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Evidence for early cat taming in Egypt

Veerle Linseele [a,*], Wim Van Neer [b,c], Stan Hendrickx [d]

[a] Center for Archaeological Sciences, Katholieke Universiteit Leuven, Celestijnenlaan 200E, B-3001 Leuven, Belgium
[b] Royal Belgian Institute of Natural Sciences, Rue Vautier 29, B-1000 Brussels, Belgium
[c] Laboratory of Comparative Anatomy and Biodiversity, Katholieke Universiteit Leuven, Ch. Deberiotstraat 32, B-3000 Leuven, Belgium
[d] Provinciale Hogeschool Limburg, Elfde Liniestraat 25, B-3500 Hasselt, Belgium

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Abstract

The remains are described of a young small felid found in a Predynastic burial at Hierakonpolis, Upper Egypt. Osteometric and zoogeographical arguments indicate that the specimen, dated to around 3700 B.C. on the basis of the associated pottery, belongs to *Felis silvestris*. In the same cemetery several other animal species, both wild and domestic, have been found. The left humerus and right femur of the cat show healed fractures indicating that the animal had been held in captivity for at least 4–6 weeks prior to its burial. We believe that this pathology suggests early cat taming more convincingly than a buried cat recently reported from Neolithic Cyprus (7500 B.C.). Such taming events were probably part of the processes that eventually led to the domestication of *Felis silvestris*. However, the absence of the cat in Predynastic and Early Dynastic depictions and its rare attestation in the archaeozoological record indicates that domestic status had not yet been attained during those early periods. Other species that were also held in captivity by Ancient Egyptians probably never became domesticated because they had one or more characteristics that prevented it.

Keywords: Predynastic; Egypt; Hierakonpolis; Archaeozoology; Cat; Pathology; Domestication

1. Domestication of the cat

The wild ancestor of our domestic cat is *Felis silvestris*, and more precisely its Levantino-African subspecies, *F. s. lybica* (Robinson, 1984; Randi and Ragni, 1991) (Fig. 1). The exact place and date of its domestication remain undocumented, but domestic status seems to have been reached by the Middle Kingdom (c. 2040–1782 B.C., all data on the chronology of Ancient Egypt from Murnane, 1983) in Egypt, at the latest during the 12th dynasty (c. 1976–1793 B.C.), when the animal begins to appear frequently in Egyptian art (Baldwin, 1975; Boessneck, 1988, pp. 85–88; Malek, 1993; Osborn and Osbornová, 1998, pp. 106–110). However, a depiction of a cat with what seems to be a collar around its neck is known from a much older tomb painting in Saqqarah, dated to the 5th dynasty (c. 2500–2350 B.C.) (Boettger, 1958, p. 114). Malek (1993, pp. 46–47) also mentions three hieroglyphs representing seated cats, which have been found on a limestone building block, probably dating to the end of the Old Kingdom and perhaps to the 6th dynasty (Pepy II, c. 2278–2184 B.C.). As opposed to the wild cat, large felines were already an important constituent of Egyptian iconography by the Late Predynastic and Early Dynastic periods. This inclusion is probably related to the development of the state in Egypt and to the accompanying changes in iconography and style, often referred to as the transition from preformal to formal art (Kemp, 2006, pp. 60–110). The lion is particularly important and occurs in both pre-formal and formal art contexts. Generalising, it can be stated that in the pre-formal context it is part of the animal world representing the chaotic forces of life, to be brought under control. This is illustrated by the depiction of the killing of lions on the

* Corresponding author.
E-mail address: veerle.linseele@arts.kuleuven.be (V. Linseele).

