (see Figure 8).

The ceremonial centre at **HK29A** produced the largest concentration of crocodile remains. They form roughly a third of the assemblage derived from river hunting during the early phase of the ceremonial centre (Naqada II(A)B–C: Wall trench and "modified silts"). In the second and third phases, their relative importance in that group nearly doubled. This is significant in a context in which river hunting played a lesser role during the later phases of use of the centre (Floor deposits and sands above the courtyard).

At nearby **HK29**, where river hunting is very minor (0.7%), crocodile remains amount to over half of the assemblage of this group. This pattern stands in contrast with **Operation G** at HK11, where remains derived from river hunting are similarly sparse but the assemblage is dominated by hippopotamus bones. A single fragment from a crocodile long bone comes from this locality.

At **HK11C**, crocodile remains have only been found within Operations A and B. Although none has been found in Structure C3–4, these bones are nevertheless viewed as part of the same overall assemblage (see §1.5.1). River hunting is relatively well represented (2.9%), but crocodile bones form only a minor part of the group (15.6%), in proportions similar to Operation G. Most of the bones from HK11C are legs and foot bones; exceptions are a rib, a scapula, and a vertebra.

In the elite cemetery **HK6**, Tomb 45 and Tomb 65 contained originally complete crocodile carcasses. They were both disturbed, but articulated parts of the skeletons remained. In Tomb 45, one of the front paws was *in situ;* the reptile was estimated to have measured two meters at death (Friedman 2011c, 6; Van Neer 2011). In Tomb 65, one back foot was still in its original place; this animal was estimated to be of similar size (Friedman 2013, 4). Neither crocodile was particularly heavy (see §3.1), and they could easily have been managed in captivity prior to their burial in the cemetery, but no physical evidence supports

captivity. Because crocodiles do not need to eat often, they can be kept captive without being fed for some time, so that gut contents would not necessarily show any modifications of diet.[35] The gut contents of the HK6 crocodiles were anyway not preserved. Moreover, healed fractures, usually considered to be indicators of captivity (Van Neer 2009), were not observed on the bones of either crocodile. This lack of evidence cannot exclude the possibility that they were kept captive.[36] Other wild animals buried at HK6, such as the hippopotamus, elephant, or hartebeest, were certainly kept in captivity, and there is no reason to suppose that the crocodiles were treated differently.

The organisation of the space at HK6 was not random, with the cemetery apparently divided in complexes (see e.g. Friedman 2011c; Paulson 2013) and in part separated from the wadi by a wall of wooden posts, oriented north–south, set in a foundation trench. Not fully excavated, it measures at least 73 meters, and in 2013, excavations revealed that the wall turned a oblique corner toward the east at its north end (Friedman 2013), thus defining a section encompassing the so-called East Complex of the cemetery. Tomb 65 seems to have been placed beside that corner, on the outside of the East Complex, and the crocodile was buried facing outward, so that Friedman (2013) suggested that it was symbolically standing guard at the corner. Similarly, the crocodile from Tomb 45 was buried possibly just outside the Tomb 16 Complex, and may again have been placed symbolically to guard that complex, although its orientation in the grave could not be determined.

3.2.2 Faunal remains at Adaima[37]

Outside of Hierakonpolis, most of the crocodile bones were recovered during excavations at Adaima. Of these 51 bones, the highest concentration (31 bones) was found in the “Zone des limons”. The majority came from zones A and B of that area. At least one bone came from the “garden” area; the context of some

[35] At HK6, the gut contents of a male elephant, buried in tomb 33, contained strong evidence that the animal had been kept in captivity for some time (Marinova & Van Neer 2009).

[36] A simple rope tied around the muzzle would have been enough to render them harmless (see §3.1); since they were not large, they could have been handled and kept in a manner that did not result in injuries.

[37] The seven crocodile bones excavated during the 2003 season are included in the total of bones, but are not further discussed here because no published information about them is available.

bones is not known to me. Remains derived from river hunting are not prominent in the “Zone des limons” (1.5% of the faunal assemblage of that area; see Figure 17); they are dominated by remains of softshell turtles, with crocodile bones representing just over a third of the group.

The rest of the crocodile bones are distributed across various localities of the site. At three places, crocodile remains constitute the vast majority of the small-sized assemblages derived from river hunting. One bone was found in Ensemble 1002–1003, where it is the sole element derived from that activity. Excavation area 7000 produced three crocodile bones (only one further bone, from a softshell turtle, completes the assemblage derived from river hunting) and area 8000, five bones (again with one other bone, from a hippopotamus). None of the bones from area 8000 was found within the Naqada IIA–BC house U1. The remaining four crocodile bones were found in Ensemble 1001+ext. (Midant-Reynes & Buchez 2002, 527, 545, tab. 1). The assemblage derived from river hunting there only contains three other bones, all from softshell turtles.

Details available for Ensemble 1001+ext. and Ensemble 1002–1003 show that different body parts were represented: four scutes, two vertebrae, and one fragment of a femur belonged to different animals. Most crocodiles were small, around 1 metre in length, but one was larger, measuring around 2 metres. Details of the bones from other areas are not known to me.

In sum, crocodiles bones are found in all areas of Adaima taken into consideration here, similarly to gazelle bones, but in contrast to hippopotamus remains, which are less widespread.

3.2.3 Faunal remains at Mahasna

Only three crocodile bones were recovered at Mahasna (Rossel 2007, 162). In Block 3, considered to have been a locus of ritual activities in use during Naqada IC–IIC, excavators found two crocodile bones; one dermal scute and one vertebra, originating from two individuals. The relative importance of river hunting cannot be determined for the block, but the two bones only amount to 1.35% of the assemblage from that group in Block 3 (see Figure 17); softshell turtle bones in the block account for most of this assemblage (144 bones).

Another crocodile bone (cranial) was recovered from Block 1, an area of habitation in use during Naqada IC–IIB. The exact phase to which the crocodile bone belongs is not detailed, and it is not possible to determine the relative prominence of the crocodile among the assemblage of riverine hunted animals in that block.

Considering the assemblage of Mahasna as a whole, river hunting is relatively important (6.5%), but crocodile bones constitute only a very small minority of the assemblage of that group (<1%). This figure is much lower than at Hierakonpolis and Adaima, in part because of the numerous remains of softshell turtles there, which account for over 98% of the remains from river hunting.

Because all crocodile bones except one were found in Block 3, it is likely that this species was used at Mahasna similarly to the hippopotamus, mostly for the performances of rituals. In contrast, softshell turtle were more numerous outside of Block 3, so that if it played a role during rituals in that block, it was nevertheless also used for other reasons elsewhere in the settlement, perhaps as food.

3.2.4 Comparison with Lower Egypt

There are no known remains of crocodile in Lower Egypt from contexts contemporary with the Upper Egyptian Naqada period discussed above. However, bones dating to earlier periods have been recorded at el-Omari (neolithic; 12 bones, Boessneck & von den Driesch 1990, 103) and at Merimde (17 bones, mostly from phases IV-V, roughly contemporary with the Badarian, von den Driesch & Boessneck 1985, 78–9, Tab. 43). The excavators considered these bones to be food remains, and several of them were at least partly burnt. Although wild animals only contributed incidentally to the subsistence of the inhabitants of those sites (Wetterstrom 1996, 60–2; Wengrow 2006, 90), at el-Omari the crocodile is the second most commonly hunted animal after the hippopotamus, while it was less favoured at Merimde, on a par with the softshell turtle. In the Fayum, remains of crocodiles were found on Kom W (Caton-Thompson & Gardner 1934, 34, 83), forming part of a small assemblage of hunted animals remains of Neolithic date, together with soft shell turtles and

hippopotami. They appeared only marginally elsewhere in the Fayum.[38] Quantities and proportions were not reported at Kom W, and the assemblage has not been the subject of modern re-analyses (Midant-Reynes 2003, 75, note 81), although Linseele et al. (2014, table 1) produced a useful summarizing table of material recovered from early excavations. Faunal remains produced by new excavations at Koms K and W did not contain a single bone of crocodile (Linseele et al. 2014, table 2; see note 14). No crocodile remains have been noted at Tell el-Farkha (Abłamowicz 2012, 418).

3.2.5 Discussion of the faunal remains

During the Neolithic and the period contemporary with the development of the Badarian, crocodile meat was part of the diet of the inhabitants of Fayum and Lower Egypt, although not in large quantities. In Upper Egypt, predynastic crocodile remains have only been encountered at Hierakonpolis, Adaima, and Mahasna, like those from hippopotami. They were completely absent from the faunal assemblages at other settlement sites such as Armant, Abadiya 2, Naqada and Khattara area, and Mahgar Dendera 2, also considered in this study. It is especially significant that no hippopotamus or crocodile remains were found at Mahgar Dendera 2, since fishing was an important activity there, thus showing that hunting crocodile is not an activity linked from the frequent use of the river, and that it was only undertaken for special reasons. In contrast, remains of antelope species were found at all sites (see §4.2).

The majority of the crocodile bones came from contexts of elite activities, such as HK29A at Hierakonpolis and Block 3 at Mahasna (71.2%). If one adds to this figure the bones recovered at HK11C (Operation A and Operation B) and HK29, which may also relate to elites, the proportion of crocodile bones from elite contexts increases to 80.7%. At Adaima, the bones found in the “Zone des limons” may also perhaps reflect elite activities because of the high concentration of faunal remains of wild species, both from the river and desert

[38] One bone was noted at site QS IX/81 (von den Driesch 1986, 2, tab. 1) and 3.5 grams of bone were measured at site FS1-B (Wenke et al. 1988, 42, table 1).

environments (see §2.2.5); if this is correct, the proportion of bones that are certainly not linked to the elite would reduce to 5.5%.

Regardless of the exact nature of the assemblage from the "Zone des limons" at Adaima, this pattern shows that the majority of crocodile remains derived from uses and consumption that were very largely under the control of the ruling elites of the time. This finding is exemplified by the presence of the two buried individuals at HK6.

Since crocodiles can grow to a length of six metres, it is striking that no bones from individuals exceeding roughly two metres have been recorded. This focus on smaller animals may reflect the difficulty and danger of hunting larger specimens. At HK6, if the aim was to keep the crocodiles captive before they were buried in the cemetery, as other animals were, a smaller size may have been preferred for practical reasons.

The contexts show that more than 70% of all crocodile bones considered here date to the early predynastic (Naqada IC–IIB) and 18% to the later predynastic. The remaining bones are not attributed to a period, including the 17 bones found at HK11C (Op. A and B, Str. C3–4), which are broadly dated to mid-Naqada II (Friedman pers. comm.). This chronological distribution is very different from that of hippopotamus remains, but results were statistically less meaningful for the remains of this latter animal because over half of them were not attributed to a specific period (see §2.2.5).

3.3 Overview of the crocodile in material culture

The crocodile is represented on a variety of media and is an important iconographic motif of the early predynastic, although to a lesser extent than the hippopotamus. The appended corpus contains 43 objects with painted or incised crocodiles, or shaped as this animal. The crocodile is frequently found depicted on C-ware vessels, and two vessels bear small applied figurines of the reptile. It is also painted on a few D-ware vessels, which belong a particular group of so-called "magical jars". These vessels may be later than the majority of D-ware vessels, or may have had special significance. Figurines of crocodiles are very

rare; only two predynastic examples are known, shaped in clay, and one, knapped in flint.

3.3.1 Two-dimensional depictions

The vast majority of crocodiles representations are two-dimensional, with 35 objects known (81%). Over half of these are found on C-ware vessels (Figure 18). The 18 vessels represent only 3.64% of the whole corpus of C-ware vessels, and 18% of those with animal depictions. Six vessels are dated to Naqada IB–IC (**1.58**: IB; **1.8**, **1.19**, **1.31**, **1.46**: IC; **1.57**: IB–IC); the others can only be broadly dated to Naqada IB–IIA, the general range to which C-ware vessels are

Crocodiles on C-ware vessels					
catalogue	# of Crocodiles	# of Hippopotami	Other animals	Hunting scene	
				Human	Weapon
1.05	1				Net
1.08	1	2			
1.14	1			YES	Net
1.19	1	1	Donkey birds scorpion fish turtle dog		(Harpoons, dog)
1.22	4				
1.27	2				Net
1.28	2 (?)				
1.29	1				Net
1.30	1	1		YES	Net
1.31	1				Net
1.32	1	3		Yes	Net
1.41	1	1	Birds		
1.46	2	2	2 elephants 2 bulls		
1.47	6	4			
1.48	5	4	Fish		
1.56	2 (?)	3			(Harpoon)
1.57	5	4			
1.58	1	2			

Figure 18. C-ware vessels with depictions of crocodiles.

attributed.[39] The bodies of the animals are always seen in top view, with the flexed legs pointing toward the heads. The legs usually end in paws with a

[39] The double globular C-ware vessel S.1823, in the Fondazione Museo delle Egizie is not included here (Scamuzzi 1965, pl. VII; Donadoni Roveri & Tiradritti 1998, 146, cat. 40; Graff 2009a, cat.

varying number of claws. Cross-hatching is the preferred way for decorating the body, in a way rendering the natural appearance of the dermal scutes that cover the back of the animals. In most cases, a series of small protuberances of triangles painted along the tail represent the scales of the hide. Because in nature these scales are raised more or less vertically, the tails are depicted in profile, rather than in top view. This detail is unclear on three vessels (**1.19**, **1.41**, **1.48**), and not preserved on **1.30**. It is otherwise only absent on four vessels (**1.8**, **1.22**, **1.29**, **1.56**).

The crocodile is the only species on seven vessels. It is more commonly accompanied by the hippopotamus (11 vessels), and rarely by other animals, such as birds (**1.41**), bulls and elephants (**1.46**), fish (**1.48**), and the variety of animals on **1.19**. On the beaker **1.46**, the crocodiles are not strictly speaking represented with the bulls and elephants, as they are painted on the inside of the vessel, the others on the outside. The crocodile is more commonly represented alone (11 vessels), but is also shown in pairs (2 or 4 vessels), or in groups of four (**1.22**), five, (**1.48**, **1.57**), or six (**1.47**) individuals. Two vessels (**1.28**, **1.56**) appear to bear the depictions of two reptiles, but these figures are partly superimposed. It is difficult to know if two crocodiles were really intended. In each case, the figure that would be "below" the well-drawn crocodile appears as unfinished, the one on **1.56** only bearing two legs, and apparently no head.

On seven vessels the crocodile is seen in close proximity with cross-hatched areas, likely depicting nets. Only on three of those vessels are men also represented, but they do not directly appear to man the nets, except perhaps on **1.32**. In the four other cases, the presence of the hunters is symbolically replaced by the nets, in a way similar to harpoons symbolising the hunters in hippopotamus hunting scenes (see §2.3.1). Details of the nets can include floaters or weights (**1.27**), and curly ends (**1.32**), once attached to sticks (**1.30**). Perhaps not a coincidence, hunting scene are only found on bowls, but not on any other shape of vessels. On two vessels (**1.19**, **1.56**), other animals are being hunted, and it is not sure if the crocodile should be considered, by association, as

172). It is one of three C-ware vessels bought in Egypt by Schiaparelli that have a very suspicious decoration which I consider to be modern additions onto authentic vessels (see notes 17).

another animal of prey: no net is depicted and the crocodiles are not directly targeted, either by harpoons or dogs. Vessel **1.19** is one of only two vessels on which the crocodile is associated with a boat in the same scene, although the boats are apparently not taking part in the crocodile hunt. On three vessels (**1.14**, **1.30**, **1.32**), standing men are represented in proximity with the nets, but they do not directly man them.

Twelve D-ware vessels (Figure 19)[40] bear the painted silhouettes of crocodiles. Excluding the sherds, this amounts to 0.67% of the corpus of D-ware vessels and 1.86% of those with figural decoration (see Figure 5). In most cases, the identification is not troublesome, and the animals are depicted in a broadly similar way. They are mostly seen in top view, with flexed legs, like on the earlier C-ware vessels, and more often than not have the scales of the hide indicated on their tails. Their bodies are usually filled in, although two crocodiles are cross-hatched (**2.44**, **2.92**). On two vessels, the painter represented the animals in profile (**2.44**, **2.65**). The first one was excavated in a cemetery at Abusir el-Meleq. The production of D-ware from this site is often different from the vessels found at other sites, closer to the centres of power of the later Naqada II. This may explain the unusual way chosen to depict the crocodile. The three crocodiles painted on **2.65** have been identified as a variety of other animals. The aardvark, or orycterope, has been proposed more often (Keimer 1944; Manlius & Schneider 1997; 2005, ; Graff 2007b, 831–2), Needler (1984, 206–13) suggested the otter, and Houlihan (1996, 123), the Egyptian Mongoose, although he also stated that "[the animals] cannot be identified with complete certainty". In her publication on painted vessels, Graff (2009a, 161) did not decide for a particular species. Finally, Patch (2011, 79) was likely correct in identifying the animals as crocodiles. The confusion that has misled researchers since the first publication of the vessel is due to the unusual perspective chosen by the painters. The example from Abusir el-Meleq, perhaps thanks to the presence of the scales of

[40] I do not include vessel Brussels E.6400, for which there are doubts about the authenticity of the decoration. It shows crocodiles, in top view, in vertical positions, with their bodies filled with wavy lines. The vessel is said to come from Gebelein; Hendrickx (2002a, 280) considered it to be of type L36, and dates it to the beginning of Naqada III. It is not impossible that the strangeness of the decoration is due to a later date than the Naqada IIC–IID during which most D-ware were produced. But it is nevertheless strikingly different from the depictions of crocodiles on the "magical jars", which would be roughly contemporary with the jar in Brussels.

the hide on the tail, never raised such confusion. This shows that the profile view, which is the canonical way to depict the crocodile in dynastic Egypt, was first initiated in late Naqada II and early Naqada III.[41] Therefore, these two vessels are the earliest evidence for what will become, in dynastic Egypt, the canonical perspective for the crocodiles, both in the hieroglyphic script and in figural representations.

Crocodiles on D-ware vessels					
catalogue	# of Crocodiles	Other animals	Hunting scenes		Magical jar
			Weapon	Human	
2.02	16	Snakes	4 harpoons		
2.40	1	Fish horned quadrupeds bird calf (?)			
2.44	1				
2.50	3	Snakes scorpions			YES
2.57	4	Snakes scorpions			YES
2.58	1	Snakes scorpions Ostriches giraffes		Striding man	YES
2.62	2	Snakes scorpions bird ibexes	1 harpoon	Standing woman	YES
2.65	3	Snakes			YES
2.66	1	Snakes scorpion ostriches ibexes			YES
sherd 2.84	1				
sherd 2.85	1	Snakes			YES (?)
sherd 2.92	1				

Figure 19. D-ware vessels and sherds with depictions of crocodiles.

The majority of the D-ware vessels with crocodiles (**2.50**, **2.57**, **2.58**, **2.62**, **2.65**, **2.66**) belongs to a particular group, which I call here "magical jars" following Patch (2011, 79–81). The sherd from Armant (**2.85**) likely also belongs to this group. From this group, the vessel from Abadiya (**2.50**) is the only one found in an intact burial, but its dating remains problematic.[42] I consider here

[41] An early depiction of a crocodile in profile is also known from a Nubian painted pottery excavated at Qustul (Williams 1986, pl. 84–5).

[42] Petrie (1901a, 34) dated this intact tomb (B379) to SD 66, which should be after the beginning of Naqada IIIA, but because the rest of the material from this tomb is not identified, no new verification can be made; Hendrickx (pers. comm.) did not date the tomb nor the pottery type in his seriation. Payne (1993, 112) dated the vessel to Naqada IId2, and Patch (2011, 79) to Naqada IId1–IId2. Two vessels belonging to the group of "magical jars", but without depictions of the animals species taken into consideration in this thesis, were found at Abadiya, tomb B431, and Hiw, tomb R94F, but the same problems arise for the dating of both tombs (Payne 1993, 112, cat.

that the vessel dates to Naqada IIIA, which suggests that the other vessels from the group may also be later than other D-ware vessels. However, because of the uncertainty of the precise date, I give a wider time range to the group as Naqada IID–IIIA. Whether these vessels are contemporary with other D-ware vessels, or a particular continuation of the use of the decorated type – reserved for this specific group – into Naqada IIIA, they nevertheless form a special group among the corpus of D-ware. They have in common a similar shape (type D78; Petrie 1921), fairly large dimensions (heights of 23 to 33 centimetres), and a similar choice of animal species was made for their decoration. On all of the them, series of undulating snakes shown vertically divide the decorative space, and scorpions are present on the upper part of all of them, except **2.65**. It is this association with snakes and scorpions, which all share different environments and are all especially dangerous animals, that led Patch to consider that the jars, or their decorations, may have had magical properties. For Patch (2011, 80), the presence of a spout modelled on the rim of **2.50** possibly shows that the vessel was used for pouring liquid, perhaps during rituals. Other animal species associated with the crocodile in this group are ibexes and ostriches (**2.62**, **2.66**), giraffes (**2.58**), and a bird, with a large body and tuft of feathers at the back of its head (**2.62**). Vessels **2.58** and **2.62** are the only two on which the crocodiles are associated with human figures, a striding man and a standing woman respectively. The striding man is interacting with the giraffe, holding the tether of the first one in his hand; the woman is not depicted in an active role, and is not directly near the crocodiles. Five vessels most likely also belong to the group of "magical jars" despite the absence of crocodile and scorpions (**2.48**, **2.54**, discussed below), or of any of the species considered in this thesis (see note 42). Two sherds, both found in the settlement area at Armant (**2.84**, **2.85**) likely belonged to similar vessels.

On the large open bowl (**2.2**), the crocodiles are also associated with snakes. The body of one of the sixteen reptiles is pierced by four harpoons. On vessel **2.62**, which belongs to the "magical jars" group, one of the two crocodiles

919–20, fig. 49). Another vessel, without provenance, also belongs to the group of magical jars (Graff 2009a, cat. 518).

is also depicted as if harpooned, but the weapon does not actually touch its body. These similarities may suggest that **2.2** should be considered together with the "magical jars", although the difference of shape may be against this supposition.[43]

The unusual vessel **2.40**, excavated at Gebel Silsileh east, is the only one on which the crocodile is associated with other animal species, such as the fighting addaxes, birds, fish, and possibly a cow calf (?). Two boats are also depicted.

There are only two vessels on which the crocodile is the only decorative element represented. On **2.44**, from Abusir el-Meleq, it occupies the middle of the body of the vessel, and it stands between the two wavy handles. Vessel **2.92**, from Armant, is only partly preserved, so that it cannot be excluded that other animals originally figured below the shoulder of the vessel, where the crocodile is painted.

The last painted occurrence of a crocodile is found on the long side of a box from el-Amra (**3.1**), which Graff (2009a, cat. 171) considered to belong to the C-ware class. However, it is a rough-ware ceramic with vegetal temper and the motifs are painted in black, so that it doesn't belong either to the C-ware or D-ware classes. The paint is not well preserved on the side of the box with the crocodile and it is difficult to make out the exact shape of the animal. It is seen in top view and is placed below a boat. Its head is rather thin and filled with closely-spaced hatching, while the rest of the body is filled with chevron designs.

There is only one vessel, of the Black-topped variety, that bears an incised crocodile (**4.9**). The shape of the crocodile, with a cross-hatched body, is quite similar to those found on C-ware vessels, which is to be expected given that **4.9** is contemporary with them. But the tail of the crocodile is unusually made of several dashes, as a tassel would be represented, rather than the tail of the reptile. There is however a curved line next to the tail, which could have been part of it, and the image was possibly not finished. Crocodiles are otherwise found incised on two palettes. On **4.20**, the reptile takes almost the entire decorative space, and is surrounded by long wavy lines, which may represent

[43] The date of tomb 193 at Naqada cannot be ascertained, because the material from the tomb is not identified, apart from the vessel presented here.

water, or possibly snakes, although no detail of their heads are shown. On **4.21**, already discussed above, the front part of the crocodile was incised in the grinding area of the palette, so that it is now obliterated. On both palettes, the crocodiles are also very similar to the depictions on C-ware vessels, with cross-hatched bodies and scales of the hide on the tails. The last object to have an incised crocodile is a narrow mace-head with two pointed ends in red breccia (**4.22**). The head of the animal is rather short and rounded, and the body appears to be mostly hatched. The unusual appearance may be due to the fact that red breccia is much harder to incise than ceramic or slate, but it is also possible that the object, or its incised decoration, is not genuine.

3.3.2 Representations in the round

There are two vessels with figurines of crocodiles applied to their rims (**5.1**, **5.6**). On the first one, excavated at Matmar, the small-sized crocodile, simplistic in shape, is among five hippopotami. It rests flat on the flaring rim, so that it looks more like an applique than a figurine proper. On **5.6**, which belongs to the C-ware category and is possibly from Gebelein, four very detailed figurines were originally attached at an oblique angle to the outside of the beaker. They are interspaced with white-painted bands of crosshatching, and details of the bodies are highlighted with white paint. Figurines of hippopotami were also enhanced with paint on other vessels (see above, **5.2**, **5.5**), so that this practice is not unusual, although not common. **5.1** is securely dated to Naqada IIA by its context, and, although it has no known provenance, **5.6** can be dated to Naqada IC–IIA because it was fashioned with the C-ware technique.

Figurines and pendants shaped as crocodiles are exceedingly rare, in a marked contrast with those shaped as hippopotami. Only two clay figurines of crocodiles have been found, at Abadiya (**7.76**) and Badari (**7.77**). They both come from burials, and are very fragmentary. It is possible that they were ritually destroyed before being placed in the tombs, but neither tomb was found intact, so the state of preservation of the figurines may result from the plundering events. **7.76** was finely modelled and had a naturalistic appearance, with rows of small pellets of clay added to the surface in imitation of the scales of the hide.

Only the tail was found, and it was apparently raised upward, which is an unusual pose for crocodiles. Because the body of the figurine was hollow, one may suggest that the fragment comes from a zoomorphic vessel, but this doesn't seem likely. The exact appearance of the fragments of **7.77** is more difficult to appreciate, because only the photograph published by the excavators is available.[44] However, it seems that a naturalistic surface was rendered, possibly, by finger impressions on the surface.

The single known pendant in the shape of a crocodile was excavated in the cemetery of Hammamiya (**7.78**). The choice of the stone was not random, as a green-coloured calcite was chosen, thus imitating the natural colour of the animal. The shape is stylised to the extreme, with the tail bent to one side and the legs limited to short rounded protuberances. This pendant was part of a necklace containing numerous other stone beads.

The single known palette shaped as a crocodile (**8.9**) is a problematic object. Its orange/red eyes, made in glass, are clearly modern additions. However, it is not certain if the palette itself is authentic or not, for lack of a provenance, or comparative material.

A single predynastic figurine of crocodile made in flint is recorded (**9.5**). Although it has no provenance, it is likely that it was knapped at Hierakonpolis, where other figurines of this quality were produced for the elite cemetery HK6. The type and colour of the flint match those of other figurines from the site, and the quality of the craftsmanship is also comparable. If this origin is correct, it is likely that the figurine was either from one of the columned halls, or from the surface of the cemetery, as it appears that figurines in flint were never deposited within the burials. It is the only known depiction of the reptile with its mouth open. Given that most representations, as seen above, were in top view, this is not surprising, as a profile view is necessary to see the reptile with its jaw open.

The last artefact that may be related to the crocodile is fragmentary and modelled in clay (**11.9**). The identification with the crocodile is however uncertain. Two parallel longitudinal depressions were made on the top of the

[44] Contacts with the Manchester Museum proved fruitless, as the fragments were not found in the collection; C. Price, pers. comm.

object, as if to receive liquid libations. Ciałowicz (2012, 234–5, fig. 37) mentioned a figurine of a pig (?) with similar grooves on the back that was found on the central kom at Tell el-Farkha, but there is not published information about the archaeological context or phase of habitation.

3.4 Frequency and temporal evolution of the production of crocodile-related material

The discussion above describes the 43 objects shaped as crocodiles, or with depictions of crocodiles on them. Of these, 90.7% can be attributed to a phase of the Naqada period (Figure 20). None of the artefacts date to the Badarian period, so that incorporation of the reptile into the decorative corpus during the Naqada period seems not to have drawn on an earlier tradition. C-ware vessels belong by definition to Naqada IB–IIA; the six dated examples with crocodiles are of Naqada IB–C (see 3.3.1). For the purpose of this table (Figure 20), the five "magical jars" **2.57**, **2.58**, **2.62**, **2.65**, **2.66**) and two sherds probably from similar vessels (**2.84**, **2.85**) are broadly attributed to Naqada IID–IIIA (See above and note 42). The fragment of the upper part of a D-ware jar from Armant (**2.92**) is dated here to Naqada IIC–IID, because it does not fit the decorative theme of the "magical jars". It is likely that the flint figurine (**9.5**) is of Naqada IIB, by comparison with material excavated in the elite cemetery HK6 at Hierakonpolis. The rhomboidal palette (**4.20**), probably dates to Naqada IB–IIB: according to Ciałowicz (1991, 25), this palette type is more likely to date to Naqada I–II. If these datings are correct, the proportion of dated material would be slightly higher (93%). It is not possible to attribute the remaining three objects to a specific Naqada phase. The authenticity of the breccia mace-head (**4.22**), or of its incised crocodile, is not certain; there is no parallel for the crocodile-shaped palette (**8.9**), but it is likely to be earlier than Naqada III; and the strange clay object (**11.9**) has also no known parallel. It is remarkable that such a high proportion of objects is well dated, in contrast with the material culture related to the hippopotamus discussed above.

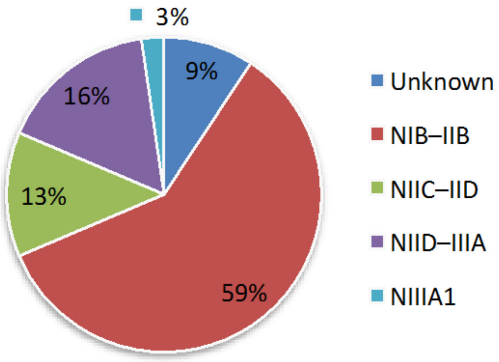


Figure 20. Chronological distribution of all crocodile-related material (n=43).

Examination of the dated material (Figure 21) shows that the majority dates to Naqada IB–IIA (60%). Production started during Naqada IB (16%) and peaked during Naqada IC (29%), a pattern similar to that observed for the hippopotamus, although this peak is less pronounced. Numbers reduced during Naqada IIA (15%), becoming rare during Naqada IIB (5%). However, crocodile imagery was revived in the later periods, unlike that of the hippopotamus. The relative importance of crocodile depictions during Naqada IIC–IIIA is affected by the so-called "magical jars", which form a unique category of objects. Because one of these is dated with confidence to Naqada IIIA (**2.50**), the other similar jars, in particular those with rolled rims and no handles, as well as the association of snakes and scorpions, I date them here broadly to Naqada IID–IIIA. Crocodile depictions increased a little during Naqada IIC (9%), and more so during Naqada IID (14%), with a small decrease during Naqada IIIA (12%).

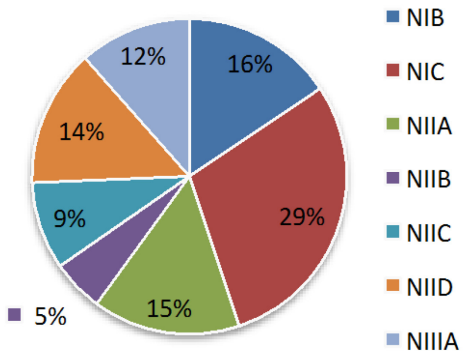


Figure 21. Detailed chronological distribution of the dated crocodile-related material (n=39).

During the end of the predynastic period, crocodile rarely figured in the corpus of decorated objects, such as carved ivory knife handles. Dreyer et al. (1998a) suggested that a crocodile was incised on a much-damaged area of a

handle found in Tomb U-503 at Abydos (**4.27**). However, the preserved part of decoration, seen by the archaeologists as a possible crocodile tail, is too small to be sure. There are only two other late predynastic examples of crocodiles. One is on a greywacke palette fragment decorated in raised relief (Berlin 23301; Ciałowicz 1991, 52–3, no. 12, fig. 21b, with references). The crocodile, seen in side view with its body cross-hatched, is placed next to two giraffes facing a palm-tree (Figure 22). The motifs on the palette have been paralleled with those on a cylinder seal found at Helwan (tomb 160.H.3; Saad 1947, 165–6, fig. 14), where a crocodile is also depicted behind two giraffes facing a palm-tree; this cylinder seal is dated by Köhler (1999) to Naqada IIIA2–B.

One flint figurine shaped as a crocodile was found at north Abydos within the settlement below the temenos of Osiris (Petrie 1902a, 12, pl. XXVI, no. 294). The settlement has predynastic origins (Petrie 1902a, 9), and the figurine may well date to Naqada IIA–B, the attested period of production of flint animal figurines at HK6. The inferior craftsmanship of the Abydos figurine may simply be because flint knappers at Abydos were not as experienced or accomplished as those at Hierakonpolis. However, it is possible that the Abydos figurine was made later than the Hierakonpolis ones. The settlement area had been extensively disturbed by the Petrie excavated there, so that the archaeological context cannot offer much information about precise dating (Petrie 1902a, 10).

Figure 22. Berlin palette fragment; after Asselberghs (1961), pl. LXXXVIII–LXXXIX, fig. 155–6.

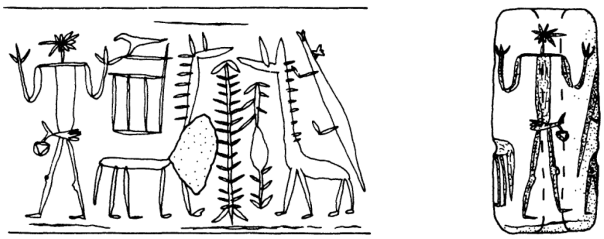


Figure 23. Helwan cylinder seal (Köhler 1999, fig. 1).

Crocodile-related artefacts are not very numerous among material from Early Dynastic temple deposits. According to Bussmann (2010a), crocodile figurines were found at five sites. Two stone figurines that come from the Main Deposit at Hierakonpolis are the only ones of that animal not made in faience: one is in limestone (Cambridge, Museum of Archaeology and Anthropology, Z 15942; Bussmann 2010a, 266, H5025), the other one in greywacke (Liverpool, Garstang Museum, E 6200; Bussmann 2010a, 275, H6084; 2010b, 163, Abb. 5.538). Another crocodile figurine was found at the Kom of Hierakonpolis, in Room J2 (excavation square 15N8W) by Fairservis (1986, 20, fig. 18, no. 69, field registry, 7). Four figurines were found at Abydos; three came from room M69 (Cairo Museum, JE 36123, Metropolitan Museum, MMA 03.4.8, and Brussels, Musées royaux d'art et d'histoire, E 510; Bussmann 2010a, 305, A3135–37; 2010b, 230, Abb. 5.811–5.813) and the provenance of the fourth figurine is not known (Bussmann 2010a, 327, A.16). Three complete figurines came from Elephantine, with twelve additional fragments from the same site (Kopp 2006, 142, cat. 485–6, pl. 30; Bussmann 2010a, 228). In the Delta, a large faience figurine was excavated at Tell Ibrahim Awad (van Haarlem 1995, 33; Bussmann 2010a) and two further figurines in the same material at Tell el-Farkha (western and central koms; Ciałowicz 2012, 206, 234). A greywacke spoon with crocodile-handle was found at the same site (western kom; Ciałowicz 2012, 241, fig. 54). In view of the large quantity of material recovered from these temple deposits, it is clear that the crocodile was rare. It is less common than the hippopotamus, except at Elephantine.

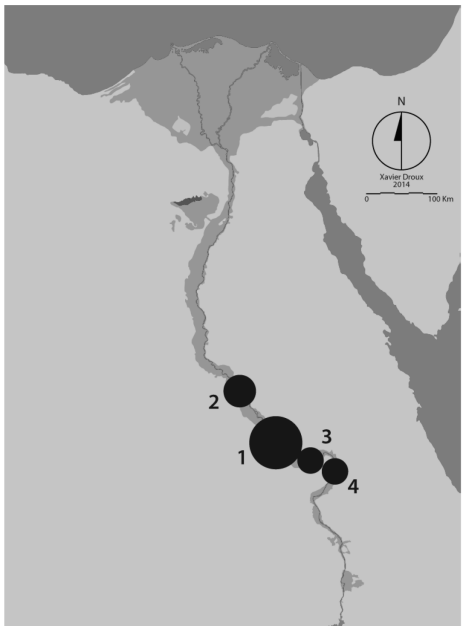
Three Early Dynastic seal impressions show crocodiles. They were found at Tarkhan, tomb 414 (reign of Narmer (?); Petrie et al. 1913, 22, pl. II, no. 4; Kaplony 1963, pl. 8, Abb. 18), Saqqara (reign of Aha; Kaplony 1963, pl. 42, Abb.

145), and Abydos (reign of Djet; Petrie 1900, pl. 32, no. 40). Their reading is uncertain, or controversial in the case of the seal impression from Tarkhan (Regulski 2010, 130), which may refer to a usurper king Crocodile who perhaps ruled in the Fayum, around the time of Irihor or Ka. This interpretation is supported by the discovery at Tarkhan of two stone cylindrical vessels bearing a royal serekh showing the crocodile standing over a spiral (Petrie et al. 1913, 9, 28, pl. XXXI, 66; Petrie 1914b, 11, pl. IX, 3; Dreyer 1992).

During the Old Kingdom, crocodiles often appear in tomb scenes, lurking in the waters below the barks on which the deceased is represented. They are often shown on the baseline, within the band of water (e.g. Behrmann 1989, Dok. 76, 81, 92a), and some are bitten by hippopotami (e.g. Behrmann 1989, Dok. 78, 89a, 90b, c). Sometimes, the crocodile is representing behind a female hippopotamus giving birth to an offspring (see §2.5). Occasional crocodiles are shown eating fish (e.g. Behrmann 1989, Dok. 90e, 96). One scene depicts the dramatic attack of a crocodile on a man, who has been bitten at the foot and dragged under water, while men standing on a boat try to rescue him (Behrmann 1989, Dok. 100c).

3.5 Geographical distribution of crocodile-related material and rock art

Over 58% of the crocodile-related material can be attributed with certainty to an archaeological site (25 out of 43 objects), of which two have no date so that they do not figure on the maps (incised palette **4.20** and clay object **11.9**). It is possible that two additional objects come from Hierakonpolis (flint figurine **9.5** and clay object **11.9**). Map 5 shows the geographical distribution of objects depicting crocodiles that are dated to the earlier predynastic (pre-Naqada IIC), and Map 6 that of later predynastic material. Pendant **7.78** from Hammamiya is the only object that crosses over the Naqada IIB–C divide, so that it appears on both maps.



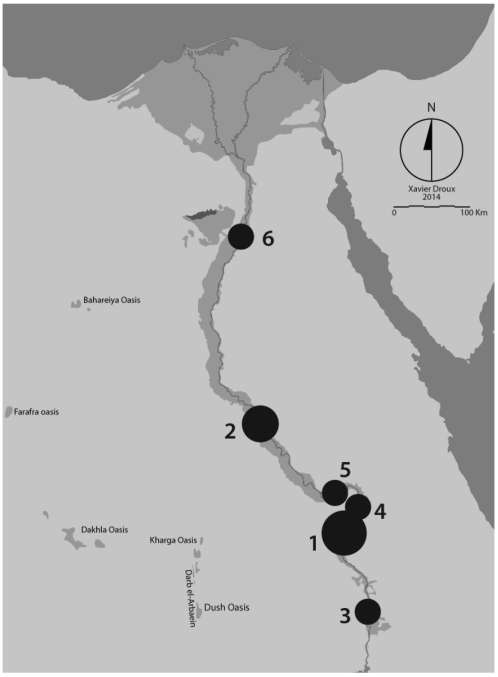
1. Abydos region (8 objects)
2. Badari region (3 objects)
3. Abadiya region (2 objects)
4. Naqada region (2 objects)

Map 5 Geographical distribution of predynastic crocodile-related artefacts, before Naqada IIC (n=15).

Of the 24 objects that date to Naqada IB–IIB, 15 have a known provenance (60%). This is the case for exactly half of the C-ware vessels, all of which were found within a small stretch of the Nile Valley. The majority were excavated at Abydos (**1.5**, **1.14**, **1.19**, **1.57**, **1.58**) and the nearby region (**1.46**, **1.48**). Two vessels came from Matmar (**1.8**), a little to the north, and Abadiya (**1.31**) further south. The impression that the Abydos region was the main centre of the production of crocodile-related material is due entirely to these C-ware vessels and to the painted ceramic box from el-Amra (**3.1**), which does not belong to the C-ware class despite its Naqada IC date. Since the Abydos region produced only 38% of all C-ware vessels (see spreadsheet on CD attached to the thesis and §1.3.2), it is striking that 78% of those with crocodile depictions come from there. This distribution is comparable with the exceptionally high proportion of hippopotamus depictions on C-ware from the area (see §2.6).