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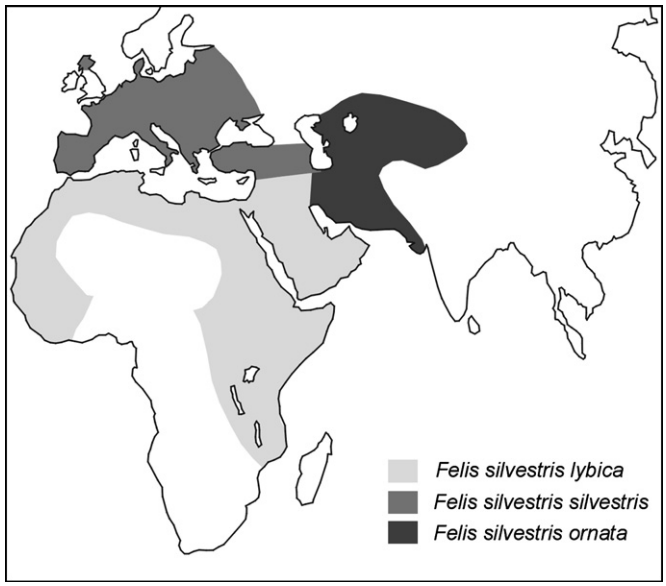

Fig. 1. Geographical distribution of the three groups of *Felis silvestris* subspecies (Robinson, 1984).

so-called Hunter's palette (British Museum 20790, 20792, Louvre E.11254, Spencer, 1980, p. 79, no. 575) and by the lions dominated by the "Master of animals" on the Gebel el-Arak knife handle (Louvre E.11517, Cialowicz, 1997; Sievertsen, 1992). Lions are also more conceptually "controlled" in orderly rows on a number of decorated ivories (Cialowicz, 1992; Hendrickx, in press). Still generalising, in formal art, the lion is one of the animals identified with the king, as can be seen on the Battlefield palette (British Museum 20791, Spencer, 1980, pp. 79–80, no. 576) and in many dynastic representations. This idea is probably also behind the Late Predynastic–Early Dynastic statues and statuettes of lions (Adams, 1992; Adams and Jaeschke, 1984). In addition, the remains of at least seven lions, mainly immature, have been found at Abydos, in a subsidiary tomb of Hor-Aha, the first or second king of the 1st dynasty (Boessneck and von den Driesch, 1990). The animals may have been held as an elite entertainment but will have been royal symbols at the same time.

Gautier (1990, p. 158, 1999) believes that during the Old Kingdom (c. 2686–2181 B.C.) the domestication of the cat may already have been a fact. However, it occurred considerably later than that of the donkey, the other animal species domesticated locally in Egypt. Osteological evidence for domestic donkeys has been found from Predynastic times onwards, with the earliest finds from Maadi in the Nile Delta (c. 3400–3100 B.C.) (Boessneck et al., 1989). The Near East has also been named as a domestication centre for donkey (Gautier, 1990, pp. 4–5; Uerpmann, 1991), but this is not supported by recent genetic studies (Beja-Pereira et al., 2004; Vilà et al., 2006). Baldwin (1975) has proposed a model of cat domestication in several stages. In the initial stage, wild cats were probably attracted to human settlements by the small rodents that lived on the food supplies of early farmers. Feeding on commensal rodent species, cats may have become commensals themselves. The humans may have tolerated or encouraged the presence of the cats for the protection of their stored food, and these contacts between humans and wild cats might eventually have resulted in domestication. Classical authors have described the fanatical popularity that Egyptian domestic cats had gained by the end of the 1st millennium B.C. (Baldwin, 1975). They also mentioned that the slaughter of cats for consumption was considered a crime and that it was prohibited to export the animals outside the country (Zeuner, 1967, p. 332). By Early Dynastic times (c. 3150–2686 B.C.) felines were an important part of the Egyptian religious world (Kleinsgütl, 1997). Attested for the Early Dynastic period are the feline goddesses Mafdet (Kammerzell, 1994; Westendorf, 1968; Wilkinson, 1999, pp. 288–290), Mehit (Wilkinson, 1999, p. 290) and Bastet (Raffaele, 2005; Wilkinson, 1999, p. 282). The latter was at that time a lion goddess and only became associated with the domesticated cat during the Late Period. The Bastet cult gave rise to the practice of mummifying cats as votive offerings to the goddess and to the creation of cat cemeteries (Gautier, 1999; Kessler, 1989, pp. 151–154). Cats are among the most frequently mummified animals in Egypt (Armitage and Clutton-Brock, 1981). Studies of cat mummies have shown that *Felis silvestris* was the main species mummified and occasionally also *Felis chaus* and *Felis serval* (Baldwin, 1975). Armitage and Clutton-Brock (1981) believe large numbers of animals were specially bred and reared by priests to be killed for mummification. Studies of cat mummies have also shown that Egyptian domestic cats were larger than their extant wild relatives (Armitage and Clutton-Brock, 1981; Morrison-Scott, 1952). Usually, wild animals undergo a size reduction after domestication but this may not be valid for small species (Gautier, 1999). However, the large size of the mummified cats is perhaps due to their special status and the good care and nourishment that they enjoyed (Gautier, 1999).