Other objects showing crocodiles that are attributed to the early Predynastic are concentrated in the same overall stretch of the Nile Valley, but their range may have extended further south to Hierakonpolis (see above). To the north, the region of Badari (but not Badari itself) produced two other objects: a bowl with figurines on the rim (**5.1**), and a small calcite pendant

(**7.78**).[45] From Abadiya comes one of only two clay figurines shaped as the reptile, of which only a tail fragment is preserved. Finally, two incised objects, a black-topped beaker (**4.9**) and a palette (**4.21**), come from Naqada.



1. Gebelein/Armant (3 objects)
2. Badari (2 objects)
3. Gebel Silsileh (1 object)
4. Naqada region (1 object)
5. Abadiya region (1 object)
6. Abusir el-Meleq region (1 object)

Map 6 Geographical distribution of predynastic crocodile-related artefacts, Naqada IIC and later (n=9).

Of the 14 crocodile-related objects that date to Naqada IIC–IIIA, nine have a known provenance (64%; see Map 6). They are distributed over a larger area than those of the preceding periods, paralleling the expansion of the Naqada culture. Apart from a stone pendant (**7.78**, See note 45) and fragments of a clay figurine (**7.77**), which were found respectively at Hammamiya and Badari, D-ware vessels are the only provenanced objects attributed to that period. The vessels do not concentrate at any particular site, although Armant appears to stand out: three D-ware sherds were excavated there, but the two from the settlement area (**2.84**–**2.85**) may belong to the same vessel. Four other sites have produced one D-ware vessel each: Gebel Silsileh (**2.40**), Naqada (**2.02**), Abadiya (**2.50**), and Abusir el-Meleq (**2.44**). These vessels are very different from one another. The first, excavated at Gebel Silsileh, is the only one of its kind, with an unusual shape and decoration associating a boat of peculiar appearance, fighting

[45] This pendant dates to Naqada IIB–IIC, and is included on both maps. It is the only artefact showing a crocodile whose dating straddles the "early predynastic" (Naqada IB–IIB) and "later predynastic" (Naqada IIC–IIIA).

antelopes, and fish with the crocodile. Had this vessel appeared on the antiquities market without a secure provenance, it would almost certainly have been considered a fake. The vessel from Naqada (**2.02**) is one of only two examples of decorated open-form vessels in the corpus, and is the only piece of D-ware on which the crocodiles are represented harpooned. The association with snakes may suggest a slightly later date, perhaps contemporaneous with the "magical jars" (Naqada IID–IIIA1; see above). The vessel from Abadiya (**2.50**) is the only "magical jar" with crocodiles that has a known provenance. It resembles so closely the "magical jar" **2.57** that they were probably both painted by the same person or originated from the same workshop, although it is unknown whether they were intended for the same tomb or the same cemetery. Finally, the vessel from Abusir el-Meleq (**2.44**) is the only Wavy-handled jar with a painted crocodile, as well as being one of the few examples with a crocodile represented in profile, rather than in top view.

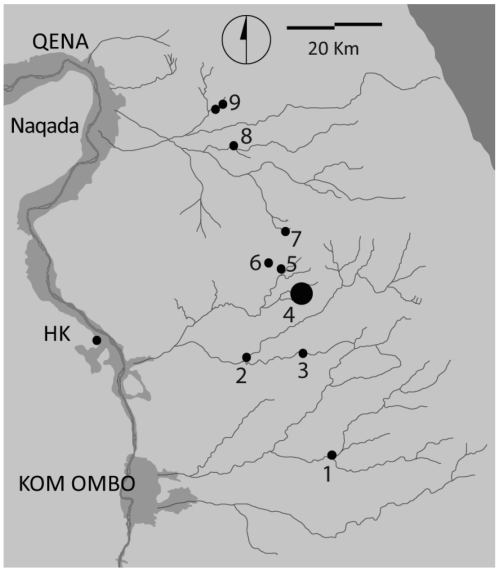
In conclusion, the seven C-ware vessels from Abydos form the only concentration of material related to the crocodile at any site during Naqada IB–IIB. The number of provenanced objects of Naqada IIC–IIIA is smaller and they come from a larger area and number of sites, so that no concentration can be observed for the period. Perhaps more striking is the complete absence of crocodile-related material from Abydos, in contrast with the distribution during Naqada IB–IIB.

It is noteworthy that both the regions of the Fayum and of Armant are represented, because those areas became important places for the cult of the crocodile-god Sobek, from at least the Old Kingdom at Shedet, Medinet el-Fayum (Brovarski 1984, 996), and later at Sumenu, er-Rizekat, south of Armant (Helck 1986). There is, however, a wide gap between the late predynastic and the earliest attestations at Sumenu, which date to the New Kingdom (Leitz 2002, 263), although this could be because earlier evidence there did not survive.

Although crocodiles are much less frequent than hippopotami in predynastic material culture, more rock art depictions of the former are known than of the latter. Winkler (1938) recorded five sites with crocodile depictions. This number increased to 18 after exploration further south (Judd 2009, 16, not

including some sites in Winkler), and Lankester (2013, 30) mentioned 17 sites with crocodile petroglyphs. I list 21 rock art locations, of which 12 have been described to some extent or illustrated (Map 7; see Volume II for general maps with names of wadis).[46] There is some uncertainty regarding the identification of the animals depicted at some sites, with lizards often proposed as an alternative (see Judd 2009, 16; Lankester 2013, 30); these are included here and the identification issues discussed.

The southernmost petroglyph of a crocodile in the Eastern Desert is in Wadi Muelih (no. 1; site MU 3), a tributary to Wadi Shait. Although it was not illustrated, Judd (2009, 16) mentioned that the animal is speared. The majority of sites, if not of individual images, were found in the central wadi system. In Wadi Barramiya, at site BAR 9, a crocodile with an exaggeratedly long tail is lassoed or harpooned (no. 3; Rohl 2000, 37–42, ill. 8; Lankester 2013, 30, fig. 3.3). The crocodile is seen in top view, as is usual in the early predynastic, but its head appears to be shown in profile, with the mouth open, not unlike flint figurine **9.5**. The rope is held by a man wearing two feathers on his head.



1. Wadi Muelih
2. Wadi Mia
3. Wadi Barramiya
4. Wadi Umm Salam & Wadi Abu Mu Awad
5. Wadi Abu Iqaydi
6. Wadi Dahabiya
7. Wadi Abu Wasil
8. Wadi el-Qash
9. Wadi el-Atwani

Map 7 Distribution of crocodile depictions in rock art of the Eastern Desert. After Judd (2009, map 4) and Winkler (1938, general map).

[46] Sites for which no description or illustration is available are: Wadi Mia (no. 2; Morrow et al. 2010, 175–6, site MIY 1); Wadi Barramiya, site near BAR 9 (Judd 2009, map 4); Wadi Umm Salam (no. 4; Morrow et al. 2010, 57–9, site SAL 11, 63–8, site SAL 14; Lankester 2013, 30, sites SAL 1, SAL 15); Wadi Abu Wasil (no. 7; Winkler 1938, 8, sites RME 26 and 27).

At least nine sites are located in Wadi Umm Salam (no. 4). At site SAL 7, a single crocodile is depicted on a heavily used rock; shown in top view, its shape is very schematic and fully pecked (Morrow et al. 2010, 51–3, ill. M, right edge of photograph, near top; Rohl 2000, site MAM 1, 60–3, ill. 9). At site SAL 12, a crocodile in top view has a detailed silhouette and a body decorated with pecked marks. It may be attacking a lion or possibly a dog (?) facing it, although it is not certain that both figures were pecked at the same time (Morrow et al. 2010, 60–1, Ill. D; Lankester 2013, 30–1, fig. 3.4). One of the figures may have been deliberately added later than the other to create this effect, although it is not possible to say which was pecked first. On a rock surface nearby, at site SAL 13, is a very schematic crocodile shown in top view; a man with feathers on his head stands nearby, but he does not appear to be hunting the animal (Morrow et al. 2010, 62, Ill. D). In the same wadi are two further petroglyphs of crocodiles shown in top view, with schematic silhouettes (sites SAL 20 and SAL 41; Morrow et al. 2010, 73, Ill. E and 97–8, Ill. F). Lankester (2013, 30) doubts their identification, but it is almost certain that they are crocodiles. The first of them is not much different from the crocodile at SAL 7, and the second has a curved tail, which is not unusual in the predynastic iconography of the crocodile (e.g. **1.22**, **2.66**); this animal is certainly not a scorpion (Morrow & Morrow 2002, 91; possible identification abandoned in the revised edition`: Morrow et al. 2010, 97). There are three crocodile petroglyphs in nearby wadis north of Wadi Umm Salam. Unlike other examples, they are shown in profile. In Wadi Abu Mu Awad, the silhouette of a crocodile is incised in a relatively realistic style; a line separating the head from the body and an oval indicating the eye are present (no. 4; Morrow et al. 2010, 114–7, Ill. B, site MUA 10). A fully pecked ostrich to the right is almost certainly earlier than the crocodile. An incised crocodile in Wadi Iqaydi is still more realistic than the previous example (no. 5; Morrow et al. 2010, site IQA4, 150, Ill. E); Lankester (2013, 30) thinks that it is a “late and rare” example, whereas Rothe et al. (2008, 97, inscription MW01) consider it to be pharaonic in date, perhaps a reference to Sobek.[47] The petroglyph in Wadi Dahabiya is unique in the Eastern Desert in showing a crocodile biting a man (no.

[47] The coordinates for site IQA 4 and Inscr. MW01 are different, raising some uncertainty as to its exact location.

6; Morrow et al. 2010, site DAH 2, 162, Ill. D; Lankester 2013, 30–1, fig. 3.5). The style and technique (pecking) of execution suggest that this group is older than the previous two.

Three sites with crocodiles are located in the northern wadi system. At Wadi el-Qash, two crocodiles in top view are placed next to each other in the top-left part of a complex tableau (no. 8; Winkler 1938, 6, pl. XIV.2, site RME 18; Morrow & Morrow 2002, 226–7; Hendrickx et al. 2009b). The body of the largest crocodile is decorated with parallel wavy lines and its head and pointed muzzle are fully pecked. Only the outline of the second crocodile is pecked. This latter figure and a man harpooning one of the hippopotami are partly overlaid, although it is not possible to determine the order in which the figures were made. Neither crocodile seems to be the object of the hunt.

Two sites in Wadi Atwani (no. 9) together contain no fewer than thirty depictions of crocodiles, all shown in top view (Lankester 2013, 30, tab. 3.3). At site ATW 6, most of the crocodiles are rendered by very simple and schematic shapes, and at least one appears to be shown with a net immediately nearby. Two crocodiles are more detailed and have splayed toes (Winkler 1938, 6, pl. XXVI, 2, XXVII, 1, site RME 17; Morrow et al. 2010, 211–3; Lankester 2013, 31, fig. 3.6). Those at site ATW 10 are also rendered very schematically, although a few have wider bodies; one animal with three pairs of legs depicted is unlikely to be a crocodile (Winkler 1938, 5, pl. XXVI, 1, site RME 14; Rohl 2000, 145–6, fig. 3, site AB 2; Lankester 2013, 31, fig. 3.7) .

Closer to the edges of the Nile floodplain, rock art images of crocodiles appear to be rare outside the Qena bend of the Nile, and have only been noted in three regions. Winkler (1938, 8–9, sites RME 29, 30, 31, 34) mentioned but did not illustrate four sites. More recently, two incised crocodiles shown in profile have been found at Gebel Tjauti (Darnell & Darnell 2002, 23–4, pl. 14, 15, Inscription 2). A large crocodile was incised prior to the addition of a boat above it. The shape of its head, with an angular muzzle, can be compared with the crocodiles painted on the magical D-ware jar **2.65**, but with a thinner, more elongated body. The second crocodile, placed behind the boat, is decorated with cross-hatching. A few kilometres away, a site at Arqub el-Baghlah contains the

incised depiction of a crocodile in profile; body details, such as the scales of the hide and the teeth are indicated (Darnell 2009, 93–4, fig. 16). Further south at El-Kab, Huyge (2002, Tab. 1) noted but did not illustrate a crocodile petroglyph, which is very schematic (Friedman, pers. comm.). Further south, Soremyr (2009, 123–6) published crocodiles he found in Wadi Faras to the north of Aswan. At site P400A, one crocodile shown in top view cannot be dated (Storemyr 2009, figs. 5b, 6) while two crocodiles, also in top view, at site P400H may be older than the predynastic period (Storemyr 2009, 137; both sites are within Winkler 1939, site 53). Further crocodiles have been found at site P223–4; they are shown in top view and have clawed feet (Storemyr 2009, 130–1, fig. 16).

Dating the crocodile petroglyphs is difficult. If the choice between top view and profile is meaningful, most depictions have been made before Naqada IIC, because all the examples in material culture during that period are in top view. In contrast, the images in Wadi Mu Awad, Wadi Iqaydi, and Wadi Dahabiya, as well as at Gebel Tjauti may not date before Naqada II(C)D–IIIA1, because the two examples of profile depictions in material culture are on D-ware vessels **2.44** from Abusir el-Meleq and **2.65**, probably from Aulad Yahya. The crocodiles at Gebel Tjauti may even be later: Darnell (2002, 23) suggested that they are contemporary with the rest of Inscription 2, which he purposes may date to Narmer (Darnell & Darnell 2002, 19). The crocodile image at el-Kab is dated by Huyge (2002, Tab. 1) to Naqada III–early dynastic (Horizon III).

The concentration of sites with crocodiles in Wadi Umm-Salam is not accidental: they represent 43% of all sites with crocodiles in the Eastern Desert (9 sites out of 21), while the wadi only contains 20% of rock art sites (46 out of 222; Lankester 2012, 68, tab. 5.1). A similar concentration was noted for the hippopotamus, but the reason for such an abundance of Nile animals in that specific wadi is unknown.

The presence of this aquatic species in desert locations far from the Nile Valley is comparable with hippopotamus depictions in the same contexts. As mentioned above (see §2.6), rock drawings were not meant to illustrate hunting taking place in the wadis. They were more likely to symbolise the power of the elites that were hunting in the wadis, and they may have been depicted in this specific context to represent the strength and power of the crocodile that the hunters were hoping to benefit from in order to be successful in their endeavour.

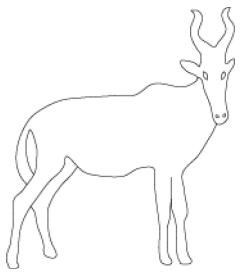
4 Antelope species

Antelope species were often represented among the predynastic material culture in Egypt, on a variety of media, but mostly in two-dimensional art, such as painted and incised vessels. Faunal remains of antelopes were also encountered frequently among zooarchaeological assemblages of settlements. However, all species were not treated equally, and a close examination of depictions as well as bones reveals that where gazelles were the most commonly eaten and used in life, ibex and addax were the most commonly depicted species, thus emphasising the rift between use in material culture and use in life.

It is impossible to establish where these animals were observed, hunted, or captured. Whether the Egyptians saw some species frequently or not, far away from or close to the Nile Valley, in the eastern or western desert, seems not to have had a decisive impact on the choice to incorporate images of them in their representations and to use some of them for specific purposes. I discuss these purposes and implications of the choice of antelopes after the following description of the basic characteristics of each species, which focuses on their physical traits, ecology, and behaviour. The characteristics mentioned are limited to elements relevant for the discussion in this chapter: average size and weight, shape of horns (both frontal and side appearance), type of tail, and habitat and adaptability to desert environment. These descriptions are based primarily on Estes (1991), Osborn & Helmy (1980), Osborn & Osbornová (1998), Strandberg (2009), and the Red list of endangered species of the IUCN.

4.1 Zoological background

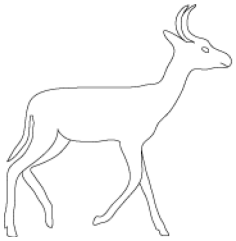
4.1.1 Hartebeest (Alcelaphus buselaphus)



The hartebeest sub-species which was present in Egypt, the *A. b*. *buselaphus*, sometimes commonly known as bubal, became extinct in 1923 (Estes 1991, 139) or 1925 (Heckel 2009, 143). Like other subspecies, the bubal was large and high shouldered (4ft, or above 1.20m, according to Day 1981). It was therefore probably closest to the *A. b. major*, and weighed around 200 kg. The horns,

present on both the male and the female, have a distinctive shape. Seen from the front, they are lyre-shaped, diverging at the base, then converging and diverging again. Seen from the side, they follow the line of the muzzle at the base before curving forward and backward again closer to the tip. They are usually shorter than the length of the head. The spinous first thoracic vertebrae create a pronounced hump on the back. The length of the tail is variable but usually long, reaching the knee, ending in a tuft of hair. The hartebeest is a typical plains antelope and inhabits open grassland and wooded savannah, with a preference for areas at the edge of both, rarely venturing far in the open plain. It grazes on leafy perennial grasses and can survive for a few days without water, but is not adapted to a desert environment. In Egypt, its previous range encompassed the Nile Valley and Delta, as well as the western desert oases and the Fayum (Manlius 2009, 115, fig. 1.10), although Osborn & Helmy (1980, 485, fig. 152) propose a more limited range in the western desert.

4.1.2 Dibatag (Ammodorcas clarkei)

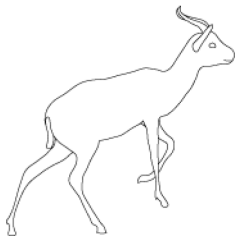


Although this antelope is not a member of the Gazella genus, it is often refers to as the "Clarke's gazelle". This species, considered as "vulnerable to extinction", is now only found in two small areas of Somalia and adjacent eastern Ethiopia (Heckel et al. 2008a). The dibatag has long legs and a long neck, although shorter than the gerenuk (see below). According to Bauer & Sigsgaard (2008), its shoulder height is 80–85cm, for a comparatively light weight of 29–32 kg. Only the males have horns, which have a series of rings in the lower half. Sickle-like, they extend backward at the base, but then point frontward. Seen from the front, they diverge evenly. The tail is long and thin, with a tuft of hair at the end. The dibatag lives in sandy and grassy areas. It feeds both on green grass and on tree leaves and berries. For the latter food, it can stand erect on its hind legs. This antelope is well adapted to a semi-desert environment, as the moisture contained in its food is the only liquid it needs. Hence, climate and landscape would not have prevented this animal from being present in Egypt during the predynastic period. However, evidence for it is scarce; no faunal remains of a dibatag have been found.

4.1.3 *Gazella* species

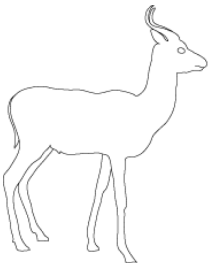
Four *Gazella* sp. are described here. As members of the same genus, they share similar characteristics (Estes 1991, 64), such as adaptation to true arid environments and the possibility to survive for long periods without access to water. They have a nomadic lifestyle, enabling them to move in search of food, although they can be more sedentary where a reliable supply is readily available. Both males and females have horns; they are thinner and shorter for the females, but have a common general shape. The *Gazella rufifrons* is not included here; as stated by Osborn & Osbornová (1998, 178), evidence is too scarce to consider that it was extant in Egypt. There are just a couple of doubtful representations of this gazelle.

4.1.3.1 Dorcas gazelle (*Gazella dorcas*)



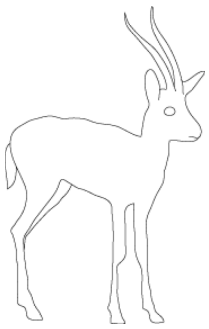
The number of dorcas gazelles is said to have diminished drastically throughout its modern range, which encompasses the whole Sahelo-Saharan area, from the Atlantic coast to the Horn of Africa. This led the IUCN to list the species as “vulnerable” (IUCN SSC Antelope Specialist Group 2008a). The legs are long, giving the animal a shoulder-height of about 55–65 cm for a comparatively light weight of 15 kg (Osborn & Helmy 1980, 502; Osborn & Osbornová 1998, 176). Seen from the side, the horns grow upward at the base, before curving strongly backward, with the tips curving frontward (Osborn & Helmy 1980, 510, fig. 161). In frontal view, they are semi lyre-shaped, diverging from each other with the tips curving inward. The tail is rather short. Dorcas gazelles live in pairs or in small herds and have adapted to survive in a desert environment, taking advantage of the moisture contained in green leaves. However, the dorcas needs access to open water resources. They live preferably in wadis or in proximity to areas with trees, as shade from cliffs or trees is essential to their survival. In the wild, they often associate with dama gazelles.

4.1.3.2 Dama gazelle (*Gazella dama*)



The dama gazelle is sometimes referred to as the red-necked gazelle, or nanger dama. It is listed as a "critically endangered" species, only surviving in small sub-Saharan areas and southern Morocco (Newby et al. 2008). It is a large antelope, with a shoulder-height of 90–120 cm and a weight of 40–75 kg for males (♀ 35–40 kg; Beudels et al. 2009). Seen from the side, the horns grow first up and back, then curve upward and finally frontward. Seen from the front, they are lyre-shaped, diverging strongly from each other, although the tips curve inward. The tail is short and thin. This gazelle has adapted to various habitats and can survive in a desert environment. They used to have a migratory behaviour, aggregating in very large herds. This no longer occurs because of the current survival condition of the species. In the wild, dama gazelle herds are often associated with dorcas gazelles. In Egypt, they probably came closer to the Nile during the driest part of the year.

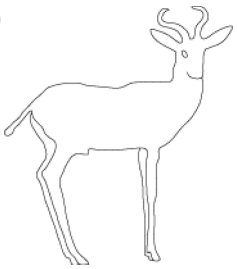
4.1.3.3 White gazelle (*Gazella leptoceros*)



The White gazelle, also known commonly as the rhim, sand, or slender-horned gazelle, is listed as "endangered" on the IUCN red-list. It is mostly found in Sahara areas in Algeria and Libya, and in other, smaller, areas in Mali, Niger, Chad, Sudan and Egypt (Mallon et al. 2008). The white gazelle is just a little larger than the dorcas gazelle, reaching an average 65–75 cm shoulder-height (Osborn & Osbornová 1998, 177) for an equivalent weight of about 15 kg (Osborn & Helmy 1980, 487). In lateral view, the horns have a fine undulation, mostly curving backward, but with the tips recurving frontward. Seen from the front, they diverge from each other, more strongly so in the upper part, with the tips lightly curving inward. The horns are long at 19–36 cm (Osborn & Helmy 1980, 492–3, 498, table 57). The tail is short. This gazelle is adapted to the driest climate, and its preferred habitat is in close proximity to sand dunes or hard stony desert surfaces. If acacia trees cannot be found for shade, the white gazelle is known to "scrape a pit in the sand mound under a shrub to get into the

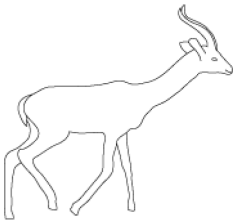
small amount of shade that is cast" (Osborn & Helmy 1980, 501). Because of its preference for remote habitats, it is not likely that this gazelle came into regular contact with predynastic Egyptians.

4.1.3.4 Soemmerring's Gazelle (*Gazella sommerringii*)



This gazelle species is listed as "vulnerable" on the IUCN red-list. Its population has become drastically reduced, and it is now extinct in Sudan. It is only found in eastern Africa: in Djibouti, Somalia, Eritrea, and Ethiopia (Heckel et al. 2008b). The Soemmerring's gazelle is a large antelope, but with an average shoulder-height of 85–92 cm (Osborn & Osbornová 1998, 179) it is smaller than the dama gazelle, and weights slightly less (35–45 kgs). Its horns are rather long; in lateral view, they first curve backward and then grow horizontally until the tip, which curves up. From the front, they are lyre-shaped, diverging strongly from each other first, before curving inward. The tail is short. This gazelle is not well adapted to a desert environment. Its preferred habitat is open bush savannah and thinly wooded grass steppe.

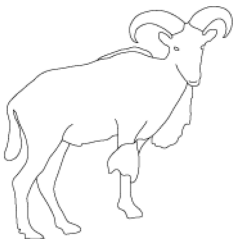
4.1.4 Gerenuk (Litocranius walleri)



Commonly known as the Giraffe-gazelle, this species does not belong to the gazella genus. Its population is better preserved than that of the gazelles, although it is classified as "near threatened". It is found in most of Somalia, eastern Ethiopia, large parts of Kenya, and north-east Tanzania (IUCN SSC Antelope Specialist Group 2008c). It is a large antelope, reaching 90–105 cm at the shoulder, with a particularly long neck. It is heavier than the gazelles, with a weight of 45 kg on average (♀ 31 kg). The tail almost reaches the hock. Only the males have horns, which measure 32–44 cm; in lateral view, they are S-shaped, with the tip pointing forward. Seen from the front, they first diverge, before turning inward (Estes 1991, 84–5; Osborn & Osbornová 1998, 173–4). The gerenuk is strictly a browser, and has the ability to stand on its hind legs to reach leaves, shoots, and flowers too high for other antelopes to eat. Its preferred habitat is dry flat land with spaced thornbush. Its population is said to increase with aridity and distance from open

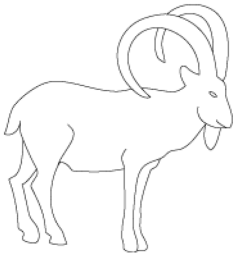
water resources, because competition with other grazers that are more water-dependent is lower there (Estes 1991, 85).

4.1.5 Barbary sheep (*Ammotragus Lervia*)



The Barbary sheep, or Aoudad as it is sometimes referred to, is classified as an "endangered" species. It is present at various locations across North Africa, including large areas in Morocco, Western Sahara, and Algeria. It is also still present in Egypt, Libya, Chad, Niger, Mali, and Mauritania (Cassinello et al. 2008). It is a large antelope, with a shoulder height of 90–112 cm (♀ 75–94) for a weight of 100–145 kg (♀ 30–63 kg; Grzimek & Parker 1990, 514). Both male and female have a distinctive long mane on the chest, growing also on the front legs. The mane does not grow on the chin, which is therefore "beardless", unlike that of the ibex (see below). Male manes are longer, growing on the neck and front legs. Both sexes grow horns, although they are much larger for the males. The horns grow first outward and backward, then curve downward and inward. They look almost like crescents when seen either from the front or the side; in frontal view, they appear as crescents on either side of the head. The Barbary sheep is well adapted to an arid environment, as it does not need open water (though it will drink if it is available), taking full advantage of the moisture contained in the desert plants it eats. It lives preferably in hills and cliffs, being an agile climber, and this habitat offers good protection against predators. In that respect, the eastern desert was a more appropriate region, but it was also found in hills and cliffs of the western Desert (Osborn & Helmy 1980, 521–5; Osborn & Osbornová 1998, 189–90).

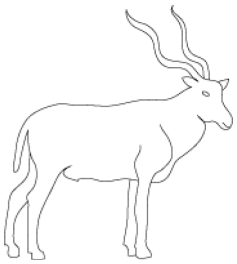
4.1.6 Ibex (Capra nubiana)



The ibex, or Nubian ibex, also sometimes referred to as the slender-horned ibex, is listed as "vulnerable". It lives in mountain ranges on both sides of the Red Sea, in Sudan, Egypt (including Sinai), Israel, Jordan, and Saudi Arabia. There are additional populations on the southern coast of Yemen and Oman (Alkon et al. 2008). There is not sufficient evidence to suggest that the ibex ever crossed the Nile; most

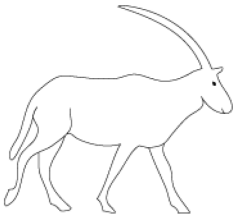
likely it only resided in the eastern Desert (Osborn & Osbornová 1998, 181; Kock 1971). Its size is similar to the smaller range of the Barbary sheep, with an average shoulder-height of 75 cm (♀ 65 cm) and an estimated weight of 50–70 kg (♀ 25–40 kg; Grzimek & Parker 1990, 512). The male ibex is recognisable by the beard growing on its chin. Both sexes have horns, although the female's are much smaller and less curved. The male horns grow upward and curve backward and downward. Seen from the side, they form an arc; in a frontal view, they diverge from each other progressively until the tip. The tail is very short. The ibex shares a similar environment with the Barbary sheep, taking advantage of its climbing ability to protect itself from predators in cliffs. However, it needs access to open water resources for its survival, and it can travel long distances in order to drink. The ibex browses flower buds and leaves, but can also eat roots which it digs out (Osborn & Helmy 1980, 515–19; Osborn & Osbornová 1998, 180–5).

4.1.7 Addax (Addax nasomaculatus)



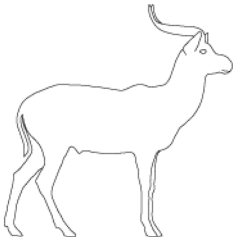
The Addax is a "critically endangered" species, with less than 300 individuals alive in the wild across its range, which is now limited to tiny areas in Tunisia, Morocco, Mauritania, and Chad, with most surviving animals in Niger (Newby & Wacher 2008). It is slightly larger than the ibex, with an average shoulder-height of 105–115 cm (♀ 95–110 cm), for a weight of 100–125 kg (♀ 60–90 kg; Grzimek & Parker 1990, 494). Both sexes have long, spiralled horns. Male horns measure 100–125 cm (♀95–110 cm) and spiral two and a half to three times (♀ one and a half to two times). In lateral view, they grow upward and backward at an angle; seen from the front, they progressively diverge from each other. The addax is a grazer that is well adapted to extreme desert conditions. It is a nomadic species by necessity, and its population is low in density, as its environment cannot support large groups. It can survive for long periods without having access to open water resources, taking advantage of the moisture contained in its food. In the driest part of the year, the addax migrates to sub-desert areas (Estes 1991, 115).

4.1.8 *Oryx* species



Three *oryx* species are known: scimitar oryx (*Oryx dammah)*, east African oryx (*Oryx beisa)*, and Arabian oryx (*Oryx leucoryx)*. Each has a different survival status, respectively "extinct in the wild" (IUCN SSC Antelope Specialist Group 2008e), "near threatened" (IUCN SSC Antelope Specialist Group 2008d), and "vulnerable" (IUCN SSC Antelope Specialist Group 2011). The east African oryx survives now mostly in Ethiopia and Kenya, while the Arabian oryx only survives in small areas in Saudi Arabia and Oman. All three species have long (respectively 80–125 cm, 65–110 cm, 48–71 cm Osborn & Osbornová 1998), straight horns. Laterally, they are slightly curved, growing upward and backward. In frontal view, they diverge slightly and progressively from each other. There is very little dimorphism between male and female, the male being slightly heavier, with thicker neck and horns (Estes 1991, 127–8). The three species are particularly well adapted to an extreme desert environment, living on hard plains, sand dunes, and rocky mountains. They can survive for long periods without water, taking advantage of the moisture contained in the food they graze. They only migrate towards areas where other grazers live during the rainy season, when competition is lower there. Although each species is different, their similar appearance and identical environments make it impossible to attribute predynastic oryx representations to a particular species. In the following pages, only the genus Oryx will be used for these antelopes.

4.1.9 Kob (Kobus kob)



The kob subspecies likely to have been extant in Egypt, the *Kobus kob* ssp *kob,* is also referred to as Buffon's kob. It is listed as "vulnerable" although its current range is still vast, extending from Senegal to the Central African Republic and DR Congo (IUCN SSC Antelope Specialist Group 2008b). The kob is smaller than the oryx, reaching 90–100 cm at the shoulder (♀ 82–92 cm), for an average weight of 94 kg (♀ 63 kg). Only the male develops horns, which measure 40–69 cm. In lateral view, they first curve strongly toward the back, being then almost horizontal, before curving

upward toward the end. Seen from the front, they are lyre-shaped, diverging strongly from each other, before curving upward and finally slightly inward. The kob depends on the close proximity of open water resources for its survival and grazes preferably on perennial grass. It is therefore found in green pastures and wooded areas, where it takes advantage of the shade (Estes 1991, 98–9; Osborn & Osbornová 1998, 170).

4.2 Faunal remains in archaeological context

Remains of antelopes have been found at all predynastic archaeological sites under consideration here. Figure 24 incorporates all the bones of antelopes that have been identified to species level.[48]

The vast majority of the bones belong to dorcas gazelles (between 604 and 616 bones, 83.7% and 85.4% of all antelope bones), which is present among all assemblages studied here.[49] Other species are only incidentally represented, and they are rare outside Hierakonpolis and Adaima. The Barbary sheep is the second most common species, but bones from that species are much less numerous than those from gazelles (75 bones). The hartebeest, although represented by only 10 bones, is found at more sites than the Barbary sheep, but the latter is found in more localities at both Hierakonpolis and Adaima. The dama gazelle has only been encountered among faunal remains at Hierakonpolis and Adaima. Finally, the ibex (not included in Figure 24) is the rarest of all antelope species in Upper Egyptian assemblages, with a single bone recovered at Hierakonpolis.

4.2.1 Faunal remains at Hierakonpolis

Hierakonpolis is the site where remains of antelopes were most common: 57.1% of these bones were recovered in the five settlement contexts treated here (Figure 8), to which the faunal remains from the elite cemetery HK6 must be added (see below). The majority of Barbary sheep and dorcas gazelles remains found in Upper Egypt come from Hierakonpolis (61.3% and 59.1% respectively), as well as nearly half of those of dama gazelles (46.7%), but only 10% of hartebeest bones. The ibex is only represented at Hierakonpolis.

Each excavated predynastic locality under considered here yielded bones from one or more antelope species. There are variations across the site; the relative prominence of each species within the localities is summarised in Figure 25. Despite these variations, the dorcas gazelle is always the best-represented species.

[48] For Mahasna, 12 bones *gazella sp* and 4 bones identified as antelope species are not included; see §4.2.2.

[49] This is not certain for Mahasna, but comparison with other sites suggests that at least some of the *gazella sp*. bones belong to dorcas gazelles.

		Desert hunting		Dorcas gazelle			Dama gazelle			Barbary sheep			Hartebeest		
		n	%[1]	n	%[2]	Distribution	n	%[2]	Distribution	n	%[2]	Distribution	n	%[2]	Distribution
Hierakonpolis	HK29	24	1.0%	15	62.50%	2.48%				3	12.50%	4.00%			
	HK29A Wall Trench	233	7.0%	144	61.80%	23.84%	3	1.29%	20.00%	18	7.73%	24.00%			
	HK29A modified silts	195	9.7%	132	67.69%	21.85%	2	1.03%	13.33%	7	3.59%	9.33%	1	0.51%	10.00%
	HK29A Floor dep.	20	7.0%	18	90.00%	2.98%									
	HK29A sands above	26	8.1%	22	84.62%	3.64%	1	3.85%	6.67%						
	HK29A all	474	8.0%	316	66.67%	52.32%	6	1.27%	40.00%	25	5.27%	33.33%	1	0.21%	10.00%
	HK11 Operation G	17	1.8%	7	41.18%	1.16%				6	35.29%	8.00%			
	HK11C, test A	5	0.6%	2	40.00%	0.33%	1	20.00%	6.67%	1	20.00%	1.33%			
	HK11C Operation A	9	1.1%	3	33.33%	0.50%				3	33.33%	4.00%			
	HK11C Operation B	22	1.2%	6	27.27%	0.99%				8	36.36%	10.67%			
	HK11C Sq. C3–4	8	0.7%	8	100.00%	1.32%									
	HK11C A+B+C3–4	39	1.0%	17	43.59%	2.81%				11	28.21%	14.67%			
Adaïma	"Zone des limons"	196	3.4%	128	65.31%	21.19%	8	4.08%	53.33%	21	10.71%	28.00%	3	1.53%	30.00%
	Ensemble 1002-1003	5	0.6%	2	40.00%	0.33%				2	40.00%	2.67%			
	Ensemble 1001+ext	21	0.8%	3	14.29%	0.50%				3	14.29%	4.00%			
	Ensemble 1004	1	0.6%							1	100.00%	1.33%			
	Ensemble 1010	1	2.2%	1	100.00%	0.17%									
	8000	3	0.7%	3	100.00%	0.50%									
	7000	6	1.0%	5	83.33%	0.83%									
	Adaima all areas	238	2.1%	144	60.50%	23.84%	8	3.36%	53.33%	27	11.34%	36.00%	3	1.26%	30.00%
Armant MA21/83		41	5.9%	35	85.37%	5.79%									
el-Abadiya 2		59	10.6%	49	83.05%	8.11%							5	8.47%	50.00%
Naqada-Khattara	KH38	4	0.9%	3	75.00%	0.50%									
	KH3C	1	1.0%										1	100.00%	10.00%
	KH3 (general)	5	0.4%	2	40.00%	0.33%									
	KH7	1	2.1%	1	100.00%	0.17%									
Mahgar Dendera 2		22	2.0%	13	59.09%	2.15%									
Mahasna	Block 3	16	NA							2	12.50%	2.67%			
	All blocks	18	0.3%							2	11.11%	2.67%			
Total		948	2.8%	604	63.71%	100.00%	15	1.58%	100.00%	75	7.91%	100.00%	10	1.05%	100.00%

Figure 24. Relative importance of remains derived from desert hunting (%[1] of whole assemblages, cf. Figure 7); relative importance of dorcas and dama gazelles, Barbary sheep, and hartebeest bones (%[2] of desert hunting remains); geographical distribution of dorcas and dama gazelles, Barbary sheep, and hartebeest bones among predynastic settlements. Remains of unspecified gazelles and antelope species from Mahasna and remains from cemetery HK6 not included.

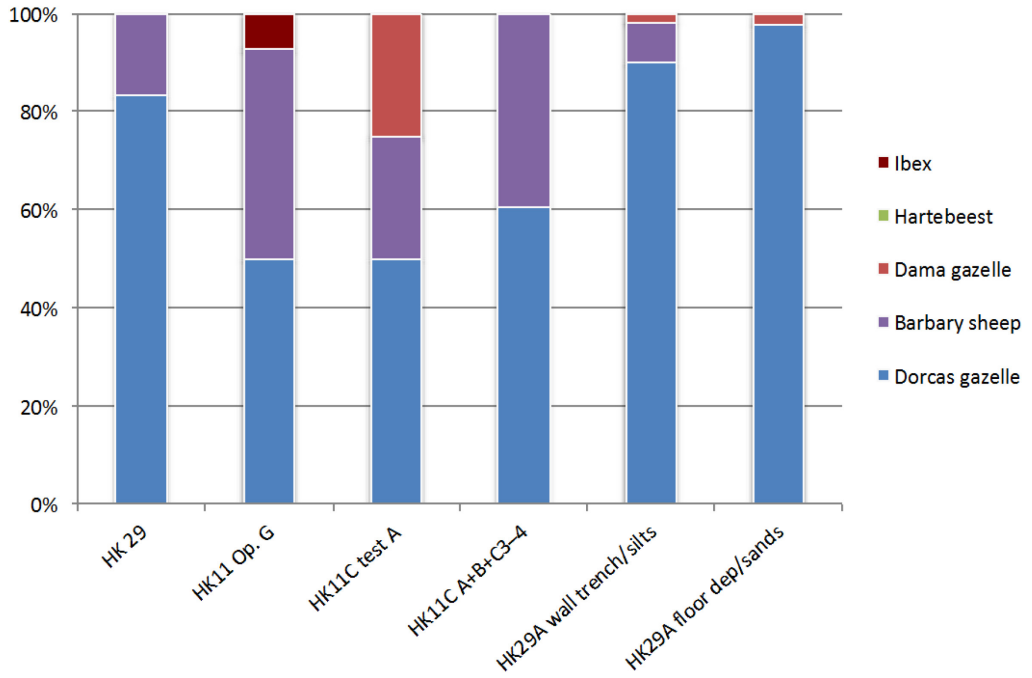


Figure 25. Relative importance of antelope species in settlement localities at Hierakonpolis.

At **HK 29**, (Naqada IIA–C), bones of both dorcas gazelles and Barbary sheep were recovered. Remains derived from desert hunting constituted only 1% of the faunal assemblage there (Figures 7 and 24), so that there are few bones of either species. The dorcas gazelle is more common (15 bones); three bones of Barbary sheep were found. Together, these two species of antelopes amount to 75% of the assemblage from desert hunting (62.5% and 12.5% respectively).