A few lines of evidence have been used to point to the possibility of a second domestication centre of the cat in the Levant. One of these is the presence of ceramic figurines of female humans, from the Anatolian site Haçilar, dated to the 6th millennium B.C, that are described as carrying catlike animals in their arms (Brentjes, 1965, figure 85). Bökönyi (1974, p. 310) argues that the animals may be mongooses rather than cats. Gautier (1990, p. 158) also rejects the idea that the animals represent cats. The latter author stresses that Haçilar is outside the distribution zone of *Felis silvestris lybica*, and that any "domestic cats" there would thus inevitably be imported. Moreover, Mellaart (1970, pp. 214–215, pp. 476–477) has rather convincingly re-identified the animals of the Haçilar figurines as leopard cubs. Osteological evidence suggesting that cat domestication may also have happened in the Near East comes from Cyprus. By 7500 B.C. humans had introduced several new animal species to the island, including cat and fox (Vigne and Guilaine, 2004; Vigne et al., 2004). Some finds of disarticulated cat remains have been reported from Neolithic contexts on this island (Vigne and Guilaine, 2004). Although the occurrence of species outside their natural geographic range is one of the arguments that is often used to prove domestication, people also seem to have brought

animals to the Mediterranean islands to serve as future hunting prey (Vigne, 1988). The find of the skeleton of a cat (7500–7200 B.C.), buried near a human grave, was interpreted as evidence that cats brought to Cyprus were also tamed (Vigne and Guilaine, 2004; Vigne et al., 2004). The burial of the cat supposedly emphasises its role as an individual and the association with a human burial is moreover thought to point to some kind of bond between human and cat. Rothwell (2004) has argued that the burial in question is insufficient as an indication for cat taming and he suggests the animal must be considered a wild commensal species. However, in a global overview of the past 12,000–14,000 years, Morey (2006) similarly interpreted burials of dogs as reflecting the animals' special (domestic) relationship with people. The cat burial from Cyprus is also taken as an indication that the process of cat domestication had already started in the Levant by the 8th millennium B.C., coinciding with the cultural period of the PPNB (Vigne and Guilaine, 2004). A cat lower first molar and a humerus have been reported from Jericho, in pre-pottery Neolithic layers (6700 B.C.) (Petzsch, 1973; Zeuner, 1958), but thus far no other Neolithic cat finds are known from the Levant (Benecke, 1994, p. 346). The tooth from Jericho was first identified as a domestic cat because of its small size, but this identification was later withdrawn (Zeuner, 1967, p. 328).

Egypt is usually considered as the centre from where domestic cats dispersed across the world, although some see the small size of the European domestic cat compared to its ancient Egyptian relatives as evidence for a Near Eastern origin (Benecke, 1994, p. 348). Nevertheless, the Egyptian link seems to be reinforced by the fact that it took until the 2nd millennium B.C., when cats became prominent in Egyptian culture, before the keeping of the animals started to spread (Clutton-Brock, 1993). The earliest dispersal of the cat was very slow. In Greece, the earliest cats appear in the iconography during the 1st millennium B.C. (Bodson, 1987; Zeuner, 1967, pp. 330–331). When Egypt came under Roman rule, cats and religion were disassociated and the spread of the animal seems to have accelerated (Robinson, 1984). Domestic cats reached southern Anatolia, for example, during the Roman period (De Cupere, 2001, pp. 59–60) and the animal had become a regular component of the European fauna by the middle of the 1st millennium A.D. at the latest (Benecke, 1994, p. 352). In all areas where wild cats occur, tracing the origins and appearance of the domestic cat is hampered by the difficulty of distinguishing between the wild and domestic form, both osteomorphologically and osteometrically, because of frequent interbreeding (e.g., Kingdon, 1977, p. 313). Distinguishing traits for wild and domestic cats have been described for cranial (Kratochvíl, 1977a; Röhrs, 1955) as well as postcranial elements (Kratochvíl, 1977b), but it is not clear if these criteria can be applied to cats from all geographical areas.