At the ceremonial centre **HK29A**, remains of four species have been identified among the assemblages derived from desert hunting, which are unusually high at this locality (7.0%–9.7%). The most common antelope is dorcas gazelle (316 bones), followed by Barbary sheep (25 bones), dama gazelle (6 bones), and hartebeest, represented by a single bone. Only for the first phase of use of the centre, Naqada II(A)B–C, is such variety attested. In the wall trench (WT) and "modified silts" (MS), dorcas gazelle represents 64.5% of desert hunting remains (61.7% WT and 67.7% MS), Barbary sheep 5.8% (7.73% WT 3.59% MS), and dama gazelle 1.2% (1.3% WT and 1.0% MS). The Hartebeest bone was found in the MS. For the second phase of use (Naqada IID–IIIA1), dorcas gazelle is the only antelope species represented (90% of the assemblage derived from desert hunting in the floor deposit), and it constitutes most of this

assemblage for the last phase (Naqada IIIB–IIIC1, 84.6%), together with one dama gazelle bone (3.9%).

At HK11, **Operation G** (Naqada IC–IIC; see Figures 9 and 10), several bones of antelopes were found. Remains of dorcas gazelles have been attributed to occupational phases II (1 bone) and III (3 bones), similar numbers to the remains of hippopotami but in reverse proportions. Three other bones of dorcas gazelles were not attributed to a specific phase. That species represents 41.2% of the assemblage derived from desert hunting (Phase II: 33.3%; Phase III: 60%), so that it is the most commonly hunted animal at the locality. The Barbary sheep is represented by six bones spread through four of the occupational phases. On average, this species represents 35.3% of the assemblage derived from desert hunting (Phases II: 66.7%; Phase III: 40%; Phases IV and VI, 100%). The bone from Phase VI is the only evidence for antelope use (or consumption) in Naqada IIC at this locality. A single ibex bone found in Trash Pit C4 represents 5.9% of the remains derived from desert hunting at HK11. This trash pit was located some distance away from Operation G and is not directly associated with it (Friedman, pers. comm.). This is the only ibex bone found on any site in Egypt except for Maadi (see §4.2.8). Although desert hunting is only sparsely represented in operation G, there is more material from it than from river hunting; this is more evident for Phases II and III, when both dorcas gazelle and Barbary sheep were present.

At HK11C, Test A (Naqada IC–IIB) contained a relatively small assemblage of remains derived from desert hunting (5 bones, 0.6% of the assemblage). Most were from antelopes of which three species are represented: dorcas gazelle (2 bones), dama gazelle and Barbary sheep (1 bone each; see Figure 24).

The remains from HK11C, **Operation A** and **Operation B**, as well as those from **Structure C3–4** are considered together here (Naqada IIC–III). Two antelope species have been identified: dorcas gazelle and Barbary sheep. Together, they form the majority of the material derived from desert hunting (Op. A: 33.3% each; Op. B: 27.3% and 10.7% respectively; C3–4: 100% of dorcas). This type of hunt is not well represented there, not exceeding 1.2% of the faunal assemblages (Figure 24). The identification of six bones from Operation B as

Barbary sheep is uncertain; they may come from ibexes (Van Neer and Linseele, unpublished data), but this is not likely.

In the elite cemetery at **HK6**, the only antelope buried in a tomb that has been excavated so far is a hartebeest. This female animal was found in tomb 46, together with a 20 to 30 years old man (Majer 2011). Examination of the skeleton of the hartebeest revealed that it had been kept in captivity for some time, resulting in abnormal tooth wear, a deformed lower jaw, and periostitis, an inflammation of the leg probably caused by a tether tied around it (Van Neer 2011). These features suggest a captivity of at least three months, and this animal was evidently not the only member of its species kept in captivity at that time. A foetus, not more than three months after conception was preserved within womb tissue. This foetus would thus have been conceived in captivity, so that at least a male hartebeest must have been present. The keeping of at least two individuals is remarkable, considering that this species is otherwise only represented at Hierakonpolis by a single bone found at HK29A (see above). This suggests that the amount of bones found in settlement contexts provides only limited evidence for the interactions with these species; this was observed for the hippopotamus (see §2.2.5), and may apply for all the species studied in the thesis.

A bone from a Barbary sheep has been found loose on the surface of the cemetery, near Tomb 63 (Friedman, pers. comm.), so that it is possible that a Barbary sheep was buried in that area. Similarly, two cranial fragments of a male and a female (?) dorcas gazelle have been found near the west edge of the excavated area of the cemetery. Moreover, an upper molar from a *gazella sp*. was found to the north-east of tomb 49, and a phalanx from a dorcas gazelle was found in 2014; these finds may point toward the presence of burials, but gazelle bones were also found outside three corners of the pillared hall Structure 07 and gazelles may have been used mostly and perhaps exclusively as offerings, rather than buried in the cemetery (Friedman, pers. comm.).

4.2.2 Faunal remains at Adaima

Just over a quarter of all bones of antelopes under consideration here come from Adaima. They were found in at least seven areas of the site, especially in the "Zone des limons" (160 bones, 87.9%; Linseele and Van Neer, unpublished data).

The assemblage derived from desert hunting found in the "Zone des limons" constitutes the highest proportion at Adaima (3.5%; see Figure 7). Four species of antelope were identified: dorcas and dama gazelles, Barbary sheep, and hartebeest. As can be seen in Figure 26,[50] the vast majority of the bones are from dorcas gazelles, mostly concentrated in Zone A (Naqada IIIC1?, see §1.5.2). The remains of Barbary sheep are similarly distributed, and those of dama gazelles are only found in Zone A; in contrast, the majority of hartebeest remains were found in Zone B, but because only three bones were recovered, this is statistically less significant. Most of the remaining bones were found in Zone B and in the space between Zones A and B. Zone C, identified as a garden area, contained only four bones. Hartebeest and dama gazelle are not found anywhere else at Adaima. This is also true of the giraffe, one bone of which was found in the "Zone des limons".

	Zone A	Zone A / B	Zone B	Zone C	Other	Total
Dorcas gazelle (n=128)	66.41%	10.94%	11.72%	2.34%	8.59%	100.00%
Dama gazelle (n=8)	100.00%					100.00%
Barbary sheep (n=21)	57.14%	4.76%	19.05%	4.76%	14.29%	100.00%
Hartebeest (n=3)	33.33%		66.67%			100.00%

Figure 26. Detail of distribution of antelope bones within the "Zone des limons" at Adaima. Greatest concentration for each species is in grey.

In three areas, the dorcas gazelle was the only antelope species represented: five bones came from area 7000, three bones from area 8000 (but none of them from inside house U1), and one bone from ensemble 1010 (Midant-Reynes & Buchez 2002, 545–6, tab. 1). In these two last areas, no other bones from species hunted in the desert were recovered. Because the faunal remains in ensemble 1010 were so few (46 bones), the single gazelle bone is

[50] See Figure 8 for the proportion of each species within the assemblage of the respective areas.

relatively significant (see Figure 24); it is less than half as important in areas 7000 (1%) and 8000 (0.7%).

Bones from three other areas have been published (Van Neer 2002, 545–6, tab. 1). Area 1004 had a single bone of a Barbary sheep in its faunal assemblage, again the sole element derived from desert hunting there. Both Ensembles 1001+ext. and 1002–1003 contained remains of dorcas gazelles and Barbary sheep. Three bones of each species were found in the former, and two bones of each in the latter (see Figure 24). The proportions derived from desert hunting in these two areas are small (0.8% and 1% respectively, see Figure 7), with the proportion represented by dorcas gazelle and Barbary sheep varying between the two (14.3% and 40% respectively).

According to Van Neer (2002, 530), the bones of dorcas gazelles and Barbary sheep from areas 1002–1003, 1001+ext., 1010, and 1004 all belong to the legs and feet of the animals, and one gazelle ulna bears traces of butchery.

The specific concentration of faunal remains from wild species in the “Zone des limons”, observed above for the hippopotamus and crocodile, is paralleled by the distribution of antelope remains.

4.2.3 Faunal remains at Armant MA21/83

At the settlement site MA 21/83 near Armant (Badarian(?)–Naqada IIC; Boessneck & von den Driesch 1994), desert hunting represents a significant proportion of the faunal assemblage (41 out of 693 bones, 5.9%; see Figure 7). The 35 bones of dorcas gazelle, the only antelope species identified at the site, dominate the assemblage derived from that activity (85.4%; see Figure 24).

4.2.4 Faunal remains at Abadiya 2

Excavations at Abadiya 2 (Naqada IA–IB; Vermeersch et al. 2004), revealed a higher proportion of remains derived from desert hunting than elsewhere in Upper Egypt (59 out of 556 bones, 9.7%; see Figure 7). Dorcas gazelle dominates this assemblage, in proportions similar to Armant (49 bones, 83.1%; see Figure 24), but it is not the only antelope species present: five bones of hartebeest were also identified (8.5% of the assemblage derived from desert hunting).

4.2.5 Faunal remains at Naqada

Faunal remains derived from desert hunting are not particularly numerous in the various areas of Naqada considered here (Gautier & Van Neer 2009), but they usually represent a higher proportion of the assemblages than those derived from river hunting (except for KH3 general). These proportions vary between 0.4 and 2.1% (see Figure 7).

At KH3B, KH3 (general), and KH7, dorcas gazelle is the only antelope species present. At KH3B (Naqada IIA–B), two bones came from the lower level and one bone from the upper level. Together, they represent three quarters of the assemblage derived from desert hunting. Two further dorcas gazelle bones were recovered at KH3 during the 1981 excavation season, but their exact contexts are not described. The bone from KH7 (Naqada IIA–B) is the sole evidence of desert hunting. A hartebeest bone recovered At KH3C (date unknown) is again the only element deriving from desert hunting in that area of the site (see Figure 24).

4.2.6 Faunal remains at Mahgar Dendera 2

Material derived from desert hunting at Mahgar Dendera 2 (Badarian–Naqada I) is sparse (Hendrickx et al. 2001, 94–5), but still constitutes a proportion of the faunal assemblage four times larger than remains derived from river hunting (2% vs 0.5%). Dorcas gazelle is the most common animal (13 bones, 59.1%; see Figure 24) and the only species of antelope represented on the site.

4.2.7 Faunal remains at Mahasna

Excavations in three blocks at Mahasna produced several bones of antelope species. The majority were recovered in Block 3 (Anderson 2006, tab. 6.7; 2011, 20, corrected numbers). The exact proportion represented by the assemblage derived from desert hunting cannot be established for each block, but for the site of Mahasna as a whole, it amounts to just 0.3%, which is the lowest of all sites under consideration, and far smaller than the proportion of hunted riverine animals (see Figure 7).

In Block 3 (Naqada IC–IIC), two Barbary sheep bones are the only ones that have been identified to species level, representing 12.5% of the assemblage derived from desert hunting (see Figure 24). These are the only bones of that species found in Upper Egypt outside Hierakonpolis and Adaima. Eleven bones of *gazella* sp. are most likely to be dorcas gazelle on analogy with other sites. If this is correct, this species will represent 68.8% of this assemblage. Three other bones are not identified more precisely than as "antelope" bones, but one of them may come from a young hartebeest, a species that is otherwise unattested at Mahasna.

Very young animals make up over half of the gazelle bones, with two possible foetal bones. Cranial elements and lower limbs are predominant. This may suggest that the animals were either prepared or sacrificed there but consumed elsewhere. To some extent, this finding is reminiscent of the remains found at HK11C, Square C3–4, where the meat-bearing elements were also under-represented in the assemblage (Van Neer & De Cupere 2014), although the size of the assemblage at Mahasna is rather small to reach definite conclusions.

The faunal assemblage from Block 1 (Naqada IC–IIA) yielded a single, uncontexted antelope bone, which is not identified to species level. One *gazella sp*. bone was found in Block 4 (Naqada IC–IIB), again possibly dorcas gazelle; that bone too is not attributed to a particular phase of habitation.

4.2.8 Comparison with Lower Egypt

Remains of antelopes dated to the Neolithic and to periods contemporary with the Badarian have been found in the Fayum and in Lower Egypt. The Neolithic sites in the Fayum contained several remains of antelopes, although none was reported by Caton-Thompson & Gardner (1934) from Kom K and Kom W. Most of the finds were found on the desert surface.[51] Only two bones of dorcas gazelle and one bone of an unspecified antelope species were excavated from below the

[51] The majority of these bones are from dorcas gazelles (6 sites, 80 bones). Hartebeest was present at five sites (20 bones), addax and oryx at one site each (both one bone only). There is one bone of an unidentified antelope species. See Linseele et al. (2014), tab. 1 for details and references.

desert surface, at sites QS IX/81 (von den Driesch 1986, 2, tab. 1, 4–5) and E29H2 on Kom W (Gautier 1976). More recent archaeological work in the Fayum uncovered remains of dorcas gazelle on Kom K and of hartebeest on both Kom K and Kom W (Linseele et al. 2014, tab. 2).

In the Delta, the site of Merimde has produced the largest amount of antelope bones, followed by Maadi. It is likely that the geographical position of these settlements on the Delta edge, offered more hunting possibilities for the inhabitants than the centre of the Delta would have done. In contrast, antelope bones are only incidental at el-Omari, where one dorcas gazelle bone and one of hartebeest have been found. In the earlier phases at Merimde, hartebeest bones were the most numerous, which is not the case at any Upper Egyptian site. Later, in phases IV-V, contemporary with Badarian, dorcas gazelle became prominent. Maadi, which is contemporary with Naqada IC–IIC, yielded more dorcas gazelle remains than hartebeest, but this site exhibits a marked anomaly in that forty ibex bones were recovered, making it the most common species (60% of the assemblage of antelope bones), whereas it was absent from other Lower Egyptian sites. However, Linseele et al. (2009, 123) noted that the majority of the ibex bones were cranial elements, and they may have been brought to the settlement through trade and exchange, rather than as animals hunted for consumption.

The faunal assemblages from Buto, Tell el-Iswid (Linseele et al. 2009, tab. 6), and Sais (Wilson 2014) did not include any remains of antelopes. Their location, deep within the Delta, was probably not an environment frequented by these species. However, antelope remains have been noted at Tell el-Farkha (Abłamowicz 2012, 416, 418, tab. 13). The species is not identified, and the bones are not attributed to specific phases, so that they cannot be dated.

4.2.9 Discussion of the faunal remains

In contrast with the crocodile and hippopotamus studied above, antelope remains are found at every settlement site in Upper Egypt considered in this thesis.

In Figure 27, I summarize the proportional distribution of antelope bones, by species. These are divided into: contexts that are certainly linked to elites (ceremonial centres at Hierakonpolis, HK29A, Block 3 at Mahasna, cemetery HK6); possibly linked to elites (HK29 because of the proximity with HK29A and HK11C, Operation A and Operation B, Structure C3–4 which may have been used to service the elite cemetery HK6, the "Zone des limons" at Adaima because of the high concentration of faunal remains derived from both river and desert hunting); and contexts that are not linked to elites.

	Dorcas gazelle	*Dama gazelle*	*Barbary sheep*	*Hartebeest*	*Ibex*
Elite contexts HK29A, Block3	52.3%	40%	36%	10%	
Elite context HK6	Yes		Yes	Yes	
Possibly elite contexts HK29, HK11C (A+B+C3–4)	5.3%		18.7%		
Possibly elite context Adaima "Zone des limons"	21.2%	53.3%	28%	30%	
Certainly not elite contexts Others	21.2%	6.7%	17.3%	60%	100%

Figure 27. Detail of the elite vs non elite contexts from which remains of antelopes come from, by species.

The figures obtained are markedly different from what was observed for the hippopotamus and crocodile. Antelope remains were not so strongly controlled by the elites, especially the gazelle, which appears to be commonly hunted. Ibex, oryx, and addax are mostly absent from the record: although these species were frequently represented, including in elite material culture, it appears that in life these species had a special status that prevented them from being hunted. Because the same is observed at all sites, the absence of these species from faunal remains must reflect beliefs that were shared throughout Upper Egypt. The assemblage found in the "Zone des limons" at Adaima includes relatively large numbers for each species. If it is not correct to see these remains as linked to the elite, the exploitation of antelopes would appear to have been still less under the control of the elite (43%, 60%, 45%, 90%, 100%, following the order in Figure 27, versus 12% for the hippopotamus and 17% for the crocodile).

If one leaves aside the assemblages from el-Abadiya 2 and Mahgar Dendera 2, which are earlier than all others, this figure for dorcas gazelle reduces from 43% to 36% and that for hartebeest from 90% to 80% (the figures for the other species do not alter, because they were not present in those assemblages). Thus, it is evident that between late Naqada I – early Naqada III, the inhabitants of all predynastic settlements studied in this thesis were able to hunt antelope species much more than hippopotamus and crocodile, which were mostly hunted by and/or for the elites.

Some differences in the number of bones of antelope species may be related to their availability in the environment. For example, hartebeest was probably rare in Upper Egypt by the Naqada II (Linseele et al. 2009, 123). However, this approach cannot explain the near absence of ibex bones and the complete lack of addax bones. Although predynastic Egyptians may not have commonly seen addaxes, ibexes must have been encountered more frequently. As discussed below, the latter animal was often represented as a prey animal in predynastic hunting scenes, which makes the lack of bones even more conspicuous.

4.3 Overview of antelopes in material culture

Taken as a group, representations of antelope species are the most numerous of any animal in the material culture of Upper Egypt predynastic. The catalogue records 185 predynastic objects.[52] However, it is necessary to differentiate between the different species.

The attribution of a depiction to a specific species can be difficult. As a principle, only species that are considered to have been living in Egypt during the predynastic period should be taken into consideration. The silhouettes of the bodies of different species are often depicted similarly, so that the shapes of the horns are the only criteria on which the identification can be based. This problem is not limited to predynastic representations (Strandberg 2009, 21). Different media and periods bring different problems, that are discussed below. To some

[52] Five further objects with depictions of antelopes not included in the catalogue are discussed below.

extent, it is necessary to create a convention for identification. Strongly backward curving horns most likely depict ibexes, with some remaining confusion with oryxes, which usually have straighter long horns. Twisted horns, a shape limited to depictions on D-ware vessels, most likely represent addaxes. Diverging crescent-shaped horns most likely represent Barbary sheep, with or without the addition of a chest mane on the body. S-shaped horns, and horns that point toward the front at the tip, most likely represent one the gazelles species, without further speculation possible. Animals with lyre-shaped horns most likely depict hartebeests. A few singular examples of different shapes either represent rare occurrences of other species, variations of the usual types of horns, or possibly an unusual perspective of the same horns. These cases are discussed below.

Nearly three-quarters of these depictions are two-dimensional, although there are divergences according to species. C-ware and D-ware vessels form the majority of the corpus (108 objects), and are discussed in more detail below. Cosmetic palettes are also quite numerous (19 examples), especially in comparison with the hippopotamus- and crocodile-shaped palettes. Antelopes are somewhat frequently incised on objects (18 examples) and found in the form of figurines atop combs (12 examples), and more rarely found on other types of objects.

4.3.1 C-ware vessels

A total of 24 C-ware vessels and 3 C-ware sherds have depictions of antelopes on them (Figure 28).[53] Excluding the sherds, this only represents 4.86% of the whole corpus of C-ware vessels, and 24% of those with painted animal figures. They all presumably date to Naqada IB–IIA; only one vessel, from Naqada (**1.65**), is more precisely dated to Naqada IC. The various species are detailed below, by order of importance.

[53] The double globular C-ware vessel S.1823 and the elliptical bowl S.1827, in the Fondazione Museo delle Egizie in Turin are not included here (Scamuzzi 1965, pl. VII; d'Amicone 1988, 124–5; Donadoni Roveri & Tiradritti 1998, cat. 33, 40; Graff 2009a, cat. 17, 172). I consider their decoration to be modern additions onto authentic vessels (see notes 17, 39). They both show captured antelopes led by men armed with bows.

Antelopes on C-ware vessels						
catalogue	# of Ibexes	# of Barbary Sheep	Other antelopes	Other animals	Hunting scene	
					Human	Weapon
1.15	2 (combs)					
1.17			1 hartebeest, 2 antelopes (?)		YES	Hunting trap, net (?)
1.18	2					
1.21		1				4 dogs
1.24			2 gazelles (?)			
1.25			1 hartebeest			Tassel ?
1.26		1				3 dogs
1.34			3 (or 6) antelopes, 1 gazelle (?), 2 hartebeest			5 (or 2) dogs
1.36	4					1 dog
1.42			1 antelope			
1.43			2 oryxes (?)			2 dogs
1.45			1 oryx	1 donkey		1 dog
1.49			4 oryx (?)			
1.51	1		3 antelopes			2 dogs
1.52			4 oryx (?)			3 dogs
1.53	1	1		2 giraffes, 1 quadruped		
1.54			2 gazelles	Birds		2 dogs
1.55		1	1 oryx (?)			9 dogs
1.59	1	1	1 gazelle, 1 antelope		YES	1 dog, 1 mace
1.60		3		1 desert fox		2 dogs
1.61			4? Antelopes			3 (?) dogs
1.62	3			4 hippopotami		4 dogs
1.63	1		1 gazelle	4 hippopotami	YES	1 dog
1.65	1	1				6 dogs
sherd 1.66			1 hartebeest			
sherd 1.69			1 hartebeest			
sherd 1.71			1 gazelle			

Figure 28. C-ware vessels and sherds with depictions of antelope species.

4.3.1.1 Ibex

The ibex is the most commonly depicted species of antelopes on C-ware vessels, with 9 examples known (35.5% of C-ware vessels with antelopes; **1.15**, **1.18**, **1.36**, **1.51**, **1.53**, **1.59**, **1.62**, **1.63**, **1.65**). In most cases, the clearly painted horns guarantee, in my opinion, the identification of the species. There are however two exceptions. Although the horns of the antelope on **1.18** strongly curve backward, they are rather short, which is unusual. On **1.63**, the horns are not especially curved, and the identification as White gazelles proposed by the

excavators (Dreyer et al. 2003, 82) cannot be excluded entirely. The species on **1.15** are doubtless, but they are the depictions of two combs atop which figurines of ibexes are carved, rather than depictions of the animals themselves . Unlike other examples, and together with **1.65**, the horns are not only long and strongly curved, but details of their bosses have been added. It is therefore surprising that Graff (2009a, 156–157) identified the animals on both vessels as oryxes, which have far smoother horns. These two vessels are also the only two on which the bodies of the ibexes are filled with cross-hatching, while on others they remain empty (**1.36**, **1.51**), or filled with parallel oblique lines (**1.18**, **1.53**, **1.62**, **1.63**), or with chevrons (**1.59**, **1.62**).

More often than not, the ibex is the target of a hunt. Dogs are seen directly attacking ibexes on 3 vessels (**1.36**, **1.51**, **1.65**), while a dog is represented at the end of a row of animals on two occasions (**1.62**, **1.63**). On **1.59**, a standing human figure, presumably a man, is represented near the back of an ibex. No weapon is visible at the end of his extended arm, although another man, standing elsewhere on the vessel, brandishes a mace. On **1.36**, a boat, seen in top view, is part of the hunting scene. As seen on the hippopotami and crocodile hunts above, boats can be associated with hunting scenes, whether hunters are depicted (**1.30**) or not (**1.19**). It is evident that boats were not practically used to hunt ibexes, so that the boat has to be understood as a symbol for the hunters, as the dogs (Hendrickx & Eyckerman 2010, 130). The decoration of this vessel has been the subject of a new drawing by Navajas (2012, pl. XXXI, b). She did not discuss the vessel in detail, but this illustration seems to suggest that two of the ibexes are attacked by one dog each, so that the scene may only contain three ibexes rather than four, and two dogs. Damages to the head of one of the dogs renders the identification uncertain. Graff (2009a, 157) identified the antelopes as oryxes. This seems unlikely, but the curvatures of the horns are not as strong as in other examples, so that some doubts remain. Apart from the depictions of the ibexes recumbent atop combs (**1.15**), when the ibex is not hunted it is seen grazing on vegetation (**1.18**) or standing among other animals. (**1.53**). In this last example, from Naqada (or Ballas), the species shown together do not share the

same environments in nature, so that the scene cannot simply be read as a "landscape" depiction.

The vessels bearing depictions of ibexes have a restricted variety of shapes. There are only three bowls, of which one is elliptical, five bottles, and a double beaker. On the three bowls, there is no other antelope species or wild animal associated with ibexes. This is in contrast with the five bottles and the double beaker, where Barbary sheep (**1.53**, **1.59**, **1.65**), gazelles (**1.59**, **1.63**), unidentified antelopes (**1.51**, **1.59**), giraffes (**1.53**), and hippopotami (**1.62**, **1.63**) are represented together with the ibexes. The association with the Barbary sheep is the least surprising, as the animals lived in similar environments. However, the association of animals dwelling in desert hills with hippopotami on two vessels is more unusual. As it is not a reflexion of the natural world, it is likely that the two species were especially chosen to represent the wild world as a whole. This mirrors beaker **1.46**, on which two wild species of the Nile and the desert environment each were depicted, but it is not clear if they really belong to the same scene, as the crocodiles and hippopotami are painted one the inside of the vessel, the other animals on the outside of it.

An additional C-ware vessel with ibexes (Ashmolean Museum, AN 1946.297, no provenance) may have to be added to the corpus. Although the animals were described as giraffes by Keimer (1935, 168–9) and subsequently by Graff (2009a, 161, cat. 67), Navajas Jiménez (2012, with references) more recently proposed to identify the animals as ibexes, based on a new examination of the vessel. She is certainly correct in considering the smaller animals as dogs attacking the antelopes, but the identification of the antelopes remains difficult, especially because of the elongated necks and both chest and neck manes, which are not characteristic of the ibex. If her identification is however correct, it would not contradict the observations above, and would strengthen the importance of the ibex hunt on C-ware vessels.

4.3.1.2 Barbary sheep

The Barbary sheep is the second most common antelope species on C-ware vessels, with seven examples (27% of C-ware vessels with antelopes; **1.21**, **1.26**, **1.53**, **1.55**, **1.59**, **1.60**, **1.65**). The identification of the animal is not subject to controversy in any of the vessels: they all have crescent-shaped diverging horns and frontal manes. Several animals depicted next to a clearly identified Barbary sheep are however difficult to identify (**1.60**). Payne (1993, 63) suggested that they may be female Barbary sheep, which Graff (2009a) seemed to follow; so far as I am aware, no other interpretation has been offered, and may be correct.

The bodies of the Barbary sheep are most often filled with cross-hatching (**1.21**, **1.26**, **1.55**, **1.65**) or with chevron designs (**1.59**, **1.60**); there is a unique case of parallel wavy lines (**1.53**).

In most cases, the Barbary sheep are the target of a hunt. On all but one vessel (**1.53**), they are attached by dogs. The numbers of dog varies between 1 and 9, but in all cases (**1.59**), there are more than one, and they all wear a collar, represented by the loop below the throat where the leash would have been attached. Perhaps surprisingly, this element was only found on one of the six vessels with dogs attacking ibexes (**1.65**), and this scene mirrors the hunt of a Barbary sheep. On **1.59**, a human figures, presumably a man, stands behind the Barbary sheep, holding a mace with a piriform head.

The Barbary sheep is found on two bowls, of which one is elliptical, four bottles, and one double beaker. On the bowls, the species is the only wild animal represented, while on the other vessels, it is always accompanied by other species, such as the ibex (**1.53**, **1.59**, **1.65**), oryx (**1.55**), gazelles (**1.59**), unidentified antelopes (**1.59**), giraffes (**1.53**), and desert fox or hare (**1.60**).

Several vessels with depictions of Barbary sheep show such similarities in theme and execution that they were most likely produced by the same person, or at least by the same workshop at the same time. This group was already identified by Graff (2009a, 142), although the attribution of **1.65** to Ballas is erroneous, as the vessel was found in Tomb B102 at Naqada. **1.21** and **1.55** also came from Naqada, and were found in the same Tomb (1644). Although **1.26** has

no provenance, it has been suggested that it came from Gebelein. It is of course possible that the vessel was placed in a burial far from its place of production, but if it is attributed to Gebelein without any certainty, then a provenance from Naqada would perhaps be more judicious.

4.3.1.3 Hartebeest

Hartebeest, although the third most common antelope species on C-ware vessels, is only known on four examples (19.2% of C-ware vessels with antelopes; **1.17**, **1.25**, **1.34**, **1.69**), and identifications are sometimes subject to controversy. Lyre-shaped horns should be the clearest evidence to take into consideration.

The two examples on which the identification is the least doubtful (**1.25**, **1.69**) have surprising attributes, already noted by Navajas Jiménez (2012, 173). On **1.25**, a chest mane is clearly shown, and on **1.69**, a mane is indicated along the neck.[54] In nature, the hartebeest does not have a mane, either on the front or the back. Additionally, none of the examples show the pronounced hump characteristic of the species. On vessel **1.17**, three quadrupeds are represented (a fourth one may never have been completed); they were first described as "antelopes or similar animals" (Randall-MacIver & Mace 1902, 43), as "bovids" by Graff (2009a, 161), and as "cattle" by Stevenson (2013, 75). It is clear that two of the animals, with short straight horns, are dissimilar from the third one, so that two different species were represented. The two first animals cannot be identified, and are discussed below, with other such depictions. As to the third one, it has lyre-shaped horns that are diverging at the tip, so that it is likely a hartebeest. The elliptical bowl **1.34** has a challenging decoration. A total of 11 animals are painted along the interior of the vessel, the paint is only partly preserved, and chevrons designs decorating the edge of the rim are very close to, sometimes touching, the animals, adding to the confusion. A close examination of the vessel showed that the drawing by Regner (1998, pl. 20) is not detailed

[54] This animal is clearly not to be identified as a gazelle as suggested by Swain (2011, 917). On her published drawing, the horns appear only as crescent-which would suggest that a bull or auroch was intended. It would be profitable to check the object to ascertain this detail, but the photograph on the online catalogue of the Manchester Museum suggests that they were indeed lyre-shaped. Another detail in Swain's drawing (Swain 2011, 931, fig. 1b) is the presence of a main on both the front and back of the neck.

enough. It is possible that six of the animals are antelopes (three on each side), chased by five dogs. The horns of most of the antelopes are not preserved, or not sufficiently clear for identification, but at least two of them were hartebeest, with lyre-shaped horns. The bodies of the hartebeest are always filled with chevrons and parallel lines, but are never filled with cross-hatching.

More often than not, the hartebeest is depicted as an animal of prey in hunting scenes. On **1.34**, the hartebeest and other antelopes are attacked by dogs chasing them. The interpretation of the scene on **1.17** is subject to controversy, because the figure of the hartebeest, although possibly ensnared in the circular trap, is not directly connected to it, unlike the other two animals. The scene on **1.25** is also likely to be understood as a hunting scene, but this depends on the interpretation of the "tassel" design painted in front of its head. It is the only time the "tassel" is found associated with a hartebeest, but it is known on several other vessels, including as part as hunting scenes (see note 19). It is more difficult to ascertain if the hartebeest depicted on sherds are also the objects of hunts. So far as can be seen, this is not the case on the sherd **1.69**, and it seems that the preserved portion of the vessel is large enough for certainty.

Hartebeest are exclusively represented on bowls, of which one is elliptical (**1.25**), and one elliptical standing on four feet (**1.34**). They are only found associated with other antelopes on two vessels (**1.17**, **1.34**), the identifications of which are in both cases difficult (see below), although at least one animal is a gazelle on **1.34**.

4.3.1.4 Gazelles

Only four C-ware vessels and one sherd bear depictions of animals that can be likely identified as gazelles (**1.34**, **1.54**, **1.59**, **1.63**, **1.71**). On **1.34**, this identification is not absolutely certain because of the preservation of the vessel, but one of the antelopes has long horns that point frontward. On **1.63**, the antelope in front of the ibex has characteristic S-shaped horns and is likely a gazelle, rather than an addax as suggested by the excavators (Dreyer et al. 2003, 82) and by Graff (Graff 2009a, 156). The horns of the two gazelles on **1.54** project frontward, and curve toward the front at the tip. Although they are not strictly-

speaking S-shaped, the frontward projection at the tip is characteristic of gazelles. Graff (2009a, 156) suggested to identify them as kobs, but the "flat and backward" orientation of their horns seems to exclude this interpretation. One of the antelopes on vessel **1.59** also has horns that point frontward, but, in this case, they curve toward the back at the tip. On the sherd **1.71** from Hierakonpolis, the antelope has horns that point frontward in an almost horizontal manner. I consider here that these two last examples are variants of the horns of gazelles, although this is not certain. A sherd from Hierakonpolis (**1.66**) was found in a disturb context near Tomb 22; it is unique in representing an antelope with horns seen in front view, diverging and curving inward at the tips. Adams (2002a, 25) identified the animal as an ibex and Graff (2009a, 158), as a Soemmerring's gazelle. Friedman (pers. comm.) suggested that a hartebeest could be represented. The lack of parallels and fragmentary condition of the vessel[55] make it difficult to ascertain which species was intended; ibex and hartebeest do not seem likely, because the horns are too different from the more usual depictions discussed above. This antelope is more likely a gazelle, although it is not possible to be more specific.

The bodies of the gazelles are filled with parallel lines (**1.34**) and otherwise with chevrons, and none of these animals are painted with a mane. On all four vessels, they fall prey to attacking dogs. This is not certain on **1.34**, but the gazelle is followed by a smaller animal, which I consider here to be a dog. On **1.63**, the canid is depicted at the end of the row, rather than directly next to or behind the gazelle.

Gazelles are found painted on one elliptical bowl standing on feet (**1.34**) and otherwise only on bottles. They are the main animals on **1.54**, where a few birds are seen next to them. On **1.34**, the only identified gazelle is among other antelopes, including two hartebeest. On **1.59**, they are found below an ibex and an Barbary sheep, while on **1.63**, the group of wild animals also encompasses four hippopotami and an ibex.

[55] This sherd has the same colour and paint quality as other sherds found nearby; they may all belong to the same vessel, which would also include a human figure, perhaps indicating that a hunting scene was intended (Friedman 2011c, 14, bottom left, upper row).

4.3.1.5 *Oryx* species

There are few possible representations of oryxes on C-ware vessels (**1.43**, **1.45**, **1.49**, **1.52, 1.55**). On three of them, the animals are stylised to the extreme, and were likely painted by the same hand. Unfortunately none has a known provenance, but the early date of acquisition of **1.43** (1897) seems to be in favour of its authenticity, and therefore of that of the other two as well. It is possible that all three vessels came from the same site, and were the only ones painted with such a style. Because the antelopes are so stylised, it is difficult to identify which species were intended. The horns are usually straight, and point upward (**1.43**) or frontward (**1.49**, **1.52**). The fourth example of possible ibexes (**1.45**) was purchased at the same time as **1.43** by de Bock, and was said to come from the Naqada region. It is one of the rare examples of painted B-ware vessels. The animal has long straight horns that point upward. On **1.55**, among the dogs, one animal appears to be an oryx, with horns that are not particularly long. Its tail is also different from those of the dogs. Finally, one of the antelopes painted on **1.63** may be an oryx rather than an ibex, because its horns are not particularly curved, but this may be far-fetched.

The oryxes are almost always hunted. On **1.43**, each oryx is pursued by a dog, as is the oryx on **1.45**. From the partly published decoration of **1.52**, it can be deduced that the same type of scene was painted. Despite the very close similarity between **1.43** and **1.49**, it seems that the oryxes on the later vessel are not hunted, although the complete decoration has not been published, and a dog may be present on the other side of the vessel. The heavily stylised oryxes have their bodies filled with parallel lines and cross-hatching (**1.49** only), while the one on **1.43** is not filled in.

4.3.1.6 Unidentified antelopes

There are several vessels on which the species of antelope depicted could not be identified (**1.17**, **1.24**, **1.34**, **1.42**, **1.59**, **1.61**, **1.71**), often because the details in the original decoration were not sufficient, or the remains of the paint are too faded. Generally speaking, the horns appear only as short strokes on the heads. Whether this was sufficient, in the mind of the painters, to represent a specific

species (more likely gazelles, which have shorter horns than most other antelopes), or whether they did not feel the need to be too specific, remains unknown. It must be stressed that, in some occasions, these short horns cannot be distinguished from ears.

On **1.17**, two animals, with their back legs ensnared in a trap, have short strokes that point backward on their heads. Because they are ensnared, and because they have long tails, they are not likely to be depictions of dogs. The two animals depicted on **1.24** cannot even be identified as antelopes with absolute certainty; they may alternatively be seen as donkeys, although their short tails would appear to discredit this interpretation. The horns of some of the antelopes on **1.34** were painted almost on the rim of the vessel, and are not well preserved. On one side of the vessel, a gazelle is identifiable in the centre, and it not impossible that the antelopes on either side of it were also gazelles. On the other side, two of the three antelopes are hartebeest, but it seems unlikely that the last one belonged to the same species, because of its smaller size and because its short horns seem to point frontward. On **1.42**, the three animals painted on the inside of the rim have very small dimensions, and this left little room for details. Two of them seem to have short horns pointing frontward. The third animal may not be an antelope. On **1.59**, one of the antelopes has long straight horns that point backward; they may be seen as ears, although their size would be exaggerated. The painter of the vessel amalgamated several species in the same scene, and may not have needed to be overly precise in the depiction of this animal, as the group as a whole represents the idea of wild antelopes. The style of the painting of **1.61** is extremely stylised, so that specific identification is not possible. Finally, on the sherd **1.71** from Locality HK24B at Hierakonpolis, the front part of an antelope is preserved. The horns seem to be fully visible, but they are unlike any other in the corpus. They are short, and point frontward, being nearly horizontal after the initial curve.

Despite this lack of clarity on these six vessels, the same trends as noted above can be observed. These antelopes are more often than not the object of hunts, once with a trap (**1.17**), and dogs attack them three times (**1.34**, **1.59**, **1.61**). It is possible that the smaller animal on **1.42** is also a hunting dog, so that

the scene may be another hunting scene. On **1.24**, the two antelopes are simply depicted standing among vegetal elements. The preservation of the sherd from Hierakonpolis (HK24B, **1.71**) is not sufficient to identify the type of scene it belongs to.

It is worth noting that only two of these vessels has a known provenance (**1.17**, **1.71**). The lack of archaeological context, added to the strangeness of some vessels (especially **1.24** and **1.61**) makes one wonder about the authenticity of the vessels. As to the fragment from Hierakonpolis, it may be another representative of a "Hierakonpolis style", because the only other C-ware sherd with an antelope (**1.66**) also shows horns that are unique in the corpus.

4.3.2 D-ware vessels

The replacement of C-ware vessels by a new type, the so-called Decorated ware, must have happened abruptly, because not a single burial containing both types has been found.[56] The red-painted vessels of the latter type are made from the fairly widespread marl clay, found in a desert wadis, but their overall similarity of style and shape hints at a limited number of production places (Friedman 1994, 86). A few studies suggest that some vessels can be grouped together and identified as having been produced by the same workshop or even the same painter (e.g. Aksamit 1992; Graff 2009a, chap. 4), and this is also possible for vessels with depictions of antelopes. D-ware vessels form a large part of the catalogue of the thesis. However, those with antelopes only represent a small proportion of the whole corpus of D-ware vessels (5.42%, and 30% of the vessels with figural decoration; see Figure 5).[57] In this section, I first look at the selection of antelope species found among the corpus of D-ware vessels, before examining them in their figural context. A total of 72 D-ware vessels, 1 D-ware box, and 10 sherds with depictions of various species of antelopes are known. Among the sherds, **2.88** and **2.89** most certainly come from the same vessel, as do the sherds **2.87** and **2.90**. It is not clear if the sherds from Hammamiya (**2.81**–**2.83**) belong to one or more vessels. For this section, it is considered that the sherds

[56] Friedman (1981, 9–10) mentions exceptions from Abadiyeh B56 and Naqada 1449. The first one is a fragment, possibly intrusive. The second one is not listed by Payne (1987, pl. XLIII).
[57] This counts excludes the sherds.

come from 8 distinct vessels, so that the total of D-ware vessels with antelopes amounts to 81. Nearly half of them have a known provenance (40 vessels, 49%). One vessel is dated to Naqada IIC by its context (**2.25**), and four to Naqada IID (**2.3**, **2.15**, **2.20**, **2.45**). 62 vessels and all the sherds can only be roughly dated to Naqada IIC–D, the date range attributed to D-ware pottery in general; four "magical jars" date to Naqada IID–IIIA (**2.48**, **2.54**, **2.62**, **2.66**). Upon examination of the decorations, it is immediately obvious that the addax and ibex are the two best represented species of antelopes, followed by the gazelles and a few other isolated species.