2. A small felid from the elite cemetery at Hierakonpolis

Hierakonpolis is located between the towns of Esna and Edfu in Upper Egypt (Fig. 2), and is the largest Pre- and Protodynastic site known to date, occupied from at least 4000 B.C. onwards. Its very rich and diverse remains include cemeteries, domestic areas, industrial zones and ceremonial centres. Despite considerable disturbance and plundering in both recent and ancient times, the so-called elite cemetery (HK6) is one of the areas that have yielded unique and most interesting results. Excavations at HK6 have been carried out since 1979 and are on-going (Adams, 1996, 2000a, 2004; Figueiredo, 2004; Friedman, 2004, in press; Hoffman et al., 1982). Thus far, two phases of use have been recognised at the cemetery: the first one has been dated to the Naqada IC-IIB period (c. 3800–3650 B.C.) and the second one to the Naqada IIIA2-IIIC1 period (c. 3200–3000 B.C.) and continuing into the 1st Dynasty (c. 3050–2890 B.C.). The cemetery at HK6 is unparalleled in the Predynastic period for the number and variety of animal taxa that were discovered buried in graves within it. These include both domestic animals and wild species such as baboon, elephant, wild donkey, hartebeest, hippopotamus and aurochs, a number of which were only recognised when the material was re-studied by the first

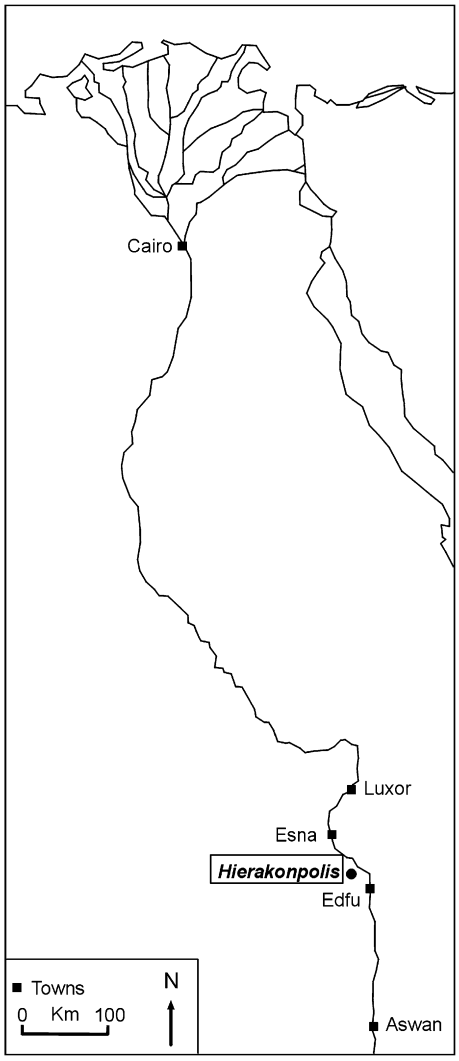

Fig. 2. Situation of Hierakonpolis in present-day Egypt.

two authors (Adams, 1998,1999a,b, 2000a, pp. 171–172, 2000b; Flores, 2004; Hoffman et al., 1982, pp. 38–60; McArdle, 1982, p. 120; Van Neer et al., 2004; Warman, 2000, 2003). The animals were found in graves both with and without human interments. Some were buried as complete bodies while other individuals and some domestic species are only represented by butchered parts (Van Neer et al., 2004).

Recent re-examination of the contents of Tomb 12 at HK6 by the first two authors (Van Neer et al., 2004) revealed the remains of a young, small, felid together with the bones of at least 7 baboons and a hippopotamus of only a few days old, although the tomb was initially reported to contain only the remains of four baboons (Adams, 1996, p. 6). Tomb 12 was excavated in 1982 and is a roughly rectangular grave, 1.5 by 1.0 m, 90 cm deep cut into the wadi sediments down to the underlying sandstone bedrock. Judging from the excavation plans, it seems that the burials were not intact, although some animals appear to have been partly *in situ* (Adams, 2000a, figures 10c,d). The tomb contained no human remains. A White Cross-lined Ware rim sherd and Polished Red vessel fragments were recovered from it and suggest a Naqada IC-IIA date (c. 3700 B.C.) (Adams, 1996, p. 6, 2000a, p. 33). Since the peak of hippopotamus births in sub-Saharan Africa is in the rainy season (Estes, 1991, p. 225), it is likely that hippo births occurred in Upper Egypt during the summer inundation of the Nile. The presence of a very young hippo in Tomb 12, thus seems to imply that the grave was filled in the course of this season, assuming that all the animals were buried simultaneously.

3. Identification and description of the small felid

Fig. 3 shows the skeletal remains recovered from the small felid in Tomb 12, of which an inventory is given in Table 1. The animal could theoretically belong to one of three wild cat species occurring in Egypt today. The largest of the three is the swamp cat (*Felis chaus*) while the other two, wild cat (*Felis silvestris*) and sand cat (*Felis margarita*), are considerably smaller. These species can be distinguished using the morphology and osteometry of their skulls (Hutterer, 1990; Mattern and McLennan, 2000; Salles, 1992; Schauenberg, 1974). However, the skull of the animal from Hierakonpolis is not sufficiently well preserved to allow identification from cranial characteristics. Instead, size differences of the postcranial skeleton had to be used. Osborn and Helmy (1980, pp. 434–447) mention an average head and body length of 67 cm for *Felis chaus*, and of about 45 cm for both *Felis silvestris* and *Felis margarita*. However, according to Guggisberg (1975, p. 32, p. 38), *Felis margarita* (45–57 cm) is clearly smaller than *Felis silvestris* (55–65 cm). Measurements on postcranial bones from the small felid of HK6 fall in the size ranges recorded for recent skeletons of male *Felis silvestris* from Belgium, the United Kingdom, Central and Eastern Europe, Congo and Kenya (Table 2). They are also consistent with measurements on Egyptian archaeological remains attributed to the species. Metric data obtained on the ulna (Fig. 4) and astragalus (Fig. 5) have been plotted to visualise where the HK6 cat falls in comparison to the recent cat specimens. Such graphs are probably less reliable for the cat's long bones, which may not have reached maximal size yet since they are unfused (Table 1). Nevertheless, measurements on these elements produced a similar image. The felid from HK6 seems to be too small for *Felis chaus*, although with only skeletons of three specimens measured, the whole size range of the species may not be covered (Table 2, Figs. 4 and 5) and size overlap between female *Felis chaus* and male *Felis silvestris* can not entirely be excluded. More clear from the comparative measurements taken is that the Hierakonpolis cat is too large for *Felis margarita.* The species is, in addition, rarely seen in Egypt and is mainly restricted to sandy or rocky desert areas (Goodman and Helmy, 1986; Osborn and Helmy, 1980, pp. 444–447). It is often omitted from the list of Egyptian wild cat species (e.g., Malek, 1993), and we can therefore also probably exclude *Felis margarita* on zoogeographical grounds. The ancient Egyptians also do not seem to have been familiar with it (Baldwin, 1975). Although not conclusive, all evidence is thus in favour of an identification of the small felid from Tomb 12 as *Felis silvestris* and, considering the geographical area, we would be dealing with the subspecies *Felis silvestris lybica*.