Some characteristics are shared by all antelopes. They are always represented standing, sometimes on series of triangles, and never in a recumbent position, unlike the row of ibexes at the top of the main wall of the Painted Tomb at Hierakonpolis (Quibell & Green 1902, pl. 76).[58] Most of the antelopes are painted in a deliberately stylised way (Hendrickx & Eyckerman 2012, 23), with "bending" legs and slender bodies, and the underbellies forming a graceful curve. But sometimes the painters gave a stronger appearance to the creatures, with stick-like legs and stockier bodies. Regardless of the style, all the species usually have the same silhouette. This sometimes led to confusion regarding the shape of the tails, which should be downturned for the ibex and upturned for the addax (see, e.g. **2.7**, **2.46**, where ibexes mistakenly have upturned tails).

4.3.2.1 Addax

There are 38 D-ware vessels with addaxes (48% of D-ware vessels with antelopes). Only few have a known provenance (14 vessels, 37%), which is sharply below the average for D-ware vessels with antelopes.

The twisted horns, rendered by two wavy lines pointing upward and toward the back of the animals, led Graff (2003, 36) to identify the animals depicted in this way as addaxes, which have similarly shaped horns. However, Osborn and Osbornová (1998, 187) interpreted these same representations as

[58] Hendrickx and Eyckerman (2012, 34) mistakenly identify the four recumbent antelopes as oryxes, but the shape of the horns, with the added details of bosses, which are quite marked on ibex horns, makes their suggestion unlikely.

domestic goats, also based on the shapes of the horns.[59] This is likely to be correct on a vessel from Abydos (Graff 2009a, cat. 178), on which two domestic sheep with horizontal corkscrew-shaped horns, typical of the breed living in Egypt at that time (Van Neer & De Cupere 2012, 9), are depicted together with a third animal which has upraised twisted horns. In this case, it seems unlikely that a wild addax was intended, but more probably another domestic sheep. At Hierakonpolis, evidence for the artificial modification of the horns of domestic sheep has been uncovered in the elite cemetery HK6. The horns of two individuals, buried among other sheep in tomb 54, had their horns artificially raised upward with the use of ropes (Van Neer & De Cupere 2012). It is possible that the Abydos vessel represents this rare phenomenon, rather than the depiction of an addax. It is however unlikely that all depictions of animals with twisted horns on D-ware vessels represent sheep with modified horns. Not only has this practice only been attested for the two individuals buried at HK6 so far, but antelopes with twisted horns are usually associated with other wild animals such as ibexes, gazelles, and ostriches on D-ware vessels.

Three vessels, of which none has a known archaeological provenance, need further discussion. Firstly, on the D-ware beaker **2.1**, a series of addaxes following each other is painted in the upper register. The quadrupeds represented below have different horns, which, although undulating, diverge strongly and are longer than those of the addaxes. Their tails are also much longer, ending in tassels. These animals are probably bulls, either the wild aurochs or domestic longhorn African cattle. These two species cannot be differentiated by their silhouettes and comparison with faunal remains is not helpful either, because both species are recorded, although the number of aurochs remains outside the elite cemetery HK6 at Hierakonpolis are particularly rare (Linseele et al. 2009, Tab. 6; Friedman 2009b; Droux 2011b). However, the presence on the vessel of wild addaxes suggests that another wild species was intended, so that aurochs are more likely. This vessel is not discussed by Hendrickx (2002a), and Graff (2009a, cat. 180) did not differentiate between the

[59] Goat remains are attested at various predynastic cemeteries (Flores 2003; Van Neer & De Cupere 2012) and settlements of the period (Linseele et al. 2009).

two rows of animals. Secondly, the only antelope preserved on the fragmentary vessel **2.29**, with its head turned backward, is considered here as an addax. However, it can be argued that the horns are more frontward pointing than properly twisted, and an identification as a gazelle is not impossible. Thirdly, the antelopes painted on **2.49** have a peculiar appearance, with a larger body than usual. It is not entirely clear if the painted horns are strictly speaking twisted, or lyre-shaped. If this were the case, perhaps hartebeest could have been intended, but the otherwise rarity of this species among the corpus (see below) weighs against this interpretation.

4.3.2.2 Ibex

The second-best represented species of antelopes on D-ware vessels is the ibex. There are 37 known examples (47% of D-ware vessels with antelopes). Just over half of them have a known provenance (19 vessels, 51%).

They all have characteristic long curved horns that leave little doubt as to their identification; details can sometimes include the characteristic bosses on the lower part of the horns or the goatee (e.g. **2.51**). It is unlikely that oryxes were intended, because the horns of that animal are much straighter than those depicted. The only exception appears to be the isolated animal painted near the base of **2.67** (see below).

The ibex is the only antelope species found on the "magical jars" (**2.48**, **2.54**, **2.62**, **2.66**), which likely post-date the other vessels discussed here.

4.3.2.3 Gazelles

The third most common type of antelopes painted on D-ware vessels is far less frequent than the two presented above, with only eleven examples known (14% of D-ware vessels with antelopes). Most have a known provenance (8 vessels, 72%).

These antelopes are characterised by horns that point toward the front at the tip. The identification of the animals is not straightforward. It seems that the kob and Soemmerring's gazelle can be excluded: although in lateral view the tips of their horns point frontward, or upward, they have a characteristic horizontal

section, which clearly differs from the horns of this type. The horns of the gerenuk have the correct shape, but there is no emphasis on their elongated neck. In fact, the body shape is often undistinguishable from that of the ibex or addax. As to the dibatag, one would expect a more crescent-shaped rendering of their sickle-like horns. It is therefore likely that a species of gazelle was intended, and that those painting the antelopes did not find it necessary to show the horns in a realistic s-shaped manner. Because of this schematisation, it is not possible to distinguish between the dorcas, dama, or white gazelles.

On several vessels, the horns are first oblique, and they point backward before the curve at the tip (**2.30**, **2.37**, **2.42**, **2.52**, **2.71, 2.88–2.89**). The horns of the gazelles on **2.37** and **2.52** are more strongly curled, and it can be argued that they are more sickle-like,[60] while those on **2.30** and **2.88–89** are perhaps more realistic, closer to the natural s-shape of the horns of gazelles.[61] On three other vessels (**2.10**, **2.25**, **2.79**),[62] the horns grow vertically in their lower sections, before curving frontward at the tips. The only known illustration of **2.10** dates to 1908 (Hilton Price 1908, pl. 35) and because the present location of the object is unknown, its accuracy cannot be verified. The jar from Hammamiya **2.56** may also have depictions of gazelles, but it would be desirable to examine the vessel itself.[63]

4.3.2.4 Other species

Three vessels have different species of antelopes among their decorative motifs. Two have a provenance and the third one was purchased in Egypt in 1902.

The jar found by Petrie at Abydos (**2.51**) is unique among D-ware vessels by the combination of many species in the same scene, and in the unusual manner of its painting, which is more fluid than the others. If two ibexes are clearly

[60] This stronger curve led Graff (2009a, cat. 193, 523) to identify the animals as kobs, rather than gazelles.

[61] Graff (2009a, cat. 341, 622–3) identified the antelopes on **2.30** as ibexes, and those on **2.88–89** as addaxes, which is not likely to be correct.

[62] Graff (2009a, cat. 355, 539, 560) identified all these antelopes as kobs, which is unlikely, given the vertical orientation o the horns, which strongly differs from the near-horizontal horns of the kob.

[63] From the picture published on Fondazione Museo delle Egizie online catalogue, it appears that the paint is poorly preserved, and the exact contours of the animals cannot be distinguished. Graff (2009a, cat. 457) identified them as ibexes, despite the shortness of the horns.

identifiable (see above), the four others are drawn in peculiar ways which render some of the identifications problematic. Above the standing woman, a large hartebeest, attacked from behind by a dog, has characteristic lyre-shaped horns. A smaller antelope, painted above its back, has near-horizontal horns that curve frontward at the tip. It is possibly a gazelle, although the horns differ from those discussed above. Two other antelopes could potentially be gazelles: their horns diverge and curve toward each other at the tips. This is similar to the antelope's head painted on the C-ware sherd **1. 66**, which I consider to be the depiction of a gazelle (see §4.3.1.4). Whether the same species was intended on the C-ware and D-ware examples is not certain. The last antelope on this vessel also has diverging horns, but they curve outward at the tip, so that it is more likely to be Barbary sheep. The hartebeest is not found on any other D-ware vessel, and the Barbary sheep perhaps once, on **2.77** (see below). Because the hartebeest is hunted (a theme not very common on D-ware vessels), and two of the gazelles have horns that are only paralleled on the C-ware sherd **1.66**, this vessel should probably be placed early in the range of dates for D-wares. It should be considered as contemporary to the Painted Tomb at Hierakonpolis, on which most of the antelopes are captured or hunted; the only other depiction of a hartebeest that can be dated to after Naqada IIB is found in that tomb. It can be noted that the incidental number of Barbary sheep among the D-ware vessels does not imply a lack of interest for this animal from the Naqada IIC onward, as it is found incised on vessels and palettes, and figures among the carved knife handles (see below).

On **2.67**, an addax is painted above one of the boats on the upper part of the vessel. Nearer to the base, one isolated animal with parallel horns, a long tail, and a stocky body, may be the only oryx depicted in D-ware.

The last vessel which poses some difficulties is a double jar of small dimensions from Abusir el-Meleq (**2.77**). The style of the painting appears less precise than that of other D-ware vessels. On one side of vessel, four horned animals follow one another. At least three have crescent-shaped horns, which could potentially represent the horns of hartebeest. The last one may have

backward curved horns, but this is not sure.[64] On the other side of the vessel, the horned quadrupeds are mirrored by four birds, one of which is probably a falcon.

4.3.2.5 Unknown species

On one vessel (**2.20**) and a few sherds (**2.80**, **2.83**, **2.87**), the horns of the antelopes are not preserved so that no identification of the species can be proposed. It is however likely that the backs of the animals visible on **2.87** belong to ibexes, as this sherd probably belonged to the same vessel as **2.90**, on which the front part of the ibexes are preserved.

4.3.2.6 Types of scenes and combinations of species

D-ware vessels with figural decoration that incorporate antelopes can be divided into three main types of scenes: "boat scenes" (Figure 30, 44 vessels including 2 sherds, 54%),[65] "animal scenes" (Figure 31, 29 vessels including 5 sherds, 36%), and "magical jars" (Figure 32, 4 vessels, 5%). Four scenes are considered as undetermined, because of their fragmentary condition. On the large preserved part of a vessel from Mostagedda (**2.75**), two ibexes are seen above designs that can be interpreted as the top of boat cabins; however, the long stems visible below the handles may originate from Naqada plants, and this would not leave sufficient space for the boats. The three other sherds (**2.80**–**82**) are small and only one shows part of the decoration immediately near the ibex: a vertical series of "ss". As discussed below for each section, I do not divide the scenes into ritualistic scenes and non-realistic scenes as proposed by Graff (2009a, 79–2).

Before looking at the specific antelope species in each type of scene, some general observations can be drawn from a rapid look at the whole corpus of D-ware vessels. Antelopes, ostriches, and humans, which are among the main non-vegetal motifs both in boat scenes and other figural scenes are found, in various combination, on 101 boat scenes, and on 85 figural scenes.[66] They can however

[64] Graff (2009a, cat. 541) identified the animals as ibexes, but the drawing she produced is not based on a direct observation of the vessel.

[65] The identification of the boats was most recently challenged by Monnet Saleh (1983), but her arguments were correctly rejected by el-Yahky (1985).

[66] By "figural", I understand here all D-ware decorations which incorporate non-geometric elements.

co-exist in every possible combination, and the ostrich is the only of these motifs that appears more readily on its own. The other motifs considered in Figure 6 can also appear in combination with any of the other motifs, so that it cannot be said that the selection of a particular motif necessitated the inclusion or the exclusion of any other motif. The only possible exception is the cabin design, which is almost never represented without the motif of the animal skin.

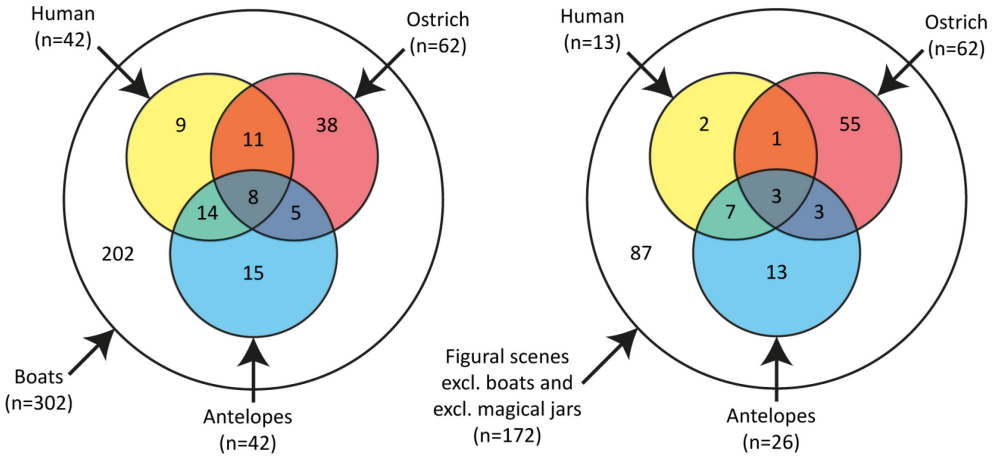


Figure 29. Concomitance of antelopes, ostriches, and humans on D-ware vessels with figural scenes; boat scenes (left) and figural scenes (right), excluding sherds.

Antelopes in boat scenes:

Boats form the most prominent part of the decoration of 42 vessels (see Figure 30).[67] These vessels represent 14% of all those with boat scenes (312 vessels), and 3.12% of the corpus of D-ware vessels. Two sherds (**2.80** and **2.86**) also preserve parts of boat scenes similar to the more complete ones. In the majority of cases, the animal species depicted are the addax (25 examples, 59.5%), followed by the ibex (12 examples, 28.5%). Antelopes on four vessels (9.5%) are neither addaxes nor ibexes, but gazelles (**2.42**, **2.52**, **2.71**, **2.79**; a gazelle is also depicted on **2.10** with ibexes), and on one vessel (**2.20**) the species cannot be identified because the horns are not preserved. The boats are usually depicted in the same way, with two cabins, one or more palm fronds at the prow, and on

[67] I include here the painted ceramic box purchased at Abydos by Petrie (**2.79**), although the antelopes are not found on the same side as the boat, so that it is perhaps not strictly speaking a "boat scene".

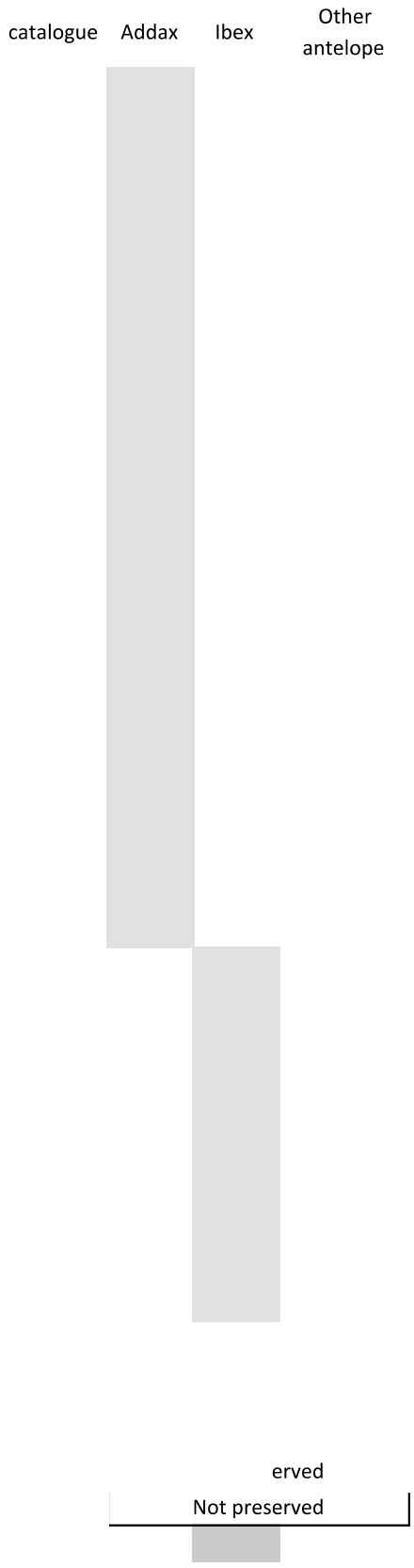


Figure 30. D-ware vessels with depictions of antelope species in boat scenes.

standard, most often attached to the back of the aft cabin.[68] They are overwhelmingly oriented toward the left (87%), if it is correct to consider the motif of the "palm frond" as indicator of the prow. There is only one example on which boats face both direction (**2.60**),[69] and only two on which they face right (**2.16**, **2.38**). In two cases, the orientation cannot be determined (**2.35**, **2.80**).[70] In these boat scenes, the animals do not play a central role, but they appear to be accessory to the boats, or at least less important than them. They are depicted on a rather small scale, above or between boats, more rarely below them, preferably by themselves (e.g. **2.5**, **2.9, 2.16**, **2.52**) or as small groups (e.g. **2.21**, **2.70**, **2.78**; for **2.79**, see note 67). This pattern applies to ibex, addax, and gazelles, so that the choice of species did not influence the style of depiction and vice versa. When the complete scene is not published or visible in published illustrations, the exact number of animals may not be known. It is nevertheless clear that when horned animals are part of a "boat scene", they are not usually depicted in rows, in contrast to the ostrich, which is rarely depicted as a single individual in boat scenes (e.g. Graff 2009a, cat. 463).

For the elaboration of boat scenes, painters mostly avoided mixing antelope species within the same scenes. Ibexes and addaxes are never shown together (in contrast with the "animal scenes", see below), and there are only two vessels on which more than one antelope species is present: **2.10** contains ibexes and a gazelle, and **2.67** contains addaxes and an oryx; the provenance of neither is known for sure, although **2.10** is said to come from Naqada. Ostriches (15 vessels) and humans (23 vessels) figure frequently, regardless of the choice of antelope species. Men and women are preferably shown together, and when only one gender is represented, it is exclusively women. Other animal species, mostly birds, are occasionally found in boat scenes (**2.15**, **2.16**, **2.40**, **2.49**, **2.79**;

[68] The boats on the Gebel Silsileh jar **2.40** are strikingly different.

[69] This vessel has no provenance. Compared with the rest of the corpus, several aspects of its decoration are troubling, including the large number of human figures (one is perfectly preserved between two chips missing from the surface), the fact that a man and a woman stand under a canopy on one of the boats, the mixed orientations of the boats, and the tassels, or perhaps anchors, hanging from the prows. The authenticity of this vessel or its decoration is not certain; there are several similarities with vessel **2.20**, also without provenance.

[70] On **2.35**, from Badari, there is no element such as the palm frond differentiating the prow from the stern; on **2.80**, the boat is not sufficiently preserved to determine its orientation.

see note 67). Vessel **2.40** is decorated with a peculiar scene. Not only are the boats different in style from those discussed above, but the selection of animals is also unique, the addaxes being accompanied by a crocodile, some fish, and a bird, as well as a quadruped (a calf?), tied to the prow of a boat by a rope. Two pairs of addaxes are depicted in a fight, their horns interlocked, while a fifth, backward-looking addax is shown by itself. The vertical (with one horizontal) alignments of reversed triangles, alternately filled in and left empty, are also unusual. All these peculiarities point to a vessel that did not originate from a workshop specialised in D-ware production. When he excavated the (unspecified) tomb containing this vessel, Georges Legrain (1903, 219) described it as "[…] qui fut posée à peine sèche dans la tombe, si bien que le poids du remblai l'a écrasée quelque peu sur un de ses bords". This would be the only example of unfired figural D-ware known to me and an examination of the vessel would be necessary to establish whether Legrain's assertion is correct. In some respects, the decoration on this vessel is more similar to the Painted Tomb at Hierakonpolis, where the animals also seem to be unconnected to the boats, than to the scenes on other D-ware vessels.

A few vessels do not follow the general pattern for the number of animals accompanying the boats. On **2.55**, two rows of addaxes are placed one above each of the vessel's wavy handles. In this case, the painter may have wished to fill in the available space by repeating the motif of the addax, mirroring the rows of ostriches located below the handles. On **2.10**, ibexes stand in a row above triangles below a boat; it is not clear whether this row runs along the entire bottom part of the vessel. Vessel **2.21** is very similar to **2.10**; on this example, 11 ibexes form a continuous row. On **2.60**, a row of 6 ibexes stand on triangles.[71] Together with the row of ostriches, the ibexes can perhaps be understood as forming a separate 'tableau', in which the animals are not accessory to the boats. The same is probably true for the box **2.79**, where the boat is represented alone on one of the short sides, with the rows of gazelles on the long sides. The double

[71] The illustration in Graff (2009a), cat. 232 is incomplete; one set of wavy lines around a fourth vertical handle is missing, as well as 4 ibexes, 6 triangles, and 11 ostriches. See Patch (2011, 70, right) for a photograph of this area, and note 69 for doubts about the authenticity of the decoration.

jar **2.78** is different again. A single boat takes the central space on one side of one of the jars. Five ibexes are depicted on the same jar, two of them below the boat and the rest on the other side, and five ibexes on the second jar. It is possible that an increase in the number of animals depicted signifies an increase in their role in each scene. However, the treatment could be idiosyncratic or simply a space filler. Each exception to the normal pattern could have been motivated by different considerations, such as the shape of the pot and some of the space to be filled.

As can be seen in Figure 30, men and women (often depicted together on the vessels) are represented in close proximity to, if not in connection with, all species of antelopes. The only difference is that in boat scenes the addax is more often represented with people (16 out of 25, 64%) than the ibex (5 out of 10) or the gazelles (1 out of 4), but the sample is so small that the difference may not be significant. The ostrich is also found with the various species of antelopes, irrespective of the inclusion of human figures or not (8 with addaxes, 3 with the ibexes, 1 with gazelles), and I know of at least 11 other boat scenes where the ostrich is depicted together with people, but without antelopes,[72] and of at least 38 other boat scenes with ostriches in which humans and antelopes are absent.[73] Humans are preferably associated with the antelopes, more rarely with the ostrich. Two boat scenes with people also include a guinea fowl (**2.15**) and another bird (**2.49**). On four occasions, gazelles replace the ibex and the addax. So it cannot be said that the presence of human figures influenced the selection of species.

[72] Graff (2009a), cat. nos. 218 (Naqada), 258 (Semaineh), 481 (el-Hosh), 571 (Ballas), 247, 283, 338, 461, and 564 (no provenance); Moscow Pushkin State Museum of Fine Arts (Hodjash 2005, 18–9, nos. 22, 23, no provenance).

[73] Graff (2009a), cat. nos. 219 (Naqada), 226 (Naqa ed-Deir), 228 (Naqada), 229 (Mamariya), 281 (Mostagedda), 299 (Dakka), 394 (Gerzeh), 421 (Matmar), 424 (el-Amra), 444 (Hammamiya), 466 (Abydos), 510 (Abydos), 535 (el-Kubaniyeh), 536 (Toukh?), 572 (Gerzeh), 573 (Haraga), 203, 225, 250, 251, 292, 302, 430, 433, 456, 463, 499, 530 (no provenance); Bristol H612 (online catalogue; el-Amra ?). The following have no known provenance: Chicago OIM E.10762 (online catalogue); Detroit, Institute of Arts 70.656 (Aksamit 2006, 561); Geneva, MAH 20603 (not published); Hannover, Museum August Kestner 1935.85 (Munro 1976, 3, cat. 13); Lyon, Musée des Confluences 90000108 (Hendrickx et al. 2010, 60–2, 109, no. 32); Manchester Museum, 7755 (online catalogue); New York, MMA 07.228.135 (Patch 2011, 47, cat. 39); Private collection (ex Richterlich coll., Page-Gasser & Wiese 1997, 35–6, cat. 15a); Uppsala, Museum Gustavianum, no. unknown (A. de Souza, pers. comm.).

The most frequent vegetal elements found in boat scenes are the fan-shaped bushes, usually placed between or above the boats, or above handles. They are found regularly both with the ibex and the addax, but not on the four vessels which only have gazelles. The bush is also found regardless of the presence of other animal species or human figures. The Naqada plant is much rarer; it is found in only three boat scenes with antelopes (**2.10**, **2.29**, **2.38**). Again, it is found with both the addax and ibex, and with and without human figures, but never with the ostrich. Only one of these vessels also includes the fan-shaped bush (**2.38**). No clear pattern emerges from this small number of examples.

Antelopes in animal scenes

I have catalogued 26 vessels and 3 sherds showing antelopes that are not related to boat scenes and magical jars (Figure 31). I cannot establish whether the sherds on which no part of a boat is visible belong to scenes without boats. This seems likely, however, for **2.87**/**2.90** as well as **2.88**/**2.89**, and **2.91** which are taken into consideration here.

Excluding the sherds, these 26 vessels represent 1.93% of the corpus of D-ware vessels, and 15.12% of those with figural decoration of this type (see Figure 5). The ibex is the most frequently represented animal: there are 12 examples that depict the ibex without the addax (with gazelles on **2.25**, **2.30**, **2.56**), 5 examples with both the ibex and the addax (and numerous other species on **2.51**, see §4.3.2.4 for their identification), and 7 vessels where only the addax is present. Finally, three vessels have no ibex nor addax, but only gazelles (**2.37**); the identification of the animals on **2.77** is too conjectural to be taken into consideration, but they are unlikely to be ibexes.

Three vessels stand out in this list: **2.37**, **2.51**, and **2.56**. In all three, at least one of the animals depicted is a dog, and the scenes may well be classified as hunting scenes. On **2.37**, two dogs together attack a single gazelle. On **2.51**, several antelope species are prey to one dog, which is shown attacking a startled hartebeest that looks back at the dog. Other antelope species are represented

Animal scenes									
catalogue	Addax	Ibex	Other antelope	Ostrich	Other animal species	Humans	Bush	Naqada Plant	Architectural elements
2.19	YES ▲	YES ▲		YES					
2.13	YES ▲	YES				♂			YES
2.51	YES	YES	YES (see catalogue)		Dog	♀			
2.33	YES ▲	YES ▲				♀ + ♂	YES		YES
2.04	YES ▲	YES ▲		YES		♀ + ♂			YES
2.11	YES ▲								
2.03	YES ▲					♂			
2.06	YES ▲								
2.17	YES ▲								YES
2.01	YES ▲				Aurochs	♀ + ♂	YES		
2.73	YES ▲					♂			YES
2.68	YES						YES		
2.12		YES ▲							
2.46		YES ▲		YES					
2.08		YES							
2.07		YES ▲		YES		♂			
2.25		YES	Gazelle						
2.32		YES			Giraffes				
2.30		YES	Gazelle						
2.39		YES ▲		YES		♀			
2.59		YES ▲		YES			YES		
2.56		YES ▲	Gazelle ?	Yes	Dog, etc.?				
2.72		YES ▲							
2.24		YES						YES	
2.37			Gazelle		Dogs?				
2.77	Not certain (Barbary sheep?)				Birds				
sherd 2.87	Not preserved (poss. Ibex)								
sherd 2.88			Gazelle						
sherd 2.89			Gazelle				YES		
sherd 2.90		YES							
sherd 2.91	Not preserved ▲								

Figure 31. D-ware vessels with depictions of antelope species in animal scenes; ▲ indicates that the antelopes stand on triangles.

around the vessel, as well as a woman with raised arms. The juxtaposition of a dog attacking a prey animal and a human figure with raised arms is a close parallel to a scene of the Painted Tomb at Hierakonpolis (Quibell 1900, pl. LXXVII; Hendrickx & Eyckerman 2012, 59). On the third vessel (**2.56**), a dog attacks a series of 5 antelopes (ibexes and gazelles). The two registers above and below contain series of ostriches and other antelopes, as well as other unidentified motifs. Hunting scenes are rare among D-ware vessels, and they are a continuation of the theme that developed earlier: dogs chasing antelopes were

already found during Naqada I–IIB, especially on C-ware vessels (see §4.3.1), and is frequent in rock art (see below).On most other vessels, the antelopes are shown in continuous rows. Vessels from two particular groups are so similar that they were likely produced in the same workshop, and perhaps by the same person. Firstly, three squat globular vessels of similar shapes (Petrie type D49F) are decorated in a similar way, with two rows of animals divided by series of triangles. On **2.12**, ibexes in two rows stand on triangles; on **2.19**, addaxes and ibexes in a row stand on triangles, above a row of ostriches; on **2.7**, a row of ibexes stand on triangles above a row of ostriches, and a man is depicted at the back of the row of ibexes. Secondly, group of six vessels of small dimensions and similar shapes (Petrie type D49B), has been identified by Graff (2009a, 114–6, tab. 4.2). Only two of these vessels have no human figures. On **2.11**, addaxes in a single row stand on triangles; **2.6** is similar, although an animal-skin standard (Graff motif P1) breaks the row of addaxes; **2.3** is nearly identical to these vessels, but also shows a man holding a staff. On **2.13**, both addaxes and ibexes are in contact with men. The addaxes stand on triangles, but the ibexes do not. On **2.4**, two pairs of men and women are among three pairs of addaxes and one pair of addax and ibex; only the men touch the animals, all of which stand on triangles. A row of ostriches is depicted below. The eight addaxes on **2.73** stand on triangles and are divided into four pairs, three of which are in contact with men. Two vessels (**2.1**, **2.33**) share strong similarities with these vessels and belong to this type, although Graff did not include them into the group, because of their different shape and larger dimensions. On **2.1**, two men and a woman stand among 12 addaxes in a row, all standing on triangles, which divide this register from a row of four cattle and two bushes, all set above a row of triangles. On **2.33**, two groups of three men and women stand among three registers of addaxes and ibexes, all standing on triangles. None of the vessels from this group show the ibex on its own, although on three occasion this species is depicted together with the addax (**2.4**, **2.13**, **2.33**). Only three of these vessels have been excavated, and they show a wide range of provenance (**2.3**, Abydos; **2.11**, Abusir el-Meleq, **2.73**, Ballas), which suggests that the vessels were likely spread after they were produced.

The other vessels with continuous rows of antelopes show more variety of styles. The ibex is most important species in this context and the addax is never represented. There are only two vessels with species of antelopes other than the ibex. On a jar found by Amélinau at Abydos (**2.30**), ibexes are accompanied by gazelles, and on the fragmentary bowl **2.88**/**2.89** from Gebel Silsileh, gazelles in a row are on their own. On vessel **2.32**, excavated at Abusir el-Meleq, a row of giraffes are painted below the row of ibexes; on **2.39** an ostrich is painted among the ibexes. This vessel, which has no provenance, is also the only one in which human figures are shown; its style of decoration is rather unusual, and the authenticity of the painting is not certain On the last three vessels with continuous rows (**2.8**, **2.72**, **2.87**/**2.90**), the ibex is the only animal species present. The bowl from Gebel Silsileh is the only one from this group on which a bush is present.

On a double jar from Abusir el-Meleq (**2.77**), the animals, perhaps Barbary sheep, are shown as a series of four animals following one another rather than a continuous series. On two other vessels (**2.25**, **2.59**), the animals are shown in groups with less formal organisation. Finally, on four vessels, the antelopes, exclusively ibexes and addaxes, appear as single individuals, sometimes repeated on different sides of the vessel. The jar **2.24**, possibly from Abydos, and certainly authentic, is the only vessel of this category to show Naqada plants, which are the main decorative elements; the ibexes are shown next to them. The handled jar **2.46** shows ibexes together with ostriches. Areas are individualised by crosshatched areas, but one ibex shares one of those spaces with one ostrich. On the other two vessels (**2.17**, **2.68**), addaxes are shown without any other animal species. Similarly to **2.46**, the two ibexes on **2.17** are placed in areas framed by crosshatched panels. The scene on **2.68** also contains one of the rare bushes painted on this category of vessels.

Human figures appear on nine vessels, and it is probably no coincidence that seven of these belong to the two groups of closely related vessels discussed above. Men can be depicted with women (3 cases) or alone (4 cases); in 2 cases, only women are present. Both genders can be associated with either the addax or the ibex, so that gender was probably not critical in the choice of antelope

species. However, only men are in direct contact with the animals, while women are always represented with their arms raised above their heads, probably a ritual pose.

The decision to include addaxes into a painted scene may have precluded showing any other species, especially when the ibex is absent. The only exceptions are **2.1**, on which a row of four cattle is depicted, and **2.4** and **2.19**, where ostriches are present together with ibexes (I omit the hunting scene **2.52** discussed above). The ostrich is less frequently represented on vessels with animal scenes than on those with boat scenes: only seven examples are known. It is found on scenes where the ibex is the only other animal (**2.7**, **2.39**, **2.46**, **2.59**), and twice where the ibex and the addax are both present (**2.4**, **2.19**). The last occurrence of this bird is on the hunting scene (**2.56**).

As can be seen in Figure 31, ibexes and addaxes often stand on triangles, as do ostriches. This motif is far more commonly associated with antelopes on these “animal scenes” than on “boat scenes”, but it is sometimes omitted.

Vegetal elements are not often included in the animal scenes; the bush is found on four vessels and one sherd, and the Naqada plant only once. The Naqada plant appears with ibexes, but the bush is present with both ibexes and addaxes. It is unlikely that these motifs influenced the choice of species to be represented.

In conclusion, no element of the figural context can be identified as having influenced the choice of antelope species to be depicted, either in boat scenes, or in animal scenes. This seems to contradict the special importance given by Graff (2009a, 79–81) to the addax, especially in the context of so-called “ritual scenes”, where it seems to me that the ibex plays a similar role. In scenes that do not include boats, it is true that ibexes are less frequently represented with human figures than addaxes, but Graff was not aware of the presence of a man on **2.7**, so that there is not a striking difference between ibex and addax. Interaction between man and ibex is found on **2.13**, although in other cases, including those where both ibex and addax are present, the interaction takes place with the addax.

Antelopes on the magical jars

Antelopes are found on four of the magical jars (Figure 32; see §3.3.1 for a discussion of the magical jars). In contrast with the two types of D-ware scenes discussed above, it seems that the nature of the scenes dictated the choice of species: the ibex is the only species represented. For some reason, addaxes or other antelope species were deemed inappropriate in this context. However, ibexes were not necessary for these scenes to carry their value or symbolism, unlike snakes, which are always present and depicted similarly as long undulating lines (e.g. Graff 2009a, cat. 525). Other than the snake, the other animal species associated with the ibex are the scorpions and crocodiles. Vessel **2.66** is the only one in which a human figure – a woman – is present. This same vessel also contains a bush, which is otherwise only seen on **2.48**.

Magical jars								
catalogue	Addax	Ibex	Other antelope	Ostrich	Other animal species	Humans	Bush	Naqada Plant
2.48		YES		YES	Snakes		YES	
2.54		YES		YES	Snakes			
2.62		YES		YES	Scorpions croc. snakes	♀	YES	
2.66		YES		YES	Scorpions croc. snakes			

Figure 32. D-ware magical jars with depictions of antelope species.

4.3.3 Other two-dimensional representations

4.3.3.1 Painted occurrences

At least four seated female figurines, and one standing female figurine, bear depictions of antelopes among their painted decorative motifs. In all cases, these animal figures are present on the backs of the figurines. On **3.3**, The preserved details just allow one to reconstruct the scene. Two dogs attack a Barbary sheep, which had diverging crescent shaped horns, which are only partly preserved. The design of this scene, the silhouettes of the animals, and the cross-hatching of the bodies is very similar to what was painted on C-ware vessels **1.21**, **1.26**, **1.55**, and **1.65**, discussed above. This strongly suggests that the figurine was carved and painted during the same period, Naqada IB–IIA, and because three of the mentioned similar C-ware vessels were found at Naqada, it is not impossible that

the figurine also comes from this area. The scene painted on the back of **3.7** also contains a Barbary sheep, centrally placed, with the same horns as **3.3**, but with the addition of the front mane. From the published photographs, it is quite difficult to figure out the rest of the decoration. In front of the Barbary sheep, a second animal of the same species may be depicted, as some traces seem to indicate a similar shape for the horns. Behind the first Barbary sheep, an ibex, perhaps facing the same direction, may be represented, but it remains unclear whether the two long curved lines are connected to the animal or not. If it were not the case, this last animal could potentially be understood as a dog attacking the Barbary sheep. However, a close examination of the figurine would be necessary to determine this for certain. Until then, I consider here the left-most animal to be an ibex, so that this is not a hunting scene, unlike that on **3.3**. The decoration of **3.6** is very faded, but discrepancies with the published drawings were noted. In particular, the central figure, drawn as a Barbary sheep, is connected to the backside of the hartebeest standing to the right, so that it is possible, though not certain, that the central animal is in fact a hunting dog. If it were a Barbary sheep, its right horn would overlap with the hartebeest. However, I could see on the surface of the figurine the remains of the short strokes interpreted as the chest mane of the Barbary sheep. Another possible interpretation is that the animal was not a Barbary sheep, but another antelope with a chest mane, this detail added in an un-naturalistic manner, in a way similar to **1.25**. The left-most animal is not fully preserved and cannot be identified for certain. Another seated figurine, **3.5**, may have contained a hunting scene painted on its back. A dog, on the left, seems to pursue another animal to the right, which is not sufficiently preserved to allow an identification. Finally, one bovid is painted on the back of the seated figurine **3.4**. It has exaggeratedly long lyre-shaped horns, and is likely a hartebeest.

It is unlikely that the painted figures represent tattoos: the noted similarities with decorations on C-ware vessels allow for a symbolic reading (Keimer 1948), except for bodily details and jewellery, which are descriptive. In a recent article, Hendrickx et al. (2009a, 212–6) propose that these figurines were predynastic equivalents to the xnrt, the female musicians of the Pr-SnDt

attested since the Old Kingdom. Their argument is in part based on Middle Kingdom paddle figurines carved in thin wooden plaques, of which a few bear decorations to some extent similar to the predynastic figurines (Keimer 1948, 25–32; see also Morris 2011), and to the association of "women, ritualised hunting, and Nilotic allusions" (Hendrickx et al. 2009a, 212). However, three aspects need further consideration. First, the proposed association of desert hunting and Nile environment is only found on two of the predynastic figurines (**3.3**, **3.5**); second, the paddle figurines for which a date was proposed do not precede the 11th Dynasty (Keimer 1948, 26–7, ex. α) or more broadly to the Middle Kingdom (Keimer 1948, 28–31, ex. c), so that a direct evolution from the predynastic to the paddle dolls cannot be established. Finally, the animals involved in the hunt on the padded dolls are never Barbary sheep, but lion (Cairo, JE 43088a; Keimer 1948, 29–30, fig. 21) and oryx (Cairo, JE 43088b; Keimer 1948, 29–30, fig. 22). It is difficult to ascertain whether historic concepts, such as an organised group of xnrt, can be applied as such to predynastic culture. In my opinion, the time difference between Naqada IIB and the Old Kingdom is too wide to envisage a direct link between the painted figurines and the xnrt; the paddle dolls being even more recent, a relationship between those and the predynastic figurines is even less likely. However, it is not impossible that both types of figurines are associated with midwifery (Hendrickx et al. 2009a, 214). The hippopotamus figures described above, depicted on the bellies of the female figurines, may have been intended to express protection in the context of motherhood or childbirth, rather than power (see below), and the same can apply to the desert hunts shown on the back of the figurines.

The best examples of painted antelopes are found on the main wall of Tomb 100 at Hierakonpolis (**3.8**). The large size of the figures allowed the painter(s) to be more realistic and precise than in the other painted examples, driving Quibell and Green (1902, 21) to remark that "the animals especially [were] very spirited in execution". Several species are depicted, and are found on several parts of the wall, which is here divided in six parts (see catalogue). In area ①, five antelopes are captured by a circular trap. Three of them have horns that

point toward the front at the tip, and are likely to be gazelles (see above). One is painted brown, one black and white, the last one grey. Two other antelopes, fully white, have very short crescent-shaped horns. They may be seen as gazelles, or perhaps as dibatags. Gazelles' coats are mostly sand-coloured, brown, and white, so that the colours of the antelopes on the paintings do not appear to reflect the natural appearance of the species, and are not helpful for the identification of the species. However, it is not certain that the colours at the time of discovery had not changed, or degraded, with time.[74] Next to the trap, a hartebeest is seen looking backward. He is lassoed, and was perhaps connected to a human figure that has disappeared.