Table 1
Skeletal elements of the cat from HK6 at Hierakonpolis

Skeletal element	State of ossification
Skull fragments	
Left and right humerus	Fused distally, unfused proximally
Left and right radius	Unfused proximally and distally
Left and right ulna	
Left and right pelvis	Ilium, ischium and pubis fused
Left and right femur	Unfused proximally and distally
Left and right tibia	Unfused proximally and distally
Left and right calcaneus	Unfused
Left and right astragalus	
10 metapodal	Unfused
15 phalanx 1	Fused
11 phalanx 2	Fused
5 phalanx 3	
Atlas	
5 cervical vertebra	
4 thoracic vertebra	
9 lumbar vertebra	
3 sternum fragments	
14 rib	

The dentition of the buried cat is not preserved and therefore only the fusion data of the long bones could be used to estimate its age at death (Table 1). Since no such data exist for wild cats, fusion data for the domestic cat served as a comparison. Data given by different authors are not consistent (Amorosi, 1989, pp. 117–188; Habermehl, 1980, p. 111; Smith, 1969), but it seems that the cat from HK6 must have been about 6 to 8 months old. The size of the animal indicates that we are probably dealing with a male (Table 2). The left humerus of the cat shows a healed fracture with a smooth callus in the upper third part of the diaphysis (Fig. 6b). The fracture consolidated in an oblique angle of about 30° to the anatomical axis, as a result of which the bone is about 7% shorter than the right humerus. The right femur equally carries

Table 2
Measurements (mm) according to von den Driesch (1976) on the cat from HK6 at Hierakonpolis compared to the same measurements on recent and archaeological *Felis chaus*, *Felis silvestris* and *Felis margarita* (subadult and adult individuals)