Area ② contains four recumbent ibexes on a ground line, located as if dominating the whole scene, as they would from the top of a cliff, their natural habitat. Their horns are strongly curved and serrated, but their coats alternate in colours, again confirming that the painter(s) did not feel the need to be absolutely naturalistic. These animals do not appear to be hunted. In area ③, below two of the boats, four antelopes are only partly preserved. A small antelope is likely a gazelle with horns that point toward the front, and it is painted above a white antelope with long curved horns, which could either be an ibex, or an oryx. It is impossible to determine this for certain. The antelope to the right cannot be identified because its head and horns are not preserved, but the animal to the right, with a black coat and white head and neck, is likely and oryx. None of the animals in this area appear to be hunted. Group ④ contains two gazelles in unusual positions. They are tied by their feet and represented head-to-tail. Their coats are brown and black. In area ⑤, two ibexes face one another, and are attacked by one dog each; a human figure with raised arms appears to be part of the scene too. In the last area ⑥, a dog chases three animals, perhaps oryxes, that are only partly preserved.

This wall decoration gives us a glimpse of the artistic achievements that predynastic Egyptians could achieve, of which only a faint idea can be gathered from the other painted examples, especially on ceramics. However, it also shows

[74] For example, according to Quibell and Green (1902, 21), the five white boats were originally covered in bright malachite-green pigment, that had fallen off the wall. However, if all pigments in Tomb 100 are mineral-based, their appearance would not have changed over time.

that if different species were represented, and clearly differentiated, not all their details were naturalistic, and we must remain cautious not to give too much importance to some details, especially if they tend to indicate a species otherwise not found in the record.

4.3.3.2 Incised material

Antelopes are found incised on a variety of media, such as palettes, ostraca, and ostrich eggshells,[75] but most prominently on ceramic vessels, which are preferably, when the information is known, of the B-ware variety.[76] Because of their sizes and of the complexity of some, these incised drawings should be considered as decoration – technically different yet similar to contemporaneous C-ware decoration – rather than potmarks aimed at indicating content, origin, or ownership of the vessels, although distinction between the two is not always certain. A significant difference between C-ware and incised decoration is that the former was applied before firing, the latter after firing. Incised decoration may have been made any time after the vessel was produced until its funerary deposition. Some sherds were likely incised after the vessel broke, and are considered here as ostraca (e.g. **4.15**, **4.16**). These were found in settlement contexts.

As seen with the hippopotamus (§2.3.1), and the crocodile (§3.3.1), it is not rare for a single animal to be incised on the body of a vessel, despite the large amount of space available for additional motifs. It is therefore not surprising that the same trend is observed with antelopes. On **4.3** and **4.4**, a single Barbary sheep is incised on each vessel. They come from the same cemetery at Abadiya

[75] A rectangular ceramic house (Toronto, Royal Ontario Museum, inv. No. 900.2.45) with painted and incised decoration is not included in the catalogue because its authenticity, or at least that of its decoration, is not certain. I briefly saw the object on display in Toronto in September 2014, and I observed differences between the painted and incised decorations, as if they were not done at the same time. On one if the short sides of the house, a dog attacks a Barbary sheep and, below, a second dog bites the back leg of another antelope with straight horns; a beard, suggestive of an ibex, is only painted, and not incised like the rest of the figure. William McHugh (1990, 269, fig. 3) suggested that ibexes are also present on one of the long sides of the model (above the "doorway"), but this wasn't clear to me.

[76] A vessel with no known provenance in the collections of the Oriental Institute in Chicago (OIM 10542) is a R-ware rolled-rim jar with incised decoration that includes two antelopes attacked by dogs. One has horns that point frontward, the other horns that curve toward each other; the latter may be a Barbary sheep, the other one perhaps a gazelle (Naqada I–early Naqada II; Williams 1989).

and closely resemble each other, despite the apparent chronological difference between the date of their respective tombs (Naqada IIB and Naqada IC–IIA respectively). Their bodies are both filled with crossing lines, and they both have chest manes indicated. On **4.5**, a single ibex is incised, and on **4.8**, a gazelle has long S-shaped horns. These horns may be mistaken for those of an addax, because of their length, but the thin silhouette of the animal, with its long neck, is more suggestive of the shape of a gazelle. There are two further vessels with incised antelopes that did not come to my attention and are not included in the catalogue. Two gazelles with horns similar to those on **4.8** follow one another on three mending sherds of an undated B-ware vessel from Armant (settlement site 1000, no context; Manchester Museum inv. 10189; Mond & Myers 1937b, 166; 1937a, pl. LV, fig. 4). A partly preserved hartebeest is incised on a sherd from a large storage jar found at Locality HK11C at Hierakonpolis (Operation B, feature 3, Naqada IC–IIB; Baba 2009, 23).[77]

An ibex is incised on vessel **4.12**, and it is attacked by a dog biting its rump. It is not the only hunting scene on incised vessels: on **4.11**, a dog, represented in front of a Barbary sheep, and possibly two ibexes, is probably to be understood as chasing the animals. However, the vessel on which this scene is incised has not been identified, and it remains uncertain if the series of animals runs around the whole vessel. Vessel **4.7** has the most complex of all the incised scenes. Ten antelopes and a hare, divided in three registers, are chased by two dogs. The five ibexes and five gazelles, are only differentiated by their horns, which are long and S-shaped for the gazelles. Compared to them, the hare and the dogs are oversized. This especially the case of the dogs; their role is emphasised by them being larger than the other animals of the scene.

Vessel **4.10** is also likely to be understood as a hunting scene. As seen above (§2.3.1), the incised hippopotamus is perhaps shown after having been killed, with blood pouring form its neck, or perhaps shown tethered by a rope passed around its neck. On the opposite side of the vessel, an ibex is incised over three lines that form a right angle, and near which a “tassel” design is also incised. It has been suggested that the three lines may be the representation of a

[77] Not included in catalogue.

flat-hulled boat with high prow (Engelmayer 1965, 66, note 78; Midant-Reynes 1994, 231, note 15). The association of the boat and "tassel" in the same scene is not unprecedented (see **1.19**). It may mean that a boat was intended, and the boat and "tassel" can be seen as an abbreviation of a hunting scene. There seems to be only one vessel with multiple figures that is not a hunting scene. On **4.14**, from Naqada, a gazelle (or oryx?) is incised before a Barbary sheep and two birds. A giraffe is incised upside down below them. Unfortunately, this vessel is not yet identified, so that the drawing published by excavators cannot be verified. This vessel may also be slightly later than the others, although there are some doubts if the tomb it is listed from (Tomb 1475) is indeed the correct one, because there is no mention of it in Petrie's notebook.

Two incised pottery sherds, or ostraca, found at Hierakonpolis bear depictions of antelopes. Sherd **4.15** is incised on both sides, once with an ibex pierced by two arrows and a fish, and once with a gazelle. The practice to incise a sherd on both sides with similar – but different – motifs has been interpreted as a recording of a transaction between two parties, such as a delivery (Friedman 1997). Other similar sherds have been found, often with geometric patterns, but at HK11C, an ostracon with an animal-like figure on one side was recently excavated in Structure C3–4 (Baba et al. in preparation). The second ostracon with antelope (**4.16**) comes from the Wall Trench at HK29A (Naqada IIB–C, see §1.5.1). It is too schematic to propose an identification of the intended species. At least two other sherds from the wall trench were decorated with incised animals, but it is not clear if antelopes were intended (Friedman 1994, 719–20, fig. 9.69c, c).

The selection of antelope species incised on palettes is limited to gazelles and one Barbary sheep. There are three palettes with incised antelopes. On **4.17** and **4.18**, gazelles are clearly intended, with S-shaped horns. On the first palette, a single gazelle is attacked by another animal, possibly a hyena. On the second one, several gazelles are attacked by dogs, on both sides of the object. On **4.19**, at least one gazelle is likely to be attacked by a dog, while, on the other side of the palette, another gazelle is seemingly not hunted. Nearby, a dog attacks a Barbary sheep.

The two incised ostrich eggshells that bear incised images of antelopes are quite different. On **4.23**, two hartebeest, with delicate lyre-shaped horns, follow one another. Their bodies are similarly filled with chevron designs. **4.24** bears a much more complex scene, with animals on one side and an unparalleled design on the other side. One antelope has long curving horns. I identify it as an ibex, following Kantor (1948, 46), although Hendrickx (in Teeter 2011, 158–9) more recently recognised an oryx. A small dog is incised behind it. In front of the ibex is likely a gazelle, perhaps with another, smaller, gazelle above it. Hendrickx suggested that this animal could be a hunting dog, but it would unusual to have two dogs depicted in such different ways on one object, and, moreover, with a silhouette mirroring that of the gazelle so closely. The relative positions of the two larger antelopes, which are joined by their front legs, and the circle incised between them has not been discussed, but it is likely that the scene should be understood as two animals ensnared in a circular trap, as was seen on **1.17** and **3.8**. The "feathered" elements incised immediately below their heads might be more related either to their killing, their capturing or their tethering. The small dog noted behind the ibex is not shown in an attacking position, as if it were not the active element of the scene, but it does mean that humans were involved in what is depicted. Perhaps the large zigzag design, that occupies more than half of the surface of the eggshell, should also be considered in this context, rather than as a series of stylises ostriches as suggested by Hendrickx (in Teeter 2011, 158–9). Indeed, the "curved ends" which he saw as birds heads are mirrored by curved ends at the other extremities of the design. Should this strange design be seen as an architectural element, possibly a fence, or coral, built in order to capture the animals, or as the enclosure in which the animals were later kept captive? This remains uncertain, but it seems clear to me that the context of the decoration on this eggshell is the capture of an ibex and a gazelle by means of a trap, and not a hunting scene in the more usual way, where the animals are chased by dogs. An egg with similar incised decoration was found within Structure 07 at Hierakonpolis (Naqada IIB; Friedman 2007b). A dog (?) chases quadrupeds. However, the fragments do not preserve details of the heads or

eventual horns, so that the species cannot be identified, although antelopes, giraffes, and elephants are likely candidates.

4.3.3.3 Carved knife handles and comb

There are two types of scenes on the decorated knives handles. The first type contains vertical rows of animals (**4.25**, **4.30**, **4.31**), tightly following one another toward the blade end of the handle. The comb **4.32** is decorated with motifs similar to those of these handles. On the second type of handles, the scenes are oriented vertically, with the blade toward the bottom of the handle; the scenes are quite dissimilar on both sides (**4.27**–**4.29**). The fragmentary knife handle found at Abydos (**4.26**) seems to be of a separate type.

On the handles with animal rows, the antelopes do not play a particularly prominent role and are intermingled with other species, both domestic and wild. On the Abu Zeidan knife handle (**4.25**), the boss side of the handle contains three rows with antelopes: one row of ibexes, one of Barbary sheep, and one of oryxes. On the reverse, one row of Barbary sheep and one row of oryxes are carved at the same levels as on the boss side, but the row of ibexes is replaced by one of storks and giraffe;[78] there is an additional row of oryxes at the bottom, mirroring a row of oxen. Ibexes and oryxes are almost identical, but can be differentiated by the addition of goatees on the muzzles of the ibexes. Some of the rows are followed by a dog, while the bottom row of oryxes on the flat side are followed by a catfish.

The so-called Pitt-Rivers knife handle (**4.30**) is broadly similar in design, although the animals are larger and less tightly packed. The surface of the ivory is not very well preserved, but it is possible to see that on all rows but one, the same species are repeated. The exception is the row with antelopes, where different species follow one another. Only the end of the row is preserved. The last animal is a Barbary sheep, and it is preceded by an oryx or ibex, a gazelle, and possibly a kob. The details of the head of the kob are not thoroughly clear,

[78] The giraffe and storks are usually placed in the second row, below one of elephants walking on snakes, except for **4.31**, where the elephants on snakes are absent, and the giraffe and storks in the first row.

and the identification is not certain. It could also be seen as another gazelle, or even as a donkey, as it seems to have particularly long ears.

On the so-called Carnarvon knife handle (**4.31**), antelopes are again found only on the boss side of the handle, which is heavily damaged. One hartebeest can be seen, probably attacked by a dog and standing in an aggressive posture, goring an unidentified animal placed in front of it. An oryx or ibex, visible near the bottom, is attacked by a dog. There might be another antelope on the right end of the handle, but this cannot be determined for sure.

The ivory comb **4.32** is decorated in a similar way. On one side, a row of ibexes or oryxes follow one another. As on **4.31** and **4.30**, the distinction between oryx and ibex is not certain, unlike on **4.25**.

Of the three knife handles of the second type, on which the decoration is arranged vertically, two are in ivory (**4.27**, **4.28**), and one in gold (**4.29**). The Abydos knife handle (**4.27**) is only partly preserved and some of the decoration cannot be reconstructed; the only antelope that can be identified is a recumbent ibex shown on the flat side of the handle. It appears well-detailed, with a goatee very similar to the ones on the Gebel el-Arak knife handle (**4.28**). It is likely that other antelopes were represented, including two animals lassoed by the standing men carved on the boss side of the handle. The Gebel el-Arak knife handle (**4.28**) is better preserved, and shows a few antelopes on the lower part of the boss side; an ibex follows a gazelle, both facing toward the left. The scene below is more surprising: a lion attacks an large animal from behind, and an ibex (Delange 2009, 14, suggests that it is a Barbary sheep, but this is unlikely because of the characteristic shape of the horns), shown as if fleeing the hunter represented behind it and who appears to have lassoed its back leg, if depicted as if climbing over the back of the lion. In the lowest register, a dog (?) held on a leash by the hunter attacks another animal, perhaps a type of antelope or an aurochs, but the front part of the animal is not preserved, so that it cannot be identified. The antelopes impressed on the gold foil of the Gebel el-Tarif knife handle (**4.29**) are all shown on the flat side. In the uppermost register, a gazelle is attacked by a spotted leopard and, below, an oryx facing the opposite direction is attacked by a lion. In the third register, a dog attacks an animal that cannot be identified. At

the bottom of the scene, an ibex is attacked by a winged griffin that has a somewhat different appearance from the griffin on the Two-Dog palette (see below).

4.3.3.4 Seal impressions

At Abydos, several seal impressions dated to Naqada IID have been found in Cemetery U (Hartung 1998a). Three of these impressions were made by cylinder seals incised with figures of antelopes.[79] According to reconstructions, a cylinder seal from tomb U-127 contained a series of five severed ibex heads oriented to the left and a series of four fish oriented to the right below (Hartung 1998a, 191–2, seal no. 4, inv. no. Ab K 830a, fig. 3, pl. 20e). On the two other cylinders, the figures of complete animals were used. The impression found in tomb U-134 clearly shows animals in three registers of alternating direction that all seem to be ibexes, except one in the middle register, which is perhaps a dog chasing the animals (Hartung 1998a, 194–6, seal no. 11, inv. no. Ab K 2087a, fig. 5, pl. 21a, b). Two antelopes are visible on the last seal impression, which was found in tomb U-361. They may be ibexes, although this is not certain; they could alternatively be identified as oryxes (Hartung 1998a, 202–3, seal no. 25, inv. no. Ab K 3494a, Abb. 9). A further seal impression, from tomb U-362, may also preserve the silhouettes of two antelopes, but this cannot be confirmed because of the fragmentary state of the impression (Hartung 1998a, 203–4, seal no. 27, inv. no. Ab K 3296, Abb. 9).

A seal impression found at Abusir el-Meleq in tomb 1035 dates to Naqada IIIA1 (Scharff 1926a, 58, fig. 27, pl. 35, 379; Kaplony 1963, no. 71; Hartung 1998a, 209–10, seal h, fig. 11). The decoration appears less strictly organised than on the impression from tomb U-134, but three registers are nevertheless visible, with four ibexes in the middle one. One of the ibexes looks backward as a dog bites its hindquarter. A faience cylindrical seal of later date was found in a room of the so-called administrative cultic centre on Kom W at Tell el-Farkha (Naqada

[79] Not in catalogue.

IIIB–IIIC; Ciałowicz 2008, figs. 12, 13), on which two ibexes are orderly placed in the single incised register.[80]

These seals, among others which do not bear images of antelopes, are evidence of late predynastic administrative control of goods that is best exemplified by Naqada IIIA2 impressions found in tomb U-j at Abydos (Hartung 1998a; b). At least two of these seal impressions have images of antelopes, all probably oryxes that could also be seen as heavily stylised ibexes (Hartung 1998b, fig. 12, seals c and e). These seals were applied on imported vessels from Palestine but were made of Nile mud, so that despite the goods being foreign in origin, the seals were owned by Egyptian officials (Hartung 1998b, 46). The exact meaning of the seals cannot be determined, but it is clear that they have an economical dimension; they may have given indications about the provenance of the products, but it seems more likely that they are the distinctive sign of the administrative unit or of the official responsible for the management of the goods (Hartung 1998b, 48). It is not possible to determine where the vessels were sealed; as suggested by Hartung (1998b, 46), this could have taken place when the vessels entered Egypt, perhaps in the eastern Delta, or when they arrived at Abydos, but it cannot be excluded that the impressions were made in relation with the preparation of the funerary equipment of tomb U-j.

4.3.4 Three dimensional representations

Carvings of ibexes in the round, at the exclusion of any other species of antelopes, exist since the Badarian period. One pendant was shaped as the head of an ibex (**7.79**), with rather short but deeply serrated horns. The tradition of carving figurines atop objects also finds its origins during the Badarian period. Ibexes were carved at the end of the handles of three ivory spoons from Badari (**11.3**, **11.4**) and Mostagedda (**11.5**). The ibex on **11.4** is the only one which stylistically resembles the later depictions, although the horns are bigger, and with well-detailed serrations.

[80] Identifications of other animal figures from Tell el-Farkha as gazelles is not certain, except perhaps for a small late predynastic–early dynastic serpentine pendant (Ciałowicz 2008, 22–3, fig. 2).

During the Naqada phases of the predynastic, carvings of antelopes in the round remain rare. They are mostly limited to palettes and flint figurines, which have more of a two-dimensional quality to them, and as small figurines atop combs and hairpins.

For the shaping of cosmetic palettes, only two antelope species were apparently used. Because the animals, and especially their horns, are very stylised, the identification is not absolutely certain, but the palettes with strongly curved horns are all considered to represent Barbary sheep, while those with lyre-shaped horns are considered to represent hartebeest. There are two distinguishable types of "curved horns" designs. In the first one, the horns project away from the head, but are linked to the neck at their tips, leaving a drilled circular depression between the head an the horns (**8.12**, **8.14**, **8.15**, **8.17**). This type could potentially be identified as ibexes, but one would expect the horns to be larger. Moreover, as the horns are "detached" from the head, there would not have been any particularly challenging issues to link the tips of the horns to the back of the animals, rather than the neck, usually even above the ear. Because this seems to indicate a rather short horn, it is more likely that a Barbary sheep was intended. The only dated example, from Naqada, dates to Naqada IC (**8.15**).[81] This example has a tail indicated, as well as two short legs. This is quite different from the palette from Matmar (**8.14**), which has no tail and a single stump at the bottom instead of legs. Palette **8.12** is extremely similar to **8.15**, including the peculiar shape of the muzzle to the extent that it must have been carved by the same person, unless it is a modern imitation (there is no information regarding this object prior to 2005). The head of the Barbary sheep palette **8.17** is particularly damaged, to the extent that the animal has been identified as a hippopotamus, but a close examination of the object allowed to correct this, because just enough of the round drilled hole that separate the horns from the back of the head is preserved.

The second type of palettes with curved horns is quite different. The horns are incised along the top and back of the head and then down under the chin

[81] According to the "List of tombs and contents" (see Volume II), tomb 3073 at Matmar, in which **8.14** was found, cannot be dated. However, Ciałowicz (1991, 38) suggests a date of Naqada IIa, which would be coherent with the similarity of style between the two palettes.

(**8.10**, **8.11**, **8.13**, **8.16**, **8.18**). This represents the horns of the Barbary sheep more realistically than the first type. The silhouettes of the animals are also much rounder, and the Barbary sheep are also always shown in a recumbent position, with their legs folded bellow their bodies, sometimes with precise details of the hoofs (esp. **8.16**, **8.18**). This last palette has a unique posture, with the animal looking backward. The exact appearance of **8.11** is not certain, because the object has not been located, and no illustration were published by the excavators. One palette, found without a head at Naqada (**8.28**), is shaped with a posture matching exactly those of this type, and it is possible, though not certain, that a Barbary sheep of "type 2" was intended. The examples from Abusir el-Meleq (**8.10**, **8.11**) can be dated broadly to Naqada IIC–IID according to the period of use of the cemetery. The same is true of the palette from Hierakonpolis (**8.13**), and the tomb in which the headless palette **8.28** was found dates to the same period. It is therefore likely that the different treatment of the horns reflects a temporal evolution, rather than the depiction of two different species.

There is a similar number of palettes which represent hartebeest. The horns project from the top of the head, and are either separated from each other entirely (type 1, **8.19**, **8.27**, probably **8.20**–**8.22**), or they join again before diverging again at the tips, only leaving a circular drilled hole (type 2, **8.23**, **8.25**, probably **8.26**).

There is only one intact palette of the first type (**8.19**). This palette closely resembles **8.27**, of which only the extremity of one horn is missing, to the extent that the objects must have been made by the same person, unless **8.19** is a modern copy of **8.27**. There is no information about this object prior to 2005. Similar doubts have been raised about the palette **8.12**, which was likely purchased together with **8.19**, so that the authenticity of these two objects is not very likely. The only two examples of this type with a provenance can be dated to Naqada IIA–IIB (**8.20**, **8.21**), but their horns are only partly preserved. **8.20** is also shown in a very different posture, with a more upright body. All the palettes of this group have an emphasised hump on the back, which is characteristic of the hartebeest, and would comfort the proposed identification.

The three palettes representing hartebeest of the second type are quite different. The bodies are rounder and larger, and the animals stand on short stumpy legs that can be well detailed, especially on **8.25**. None of these palette has a known provenance, but because **8.25** was purchased from G.J. Chester by the British Museum in 1886, at least this example is most certainly a genuine palette. Although they cannot be dated, I tentatively suggest that they may be later than the type 1 of hartebeest palettes. This assumption is based on the treatment of the head of **8.26**. The muzzle is flared, or "trumpet-like", in a way reminiscent of the way antelope muzzles are often painted on D-ware vessels. If this were correct, these palettes would more likely date to Naqada IIC–IID, and would represent an evolution from the type 1, rather than the depiction of another species of antelopes.

The selection of antelope species knapped in flint is larger. The most common one is the ibex. One complete (**9.6**) and one near-complete (**9.7**) examples were excavated at the elite cemetery HK6 at Hierakonpolis. The animals stand on long, straight and pointy legs, and have large, strongly curved horns. They are knapped in a nearly-identical manner, and closely resemble a figurine (**9.10**) purchased in Qena by Borchardt in 1902, validating the authenticity of this piece.[82] The seller of the object advertised it as coming from Kom el-Ahmar (i.e. Hierakonpolis),[83] which is a realistic provenance in light of the figurines excavated there since then. Also from the same site, two fragmentary figurines may represent ibexes (**9.8**, **9.9**), but the heads and horns have not been recovered, so that their identification remains uncertain.

The Barbary sheep is represented by two figurines. The first one (**9.11**), also excavated at HK6, is different from most other figurines: only the head of the animal is knapped, rather than the entire body. Despite this selective approach, the animal can be identified with certainty by the crescent shape of the horns, which frame the muzzle. The other figurine (**9.12**) is of a different style, but because it was purchased together with **9.10**, its authenticity is almost certain, as is its provenance from Hierakonpolis. The hartebeest figurine (**9.13**),

[82] The lower part of the legs are different, but the tips are missing on **9.10**.
[83] Information kindly provided by Robert Kuhn.

with delicate lyre-shaped horns and characteristic hump on the back, belongs to the same purchase. It is so far the only example of this species in flint. The last figurine represents a gazelle (**9.14**), with S-shaped horns. Unlike the examples mentioned above, it is however not knapped with the same, bifacial, technology. It is rather a re-worked flint flake, and it cannot be assumed to either come to Hierakonpolis, or to belong necessarily to the same period. Because it was purchased in Alexandria as early as 1898, it is likely to be a genuine figurine.

There are at least 12 combs with small figurines of antelopes carved on their upper edge (**10.5**–**10.16**). In two cases, the preservation of the horns, which were very fragile projections, is not sufficient to allow a precise identification of the species (**10.15**—**10.16**), although the width at the base of the horns of **10.15** tends to suggest that it was an ibex. In the majority of the other cases, the ibex is the one which is the most often represented (**10.5**—**10.9**). It is more easily recognised in **10.9**, where the tip of the long horns are joined to its back, and the silhouette is stocky. **10.6** and **10.8** have similarly shaped horns, but the legs of **10.6** are particularly elongated, and it is not certain if **10.8** is predynastic. This last comb is the only one on which the rectangular area from which the teeth protrude is decorated with incised zigzags. The figurines of **10.5** and **10.7** have rather short horns, but they curve backward and can therefore be identified as ibex horns. Two combs clearly show hartebeest (**10.10**, **10.11**), which have long legs and delicately carved lyre-shaped horns that are fully separated from each other. On **10.10**, the hartebeest's hump on the back is represented by a small protuberance at the appropriate place. There is no such feature on the other comb. There is one certain depiction of a gazelle atop a comb (**10.13**), with S-shaped horns. It is possible that **10.12** and **10.14**, which both have broken off horns, were also representations of gazelles, because of their thin silhouettes and elongated legs. However, as seen with **10.6**, for example, these criteria are not necessarily limited to the gazelles. But in both of these cases, the horns are particularly thin at the base, which seems to be more in line with the base of short S-shaped horns, rather than the longer, and usually thicker horns of ibexes.

Three hairpins (**10.18**–**10.20**), all fragmentary, were also decorated with figurines of antelopes at the top. Only one has its horns well preserved (**10.19**);

they are S-shaped, but oriented quite horizontally. It is likely the depiction of a gazelle, rather than a kob, although some doubt remains. The horns of **10.18** are rather thin, but the preserved part seems to exclude a shape in "S", so that it is more likely an ibex. This is potentially the case of **10.20**, but a re-examination of the artefact, which I have not been able to locate, would be necessary to determine this for sure.

4.3.5 Discussion of the material culture and comparison with rock art

The survey of all the objects with representations of antelopes shows that the most commonly depicted species was the ibex, which is found on 75 objects (41%). The addax is the second most common species: it is found on 38 artefacts, all of which are painted D-ware vessels. It is never found elsewhere. Gazelles (31 objects) and Barbary sheep (30 objects) come next, with slightly smaller numbers than addax. Hartebeest (22 objects) and oryx (11 objects) come last. Several representations of antelopes could not be attributed to specific species.

It is evident that the selection of species was not random, and that some species predynastic Egyptians would have known were shunned. There is not a single certainly identifiable representation of a kob or of a dibatag in the corpus. Graff identified a kob on the painted vessel **1.54**, but this interpretation is probably not correct. The figurine atop the hairpin **10.19** could potentially fit the description of a kob, but the horns of some gazelles with their heads raised also appear horizontal. Finally, the antelope on the knife handle **4.27** which could potentially be seen as a kob, may be another entirely different species, such as a donkey. As for the dibatag, the only possible representation would be on the painted wall of Tomb 100 at Hierakonpolis (**3.8**), but this may be simply a variant of the appearance of a gazelle.

Antelopes species were frequently depicted in rock art, and a full survey is beyond the limits of this thesis. Data for the Eastern Desert is not very detailed; although Winkler (1938) originally distinguished between species such as Barbary sheep, antelope, gazelle, gerenuk-gazelle, and ibex, more recent studies are less specific. Judd (2009) considers separately ibex, addax, oryx, and gerenuk, while

Lankester (2013) only distinguishes between ibexes and "antelopes", grouping under this term gazelles, hartebeest, and other species.

Because most sites in the Eastern Desert are only partly illustrated and described or entirely unpublished, it is not possible to verify these authors' identifications. In general, animals with large backward curving horns are considered to be ibexes. For Judd (2009, 20), animals with S-shaped horns and long necks are gerenuks, despite the absence of that species in predynastic faunal remains and in the material culture;[84] these examples should perhaps be identified as gazelles, which do not have particularly short necks in nature. This is almost certain, for example, for his Tracing 17 (Judd 2009, 25).

There are large differences in the numbers of specimens cited by these two authors. For examples, Judd (2009, 17) mentions 181 sites with ibexes (almost 82% of all sites), of all periods including some that are probably recent. In contrast, Lankester (2013, 38–9) counts 505 individual figures of ibexes at 156 sites, which appear in 217 instances (i.e. groupings). Regardless of these discrepancies, it seems evident that the ibex was the species of choice for depictions on rocks: there are only 30 sites with "gerenuks" (Judd 2009, 20), 27 sites with oryxes (Judd 2009, 19–20), and 14 sites with addaxes (Judd 2009, 19).[85] According to Lankester (2013, 39–40), there are 327 individual "antelopes" at 114 sites, grouped in 143 instances. In short, the ibex appears to represent 60% of all depictions of antelope species. Without analysing each rock art site and each antelope depiction, it is not possible to determine how many are of predynastic date; moreover, at least some of these species were represented until recent times.

Two other observations that can be made are valuable. First, there is a clear concentration of antelope petroglyphs in the region of Wadi Umm Salam (Judd 2009, map 6), a pattern that was observed above for the hippopotamus and crocodile. As previously mentioned, this may be because a high percentage

[84] Petrie (1953, 13–14, pl. C9, D,) and later Spencer (Spencer 1980, 79–80, pl. 64) considered the long-necked animals carved on the reverse of the battlefield (British Museum, EA 20791) and Louvre palette (Louvre Museum, E 11052) to be gerenuks, but these animals are generally accepted to represent giraffes (among others, Bénédite 1918, 4; Ciałowicz 1991).

[85] Judd doesn't state whether these numbers refer to rock art sites or individual representations of these animals.

of all recorded rock art sites is in that region. The second useful piece of information is that ibexes are hunted in 47% of 217 instances, and the rest of the "antelopes" in 49% of 143 instances (Judd 2009, 39–40). However, the figure for the ibex seems to be very different from that in Judd (2009, 17), who stated that there are 16 hunting scenes among 181 sites. Again, without detailed lists and illustrations, it is not possible to decide which figure is more likely to be correct. Oryxes are also sometimes depicted as hunted, with at least one example in Wadi Mineh and one in Wadi Mu Awad (Judd 2009, 19–20).

Rock art closer to the Nile Valley often includes depictions of antelopes. Near Aswan, at least one ibex has been identified at Nag el-Hamdulab (site 7, Hendrickx et al. 2012), and one possible gazelle at Gebel Qurna (Wall II, Naqada I; Gatto et al. 2009, 153, not illustrated). Further north, at Hagar el-Ghorab, near the modern Kubaniyeh bridge, ibexes have been noted, of which at least one is chased by a dog (wall Vf, Naqada I and wall Vg, Naqada II; Gatto et al. 2009, 157). Across the Nile, to the east of the river, in a small khor tributary of Wadi Abu Subeira, rock drawings contain several antelopes (site KASS 1, also known as CAS-2; Gatto et al. 2009, 159–165).[86] Not all have been illustrated, but they include an ibex with its leg in a trap, as well as gazelles and ibexes chased by dogs.

At el-Kab, ibexes and other "antelopes" in rock art have been reported but not illustrated (Huyge 2002, Tab. 1). Three petroglyphs of "antelopes" have been dated to Naqada I (Horizon I); no ibex is recorded for that period. In contrast, during Naqada II, ibex is twice as frequent as all other species of antelopes together (Horizon II , 19.2% vs 10%). All species of antelope became rarer during Naqada III–early dynastic period, but ibex remained more common than others (Horizon III, 7.2% vs 4.3%). However, Huyge's dating system is not independent, but based on comparisons with Nile valley mobile art.

A few antelopes have been recorded among the rock art at Hierakonpolis. Ibexes are the most numerous and the only species found at more than one location. At least three ibexes are depicted at locality HK61b, in a scene that

[86] Storemyr et al. (2008) mention ibexes and one hartebeest at Wadi Abu Subeira, dating to the late Palaeolithic: these are not discussed here. There are other unpublished petroglyphs with antelopes, including ibexes, in the wadi (Storemyr 2012).

includes boats, although these may be later additions; several other more lightly pecked animals nearby may be hunted gazelles (Friedman 2008b). At least four ibexes were found in Wadi el-Pheel, at the same site as a hartebeest and an aurochs, but not in the same scene; an isolated figure of a possible gerenuk was also found a little away to the north (Hardtke 2012b). This animal could be a gazelle rather than a gerenuk, but its neck is extremely long and thin, so that this identification may be correct. Three Barbary sheep have been recorded at site 12–24; the larger of the two, which is chased by a dog, is more detailed, but both are clearly identifiable (Hardtke 2013a; b, 107–8). An oryx, over which the outline of a sandal was later incised, was found in Wadi Sharafa (Hardtke 2013a, 17–8).

Finally, there are several predynastic depictions of antelope species in the Qena bend area. According to Hendrickx (2009a, 221), there are at least 188 images of identified horned quadrupeds in Wadi Was-Ha-Waset, of which 13% are Barbary sheep (Hendrickx et al. 2009a, fig. 27). There are no statistic for other species and a discussion of all the published images is beyond the scope of this research. However, a few sites can be mentioned. A group of hunters, some with branches or feathers on their heads, are incised at site WHW 86; a Barbary sheep followed by a gazelle are part of the same scene; it is unclear, but likely, that they represent the success of the hunt (Darnell 2009, 88, fig. 7). At nearby site WHW 84, an oryx (?) with very long straight horns is also incised in proximity to hunters, of which one bears two hippopotamus images on his chest; this scene may have the same meaning as the one at WHW 86 (Hendrickx et al. 2009a, 217–8, fig. 23). At site WHW 55, a hartebeest is depicted as if standing in a boat, and an ibex, facing opposite direction, is incised below the boat (Darnell 2009, 92–2, fig. 13). Although the hartebeest and the boat are partly superimposed, Darnell suggests that both figures were carved at the same time, and that the hartebeest is to be understood as a symbol of the netherworld riding the night barque. The boat is towed by a multitude of vertical strokes that Darnell interprets as abbreviated human figures; he also interprets the boat as being led into the mountain through a crack in the rock surface. In the Wadi of Horus Qaa, a long tableau includes two scenes of interest (Darnell 2009, 97–9, figs. 19, 20). On the

left part of the tableau, four dogs are shown attacking a Barbary sheep that looks backward (Hendrickx et al. 2009a, 221–3, figs. 28, 29), and to the right an oryx (?) that appears to have its legs trapped. Darnell parallels this tableau with Tomb 100 at Hierakonpolis and dates it to the Late Naqada II. Similar scenes with Barbary sheep have been found much further away in the western desert, to the south west of Dakhla Oasis, most notably at Meri (sites 06/12a and b and 02/50; Hendrickx et al. 2009a, 196–9, 201–5). At Gebel Tjauti, two ibexes, one at a large scale, likely predate the Naqada IIIA1 tableau that has attracted the most attention since its publication (Friedman & Hendrickx 2002, 11).

This survey of some rock art that is close to the Nile Valley shows that the ibex is the dominant antelope species at most sites, as is the case further into the Eastern Desert. It is not possible to discuss the relative frequency of other antelope species, because of the lack of published details and the uncertainty of many identifications. However, it appears that addax may be entirely absent from rock art near the Nile valley, in contrast to the Eastern Desert, where several images of that animal have been noted. In the Nile valley, the addax was therefore strictly restricted to scenes painted on D-ware vessels.

Antelopes were depicted from Naqada I throughout the period under consideration in this thesis. Stylistic similarities with C-ware vessels suggest that most or all of the rock art around Hierakonpolis dates to the early predynastic. It is noteworthy that an oryx is clearly identifiable, whereas most attestations of that species in the material culture are disputable; those for which the identification is certain tend to be late, such as the Painted Tomb at Hierakonpolis; the oryx petroglyph from Hierakonpolis can however not be dated, because it is not found with or near other rock art images. It is possible that the rock art from the Qena bend dates at least in parts to the later predynastic. If nearly half antelopes depicted in the eastern desert are hunted, it is difficult to ascertain the proportion for the Nile Valley from published sources.

4.4 Frequency and temporal evolution of the production of antelope-related material

The overview above details the presence of antelope species on 191 objects. Of these, 153 can be dated (80.1%). These include all the C-ware vessels and sherds, which are considered to belong by definition to Naqada IB–IIA, and all the D-ware vessels, most of which belong to Naqada IIC–IID. The so-called "magical" jars (**2.48**, **2.54**, **2.62**, **2.66**)[87] date broadly to Naqada IID–IIIA.

The presence and frequency of each species varied greatly throughout the predynastic period (Figure 33). The ibex is the most often depicted antelope species: it is found on 41.6% of related objects (79 objects), and it is the only species present in all sub-phases of the predynastic and Badarian. The Barbary sheep (29 objects, 15.3%) is depicted during each phase of the Naqada period but does not appear during the Badarian. However, if one ignores the Naqada IIIA2 date attributed to the Abu Zeidan knife handle, the Barbary sheep appears during Naqada IA–IID, as do the gazelles (36 objects, 19%). The hartebeest appears regularly between Naqada IIB–IID, but in lower numbers (23 objects, 12.1%). The addax is the second-most often depicted species (38 objects, 20%), but only during Naqada IIC–D. The oryx is not included in Figure 33, because most identifications of this species are uncertain; the only exceptions are the Painted Tomb at Hierakonpolis (**3.8**) and the Abu Zeidan knife handle (**4.25**).

[87] It is not certain whether the jar from Hammamiya (**2.56**) should be included among the "magical jars". Although it does belong to the D78 type, its decorative theme is different. I consider here that the vessel dates to Naqada IIC–IID.

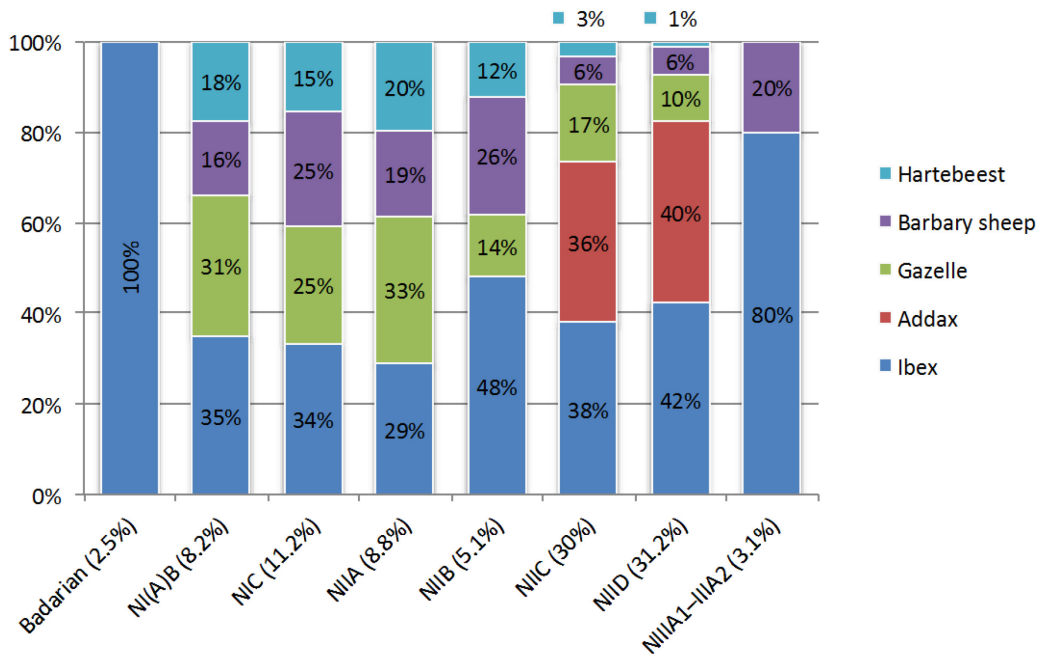


Figure 33. Relative importance of antelope species in material culture for each phase of the Naqada period. The relative volume of antelope-related material is indicated for each phase.

Greywacke palettes decorated with carved low reliefs are not included in the corpus of predynastic material (Volume II). Those with antelopes certainly post-date the Manchester palette (Naqada IID, The Manchester Museum 5476; Ciałowicz 1991, 42–3). According to Ciałowicz (1991, 80–1), they could equally have been carved before or after the reigns of Scorpion and Narmer and can thus only be broadly attributed to Naqada III. It is however unlikely that they date to Narmer or later (Hendrickx & Förster 2010, 840), and this type of objects probably disappeared at the same time as the decorated mace heads (Gautier & Midant-Reynes 1995, 89). They were therefore carved during Naqada IIIA–B, perhaps with a rapid development toward the end of that period. A palette was excavated in a tomb (no 82) dated to Naqada IIIC1 at Minshat Ezzat (Cairo Museum; El-Baghdadi 1999; 2003, 146, fig. 7a, b; O'Connor 2002, addendum). It is the only palette to have been recovered from a funerary context that can be precisely dated, but Stevenson (2008) notes that the palette shows signs of use, and may be older than the tomb in which it was found, perhaps dating to Naqada IIIA–B. The relevant palettes are discussed briefly at the end of each of the following sections, together with protodynastic material. I list here those with multiple antelope species in order to avoid repeating bibliographical references.

Figure 34: Two Dog palette (Ashmolean Museum AN.1896–1908 E.3924; Petrie 1953, 13, pl. F; Ciałowicz 1991, 43–6, with references; Hendrickx & Förster 2010, 835–6, fig. 37.8; Patch 2011, 138–9); Figure 35: the Hunters' palette (British Museum EA 20790, EA 20792, Louvre E.11254; Petrie 1953, 12–3, pl. A; Ciałowicz 1991, 55–6; Hendrickx & Förster 2010, 835–6, fig. 37.7; Patch 2011, 141–3); Figure 36: the Louvre fragment (Louvre Museum, E. 11648; Ciałowicz 1991, 50).

Figure 34. Two dog palette from the Main Deposit at Hierakonpolis, obverse (left) and reverse (right). After Whitehouse (2009), 30–1.

Figure 35. Hunters' palette. After British Museum online catalogue.

Figure 36. Louvre fragment. After Louvre Museum online catalogue.

4.4.1 Ibex

Four artefacts with depictions of ibexes date to the Badarian period (**7.79**, **11.3–5**), which shows that this animal began to be used pictorially early in Upper Egypt. Less than a quarter of the material culture related to the ibex (79 objects) dates to Naqada I–IIB, and over half to the later predynastic (Figure 37).

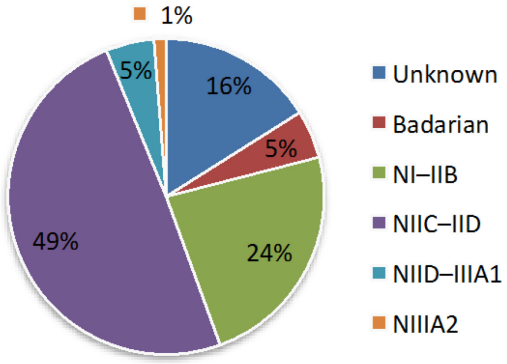


Figure 37. Chronological distribution of all ibex-related artefacts of predynastic date (n=79).

Figure 38 shows the distribution of all dated predynastic ibex-related material detailed by period. Relatively little material was produced during Naqada IB (7%) and IC (10%), and the amount diminished further during Naqada IIA (7%) and IIB (6%). Images of ibexes only became profuse during Naqada IIC (29%) and IID (34%), in large parts due to their frequent inclusion on D-ware vessels. The four D-ware "magical jars", dated here to Naqada IID–IIIA1 are the only reason for the inclusion of phase Naqada IIIA1 (5%), while the Abu Zeidan knife handle is the only object dated to Naqada IIIA2.[88]

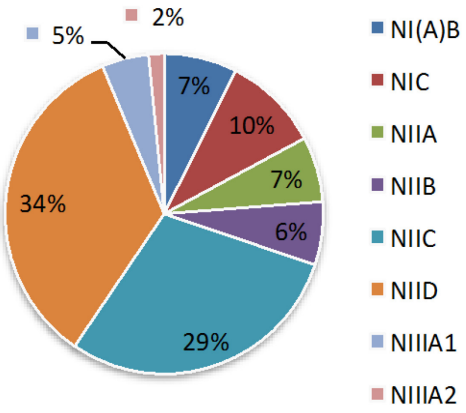


Figure 38. Detailed chronological distribution of the dated ibex-related artefacts of predynastic date, excluding the Badarian period (n=63).

[88] As mentioned above, this object may be older than the tomb in which it was found.

Ibexes are also found on four palettes decorated with raised relief, which probably all date to Naqada IIIA–B (not included in figures above). Two ibexes are present among other wild creatures on the Two Dog Palette (see §4.4 and Figure 34), one on the obverse and one on the reverse. On the obverse, the ibex faces a giraffe, while on the reverse it is placed between a gazelle and an oryx; a dog attacks this row from behind. The three other palettes have no known provenance. On one side of the Munich fragment (Figure 39, left), two ibexes are carved vertically back to back, their heads turned toward each other (Munich, Staatliches Museum Ägyptischer Kunst 5853; Ciałowicz 1991, 57, no. 17; Grimm & Schoske 2000, 38, cat. 50). On the Berlin fragment (Figure 40, left), two ibexes are shown in similar pose but facing each other (Berlin, Ägyptisches Museum und Papyrussammlung, ÄS 20171; Ciałowicz 1991, 54–5, no. 14). Finally, the Louvre fragment (see §4.4, Figure 36) is decorated with the head and forepart of an ibex on one side, balanced by a Barbary sheep carved on the other side.

Figure 39. Munich palette fragment. After Grimm & Schoske (2000), 38, cat. no. 50.

Figure 40. Berlin palette fragment. After Grimm & Schoske (2000), 37–8, cat. no. 49.

Ibexes were depicted on further objects from the Main Deposit at Hierakonpolis, which are of uncertain date.[89] Ibexes are carved among other animals, such as birds and scorpions, on two so-called ivory "magic knives" (dates uncertain: Petrie Museum, UC14864; Cairo Museum, CG or JE 14706 and 32170; Ashmolean Museum, AN.1896–1908 E.312; Bussmann 2010a, 245, H2146, H2148; 2010b, 96–7, Abb. 5.76, 5.78; Petrie Museum online catalogue). These curved artefacts, carved out of hippopotamus tusks, have tong at both ends so that they were designed to be part of larger composite objects, and the identification as "magical knifes" may not be correct. On a partly preserved tongued ivory plaque, probably part of a piece of furniture, an ibex and a canid are in relief in separate registers (Ashmolean Museum, AN.1896–1908 E.101; Quibell 1900, pl. XII, 3; Bussmann 2010a, 248, H2176; 2010b, 102, Abb. 5.99).[90] The lower register on one side of an incised elephant (?) tusk shows a series of ibexes (Figure 41, bottom) with on the other side of the tusk a series of less well preserved antelopes that are probably gazelles (Petrie Museum, UC 14875; Quibell 1900, pl. XIV; Bussmann 2010a, 246, H2156; 2010b, 98, Abb. 5.82). Finally, an ivory cylinder is decorated with registers of ibexes (top) and oryxes (bottom), with a register of birds in between (Petrie Museum, UC 14865; Quibell 1900, pl. XII, 8; Bussmann 2010a, 244, H2125; 2010b, 96, Abb. 5.70).

[89] Bussmann (2010a, 255, H3037–H3038; 2010b, 117, Abb. 5.144, 5.145) lists two faience figurines, but they probably represent oryxes (see §4.4.6).

[90] Whitehouse (2004, 1127) identified the antelope as a Barbary sheep, but the shape of the horns and presence of the beard, as well as the absence of a chest mane, point to an ibex. The head has been lost since the original drawing was made.

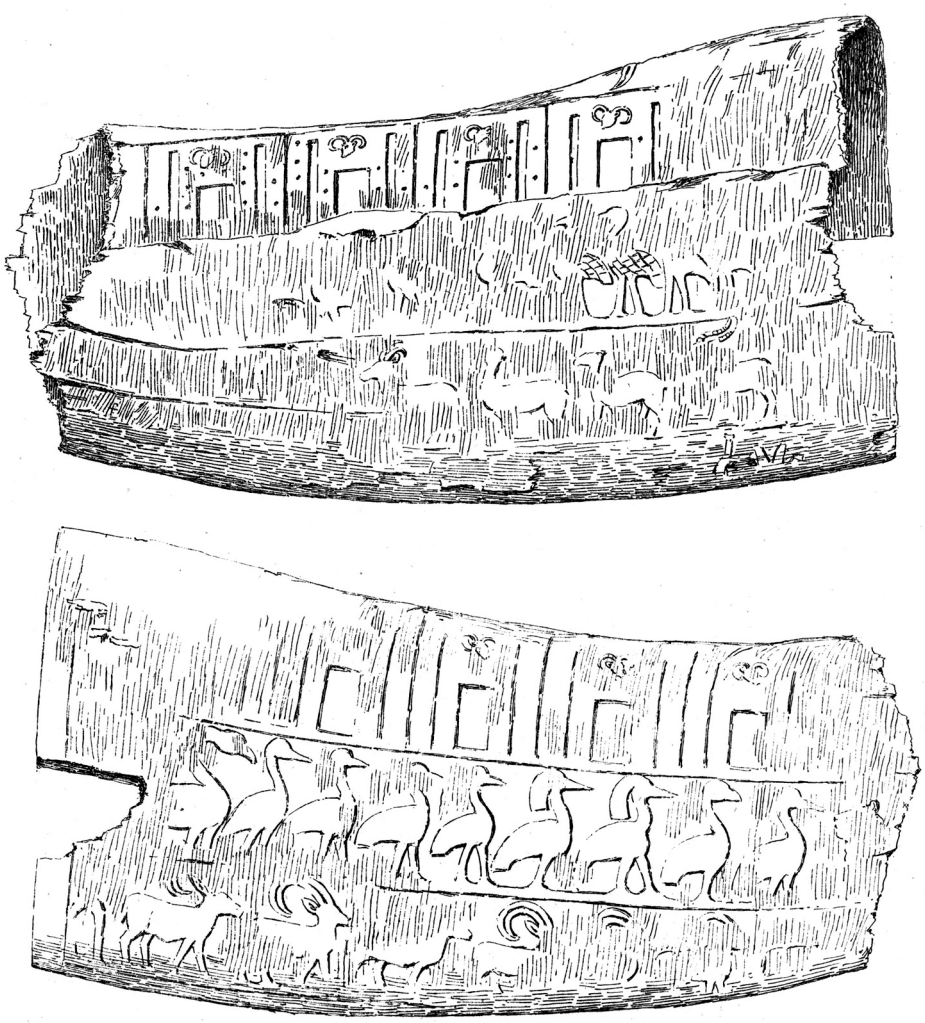


Figure 41. Decorated tusk from Hierakonpolis Main Deposit (Quibell 1900, pl. XIV).

Among material from the first dynasty, heads of ibexes are incised on at least three Early Dynastic labels, two of the reign of Aha (Kaplony 1963, Abb. 844; Petrie 1901b, pl. III.8), and one of Djer (Quibell 1923, pl. XI.2). It seems that ibexes are not found on Early Dynastic seals and seal impressions, despite the use of this species on Naqada IID–IIIA seals (§4.3.3.4); antelopes on a seal impression found in cemetery B at Abydos are not identified with certainty, but I consider them to be oryxes (see §4.4.6).[91] A carved ivory spoon, dated to the first dynasty, was found at Tarkhan (Cairo Museum, number unknown; Petrie et al. 1913, 9, 25, pl. XII.6, XIII.1–6). Its exterior is entirely decorated with rows of

[91] At first sight, several animals on seals and impressions appear to be ibexes, or as suggested by Reisner (1908, 122), creatures composed of the body of a bird and the head and horns of an ibex (see e.g. Kaplony 1963, Abb. 440–5). This sign seems, however, to be the Ax bird looking backward (Regulski 2010, 127, sign g10/g10#).

animals, of which some or most are ibexes; there may be dogs at the end of some rows, but this is not certain (Hendrickx 2006a, 737).

During the Old Kingdom, the ibex was commonly represented, both in royal and private funerary monuments. It figures in desert hunting scenes (Strandberg 2009, 51–62, 71–83), and as captive animals offered to the deceased in processions (Strandberg 2009, 101–24).

4.4.2 Addax

In the material culture of predynastic Egypt, the addax is found only in the decoration of at least 38 D-ware vessels, all dating to Naqada IIC–D. Three vessels are more precisely dated, belonging to Naqada IID (**2.03, 2.15**, **2.45**).

This species appears to be entirely absent from late predynastic and Early Dynastic imagery on palettes, as well as from early written documents, such as labels, seals, and seal impressions. I am not aware of any depiction or figurine of addaxes among early temple deposits.

This complete absence contrasts with the presence of addaxes in Old Kingdom reliefs. Addaxes are found in hunting scenes, but are rare in comparison with other antelope species, especially in mastabas (Strandberg 2009, 51–62, 71–83). Addaxes are also represented as captive animals offered to the deceased in processions (Strandberg 2009, 101–24).

4.4.3 Gazelles

Although gazelle is absent from the iconographic repertoire of the Badarian period, the species was commonly depicted during each phase of the Naqada period (36 objects). There is no major difference between the early (pre-Naqada IIC) and later predynastic period (41% and 37% respectively; see Figure 42).

A closer look at the distribution by phases (Figure 43) shows a remarkable homogeneity, with most phases representing 15%–18% of the material.

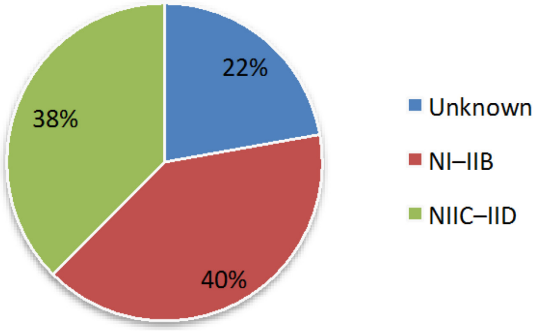


Figure 42. Chronological distribution of all gazelle-related artefacts of predynastic date (n=36).

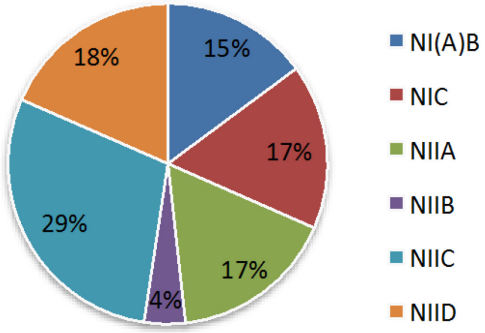


Figure 43. Detailed chronological distribution of the dated gazelle-related artefacts of predynastic date (n=28).

Naqada IIB (4%) is less well represented than other periods, as is true not only of the gazelles. In contrast, Naqada IIC is the best represented period, with 29% of the dated objects. The material without a certain date includes the incised ostrich egg (**4.24**) which is likely to date to Naqada IB–IIB, and three incised knife handles (**4.28**–**30**), probably of Naqada IIC–D. If those objects are added to the figures obtained, the overall homogeneity of the distribution is little affected, although Naqada IIC–D would become slightly more prominent than the earlier predynastic (44% and 45%).

Among later material, gazelles were represented on a few decorated palettes. Several gazelles appear on both sides of the Two Dog palette (see §4.4 and Figure 34). On the obverse, a gazelle is placed in the centre, just above the circular "grinding" area, and is bitten by both serpopards. This scene is mirrored on the reverse by two gazelles, each attacked by a lion. In the lower part of the obverse a gazelle that is the last antelope in a row of three is attacked by a dog that bites its back. One gazelle is also present on the Hunters' palette (see §4.4 and Figure 35). It is not falling prey to the hunters, but is an object of the hunt

like the lions and hartebeest. All the gazelles on these palettes have clearly rendered S-shaped horns that leave no doubt as to their identification. There may be a further depiction of a gazelle on one side of the Munich fragment (Figure 39, right); although only the base of the horns is preserved, they appear to be S-shaped. The gazelle may be dead, as it is shown with its head down and whether it was attacked by the lion seen on the same side of the fragment is not certain. These palettes probably all date to Naqada IIIA–B; they are not included in the figures above, but show an uninterrupted transition with the early predynastic period, during which gazelles continued to be depicted, as can be seen from the material listed below.

Gazelles are found on several objects from the Main Deposit at Hierakonpolis, which can not be dated with precision. There is one possible three-dimensional representation, in the form of a small standing figurine carved atop the handle of an ivory spoon, now in the (Ashmolean Museum, AN.1896–1908 E.311; Quibell & Green 1902, pl. XXIX.37; Bussmann 2010a, 249, H2193; 2010b, 103, Abb. 5.110).[92] On a decorated tusk, it is likely that quadrupeds depicted in a row are gazelles, but the identification is firm only for one of them, the others being poorly preserved (UC 14875; Quibell 1900, pl. XIV; Bussmann 2010a, 246, H2156; 2010b, 98, Abb. 5.82). A decorated cylinder may show a series of gazelles in its middle register; the top and lower registers contain series of oryxes (Petrie Museum, UC 27653; Bussmann 2010a, 244, H2129; 2010b, 96, Abb. 5.70).[93] The identification of a gazelle is certain on another cylinder where it is placed between two registers with birds; at the top of the cylinder is a register of cattle and stork (Philadelphia, UPenn Museum, E.4903; Quibell 1900, pl. XII, 1; Bussmann 2010a, 244, H2126; 2010b, 96, Abb. 5.68).

A few early dynastic representations of gazelles have been found outside Hierakonpolis. For example, on a disk found in the “Mastaba of Hemaka” at Saqqara, one scene shows a dog chasing a gazelle and the other a dog biting a gazelle at the throat (Cairo Museum, JE 70164; Strandberg 2009, 45, with

[92] The identification is not absolutely certain, but the horns appear to be S-shaped; a second figurine stood behind the preserved one.

[93] Bussmann identifies all the antelopes as oryxes, including those I suggest here are gazelles. The decoration is damaged in the other two registers, but they certainly contained series of animals.

references). At Giza (Kafr el-Batran) Petrie uncovered a pair of ivory "wands" or clappers that end with gazelle heads (Tomb 23, Cairo Museum, number unknown; Petrie 1907, 5, pl. IV, V.6, 7; Strandberg 2009, 131, fig. 63).

In private and royal funerary monuments of the Old Kingdom gazelles are the most frequently depicted desert animals. They are seen both in desert hunting scenes (Strandberg 2009, 51–62, 71–83) and as captive animals brought as offerings for the deceased (Strandberg 2009, 101–24); severed heads of gazelles are also commonly shown in lists of offerings (Strandberg 2009, 125–6).

4.4.4 Barbary sheep

No depiction of Barbary sheep is known from the Badarian period. This species was not frequent during the Naqada period, with 29 artefacts identified. Over a third of the material culture related to this species is not dated with certainty (35%); the remainder of the artefacts belong predominantly to the early Naqada (pre Naqada IIC, 40%; Figure 44).

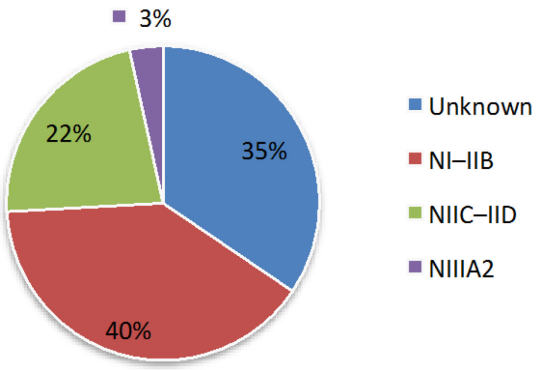


Figure 44. Chronological distribution of all Barbary sheep-related artefacts of predynastic date (n=29).

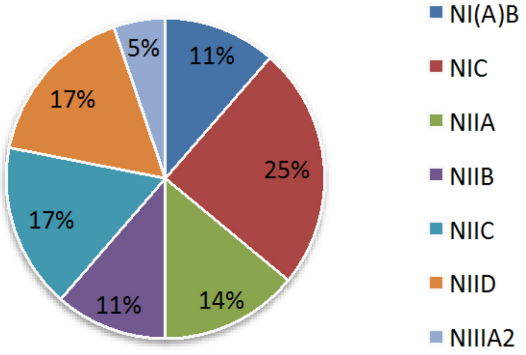


Figure 45. Detailed chronological distribution of the dated Barbary sheep-related artefacts of predynastic date (n=19).

The detailed attribution of the dated material (19 objects) to phases of the Naqada period (Figure 45) shows that depictions increased during Naqada IB–IC (11% to 25%), before decreasing during Naqada IIA (14%) and Naqada IIB (11%). They increased again during Naqada IIC–IID (17% for each phase). Naqada IA is present only because of the wide date-range given to the zoomorphic palette **4.19** from Hiw (Naqada I–II), and Naqada IIIA2 because of the late date of the tomb in which the Abu Zeidan knife handle (**4.25**) was found.

Further considerations of the probable dates of some objects that are designated unknown in Figure 44 show that Barbary sheep was even more frequent in early predynastic times (pre-Naqada IIC). By comparison with dated material, it is likely that the flint figurine knapped in the shape of a Barbary sheep (**9.12**) and three zoomorphic palettes (**8.12**, **8.14**, **8.17**) date to the early predynastic, and that the knife handle (**4.30**) and one zoomorphic palette (**8.16**) are from the later predynastic. Moreover, if the incised vessel **4.14** is removed from the list of objects dating to Naqada IIC and later, because it is not certain that it came from tomb 1475 at Naqada (there is no mention of the vessel in Petrie's notebook), the chronological distribution of Barbary sheep-related material becomes the following: Unknown 17%, NI–IIB 54%, NIIC–IID 25%, NIIIA2 4%. This shows that the Barbary sheep was much more commonly depicted during the early predynastic than later.

Depictions of Barbary sheep dating to Naqada IIIA–B, beside the Gebel el-Arak knife handle, have been found, but are not frequent. Most of them form a single group and come from tomb U-j at Abydos. Fifteen bone and ivory tags bearing hieroglyphs of the heads of antelopes depicted frontally have been recovered during excavations. This sign, which is only attested in this tomb, is interpreted as the head of an ibex by Dreyer et al. (1998b, 123–5, 141, Abb. 78, 82–96) as well as Regulski (2010, sign f11, 117), and it is considered as an early incorporation of frontal depictions in the writing system. However, I follow the identification by Hendrickx et al. (2009a, 211) as Barbary sheep because their horns were always rendered frontally in a manner similar to those on these tags. Barbary sheep have only been recorded on two palettes decorated with raised relief. A leopard attacks a Barbary sheep on the reverse of the Two Dog palette

(see §4.4 and Figure 34); this scene is one of several showing antelopes attacked by wild and magical creatures. On one side of the Louvre palette fragment (see §4.4 and Figure 36), a partly preserved recumbent Barbary sheep looks backward; it mirrors an ibex carved in the same place on the other side of the palette. The tags and palettes are not included in the figures above; they show that despite the infrequent use of the Barbary sheep during Naqada IIC–D, this animal was nevertheless still represented until the early dynastic period.

Barbary sheep heads are found on both sides of an incised elephant (?) tusk (Figure 41) found in the Main Deposit at Hierakonpolis; this object could date to the late predynastic or early dynastic period. A series of buildings or a continuous niched façade dominate the scene; Barbary sheep crania are placed above each door (Petrie Museum, UC 14875; Quibell 1900, pl. XIV; Bussmann 2010a, 246, H2156; 2010b, 98, Abb. 5.82). Bussmann cites this detail as parallel with the bucrania found around the niched façade of mastabas 3504 and 3507 at Saqqara (Emery 1954, pl. VI–VII; 1958, pl. 90). However, it is not likely that cattle bucrania were intended on the Hierakonpolis tusk, because one would expect the horns to point upward if this were the case. To a large extent, these bucrania are similar to the Barbary sheep heads on the labels found in Tomb U-j.

During the Old Kingdom, the Barbary sheep remained a rare motif. It is found among the species depicted in the desert hunt on royal monuments (Strandberg 2009, 51–62) but seems to be virtually absent from that pictorial context in private monuments (Strandberg 2009, 71–83). It is found among captive animals from the desert environment in several private tombs (see Hendrickx et al. 2009a, 191, fig. 2, 226–7, Tab. 3).

4.4.5 Hartebeest

The hartebeest was infrequently depicted during the predynastic period, and not before Naqada IIB at the earliest. There are 23 known representations, 12 not closely dated, so that it is the antelope species for which the proportion of undated material is the highest (52%; Figure 46). The small size of this group renders a statistical analysis a little problematic, but the overwhelming majority of the dated objects belong to the earlier predynastic (pre-Naqada IIC, 39%).

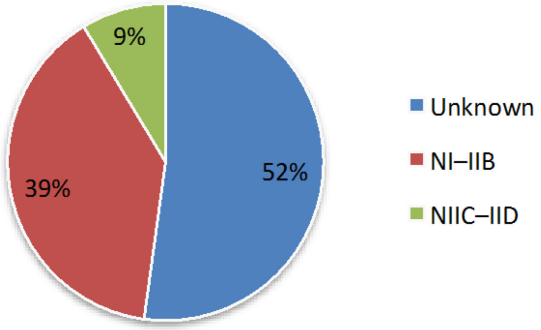


Figure 46. Chronological distribution of all hartebeest-related artefacts of predynastic date (n=23).

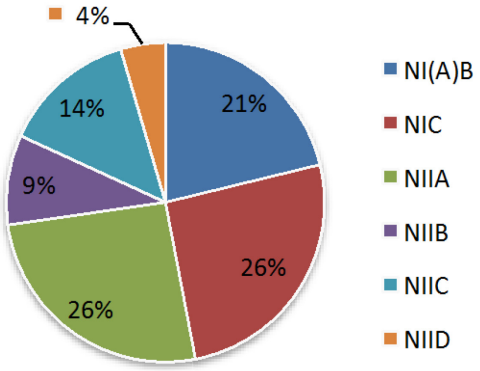


Figure 47. Detailed chronological distribution of the dated hartebeest-related artefacts of predynastic date (n=11).

The detailed distribution of the dated material by period (Figure 47) shows that almost three-quarters is attributed to Naqada IB–IIA. Further consideration of the probable date of some objects shown as unknown in Figure 46 confirms that the hartebeest was more commonly depicted during the early predynastic. By comparison with dated objects, two zoomorphic palettes (**8.19**, **8.22**) are likely to date to before Naqada IIC, as might the flint figurine knapped as a hartebeest (**9.13**) and, less securely, a comb (**10.11**). A decorated knife handle (**4.31**), is likely to belong to the later predynastic. If these attributions are correct, the chronological distribution of the hartebeest-related material would be as follows: unknown 32%, NI–IIB 54%, NIIC–IID 14%.

Despite the seemingly limited interest in depicting the hartebeest during Naqada IIC–IID, there are several occurrences of this animal among the decorated palettes and early dynastic art. Two hartebeest are shown on the Two Dog palette (see §4.4 and Figure 34). On the obverse, one is attacked by two dogs, of which one bites its muzzle and the other one of its legs; on the reverse, the other hartebeest is not directly menaced by another animal, except perhaps

by the winged creature in front of it. Two hartebeest are depicted among the wild desert fauna on the Hunters' palette (see §4.4 and Figure 35). One is shown fleeing, looking backward, while the other is captured by one of the hunters, its horns trapped in the noose of a lasso. A hartebeest is the only decorative element on the roughly rectangular palette UC 8846 (Figure 48). Ciałowicz (1991, 57, with references) interpreted the animal as dead because its head is shown in a low position; this is likely, given that most depictions on the palettes represent violent acts against the antelopes and other wild animals, it is possible that the carver meant to represent a dead animal, although it must be noted that it is usually the attacks on animals that are shown rather than the resulting dead animals.

Figure 48. The hartebeest palette. After Petrie Museum online catalogue.

Early dynastic depictions of hartebeest are rare. There are three hartebeest carved on the Narmer mace-head (Ashmolean Museum AN.1896-1908 E.3631; see Petrie 1953, pl. J–K; Hendrickx & Förster 2010, 838–40, fig. 37.11). The animals are shown in an oval enclosure, as if kept in captivity. As suggested by Van Neer (2011, 11), this depiction might be realistic: at an earlier date as hartebeest were kept in captivity at Hierakonpolis, as is demonstrated by the faunal remains from HK6 (see §4.2.1). Outside Hierakonpolis, the most significant object is a circular palette, found in protodynastic tomb 1005 at Matmar (SD 81 according to Brunton 1948, 28, XX, XXII, 28). A hartebeest is incised on one of its sides, with the double arrow sign characteristic of the god Min above it.

In Old Kingdom reliefs, hartebeest are often represented among animals hunted in the desert, in both royal and private monuments, but not as frequently as other species (Strandberg 2009, 51–62, 71–83). They also appear in processions of captive animals (Strandberg 2009, 101–24), so that the keeping of hartebeest in captivity continued at that time.

4.4.6 Oryx

Depictions of oryxes are exceedingly rare among the material culture of the predynastic period, with only 10 examples (Figure 49). This small sample renders statistical analysis problematic, especially since identifications are mostly uncertain, excepting the Painted tomb at Hierakonpolis (**3.8**) and two carved knife handles (**4.25**, **4.29**).

The dated artefacts appear at first to show that the oryx was depicted more often during the early predynastic (pre-Naqada IIC). However, the three objects whose dates are uncertain are knife handles (**4.29**–**4.31**), which in all likelihood date to Naqada IIC and later. Taking these objects into consideration changes the chronological distribution, with Naqada I–IIB accounting for 40% of the material and Naqada IIC–IIIA for 60%.

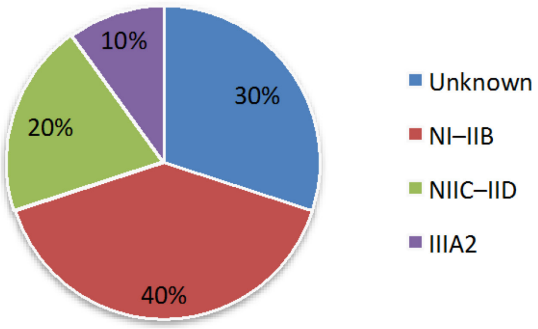


Figure 49. Chronological distribution of all oryx-related artefacts of predynastic date (n=10).

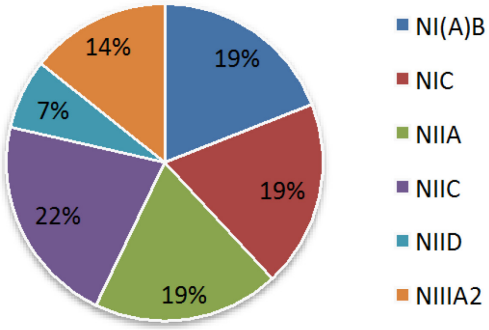


Figure 50. Detailed chronological distribution of the dated oryx-related artefacts of predynastic date (n=7).

Oryx appear more commonly at the end of the predynastic and in the Early Dynastic period. On the obverse of the Two Dog palette, an oryx leads a row also containing an ibex and a gazelle, which is followed by a chasing dog. On the reverse, another oryx is attacked by a serpopard (see §4.4 and Figure 34). Two other fragmentary palettes have large oryx figures in heraldic positions in the upper parts of the objects, certainly for the better-preserved one (Cairo Museum, JE 60539; Ciałowicz 1991, 51, no. 8); and plausibly for a more fragmentary one (Figure 51, Brooklyn Museum, 35.1272; Ciałowicz 1991, 51, 9). A fragmentary palette with a partly preserved oryx carved on one of its sides was found more recently at Tell el-Farkha in a context of shallow settlement which cannot be not easily dated (Buszek 2012, 320–1, fig. 6).

Figure 51. Brooklyn Museum Oryx palette. After Brooklyn Museum online catalogue.

Figure 52. Tell el-Farkha palette; after Buszek (2012) fig. 6.

Among the material from the Main Deposit at Hierakonpolis, two faience figurines modelled as recumbent antelopes were identified as ibexes by the excavators (Ashmolean Museum, AN.1896–1908 E.1 and Edinburgh, National Museums of Scotland, A1956.327; Quibell 1900, 8, pl. XXI, 13, XXII, 13, 17); so also Bussmann (2010a, 255, H3037–8; 2010b, 117, Abb. 5.144–5). Their horns however appear too straight to support that identification; if ibexes had been intended, the artisan would have been able to model curved horns. A register of oryxes decorates the bottom of an ivory cylinder, with two registers above containing ibexes at the top and birds in the middle (Petrie Museum, UC 14865; Quibell 1900, pl. XII, 8; Bussmann 2010a, 244, H2125; 2010b, 96, Abb. 5.70). Finally, a curved ivory object, likely part of a piece of furniture, is decorated with a row of oryxes, one of felids (?), and one with birds and other animals (Cairo Museum, CG14708; Quibell 1900, 7, pl. XIII, 2; Bussmann 2010a, 247, H2164; 2010b, 100, Abb. 5.88).[94] Outside Hierakonpolis, Petrie found at Giza the lid of an early dynastic cosmetic box, that is decorated with a carved figurine of a standing oryx (from Tomb 11; Manchester Museum, 4257 and 4269; Petrie 1907, pl. IV, V, 11).

The oryx figured at least once in an early inscription: a seal from mastaba 3506 at Saqqara bears the inscription sxn-iAx mA-HD-nb (Emery 1958, 44; Kaplony 1963, 1151). During the Old Kingdom, the oryx was frequently represented among desert hunting scenes, on both royal and private monuments (Strandberg 2009, 51–62, 71–83). The oryx is also one of the most

[94]Although the horns of these antelopes may appear curved enough to suggest ibexes, their long tails are against this interpretation.

common antelope species, probably after the gazelle, to figure as captive animals offered to the deceased (Strandberg 2009, 101–24). This species is the one most often represented in offering lists, probably as a token for all desert animals (Strandberg 2009, 125). In one scene from the mastaba of Nefermaat and Atet at Meidum, an oryx is being butchered, and its head severed (Petrie 1892a, pl. XXII); this is a rare occurrence, cattle being usually shown in butchery scenes.

4.4.7 Summary

Antelope species were not depicted uniformly in the material culture of the predynastic period. The addax is the one that stands out the most: it was not represented during Naqada I–IIB and was only used as a motif on D-ware vessels, so that it disappeared from the corpus after Naqada IID. The ibex is the only other species to have been more important from Naqada IIC onward. This may have also been the case with the oryx, but the number of relevant objects is not statistically significant. The Barbary sheep, and still stronger so the hartebeest, are found on a decreasing number of artefacts over time, while gazelles were more consistently depicted.

Naqada IIB is overall poorly represented; this is mostly due to the absence of painted vessels during that period, rather than a lack of archaeological data in general. There are more tombs and ceramic vessels known for Naqada IIB than for any of the preceding periods (see Hendrickx 2006b, Tab. II 1.4a).

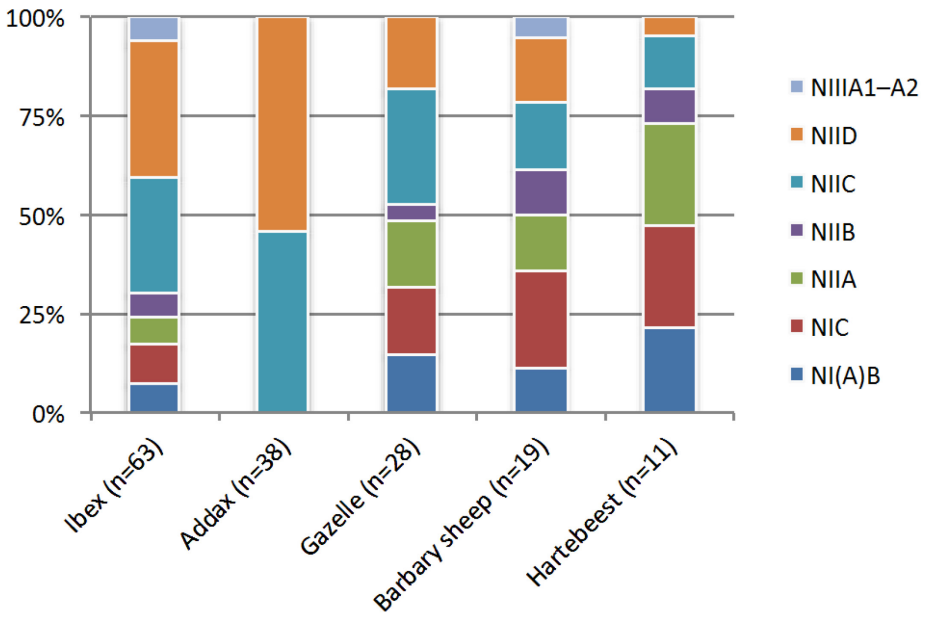


Figure 53. Comparative development of depiction of antelope species in the material culture during the predynastic period (dated objects only).

4.5 Geographical distribution of antelope-related material

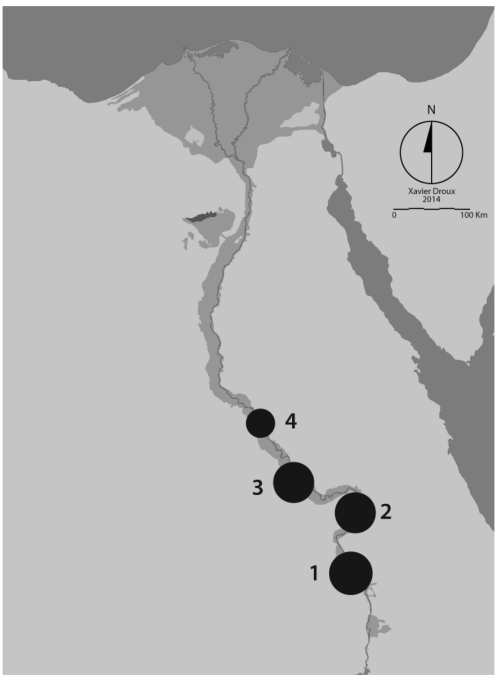
All four recorded objects with representations of antelopes dated to the Badarian period have a known provenance, three having found at Badari (**7.79**, **11.3**, **11.4**) and one at Mostagedda (**11.5**). In contrast, the proportion of antelope-related objects produced during the Naqada period that can be attributed to an archaeological site – 100 objects – is 53%, or just over half if more rigorous criteria of provenance are applied. The provenance of objects excavated at Hiw or Abadiya (**1.60**, **4.11**, **4.12**) and Naqada or Ballas (**1.53**, **10.19**) is only relatively firm, and **2.79** was purchased by Petrie at Abydos.

If antelope species and phases of the Naqada period are taken together, the Naqada region produced the largest amount of material (27 objects), followed by Abydos (21 objects), and then Abadiya (14 objects). Hierakonpolis comes next, with 13 objects (the third-highest number of objects from a single site, behind Naqada and Abydos), followed by the regions of Badari (10 objects), Abusir el-Meleq (9 objects), Gebel Silsileh (3 objects) and Gebelein (3 objects).

For each species, differentiating between pre-Naqada IIC and later displays very different patterns of geographical distribution. In the following maps excavated objects which cannot be dated aren't included. For each species, suggestions are made about some of the unprovenanced objects.

4.5.1 Ibex

Apart from the four objects that date to the Badarian period, 45 objects related to the ibex have a known provenance (59%). Only 15 of these date to the earlier Naqada (pre-Naqada IIC, Map 8); the majority was produced later (28 objects, Map 9). No date is proposed for two vessels with incised decoration that come either from Hiw or Abadiya (**4.11**, **4.12**); these are not included on the maps.



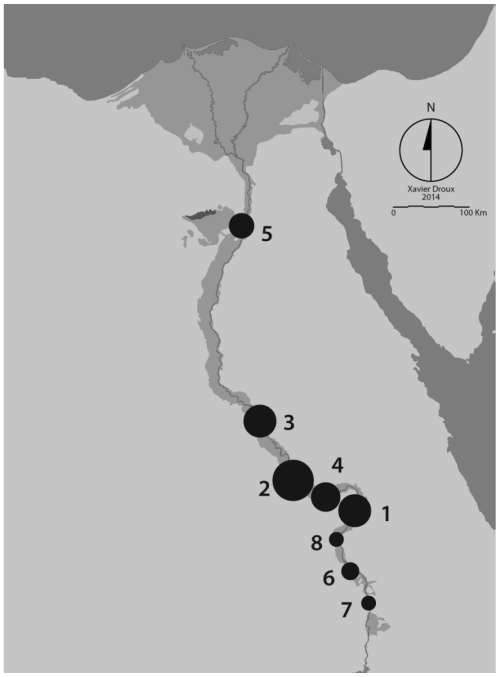
1. Hierakonpolis (5 objects)
2. Naqada region (4 objects)
3. Abydos region (4 objects)
4. Badari region (2 objects)

Map 8 Geographical distribution of predynastic material culture relating to ibex, before Naqada IIC (n=15).

During the early predynastic, the distribution between the three main regions (Hierakonpolis, Naqada, and Abydos; 13 objects) is quite even, while Badari is less well represented, with only two objects (combs **10.5**, **10.6**). The type of objects at each site varies greatly. The material excavated at Hierakonpolis is dominated by four flint figurines from HK6 (**9.6**–**9.10**); the fifth object is an incised ostracon (**4.15**; this object is dated to Naqada I–II, so that it appears on both maps). The region of Naqada has produced two C-ware vessels (**1.53**, **1.65**), a comb (**10.7**), and an incised vessel (**4.10**). At Abydos, the assemblage is composed exclusively of C-ware vessels (**1.15**, **1.18**, **1.62**, **1.63**).

Two objects without certain provenance can be attributed plausibly to Hierakonpolis (flint figurine **9.10**) and Abydos (C-ware vessels **1.59**). If this is

correct, the salience of these two sites and the different types of the material related to the ibex produced near them emerge more strongly.



1. Abydos region (8 objects)
2. Naqada region (5 objects)
3. Badari region (5 objects)
4. Abadiya region (4 objects)
5. Abusir el-Meleq region (3 objects)
6. Hierakonpolis (2 objects)
7. Gebel Silsileh region (1 object)
8. Gebelein/Armant (1 object)

Map 9 Geographical distribution of predynastic material culture relating to ibex, Naqada IIC and later (n=28).

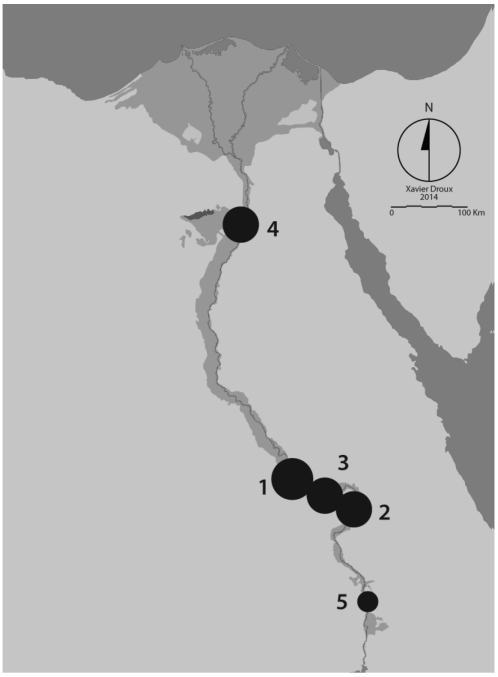
During the later predynastic, the geographical range of the material increased along with the expansion of the Naqada culture (Map 9). The ibex is the antelope species that is found at the largest number of sites, although the material concentrates strongly along the stretch of the Nile from around the region of Naqada, through Abadiya, to Abydos (17 objects). The region of Badari is also well represented (5 objects). The types of objects are less varied than earlier, with D-ware vessels accounting for over 70% of the material. Most of the rest consists of carved knife handles. The objects from the regions of Naqada (**2.10**, **2.15**, **2.72**, **2.76**, **2.90**) and Badari (**2.35**, **2.56**, **2.75**, **2.81**, **2.82**) are restricted to D-ware vessels. Three vessels with ibex depictions were found in the region of Abydos (**2.12**, **2.30**, **2.51**); two knife handles also come from there (cemetery U, **4.27**; Gebel el-Arak, **4.28**), as well as three seal impressions (not in catalogue). The material from the region of Abadiya consists of three D-ware vessels (**2.18**, **2.38**, **2.48**) and one knife handle (Gebel el-Tarif, **4.29**). Hierakonpolis is not very well represented, but it is the only site at which the material is of a different character. Ibexes occur on the main wall of the Painted Tomb (**3.8**), and one is incised on an ostracon (**4.15**; see above). From the region

of Abusir el-Meleq in the north come two D-ware vessels (**2.32**, **2.34**) and one seal impression (not in catalogue). In southern Upper Egypt only two objects were found outside Hierakonpolis: the Abu Zeidan knife handle (**4.25**) and a D-ware vessel at Gebelein (**2.78**).

The distribution of D-ware vessels with ibexes does not differ much from the overall geographical distribution of D-ware vessels (see spreadsheet on CD attached to thesis and §1.3.2), but the five vessels found at Badari gives a more prominent place to that area (26.3% vs 13.2%).

4.5.2 Addax

The addax is not found in the material culture of predynastic Egypt except on D-ware vessels. It follows that all depictions date to Naqada IIC–IID. Fourteen out of 38 vessels with addaxes have a known provenance (37%). They come predominantly from the regions between Abydos and Abadiya (10 objects), while Abusir el-Meleq, with 3 objects, is also well represented (Map 10). A single vessel was found in southern Upper Egypt, at Gebel Silsileh; its decoration is of a particular and unusual type (see §4.3.2.1).



1. Abydos region (4 objects)
2. Naqada region (3 objects)
3. Abadiya region (3 objects)
4. Abusir el-Meleq region (3 objects)
5. Gebel Silsileh region (1 object)

Map 10 Geographical distribution of all predynastic material culture relating to addax (n=14).

The proportions established above contrast somehow from the overall distribution of D-ware vessels (see spreadsheet on CD attached to the thesis and

§1.3.2). The most significant difference is for the region of Abusir el-Meleq, where over a fifth of D-ware vessels with addaxes have been found, but only 6.2% of D-ware vessels come from. Gebel Silsileh is also over-represented (7.1% vs. 1.59%), but because it only one vessel, this is not particularly significant.

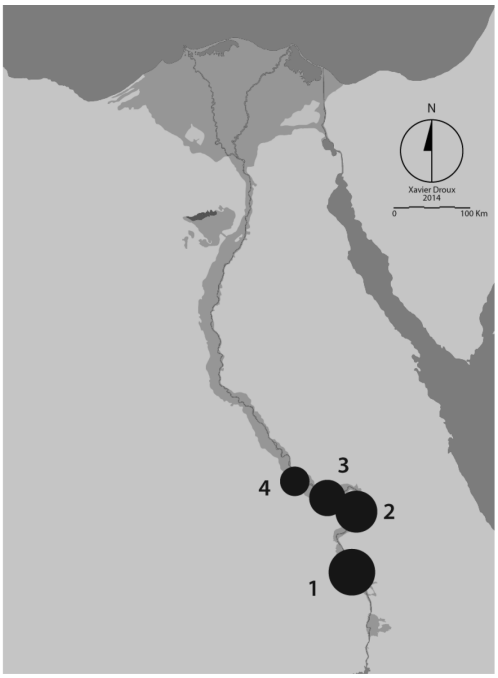
4.5.3 Gazelle

Although gazelles were represented less often than addaxes, the objects related to these species are generally better provenanced (22 objects, 61%). They majority of examples date to the later predynastic (14 objects, 58.3%).

The few objects that date to Naqada I–IIB are spread quite evenly between four sites (Map 11). Hierakonpolis has the highest concentration of material, with two C-ware sherds (**1.66**, **1.71**) and an incised ostracon (**4.15**). The identification of the antelopes as gazelles on these objects is, however, not certain. The regions of Abadiya and Naqada are represented by two objects each. An incised vessel (**4.1**) and an incised palette (**4.19**)[95] come from Abadiya, and two combs (**10.12**, **10.13**) from Naqada. A single object, a C-ware vessel (**1.63**), comes from the region of Abydos. It is likely but not certain that an ivory comb (**10.14**) and ivory pin (**10.19**) from Naqada also date to the early predynastic; because their date is not certain, they are not included in Map 11, but Naqada should probably be considered as the region from which the largest proportion of gazelle-related material came from during Naqada I–IIB.

The number of C-ware vessels with gazelle depictions is too small to present a meaningful comparison with the overall distribution of the painted vessels of that class (§1.3.2), but that small group of provenanced objects shows that Hierakonpolis is better represented than expected. However, the identification of the gazelle on 1.66 remains uncertain (see §4.3.1.4).

[95] Similarly to **4.15**, this object is dated to Naqada I–II, and therefore appears on both maps.



1. Hierakonpolis (3 objects)
2. Naqada region (2 objects)
3. Abadiya region (2 objects)
4. Abydos region (1 object)

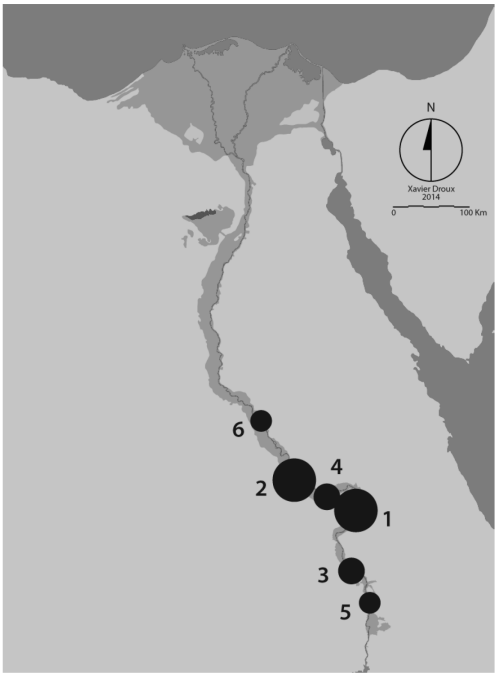
Map 11 Geographical distribution of predynastic material culture relating to gazelle, before Naqada IIC (n=8).

From Naqada IIC onward, the distribution of the material culture related to the gazelles is wider than during the earlier period, but no depictions have been found north of Badari (Map 12). Contrary to the distribution of the earlier artefacts, Abydos is the area with the highest concentration of material, on a par with the region of Naqada, which consists of D-ware vessels (**2.30**, **2.51**, **2.79**) and probably of the Gebel el-Arak knife handle (**4.28**). Three D-ware vessels (**2.10**, **2.25**, **2.37**) and an incised vessel (**4.14**)[96] come from the region of Naqada. Two objects showing gazelles were found in the region of Abadiya; one is an incised palette (**4.19**; see note 95), and one the Gebel el-Tarif knife handle (**4.29**). Gazelles are also attested twice at Hierakonpolis: once in the Painted Tomb (**3.8**), and once on an incised ostracon (**4.15)**. And an undated incised vessel from Armant is not included in the maps (see §4.3.3.2 and note 77).

The geographical distribution of D-ware vessels with depictions of gazelles is not contrasting much with the overall geographical distribution of D-ware vessel (see §1.3.2); the presence of vessel **2.88–89** at Gebel Silsileh gives more

[96] There are some doubts whether tomb 1475 is indeed the tomb in which this vessel was found; the type of vessel is unknown, and the attribution to Naqada IIC rests entirely on the tomb attribution.

prominence to that area (12.5% vs. 1.59%), but because it is only one vessel (in two sherds), this is not statistically significant.



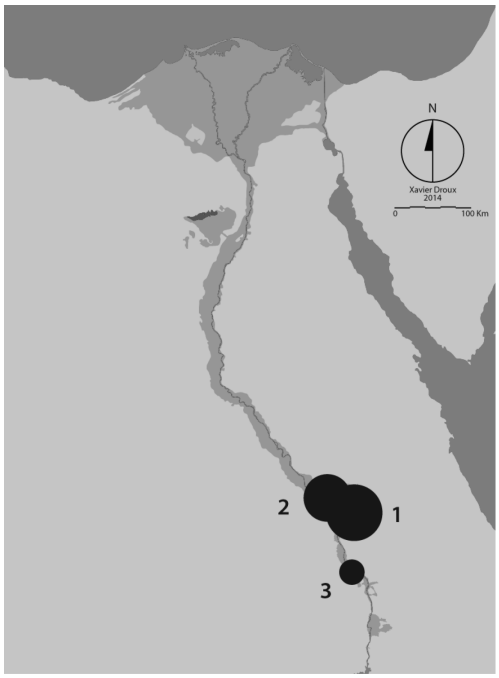
1. Naqada region (4 objects)
2. Abydos region (4 objects)
3. Hierakonpolis (2 objects)
4. Abadiya region (2 objects)
5. Gebel Silsileh region (1 object)
6. Badari region (1 object)

Map 12 Geographical distribution of predynastic material culture relating to gazelle, Naqada IIC and later (n=14).

4.5.4 Barbary sheep

The proportion of material related to the Barbary sheep with a known provenance is the highest among antelope species (20 objects out of 29, 69%).

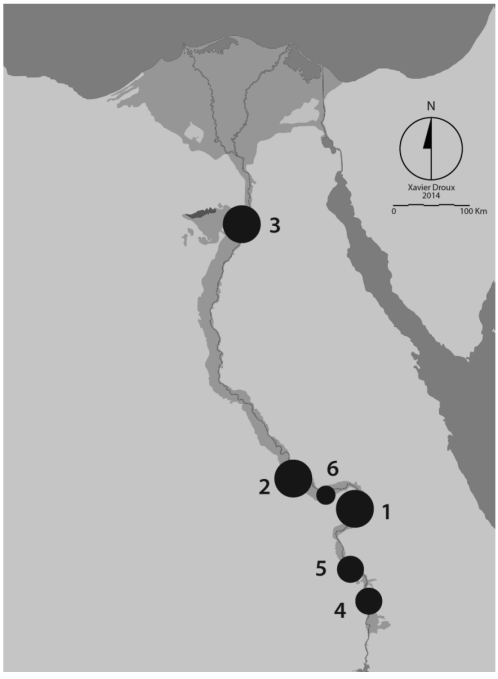
Objects that date to the early predynastic are from only three archaeological areas (Map 13). The highest concentration of material is observed in the region of Naqada, where four C-ware vessels (**1.21**, **1.53**, **1.55**, **1.65**) and a zoomorphic palette (**8.15**) were found. Regarding the painted vessels, this is high above the average presence of vessels of that class in that region (80% vs 29.3%, see §1.3.2); the absence of gazelle on that particular medium at Abydos is also unexpected. The region of Abadiya is second in importance and the material different in character: a C-ware vessel (**1.60**), two incised vessels (**4.03**, **4.04**),



1. Naqada region (5 objects)
2. Abadiya region (4 objects)
3. Hierakonpolis (1 object)

Map 13 Geographical distribution of predynastic material culture relating to Barbary sheep, before Naqada IIC (n=10).

and an incised greywacke palette (**4.19**, see note 95). Hierakonpolis is the least well represented area, with a certain flint figurine (**9.11**) and another possible one (**9.12**). The area of Badari may be represented by a zoomorphic palette (**8.14**) of uncertain date but probably before Naqada IIC.



1. Naqada region (2 objects)
2. Abydos region (2 objects)
3. Abusir el-Meleq region (2 objects)
4. Gebel Silsileh (1 object)
5. Hierakonpolis (1 object)
6. Abadiya region (1 object)

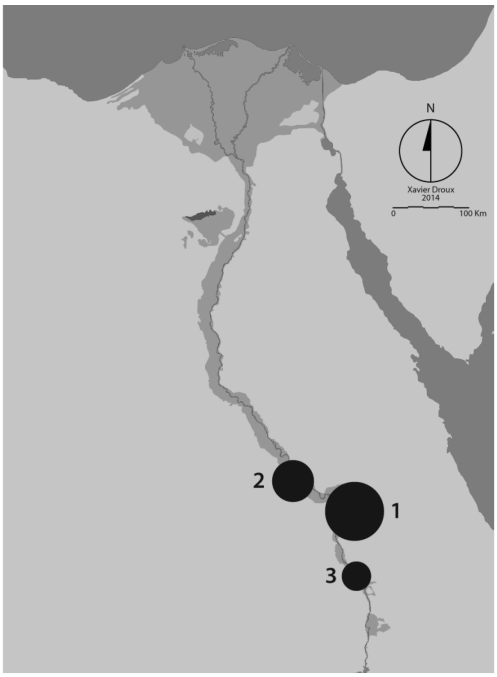
Map 14 Geographical distribution of predynastic material culture relating to Barbary sheep, Naqada IIC and later (n=9).

The provenances of objects from the later predynastic are less clear than for Naqada I–IIB (9 objects; Map 14). The material is spread across six areas, none of which stands out. Two objects were found in each of the regions of Naqada, Abydos, and Abusir el-Meleq. An incised vessel (**4.14**) and a zoomorphic palette (**8.16**) come from Naqada; the only D-ware vessel with a representation of a Barbary sheep (**2.51**) and a carved dagger handle (**4.26**) come from Abydos; two zoomorphic palettes (**8.10**, **8.11**) were found at Abusir el-Meleq. The region of Gebel Silsileh is represented only by the Abu Zeidan knife handle (**4.25**), that of Hierakonpolis by a zoomorphic palette (**8.13**), and that of Abadiya by an incised vessel (**4.19,** see note 95).

4.5.5 Hartebeest

Only nine of the artefacts related to the hartebeest have a known provenance (39%); seven of those date to the early predynastic, and two to Naqada IIC–D.

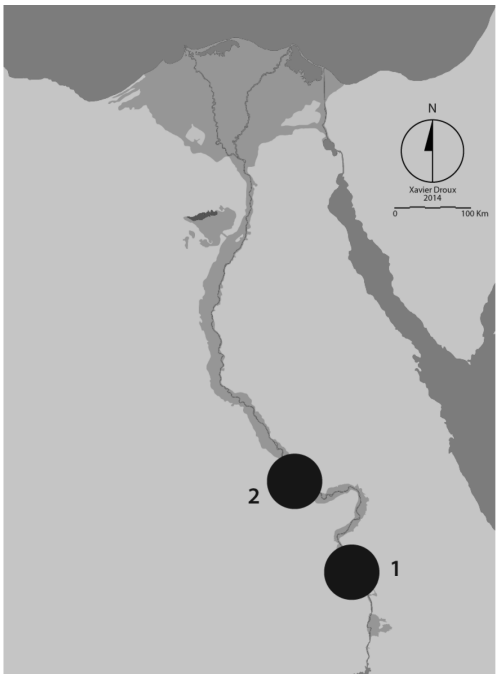
Most of the objects of Naqada I–IIB were found in the region of Naqada. They are varied in nature: there is an incised egg (**4.23**), two zoomorphic palettes (**8.20**, **8.21**), and a figurine carved atop a comb (**10.10**). Two further zoomorphic palettes that probably date to the early predynastic are said to have come from Naqada (**8.19**, **8.22**). The only two C-ware vessels with hartebeest that are provenanced were found in the region of Abydos(**1.17**, **1.69**). An incised sherd with hartebeest was found at Hierakonpolis (see §4.3.3.2 and note 77), and it is probable that a flint figurine knapped as a hartebeest (**9.13**) also comes from there.



1. Naqada region (4 objects)
2. Abydos region (2 objects)
3. Hierakonpolis (1 object)

Map 15 Geographical distribution of predynastic material culture relating to hartebeest, before Naqada IIC (n=7).

Material dating to the later predynastic for the hartebeest has only been found at Abydos, where it figures on a D-ware vessel with unusual decoration (**2.51**), and at Hierakonpolis, on the main wall of the Painted Tomb (**3.8**).



1. Hierakonpolis (1 object)
2. Abydos region (1 object)

Map 16 Geographical distribution of predynastic material culture relating to hartebeest, Naqada IIC and later (n=2).

4.5.6 Oryx

The oryx is the species of antelope for which geographical information is scarcest, and least informative. The provenances of just three of the possible ten objects related to that species are known (30%). All the objects date to the later predynastic. One attestation is at Hierakonpolis, on the main wall of the Painted Tomb (**3.8**), and there are two knife handles with oryxes among the species depicted on them: the Abu Zeidan knife handle (**4.25**) and the gold-leafed Gebel el-Tarif knife handle (**4.29**). This latter object is not dated by its context, but it is unlikely to have been made before Naqada IIC.

4.5.7 Summary

Archaeological sites at which material related to species of antelopes considered in this thesis has been found are not equally represented. The number of sites is smaller for the early predynastic (pre-Naqada IIC), and only four species were identified among their material culture: ibex, gazelle, Barbary sheep, and hartebeest (Figure 54). The largest number of depictions comes from the region of Naqada, which is the only area where all four species were attested. The regions of Hierakonpolis and Abydos are second in importance, with seven depictions found in each. Ibex and hartebeest were attested in both areas, Barbary sheep at Hierakonpolis, and gazelle at Abydos. The ibex is the sole species found in the region of Badari, and gazelles are the only ones at Abadiya and Gebelein.

From Naqada IIC onward, the number of sites under consideration increases, as does the number of depictions of antelopes; there is not a single region where all the species were present (Figure 55). Abydos and Naqada are the two most important regions, with 16 depictions found in each. Abydos has more species represented, with ibex, addax, and gazelle almost equally represented; Barbary sheep and hartebeest are rare. The hartebeest is not attested at Naqada during this period, even though it was well represented there earlier. Abadiya is the third region in importance, with the same species found there as in the region of Naqada. Different ranges of species are found at Hierakonpolis and Gebel Silsileh, but the number of attestation is small, while at

Hierakonpolis, the elaborate composition of the Painted Tomb is a special case. Only three species have been identified at Abusir el-Meleq, two in the Badari region, and only the ibex in the region of Gebelein.

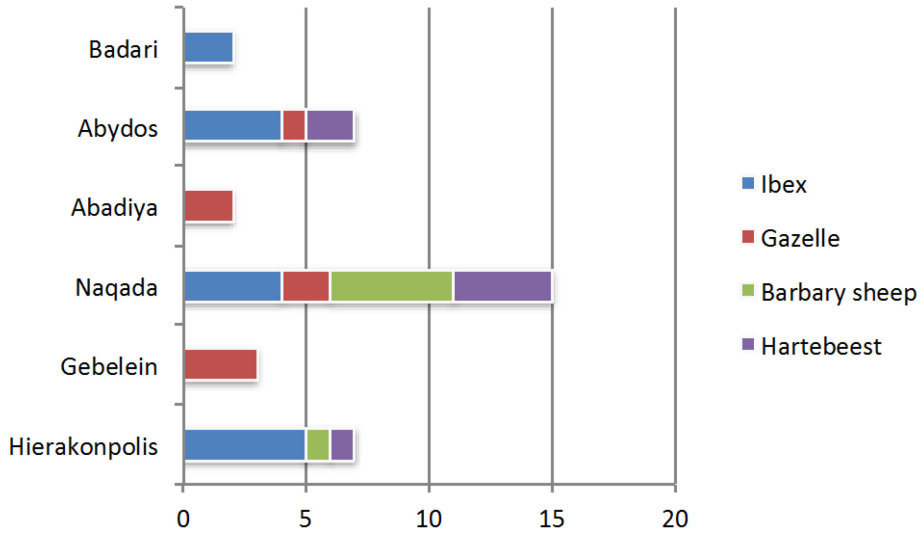


Figure 54. Geographical distribution of provenanced predynastic material culture relating to antelopes, Naqada I–IIB.

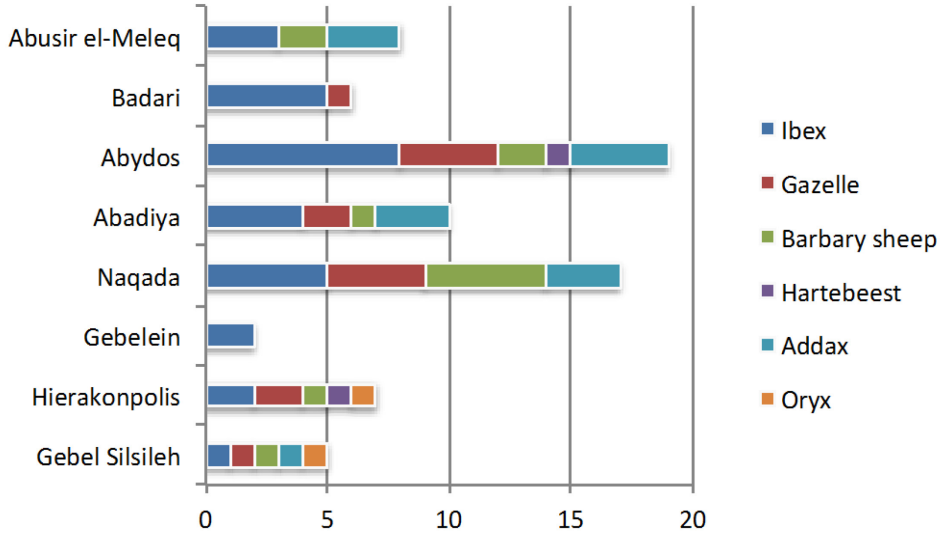


Figure 55. Geographical distribution of provenanced predynastic material culture relating to antelopes, Naqada IIC–IIIA2.

No clear pattern of geographical distribution of species emerges, either for the early or late predynastic, which is in part due to the small number of objects that can be attributed to any site for the period. It doesn't seem very likely that the differences arose from the opportunity that the predynastic Egyptians had to observe some species rather than others in their local environment. There is no geographical or climatic reason for the oryx to have been seen only in the Hierakonpolis/Gebel Silsileh region. Moreover, ibex and Barbary sheep lived in very similar environments, so that if the imagery was a reflection of the natural environment, those two species ought to be represented roughly equally.

5 Discussion:

5.1 The Elite and the early predynastic cycle of power

Predynastic societies in Upper Egypt became increasingly stratified through the Naqada period until the emergence of formal kingship in Naqada IIIB, intensifying into the First Dynasty in Naqada IIIC (Wilkinson 1996; Midant-Reynes 2000; Anderson 2006; Wengrow 2006; Hartung 2010).

Defining predynastic elites is not straightforward: different centres of power have been identified, at Abydos, Naqada, and Hierakonpolis, and differences may have existed between the elites at each of these centres. Moreover, changes happened with time, and developments seem to have occurred in spurts rather than been gradual (Stevenson In press; contra Savage 2001, 116). Badarian material does not appear to show evidence for structural inequality during the fifth millennium BC (Stevenson In press; contra Anderson 1992)

I first describe in general terms the development of elites and power symbolism during the predynastic period. As defined by Max Weber (1947, 152), "power is the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance." In Upper Egypt, signs of inequality become visible from Naqada IB–IC; too little evidence is available for Naqada IA to show whether this process started as early as the beginning of the Naqada period. The sources of predynastic power at Hierakonpolis have been the focus of research for example by Perry (2006; 2011), who follows Haas (1982) and Mann (1986) in identifying various aspects in the configuration of power.

Power can be exerted on several levels. First, on an ideological level, elites can have the power to exert control over systems of meanings and beliefs, norms, and ritual practices (Mann 1986, 22). Second, on an economic level, elites can control the production and distribution of the means of subsistence, as well as the production and exchange of luxury goods (Haas 1982, 159). Third, on a coercive level, they can appropriate control over physical force (Mann 1986, 11).

Finally, on a political level, they can control central, institutional regulations of social relations within the territory under their authority (Mann 1986, 26).

At Hierakonpolis, it appears that the Naqada I–IIB elite first established their power on an ideological level, that is, the first of Mann's levels. This power could be expressed, for example, in similarities and differences in burial practices and funerary rituals between the elite and the rest of the population. Perry (2006, 5; 2011) suggests that the leaders of Hierakonpolis used this ideological power as a foundation for their authority, becoming mediators between the community, the natural world, and the gods, they constructed sacred spaces, such as the locus of ritual activities in the settlement at HK29A, and, with regard to the afterlife, the elite cemetery HK6. Rituals were performed for the benefit of the entire population, creating order and renewal in life and in the afterlife under the control of the elite.

During Naqada I–IIB, the elite of Hierakonpolis apparently did not possess strong economic power (Perry 2006, 98–127; 2011). They controlled neither the production of subsistence goods nor the manufacture of tools necessary for that production. However, mass-production of some foodstuffs was certainly under the control of the elites: at HK11C, HK24A, and HK29, beer and meat were produced and processed in large quantities, probably to service the sacred spaces noted above (see Harlan 1992, 17), so that this production should perhaps be looked at as a means to enact ideological power, rather than demonstrating purely economic power. Other economic sectors were not dominated by the elite; clothing does not appear to have been significantly different between elite and the rest of the population, while the settlement is not sufficiently excavated for evidence for differences in housing to be firmly established. According to Perry (2011, 1275), there is little evidence of the elite having a role in organising protection against violence. However, remains of a large palisade wall with possible buttresses reported by Hikade (2011; Hikade et al. 2008) could be interpreted as protective. The Hierakonpolis elite seems to have controlled the production of only a few materials, especially ceramic fine-ware and painted vessels, as well as special goods that were used in the sacred spaces HK29A and HK6. Notable among such goods are the flint figurines found

at HK6, which were carved in a raw material that was not locally available (Holmes 1992). There is very little evidence for coercive power being exerted by the elite. It is, however, possible that skeletons excavated at Adaima (Crubézy & Midant-Reynes 2000; Crubézy et al. 2008, 306) and Hierakonpolis cemetery HK43 (Dougherty & Friedman 2008) showing cut-marks on cervical vertebrae and scalping marks on the skull are evidence of elite enactment of violence, although other explanations cannot be excluded (Dougherty & Friedman 2008; Hikade & Roy 2014).

During Naqada I–IIB, the elite of Hierakonpolis appear to have extended their strongly established ideological power only to limited sectors of the local economy, mostly in relation with ritual activities at HK29A and HK6 (Perry 2006, 132; 2011). However, this view of their economic involvement could be unduly restricted because little of the settlement has been excavated. Moreover, funerary materials cannot provide evidence for how the elites enacted power in everyday contexts. Following Wright (2006), Stevenson (In press) suggests that activities attested at Hierakonpolis may be seen as a form of experiment: the elite did not control large territories, and the "intermittent, arguably seasonable, ritual events focussed on the control of the known natural world were not the basis of durable, expansive political structures."

The limitations of the archaeological evidence make it difficult to establish how these observations can be applied to the elites of Abydos/Mahasna and Naqada. However, at Mahasna (Block 3) there appears to have been a locus of ritual activities similar in function to HK29A (Anderson 2006), while at Naqada elites were buried in a clearly separate cemetery (Cemetery T). At Abydos, it is not clear whether only members of the elite were buried in Cemetery U before Naqada IID, but it is likely that the groups whose tombs were located there would have controlled who could be buried alongside them. Moreover, the cemetery's relatively remote setting, similar to that of HK6 at Hierakonpolis, suggests some separation from ordinary people.

From the elite material culture, which shares characteristics in all three known major centres, it seems likely that ideological power was at the base of all elite powers, with some variation in how it was displayed and exerted. The

material studied in this thesis, most of which has been found in burials and sacred spaces, informs us primarily about the ideological powers of the predynastic elites and how they viewed and displayed those powers. Wild animals, especially the largest inhabitants of the river and desert environments, provided a vocabulary of symbolic power. Evidence noted on skeletal remains of wild animals buried at the Hierakonpolis elite cemetery HK6 demonstrates that at least some of them were kept in captivity for several weeks or longer, so that they were not used solely in the funerary context, but also provided a symbolic expression of power during the lifetime of the leaders. This practice, unparalleled in predynastic Egypt, may have served primarily the interest of the ruling elite, rather than the benefit of the community. In this respect it contrasts with the use of wild animals during rituals at HK29A, where large numbers of people were probably present. The natural world was thus vital in the actions and self-presentation of the elite: not only were wild animals used in practice, they were also central to the iconography of power.

Members of these early elites are distinguished from ordinary people through various aspects, both in funerary and settlement contexts. In places, they were buried in cemeteries that were mostly, if not only, restricted to elite use, such as Hierakonpolis cemetery HK6 (Friedman 2008a; 2011b), Abydos cemetery U (Hartung 2010), Abadiya cemetery B (Hikade 2010), or Naqada cemetery T (Petrie & Quibell 1896; Davis 1983). Some categories of funerary goods are often considered as markers of elite status, such as ivory and mace heads (e.g. Takamiya 2003) or palettes (e.g. Baduel 2008; Kuhn 2013). It is beyond the scope of this thesis to assess to which extent these objects were exclusively produced for elite use; it is possible that C-ware vessels, especially those with figural decoration, were also largely reserved for members of the elites. In settlement archaeology, loci of ritual activities that should certainly be linked to elites have been identified at Hierakonpolis locality HK29A (Friedman 2009a; Linseele et al. 2009) and at Mahasna Block 3 (Anderson 2006; 2011).

As I demonstrate below, the use of the animal species studied in this thesis during Naqada I–IIB was very largely reserved for elites, both in life – as is shown by faunal remains – and in imagery applied on mobile art of the Nile Valley. The

largest proportion of the material culture originated from cemeteries, which were themselves probably not for absolutely ordinary people but mainly for those of some status in society.

In the previous chapters, faunal assemblages from HK29A and Mahasna Block 3 have been identified as deriving from ritual activities that were probably in the hands of the elites, while those from HK29 and HK11C (Ops A and B, Str. C3–4) have been considered as possibly linked to elite activities taking place at HK29A and HK6. In order to compare the use of animals in life with contemporaneous use in imagery, it is first necessary to examine separately the faunal remains and the material culture that predate and postdate the Naqada IIB–C transition.

HK29A, wall trench	Mahasna Block 3
HK29A, modified silts	Adaima Ensemble 1002–1003
HK29	Adaima, Ensemble 8000
HK11, Op. G	Armant MA/21
HK11C, test A	Naqada–Khattara region
HK11C, Ops. A+B, Str. C3–4	

Figure 56. List of Naqada I–IIC faunal remains in Upper Egypt; for date range of each context, see §1.5 and Figure 7.

More faunal assemblages date to the early predynastic than later. No date is suggested for the bones from Adaima Ensemble 1001+ext., Ensemble 1010, and area 7000; the bones from Abadiya 2 and Mahgar Dendera 2 are considered to pre-date the Naqada I–IIB assemblages, and are not included in this discussion.

For the analysis of Naqada I–IIB bones of hippopotamus, crocodile, and antelope species presented below (Figure 57), I include the faunal remains from HK11C (Ops. A and B, Str. C3–4) that are broadly dated to mid-Naqada II according to their archaeological context. These remains are more likely to be contemporaneous with the material recovered from the Wall Trench and Modified Silts at HK29A than with the material derived from the later use of the site (§1.5.1), and seem to predate Naqada III, although the fragmentary nature of the pottery makes it hard to be specific (Friedman pers. comm.).

		Ritual contexts only	Contexts possibly associated to rituals	Ritual and poss. assoc. contexts
		HK29A, Block 3	**HK29, HK11C**	**HK29A, Block 3, HK29, and HK11C**
Hippopotamus (n=140)	n	41	92	133
	%	**29.3%**	**65.7%**	**95.0%**
Crocodile (n=209)	n	175	26	201
	%	**83.7%**	**12.4%**	**96.2%**
Dorcas (n=363)	n	276	32	308
	%	**76.0%**	**8.8%**	**84.8%**
Barbary sheep (n=50)	n	27	14	41
	%	**54.0%**	**28.0%**	**82.0%**

Figure 57. Proportions of the bones of hippopotamus, crocodile, dorcas gazelle, and Barbary sheep from Naqada I–IIB ritual contexts and contexts possibly associated to ritual activities.

Proportions of bones from identified ritual contexts, which were probably in the hands of the elites, vary greatly between species: less than a third of hippopotamus bones and just over half of Barbary sheep bones come from HK29A and Block 3, much less than the remains of dorcas gazelle (three-quarter) or crocodile (84%). If one considers these remains together with those also possibly linked to ritual activities (HK29 and HK11C, Figure 57, middle column), it appears that over 80% of bones derived from ritual activities. Hippopotamus, crocodile, dorcas gazelle, and Barbary sheep were rarely used in other contexts, and were certainly not commonly eaten by the predynastic Egyptians. The low proportion of hippopotamus bones from HK29A and Block 3 is due in large part because of the large number of bones of that species found at HK11C; however, because most of these bones came from the hind feet of a few individual, the impression that the hippopotamus was much less used during ritual activities may not be entirely correct.

In short, it appears that the vast majority of hunted animals were used in ritual and associated contexts. This is more strongly the case for hippopotamus and crocodile than for dorcas gazelle and Barbary sheep, but proportions are nevertheless systematically above 80% of the samples. These figures only show the Naqada I–IIC use that the predynastic elites made of the species studied in this thesis for which there are sufficient remains to propose meaningful statistics. Faunal remains from Dama gazelle come almost exclusively from ritual

contexts (5 out of 6 bones), while one of only two hartebeest bones also comes from there. It is noteworthy that the remains described above form only a fraction of the faunal assemblages under consideration: these species were mostly used in elite ritual contexts, but these rituals only made occasional use of these species.

Burial practices in the elite cemetery HK6 at Hierakonpolis reinforce the view that there was a close relationship between wild species and elites. Of the species studied in this thesis, the three hippopotami, two crocodiles, and hartebeest that have been found are the only known specimens to have been buried anywhere in Upper Egypt during the predynastic period, either in individual burials, grouped with other animals, or with humans. Whether these animals were part of the elites funerary rituals, or whether they were buried at the cemetery with funerary rituals organised in their honour is unknown, but these practices are a definite proof that the species studied in this thesis had a special relationship with predynastic elites.

I have used a similar approach to examine to which extent the imagery of these species in mobile art from the Nile Valley was also the preserve of elites during the same time period. Similarly to the faunal remains, this is not without difficulty. First, the objects need to be dated precisely enough; second, they need to come from contexts that can be defined as elite. This latter aspect is facilitated for materials from strictly or primarily elite cemeteries, but richly furnished burials elsewhere may have been more thoroughly plundered, obliterating evidence of their elite status.

Fifty-two Naqada I–IIB hippopotamus-related objects can be taken into consideration for discussion. It can be generally assumed that the owners of tombs from which material was recovered at Hierakonpolis in cemetery HK6 (5 objects: **7.48**, **9.1**, **10.1**, **11.1**, figurine near tomb 11 not in catalogue), at Abydos in cemetery U (14 objects: **1.16**, **1.19**, **1.50**, **1.57**–**8**, **1.63**, **1.64**, **1.67**, **4.2**, **5.4**, **5.9**, **6.5**, **7.57**–**8**), and at Abadiya in cemetery B (7 objects: **4.6**, **7.1**–**2**, **7.54**–**6**, **8.1**) were members of elites. The same is likely true of the owners of tombs H29 (**5.2**) and H45 (**6.1**–**2**) at Mahasna, tombs 10 (**7.71**–**2**), 25 (**6.3**–**4**) and perhaps 26 (**1.20**) at Mesaid, tomb 3823 at Badari (**7.68**–**70**), and perhaps tomb 2717 at

Matmar (**1.8**). The zoomorphic vessel **5.14** found in the ceremonial centre HK29A was also clearly used for elite purposes. Seven further C-ware vessels with known detailed provenance do not immediately appear to have been deposited in elite burials (**1.4**, **1.6**, **1.13**, **1.23**, **1.33**, **1.46**, **1.48**). However, it is possible that C-ware vessels in general, especially those with figural decoration, can be considered as markers of elite status, even when found in tombs in which only a small amount of other material remained. For example, such vessels could have been gifts from elites to other members of the society. If these seven C-ware vessels are included in the material from elite contexts, 88.5% of objects with hippopotamus depictions (46 objects) can be considered as elite goods. If these C-ware vessels are left aside, the proportion decreases to three-quarters (39 objects), but is still statistically significant. As to the remaining six objects, two from settlement contexts are unlikely to be elite goods: a fragmentary clay figurine from Adaima (**7.67**) and a pendant of uncertain date from Hammamiya (**7.40**). A painted box from el-Amra (**3.1**), a vessel with figurines from Matmar (**5.1**), and an incised bowl and stone figurine from Naqada (**4.13**, **7.25**) come from burials that do not appear to have been particularly well furnished, but this impression may be distorted by plundering.

		Proportion of material from elite contexts		
Hippopotamus (n=52)	n	39	-	46
	%	75.0%		88.5%
Crocodile (n=13)	n	7	-	9
	%	53.8%		69.2%
Ibex (n=10)	n	5	-	7
	%	50.0%		70.0%
Barbary sheep (n=8)	n	3	-	6
	%	37.5%		75.0%

Figure 58. Proportion of hippopotamus, crocodile, ibex, and Barbary sheep-related material from elite contexts, including all C-ware vessels on the right.

Contemporaneous material related to the crocodile on which a similar discussion can be based is far less numerous, rendering any statistical analysis problematic. Of the thirteen objects, six certainly come from elite contexts: four C-ware vessels were found in cemetery U at Abydos (**1.14**, **1.19**, **1.57–8**), and a C-ware vessel as well as a fragmentary clay figurine in cemetery B at Abadiya (**1.31**,

7.76). A further C-ware vessel comes from a distinctly rich burial (Matmar 2717, **1.8**). If the last two C-ware vessels, which come from tombs that appear more ordinary, are considered as elite goods (Mahasna, **1.46**; Naqa ed-Deir, **1.48**), the proportion of crocodile-related material of elite status is 69.2% (9 objects); if they are not included, this proportion diminishes to 53.8%. The artefacts that do not appear to come from particularly rich burials are mostly ceramic objects (el-Amra, **3.1**; Matmar, **5.1**; Naqada **4.9**); there was also a crocodile-shaped calcite pendant in tomb 1629 at Hammamiya (**7.78**).

Analysis for antelope-related material dating to the early predynastic is less significant because of the small sample sizes. The ibex is the best represented species, with ten objects, of which half come from elite contexts: two C-ware vessels were found in cemetery U at Abydos (**1.63**, **1.65**) and three flint figurines in cemetery HK6 at Hierakonpolis (**9.6**–**8**). A further C-ware vessel from tomb 763 at Mesaid (**1.15**) should perhaps be considered as an elite good. Three combs that appear to come from non-elite burials were found in tombs 2632 at Matmar (**10.5**), tomb 1880 at Mostagedda (**10.6**), and tomb K495 at Naqa el-Hai (**10.7**). One incised pottery sherd, found in settlement area HK49 at Hierakonpolis, also does not come from an elite context. In short, between 50%–60% of ibex-related material can be considered as elite goods, although this was likely higher, because two fragmentary flint figurines from HK6 probably represent that animal (**9.8**–**9**); if so, proportion of elite goods increases to 58%–75%.

There is sufficient information about eight Barbary sheep-related artefacts to be considered here. Two incised vessels, from tombs B83 and B101 at Abadiya (**4.3**, **4.4**), and a flint figurine from HK6 (**9.11**) are the only ones that are certainly from elite contexts. If C-ware vessels are included (**1.21**, **1.55**, **1.65**), three quarters of the material can be considered as elite goods (if the three C-ware vessels are not included, this proportion diminishes to 37.5%), leaving only two zoomorphic palettes (**8.14**, **8.15**) as apparently not elite. Attestations of hartebeest (6 objects) and gazelle (4 objects) are too small to be statistically meaningful, but both categories were found in elite and non-elite contexts.

It appears that of the species studied, not only was the hippopotamus the most often represented, it was also the one whose use was the most restricted

to members of elites. The figures presented above suffer from the lack of sufficient provenance information for most of the material; for example, the 52 hippopotamus-related objects taken into consideration only represent a third of the corpus of material, while for the ibex this proportion is only an eighth. But it appears that hippopotamus imagery, together with the use of the animal in life, was limited almost entirely to elites. The few Naqada I–IIB hippopotamus bones found outside of the elite sphere (6 bones at Operation G and one bone in area 8000 at Adaima) are too few to suggest that predynastic inhabitants of the Nile Valley could freely hunt this animal. The same applies to the material culture relating to that animal from ordinary contexts. There could be many reasons why imagery normally used only by elite members was sometimes found in apparently ordinary burials. Neither the sex, age (see Volume II, "List of tombs and contents", 207 ff.), or geographical location of the tomb owners seems to have played a part in non-elite people being able to access hippopotamus imagery: the bowl from Matmar was deposited in the tomb (**5.1**, tomb 2646) of a woman and child, while the painted box from el-Amra (**3.1**, tomb A41) was found in the burial of a man (no contextual information is available for tombs 1416 and 1475 at Naqada). Regarding the tombs with C-ware vessels that do not appear to be of elite status, the two at Naqa ed-Deir (7129, 7375) both contained the bodies of two adults and a child, tomb B143 at el-Amra contained the remains of a woman and a man, and the one at Matmar (2717) those of a woman and child; a man (?) was buried in tomb 1805 at Mostagedda.

As demonstrated above, the exploitation of crocodiles in life was even more strongly under the control of the elites than hippopotamus. This is less clearly the case in material culture, but because the assemblage is significantly smaller, these variations should be treated with caution. Several crocodile-related non-elite objects also bear depictions of hippopotami (**1.48**, **3.1**, **5.1**; see above); another object was buried with a man at Naqada (tomb 1684); there is no information about the tomb owners for the remaining objects (**1.46**, **5.13**). Like the hippopotamus, access to crocodile imagery was not influenced by the sex or age of the tomb owners.

During Naqada I–IIB, contrasts between the uses of the various antelope species in life and in material culture are much stronger than was observed for hunted river animals. Ibex is almost absent from faunal records, and yet it is the antelope that was represented most often, while gazelles, frequently found among faunal remains, were not commonly depicted.

Having established the strong but varying links between the elites and the species studied in this thesis during the early predynastic, it is possible to suggest some reasons for the elite use of these animals and their imagery.

As pointed out by Hartung (2010), Egyptian predynastic leaders – and perhaps elites in general – had practical roles to play and responsibilities to assume in the daily life of the settlements. These responsibilities would have probably included some degree of control of the management of agricultural and raw material resources, as well as protection of villages and fields. Protection would have been necessary against other groups of people, possibly desert dwellers drawn to the Nile Valley during drier years or seasons, but attacks by other Nile Valley dwellers cannot be excluded. For Hartung, these battles against real enemies, seen as chaotic powers, were depicted "in order to describe and to celebrate the power of the chief" (Hartung 2010, 112). To achieve this, only victories would be commemorated and depicted. During the early dynastic and later periods, these depictions took the form, among others, of animal hunts, as well as presentation and smiting of prisoners and enemies; it is suggested that these representations have their roots in predynastic times (Hartung 2010, 111). According to this view, hunting and wild animals in general, especially on C-ware vessels, should be understood as symbolic depictions of the struggle between order over chaos.

However, careful examination of the material culture shows that such an interpretation needs to be nuanced. Out of the thirty-six complete or near-complete C-ware vessels with hippopotamus depictions, only twelve to sixteen show the animals as prey (just over a third; it is not certain that the hippopotami are harpooned on **1.40** and **1.50** and they are not the direct targets of the dogs on **1.62**, and **1.63**). Because hunting scenes exhibit a higher degree of complexity and abstraction – such as the replacement of human actors by harpoons, nets,

snares, and dogs – they have received more attention and have therefore been the focus of more research than non-hunting scenes (e.g. Hartung 2010; Hendrickx 2011a), generating misleading views that hippopotamus hunts are especially common (see recently, e.g. Roche 2014), when in fact only a minority of the scenes are of that nature. Therefore hunting scenes should be considered in the wider repertoire of hippopotamus imagery during Naqada I–IIB and should be compared with depictions of other wild animals.

The interpretation of imagery of wild animals being captured or killed as a symbolic means of representing the establishment of order over chaos is likely to be correct. More generally, it can be suggested that the primary use of Naqada I–IIB animal imagery was to depict power. But not all symbolic depictions of powers are necessarily about leaders "controlling chaos". This annihilation of wild forces, which symbolically represents the responsibilities of predynastic leaders, is only one side of a more complex and subtle story. Indeed, it seems that if animals needed to be shown harpooned, ensnared, or attacked by dogs in order to be subjected symbolically to the power of leaders, depictions of these animals in non-hunting scenes may require a different explanation.

Although the hippopotamus is often seen as the archetypal wild beast that was subjected to annihilation by predynastic leaders, antelope species were in fact shown more frequently in this role than riverine animals. Not only are there relatively few depictions of hunted hippopotami on C-ware vessels: of the ten vessels with a known provenance, all but one (**1.13**) come from the region of Abydos. Outside the corpus of C-ware vessels, hippopotamus hunting depictions are limited to two incised designs on B-ware vessels (**4.6**, **4.10**, although it is not certain that the animals are being harpooned), one incised scene on a palette (**4.17**), and one hippopotamus clay figurine with a "kill mark" incised across its neck (**7.57**). In short, of the twenty possible depictions of hippopotamus hunting from the Nile valley, thirteen have a provenance, of which three quarters come from Abydos (10 objects), the others from Naqada, Abadiya, and Mostagedda. Clearly, this motif was not common in early predynastic material culture as a whole, and can be largely considered as a regional particularism of Abydos, especially as the scenes from Naqada (**4.10**) and Abadiya (**4.6**) may not show

hunting after all. These twenty scenes only represent a small part of the 173 hippopotamus-related objects assembled in this thesis. This Abydos particularism is limited to representations in mobile art: hippopotamus bones from Hierakonpolis and Adaima show that the animal was hunted there too, as in Mahasna (see below).

Crocodiles are shown hunted, or more precisely depicted next to a hunting net, on seven C-ware vessels, just over a third of all complete or near-complete C-ware vessels with crocodiles. Only three of these vessels have a provenance, two being from Abydos and one from Abadiya. There is no certain crocodile-hunting representation outside the C-ware corpus.

In contrast, species from the desert environment are more often shown in hunting scenes. Of the 24 complete or near-complete C-ware vessels with antelopes, 17 vessels bear such scenes. It is not so much this number which is revealing as the proportion of hunting scenes, which averages 70% for all antelope species considered together. In detail, two thirds of vessels with ibexes (6 out of 9) and gazelles (4 out of 6) bear hunting scenes, and proportions are even higher for Barbary sheep (6 out of 7) and hartebeest (all three vessels, but the fragmentary vessel **1.69** may not have borne a hunting scene). These vessels are not concentrated in one particular region: they come from el-Amra, Naqada (**1.21**, **1.55**, **1.65**), Abydos (**1.62**, **1.63**), and Hiw/Abadiya (**1.60**); nor is there an observable prominence of one species over the others in any area. Outside the corpus of C-ware vessels, early predynastic depictions of antelope in hunting scenes include painted figurines (**3.3**, **3.5**, **3.6**, **3.7**, none with a known provenance), an incised sherd (**4.15**), two incised palettes (**4.18**, **4.19**), and an incised egg (**4.24**). Only the sherd from Hierakonpolis and the palette from Hiw have a known provenance. The presence of these objects from sites that have not otherwise yielded comparable material confirms the wide distribution of antelope hunting scenes throughout Upper Egypt.

When wishing to represent symbolically the responsibilities that their power entailed, early predynastic leaders used hunting imagery in which antelope were preferred over crocodile or hippopotamus. But only a small part

of the material culture related to these species fits into the use of animal imagery to depict "control over chaos" or the annihilation of wild forces.

The meaning attached to the rest of the artefacts, which do not show the animals as prey, likely also involved the symbolic representation of power, perhaps highlighting a different aspect of that power. In this view, early predynastic leaders associated themselves with wild powerful forces on a symbolic level, and in contrast to the other aspect of power described above as the annihilation of wild forces, this aspect can be understood as the appropriation of wild forces. The numerous C-ware vessels on which hippopotami (24 out of 36 vessels) and crocodile (11 out of 18 vessels) are not shown hunted indicate that despite the danger posed by these animals in life, they were mostly seen by elites as a force that they wished to appropriate symbolically. This is more strongly the case for the hippopotamus, as indicated by the large number of figurines carved or modelled in the shape of this animal. There is a distinct treatment of the hippopotamus in material culture, which sets it apart not only from antelope species, but also from the crocodile: it is the only species that is more often found in three-dimensional art than two-dimensional art (Figure 59). Moreover, three-dimensional objects in the shape of antelope and crocodiles are almost limited to "flat" pieces that have a two-dimensional quality, such as palettes and flint figurines.

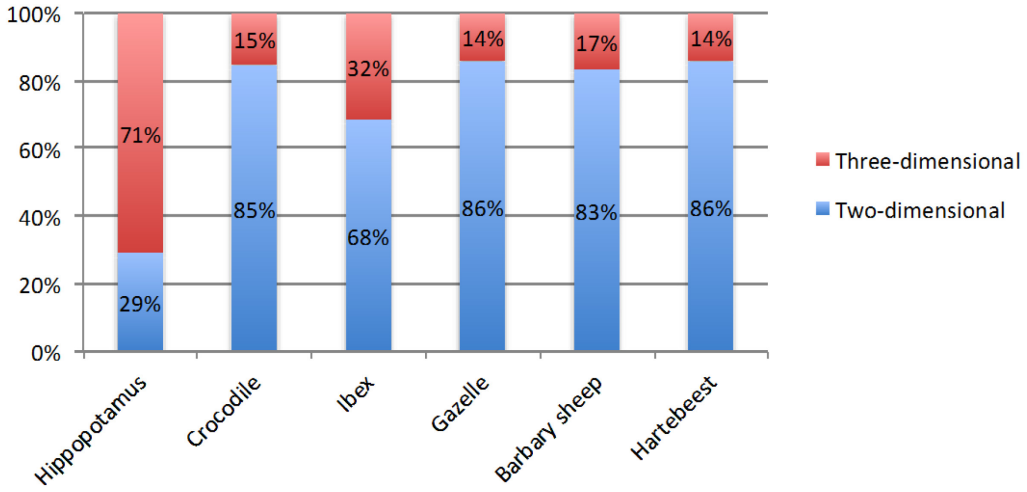


Figure 59. Proportional importance of three-dimensional and two-dimensional depictions during Naqada I–IIB.

In the system of representation of early predynastic power that I propose, the hippopotamus is the primary animal the images of which were used to

symbolically depict the appropriation of wild forces from which the elites were claiming to derive their power. In contrast, antelope species were more readily interpreted as a chaotic force that could be, or needed to be annihilated, as a way to represent to duties and responsibilities of the elites on a symbolic level. The crocodile seems to have had a less strictly confined role, and is used often to represent both aspects of power.

On painted female figurines, hippopotami and hunted antelopes seem to have been represented in order to depict aspects other than power. It is likely that in these few cases, apotropaic values were attributed to the animals. This possibility is not in contradiction with the concept of appropriation of natural forces described above, although in the case of the female figurines, the natural force was presumably aimed at symbolically protecting the owners of the figurines rather than embodying power. Because none of these figurines has a certain provenance, it is difficult to know what significance they may have had; however, the hippopotami are painted on their rounded bellies, perhaps hinting that the figurines were used in rituals linked to motherhood or childbirth.

All the species treated here could be used to some extent to represent both aspects of power. As demonstrated above, images of the annihilation of the hippopotamus were restricted geographically and may have been mostly a local particularism of the Abydos region. But although it may appear contradictory to use the same species to represent two opposed aspects, for the predynastic Egyptians these species were probably imbued with both positive and negative characteristics. The same ambivalence can be observed for other species that are not the focus of this thesis, such as the lion. Moreover, the Naqada I–IIB period lasted for hundreds of years, and the material culture studied here was produced for the elites of different areas of Upper Egypt. It would be surprising if, over time and between different elite groups, there were no variation of a type that we can detect today with the preponderance of Abydos with regard to the representation of the hippopotamus hunt in material culture.

It is not easy to determine the exact use that was made of wild animals during rituals that took place at Hierakonpolis and Mahasna. As noted above, remains of species studied in this thesis were very rare, so that it is likely that

hippopotami, crocodiles, and antelope were used only occasionally, and were not necessary components of regular rituals. All rituals need not be of the same nature: at HK29A, the annual inundation of the Nile may have been the focus of regular rituals (Linseele et al. 2009, 134), and the remains found at HK11C may derive from the preparation of the funerary feasts or ceremonies that took place in the elite cemetery HK6 (Baba et al. in preparation). Remains of domestic dogs, including a bone with cut marks, were found at HK29A (Linseele et al. 2009, 124, 133–4). Because in contemporary hunting scenes dogs are usually represented as active elements of the hunt, symbolically replacing the hunters (Hendrickx 1992; Baines 1993; Hendrickx 2006a; 2011a, 245), it is almost certain that those used in rituals at HK29A were not considered as negative entities. The reasons for their sacrifices are difficult to understand but the use of their pelts may have been involved (Linseele et al. 2009, 125). By comparison, the sacrifice of wild animals or consumption of their meat in cultual contexts may not necessarily imply that the animals figured in the ceremonies as embodiments of chaotic forces that were annihilated. Different species may have served different purposes during different rituals, but the nature of the archaeological deposits precludes any detailed insight. The only exception is the burying of wild species at the elite cemetery HK6. Again, different species may have been chosen for different reasons, but it seems unlikely that annihilation of chaotic forces were the primary one. Although the animals likely arrived alive at HK6 and were sacrificed by the graveside (Linseele et al. 2009, 134), it is difficult to imagine that negative forces that were destroyed would be respectfully buried, sometimes in their own burials with wooden buildings erected over them (Friedman 2011b).

Similarly to the material culture, it is most likely that over time, the use of wild species in life varied and evolved, in a way which cannot be determined by the archaeology. The main differences between imagery and material culture are in the selection of antelope species – e.g. the frequency of ibexes representations in mobile art that contrasts with the lack of bones of that species among faunal remains, and the numerous bones of gazelles that contrast with the infrequent depiction of that species – and in the rarity of hippopotamus bones, while that species is the most commonly depicted in mobile art.

5.2 Changes in the use of animal imagery in the later predynastic

Predynastic sites dating later than Naqada IIC that produced faunal remains are much rarer than for Naqada I–IIC. The later phases of use of the ceremonial centre HK29A at Hierakonpolis date to that period: the floor deposits identified on the surface of the oval courtyard are of Naqada IID–IIIA1 and the layers of sands above that floor of Naqada IIIB–IIIC1, perhaps with a use running into the Second Dynasty (Friedman, pers. comm.). The "Zone des limons" at Adaima appears to date to Naqada IIIC1, with the faunal remains from that area perhaps reflecting activities of the First Dynasty.

The small number of bones and lack of contemporaneous comparative material renders any statistical analysis meaningless. Nevertheless, faunal records show that wild species continued to be used for ritual purposes at the ceremonial centre at Hierakonpolis. By contrast, hippopotamus, crocodile, dorcas, and dama gazelles were used in much smaller numbers than during the earlier periods (see Figure 8).

The nature of the assemblage in the "Zone des limons" at Adaima cannot be established for certain; however, the majority of faunal remains from wild species at the site were recorded in this area. It is therefore possible that these remains derived from ritual or associated contexts, perhaps in the control of the local elite or village authority, although there may be other explanations for this concentration of material.

It is difficult to establish the contexts of antelope-related material culture dating to the second half of Naqada II and early Naqada III because a large number of the objects lack detailed provenances. D-ware vessels, which are not usually considered high-prestige objects, form the majority of the material for that period.

As mentioned previously, the hippopotamus disappeared almost entirely from the corpus after Naqada IIB: two ivory figurines (**7.71**–**7.72**) almost certainly date to Naqada IIB by comparison with other material (see above), but a Naqada IIC date cannot be excluded. They come from a richly furnished tomb at Mesaid (tomb 10). In contrast, a stone pendant in the shape of a hippopotamus from

cemetery HK43/33 at Hierakonpolis (**7.43**) was found in a tomb that did not appear to be of high status. There is no information about the provenance of the final object, a hippopotamus-shaped vessel decorated in the D-ware technique (**7.43**). Differences from the previous period are striking: the number of representations of hippopotamus diminished drastically, and this species was not integrated into the decoration of Tomb 100 at Hierakonpolis or any elite-related artefact that conveyed notions of power. Therefore, after Naqada IIB, and probably at least until the end of Naqada IIIB, hippopotamus was no longer used as a means of representing elite power, nor was it considered compatible with the new themes developed on D-ware vessels.

Crocodile is better attested than the hippopotamus during the same period, but with 16 objects it is not very frequent. Indications of the social status of the owners of the tombs in which crocodile-related material was found can only be discussed for seven objects. These include three D-ware vessels, of which two come from burials of men. One was found in tomb 193 at Naqada (**2.2**), which contained 11 vessels, and another in tomb B379 at Abadiya (**2.50**), which may be of elite status because of its location, despite an assemblage that was not particularly rich. This latter vessel is a magical jar that dates to Naqada IIIA. A third D-ware vessel comes from tomb 11k3 at Abusir el-Meleq (**2.44**); this tomb was not very well endowed, although it contained a cosmetic palette, suggesting that the tomb owner may have been of a higher status than one might otherwise think. Three further crocodile-related objects can be discussed. A fragmentary clay figurine of large dimensions from tomb 3812 at Badari (Naqada IIC, **7.77**) does not appear to be of high status, while a small stone pendant from the tomb of a woman at Hammamiya (**7.78**), which may date to Naqada IIB or IIC, comes from a rich burial. Finally, two objects from the end of the predynastic period bear depictions of crocodile: a cylinder seal found at Helwan, and a cosmetic palette of no known provenance (see §3.4, Figures 23 and 22 respectively); both of these can be considered as objects of prestige.

The small number of crocodile-related artefacts produced during Naqada IIC–IIIB and the near-absence of hippopotamus-related artefacts during the same period show that, while the river environment figured significantly in D-ware

vessels (see §1.3.2) and on the painted wall of Tomb 100, animals from that environment were mostly replaced by depictions of boats. The boats probably meant something different from what the hippopotamus and crocodile symbolised during the previous periods: whereas these two riverine animals were used in representations of power, the boats were important elements of funerary scenes.

With 51 occurrences dated to the late predynastic, the ibex is the desert species best attested in images. However, information about contexts of provenance is lacking for most of the objects, limiting discussion of social status to just twelve objects. These include five D-ware vessels, three of which come mostly from burials that are not notably rich (**2.32**, **2.34**, **2.76**). Two may have belonged to people of higher status: one was found in cemetery B at Abadiya (**2.18**), and the other comes from tomb 1458 at Naqada, which contained several other vessels and a palette (**2.25**). None of these vessels can be easily considered to come from a high-status burial. These attestations on D-ware contrast with representations of ibexes in other media. Several ibexes are represented on the painted wall of Tomb 100 at Hierakonpolis (**3.8**, Naqada IIC). Ibexes are also incised on two ivory knife handles, a class of objects that most likely reflects the high status of their owners. One such handle was found in tomb U-503 at Abydos (**4.27**, Naqada IIC–D). This cemetery was mostly or exclusively reserved for elite burials, and the rich assemblage from that tomb confirms the high status of its owner. Three seal impressions with ibexes (not in catalogue, see §4.3.3.4) were also found in that cemetery. Beside the knife handle from Abydos, ibexes are carved on four further knife handles, one in gold (**4.29**) and three in ivory (**4.25**, **2.28**, **4.31**), including one found among the rich assemblage of tomb 32 at Abu Zeidan (**4.25**, Naqada IIIA2). An incised ivory comb with similar decorative themes to some knife handles, including depictions of ibexes, is also likely an object of elite status (**4.31**). Finally, ibexes are carved on four late predynastic palettes with raised relief (see §4.4.1). As mentioned previously, the knife handles and palettes can be considered to be prestige goods, and the recurrent use of the motif of the ibex in their decoration reinforces its special status held among desert species in late predynastic elite art. Unlike other objects, the

decorated palettes do not appear to be personal and may not have been intended for burial with leaders or early kings. Because all but one of the decorated palettes with known provenance were found in the Main Deposit at Hierakonpolis, they are usually considered to have been ritual objects used in early temples. A shift from a funerary to a cultic context and from personal to communal artefacts seems to mark the transition to the early dynastic material, most of which derives from temple deposits.

Addax, which was entirely absent from early predynastic imagery, was frequently represented after Naqada IIB but exclusively on D-ware vessels. The provenances of seven out of thirty-eight vessels include at least one tomb of a wealthy or important woman, buried together with a child (**2.3**; Abydos tomb E340). The other tombs were apparently not of high status, except perhaps tomb 173 at Naqada, which contained a rough palette as well as eleven vessels, and tomb 12G10 at Abusir el-Meleq, in which twelve vessels and a necklace were found. Of note as well is tomb 1209 at Naqada, which contained a flint knife. None of these tombs appears to have belonged to members of the higher elite. The addax is thus an animal that cannot be considered to have had special significance for elites, especially since it is absent from the fauna carved on knife handles and palettes. This lack of special status seems corroborated by the absence of addax bones from predynastic faunal assemblages.

Gazelles are found on twenty objects that date to Naqada IIC and later, of which just over half are D-ware vessels. One of these vessels was found in tomb 1458 at Naqada (**2.25**) in a funerary assemblage that was not very rich, suggesting that the owner was not a member of the elite. The contexts of deposition of the other ten D-ware vessels are not known. Outside the corpus of D-ware vessels, gazelles are found in Tomb 100 at Hierakonpolis (**3.8**), which is a clear example of a high elite burial. Six further artefacts are elite in nature: three knife handles (**4.28**, **4.29**, **4.30**) and three carved palettes (see §4.4.3).

Naqada IIC–IIIB images of Barbary sheep are rarer than those of gazelles. Of the twelve objects recorded, only one is a D-ware vessel, without detailed provenance (**2.51**). The majority of the other material is of elite status, including three ivory knife handles (**4.25**, **4.26**, **4.30**), two of which come from richly

furnished burials (**4.25**, **4.26**, see above). Zoomorphic palettes (**8.10**, **8.11**, **8.13**) do not come from burials with clearly elite status, but the palettes themselves may indicate higher than average status. Tomb U-j, of high elite or ruler status, produced fifteen tags with depictions of Barbary sheep (I count this set here as one object). Two decorated palettes bear depictions of Barbary sheep (see §4.4.4).

The oryx (8 objects) and the hartebeest (6 objects) are not as numerous in representations as other desert species. Like the Barbary sheep, they are only found on just one D-ware vessel (**2.51**) and figure otherwise only on material of elite status. Both species are found on the painted wall of Tomb 100 at Hierakonpolis (**3.8**), on several knife handles (hartebeest: **4.31**; oryx: **4.25**, **4.29**, **4.30**, **4.31**), and on three palettes each (hartebeest: see §4.4.5; oryx, see §4.4.6).

In sum, desert species were depicted in two different categories of material: D-ware vessels, which do not appear to be of particularly high status, and prestige goods, such as carved ivory and gold knife handles, the Painted Tomb at Hierakonpolis, and decorated palettes. Ibex and addax were the preferred species in the decoration of D-ware vessels: they were both shown in the same types of scenes (except magical jars) and were on occasion represented together, so that they probably had similar or even interchangeable values in this repertory medium. The addax doesn't appear to have a significantly different position from the ibex (contra Graff 2009a). This finding contrasts with attestations in other media, most of which are linked to elites, where the ibex is also attested, but not the addax. Barbary sheep, oryx, and hartebeest all occurred only once, on a D-ware vessel of exceptional character (**2.51**), but had a significant place among late predynastic prestige goods. In general, there is no specific role or place for any one of these species among the carved knife handles or palettes decorated with raised relief, so that the species may have had a shared symbolism.

Antelope imagery first became available to non-elite people from Naqada IIC onward and was painted, among other motifs, on a small selection of D-ware vessels which probably reflected concerns of a funerary or ritual nature. But toward the end of the predynastic period, pictorial imagery became reserved

increasingly to the elite, following the concentration of power into the hands of a decreasing number of individuals. Antelope species were then used in various combinations with other animal species on carved ivory knife handles and palettes with raised relief decoration. The scenes on these artefacts are usually interpreted as representations of control of chaotic forces, as are the hunting scenes on the painted wall in the rather earlier Tomb 100 at Hierakonpolis. In this context, antelope species appear to have had increasingly similar or interchangeable values. These scenes can be seen as continuing the early predynastic scenes of annihilation of wild forces, in which antelopes figured prominently. In contrast, the appropriation of wild forces seems to no longer be associated with the hippopotamus by no later than the end of Naqada IIB. If the concept of appropriation survived, its focus shifted toward other species, such as wild cattle, lion, and potentially the elephant. The ambivalent approach to the crocodile seen in the early predynastic seems to have continued during the later predynastic: on D-ware vessels, crocodiles figured on magical jars, where they may be understood as a positive force, perhaps apotropaic in nature, but they are also shown harpooned on two vessels. The change of weapon, from the nets painted on C-ware vessels to the harpoon on the D-ware vessels, is noteworthy; it could reflect a change in practice, but it may also indicate that these symbolic scenes are less related to reality, and that a harpoon may be visually more effective than a cross-hatched area in showing an animal being killed. In the absence of comparative material, it is more difficult to appreciate the symbolism of the clay figurine deposited in tomb 3812 at Badari (**7.77**), while the stone pendant from Hammamiya (**7.78**) that was part of a necklace can be understood as a positive representation, perhaps with an apotropaic value.

Because the size of the faunal assemblages for Naqada IID–IIIC are very small, and limited to Hierakonpolis and Adaima, it is difficult to compare the practical use of the animals with their imagery. Of note is the continued use of hippopotamus in a ritual contexts at HK29A; although this appears to be in opposition with the lack of contemporary hippopotamus imagery, these bones are not numerous, and show that this species was used very rarely for ritual purposes, markedly less than during Naqada I–IIB. If the bones found in the

"Zone des limons" at Adaima date to Naqada IIIC, the presence of these hippopotamus remains may be related to the renewed interest in this animal attested in early dynastic temple deposits. Crocodile remains are proportionally better attested during the later predynastic than the hippopotamus, although less than a fifth dates to Naqada IID and later. Imagery of that animal does not appear to have been of much interest to elites of that time, so that the infrequent use of crocodiles during rituals at HK29A is not surprising. The main differences between faunal remains and iconography concern the species of antelope. Addax and ibexes were depicted the most often, but are completely absent from the faunal assemblages. Despite their significant place in high prestige material, such as carved ivory knife handles and palettes, Barbary sheep, oryx, and hartebeest were not used for ritual purposes at HK29A. The absence of faunal remains belonging to these species seems to suggest that the rituals at HK29A were not about the destruction of chaotic forces, unless gazelles were used to that effect as representatives of all antelope species, but the recurrent inclusions of several species in the same scenes carved on high elite objects would appear to prevent this view. Similarly to what was observed for the early predynastic, the faunal remains from HK29A may derive from several types of rituals, which used animals for different reasons and in different quantities. The small number of remains of all species that are attributed to the later phases of use of the ceremonial centre at HK29A (just 10%) shows that rituals were performed much more rarely than earlier, or that animals use was no longer part of most rituals.

6 Conclusion

This research has analysed the role played by the hippopotamus, the crocodile, and antelope species during the predynastic period in Upper Egypt. These animals were already used in life and in iconography during the preceding Badarian period. The available evidence from the 5th millennium BC is, however, not sufficient to reveal the exact character of the symbolism attributed to the hippopotamus and ibex, but it is perhaps not coincidental that these two species, which during the 4th millennium became those most often depicted, were already used as decorative elements during the Badarian period.

The results of the study of the faunal and iconographic records of the species under consideration show that they were not all treated in similar ways or ascribed similar values, despite all being "wild". The values and meanings derived from the interactions of the predynastic Egyptians with their environment differed locally and evolved according to period, so that predynastic remains must be read in a nuanced way. In this thesis, I have noted a dichotomy between the treatment of the species themselves in practice – as revealed by faunal remains – and in the symbolic sphere – as seen through the analysis of the material culture.

During Naqada I–IIB, depictions of these species were mostly used by members of the elite, whose concerns appear to have been centred on the representation of their power on a symbolic level. C-ware vessels proved an important category of material to demonstrate this. On the one hand, the surrounding environment, both river and desert, was seen as a source of power, which elites aimed at appropriating. This aspect was mostly associated with hippopotamus, probably because of its observed fierceness and territorial attitude. It was the most-often depicted species in the material culture of Naqada I–IIB, with a resonance throughout Upper Egypt. On the other hand, elites also saw the wilderness, or 'wild-ness', as a menace, a chaotic aspect that they needed to bring under control by annihilating dangerous animals, such as the crocodile, but also desert antelopes, despite these animals not representing any direct danger to the human population. There is a clear dichotomy between

the deadly animals living in the immediate riverine environment (hippopotamus and crocodile), and the relatively docile and generally shy antelopes of the more distant desert; it seems that it is more by association with the arid environment of the desert in which they lived that antelope species gained a negative connotation. Dangerous animals from a similar environment, such as lion, were only rarely depicted (they may not have been frequently encountered at that time), and although they are not the focus of this study, these depictions do not appear to show them in a negative light. The known faunal remains for the same period show a clear dichotomy between the symbolic use of these animals and the direct interactions that the predynastic Egyptians had with them. Bones of these oft-depicted species are rare and for some entirely absent from the record. Remains of wild species were predominantly found in ritual contexts, especially those of hippopotamus and crocodile. Gazelle bones are more frequently present among faunal assemblages and are several times more numerous than remains of all other antelope species considered together. This distribution stands in contrast with the iconographic record, in which representations of gazelle constitute only a fifth of all antelope depictions.

After the end of Naqada IIB, the numerous changes observed in the archaeological record and material culture throughout Egypt (Stevenson In press) included new patterns of usage of animal imagery. Only a limited number of concepts from the early predynastic survived that phase of change. Although the predynastic Egyptians continued to apply painted decoration to pottery vessels, those of D-ware class are made of a new material (marl clay instead of Nile silt), are much more homogenous in style suggesting mass-production, and the themes of the images are of a completely different nature. Because these vessels were not the preserve of relatively small numbers of elites, and their geographical distribution spanned a larger territory, their decoration no longer reflected concerns about power wielded by small sections of society, but illustrated presumably funerary beliefs shared more widely among the population. These new ideas required a new visual vocabulary: riverine and desert environments were still used, but in significantly different ways compared with the early predynastic. The wild forces of the river, represented by the

hippopotamus – which all but disappeared from the material culture between Naqada IIC and the Early Dynastic period – and the crocodile, were no longer a major focus of interest for decoration. The focus was instead on boats, so that the river was apprehended as a "domesticated" environment. On the other hand, the desert was mostly presented as a peaceful environment, with ibexes and addaxes playing a particularly important role in the depictions on D-ware vessels, where hunting is seldom shown. It should also be noted that the addax was not depicted in the preceding period, and the symbolic use of that species appears to be restricted to the funerary sphere.

However, not all representations of power disappeared after Naqada IIB. Three important innovations relating to antelopes appeared during Naqada IIC–IID, all showing the animals as being killed. First, the Painted Tomb at Hierakonpolis constitutes a major example of predynastic art, but one without close parallels. The river environment shown there is limited to the boats, as on D-ware vessels, although it is not certain that they had the same funerary connotation as on vessels. Several scenes represent antelopes as prey: they are captured in a trap, lassoed, and pursued by dogs. This treatment differs markedly from the role given to antelopes on most D-ware vessels, and it is evident that those who created the composition wished to represent the power of the tomb owner. This focus on power is made explicit by the scene of smiting human prisoners at one end of the wall, while the association of the Painted Tomb with later kingship cycles proposed by Williams and Logan (1987, 235–55) is problematic not least because the tomb is several centuries earlier.

Second, ivory handles of a few flint ripple-flaked knives and daggers were decorated in raised relief. Antelopes figure in the decoration alongside other wild species and sometimes magical creatures, often in organised rows controlled by a variety of symbols such as dogs and rosettes. When not arranged in such rows, the antelopes were generally shown in violent contexts such as hunting or attack by other wild animals. Third, relief-carved palettes appeared during the same period, with some themes that paralleled those on the knife handles, although rows of animal are not found on palettes. It is likely that these scenes are also to be understood as depictions of power (Raffaele 2010) through the control and

destruction of wild forces, but in a manner and on object types that were unknown earlier.

These innovations can all be associated with elites, the Painted Tomb because of its size, the knife handles and palettes because of their high level of craftsmanship of execution and the materials used. They show that, at least for elites, the concept of control and annihilation of wild forces was not abandoned, although it became restricted to species of the desert environment. Other species that also did not live in the immediate surroundings of the predynastic Egyptians, not studied in this thesis, became more prominent, such as the lion.

The variety of categories of objects showing animal imagery during Naqada I–IIB likewise mostly disappeared. No flint figurine, ivory or bone comb, or three-dimensional figurine, either free-standing or atop vessels, representing species studied in this thesis can be securely dated after Naqada IIB. The only exceptions are a few zoomorphic palettes in the form of Barbary sheep and hartebeest, and those animals are rendered in a style that can be distinguished from the Naqada I–IIB palettes in the shape of the same animals.

During Naqada IIIA–B, a second wave of changes happened. Decorated vessels with figural decoration became very rare, and the painted scenes on them are of a different nature than earlier. Scorpions, snakes, crocodiles, and ibexes became the primary motifs, while boats disappeared, so that these vessels appear to have had new meanings. These jars are not well understood, and I follow Patch (Patch 2011, 79–81) in considering them as “magical”. Although crocodiles are present on them, animals of the desert environment remained the main focus for representations of wild forces. Apart from the magical jars, hardly any known object relates to animal imagery beside the relief knife handles and palettes, which continued to be made. The funerary concerns of the wider population are no longer represented, as if the individuals and their beliefs became less important while power became increasingly concentrated in the hands of the ruling elites and ultimately, of the first kings. This pattern of evidence should not be considered as evidence for the disappearance of funerary concerns among the inhabitants of the Nile Valley: the ways in which these beliefs and concerns were expressed changed, y as is shown by the increased

used of amulets, which had previously not been common, but it seems that animal imagery was no longer the focus of these concerns.

Faunal remains known to be contemporary with Naqada IICD–IIIB are far less numerous than those dating to the early predynastic. They are almost exclusively limited to the later phase of use of the ceremonial centre HK29A at Hierakonpolis and perhaps the "Zone des Limons" at Adaima. Riverine animals still figured in rituals, but in tiny proportions and far surpassed by gazelles, which may have been the only antelope species present. As observed for Naqada I–IIB, symbolic and practical use of animal species differed markedly; it is especially noteworthy that the ibex and addax, the two species most depicted on D-ware vessels and hence presumably imbued with a funerary connotation, are entirely absent from the predynastic faunal record. This discrepancy confirms that the figural decoration on D-ware vessels must be read on a symbolic level, not as representing ordinary conditions of life. Symbolism must extend to scenes where ibexes and addaxes are "gathered" by human figures, sometimes in connection with architectural features: these scenes cannot represent the actual capture or processions of these species of antelopes to be used in rituals at HK29A, for example, because these species were never used during such events.

The importance of animal imagery that had been traditional dwindled further during the very end of the predynastic period. With the disappearance of the D-ware magical jars and carved knife handles, it seems that the only category of objects related to the species studied here that survived in use is the carved palettes, although it is not sure that any example should be dated to after the reign of Narmer. However, animal species studied in this thesis were incorporated in other innovations of the time, including administrative documents such as labels and seals, as well as figurines deposited in temples, which almost certainly had religious significance. Remarkably, the hippopotamus, which had been shunned since the end of Naqada IIB, reappeared among temple deposits material and on some first dynasty royal seal impressions. This change may incorporate an archaizing movement, in which older elite cemeteries such HK6 at Hierakonpolis, as well as actual tombs of Naqada I–IIB date, were used again, a process during which ancient imagery must have been uncovered. Thus,

the use of the hippopotamus in the Early Dynastic period may have been influenced by earlier predynastic iconography, but this does not mean that the original meanings associated with the animal were the same as those of several hundred years later, so that it would not be correct to assume continuity in the use and symbolism of that animal throughout the predynastic period.

Rock art with depictions of hippopotami, crocodiles, and antelopes is only marginally integrated into the discussion in this thesis. If we accept that scenes usually dated to the predynastic period do indeed belong in the fourth millennium BC, there is still no sure way to distinguish between early and late predynastic images. If we suppose that rock art is a more expansive iconographic repertoire than scenes painted on vessels, which could be interpreted as abbreviation of that larger repertoire, it is uncertain whether the meanings attached to figures carved in desert wadis were the same as depicted on portable items of material culture. The media are very different. On the one hand, painted vessels appear to have been designed to be buried alongside their owners in tombs. They may have been seen by a number of people between the time when they were made and their depositions in tombs, perhaps especially during funerary rituals. But it seems likely that, intrinsically, their values echoed personal concerns of their owners. In contrast, rock art, being created in the open, had much more public visibility, and it continued to be accessible after being made. In this desert context, it is hard to imagine that boats and antelopes represented either funerary ideas or concepts of power similar to those on painted vessels. It is, however, certain that rock art needs to be read on a symbolic level, like imagery on mobile art, notably because of the presence of riverine elements in desert contexts. The only tentative conclusion that can be drawn here is that, so far as I have been able to determine, there are no major discrepancies between the two types of media in their pictorial treatments of hippopotamus, crocodile, and antelope.

In sum, the use of animals in material culture and in practice by the predynastic Egyptians appears to show changing and evolving concerns. Although this study concentrates on a small portion of the material culture, the successive waves of change, which altered not only the type of materials related

to animal imagery, but also the choice and meanings attached to the various species, attest to a predynastic period that did not evolve uniformly and gradually towards the establishment of kingship and of the early Egyptian state.

Throughout predynastic times, but in ways that changed greatly and in some phases quite rapidly, wild animals of the river and desert were important in the symbolic world of predynastic Upper Egypt. In accessible evidence, the animals related mostly to elites rather than to wider populations, especially during Naqada I–IIB and again during Naqada III. Riverine animals are almost absent from the material of Naqada IIC–D; this does not show that they ceased to be significant but rather that usages relating to them fell outside the accessible record. This pattern of attestation exemplifies the need to take gaps as well as available materials into account.

The relationship between the inhabitants of the Nile Valley and the animal world synthesised here for the fourth millennium BC is quite different from that of pharaonic civilisation of the third millennium BC. To pursue an analysis of a similar spread of animal species to that studied in this thesis, with a similar approach encompassing both iconographic and zooarchaeological records, would provide a basis for comparing and mapping out how the place of wild animals in the symbolic world of the Egyptians changed and evolved, treating documents of the historical period in light of their predynastic precursors, as against the problematic approach of applying historical perspectives to predynastic material.

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