	Origin	Sex	Humerus			Ulna		Pelvis		Fem.	Tibia				Astr.
			GL	SD	Bd	BPC	DPA	GL	LA	Bd	GL	Bp	SD	Bd	GL
Hierakonpolis															
Left			–	7.9	±22	11.4	13.5	–	–	±23.5	–	–	–	17.8	19.5
Right			±(120)	8.0	22.6	–	–	±95	14.0	–	(141)	26.5	8.3	–	19.3
Felis chaus															
Pal-M Fe-ch 1	Zoo, Germany	F	134	8.2	23.5	13.3	16.5	102.9	16.6	24.4	153	26.4	9.5	19.0	20.9
NMW 42299	Zoo, Austria	F	129	8.4	21.9	12.0	14.5	101.4	14.3	24.8	(152)	25.9	9.6	16.7	21.8
Boessneck and von den Driesch (1992)	Tel el-dab'a	F	–	–	–	–	–	–	–	–	–	–	–	19	–
NMW 57745	Zoo, Austria	M	148	10.2	26.3	13.9	18.3	118.2	15.2	27.2	140	29.6	11.4	20.3	24.3
Boessneck and von den Driesch (1992)	Tel el-dab'a	M	–	–	–	–	–	–	–	22.5	–	–	–	–	–
Boessneck and von den Driesch (1992)	Tel el-dab'a		–	–	28	–	–	–	–	–	–	–	–	–	–
Felis margarita															
NMW 13472	Pakistan	F	77	4.6	14.4	7.1	7.8	53.7	9.0	14.5	84	15.0	4.8	11.0	11.9
NMW 13473	Pakistan	M	99	5.6	16.8	8.2	9.7	66.3	9.4	17.5	105	18.1	5.5	12.9	14.3
Felis silvestris															
NMW 18602	Austria	F	123	8.6	23.1	12.0	13.4	96.4	12.9	22.7	(149)	24.5	8.3	16.7	19.1
KBIN 8991 (mounted)	Belgium	F	(115)	8.4	22.4	–	–	87	12.9	21.7	137	±22	8.1	±17	±16
KMMA R.G. 2130	Kenya	F	115	7.0	17.8	7.8	11.7	86	11.3	19.2	138	20.2	6.8	14	16.8
Pal-M Fe-si 13	Germany	F	114	7.0	23.4	13.2	14.8	87.5	13.4	22.3	133	23.8	7.2	17.8	17.8
KBIN 9126	Belgium	F	106	7.2	19.4	–	–	83	11.9	19.6	125	19.8	7.3	±14	±15
NWM 10046	Slovakia	F	(105)	7.1	21.1	10.7	11.5	–	–	20.5	–	22.6	7.6	15.7	17.2
KBIN 14787	Belgium	F	104	6.9	19.1	–	–	81	11.5	18.8	120	19.2	6.5	±13	±13
NWM 24118	UK	F	(101)	6.7	19.4	10.2	11.4	78.2	12.5	20.3	(118)	20.4	7.2	15.1	17.4
Pal-M Fe-si 9	Zoo, Germany	F	101	6.6	18.4	9.2	11.1	80.8	11.3	19.2	122	20.3	6.4	14.4	16.5
Pal-M Fe-si 4	Yugoslavia	F	100	5.7	19.1	9.3	11.0	78.2	11.8	19.2	117	20.4	6.0	14.0	15.6
Pal-M Fe-si 2	Germany	F	110	7.4	21.2	9.8	12.0	87.4	12.1	20.0	128	20.9	7.7	15.2	
KMMA R.G. 22375	Congo	F	97	5.8	18.0	9.1	12.2	75	12.1	18.8	–	–	–	–	–
NMW 55232	Bulgaria	F	–	8.0	21.8	11.1	12.4	–	–	21.8	138	23.9	7.9	16.1	
NWM 10047	Slovakia	M	127	9.2	24.7	12.6	13.9	–	–	23.2	150	25	8.8	18.1	19.8
NMW 41216	Slovakia	M	(126)	8.3	22.9	11.4	14.1	96.7	13.8	22.1	149	24.6	9.0	17.0	19.4
NMW 41215	Slovakia	M	(125)	7.9	23.7	11.7	13.2	90.7	12.8	23.5	(147)	22.9	8.2	17.3	18.8
NMW 55233	Bulgaria	M	125	7.9	22.1	11	13.6	94.7	12.6	21.9	146	23.4	8.0	16.6	18.2
NWM 20232	Austria	M	122	8.6	21.1	11.4	13.0	95.2	11.6	22.2	143	23.4	7.8		18.0
KMMA R.G. 2129	Kenya	M	122	8.0	19.9	8.9	12.4	88	12.5	21.5	140	23.2	8.1	15.8	18.5
NWM 24119	UK	M	119	8.0	22.3	11.4	12.4	94.1	12.6	22.8	138	23.1	8.4	16.9	18.4
KBIN 15528 (mounted)	Belgium	M	118	8.0	21.3	–	–	92	11.9	21	±132	21.3	8.3	±14	±15
KBIN 14690 (mounted)	Belgium	M	113	8.5	22	–	–	90	13.8	21.1	135	22.7	8.4	±16	±16
KBIN 13262 (mounted)	Belgium	M	112	8.6	21.3	–	–	85	12.7	20.3	±128	21.4	8.7	±16	±17
Pal-M Fe-si 14	Germany	M	111	7.5	22.7	11.0	12.6	85.4	15.1	22.5	130	23.2	8	17.8	18.4
KBIN 13261 (mounted)	Belgium	M	98	7.4	19.0	–	–	81	11.7	19.1	115	20.2	8.4	±16	±15
KBIN 12551 (mounted)	Belgium	M	97	6.8	18.3	–	–	78	11.7	21.5	±112	21.4	7	±14	±17
NWM 63883	Austria	M	–	–	–	–	–	83.3	12.3	20.1	–	–	–	–	–
NMWB2371	Rumania		119	8.3	22.4	11.1	12.8	–	–	22.8	141	23.8	8.2	17.2	18.5
Pal-M Fe-si 3	Germany		117	8.2	22.2	11.1	13.4	94.0	13.4	21.4	134	22.1	8.2	16.2	
KMMA 2902	Congo		115	7.7	19.4	9.5	11.1	92	12.2	20.2	132	21.2	7.8	15.5	16.9
Pal-M Fe-si 7			114	7.5	20.5	10.5	13.1	90.8	13.3	20.7	132	21.5	7.3	15.8	
Boessneck and von den Driesch (1992)	Tel el-dab'a		–	–	20.2	–	–	–	–	–	–	–	–	–	–
Boessneck and von den Driesch (1992)	Tel el-dab'a		–	–	20/19.7*	–	–	–	–	–	–	–	–	–	–
Boessneck and von den Driesch (1992)	Tel el-dab'a		–	–	–	–	–	–	±13.5	–	–	–	–	–	–
Gautier (2005)	El Kab		–	–	20.5	–	–	–	–	–	–	–	–	–	–
Gautier (2005)	El Kab		112	–	20.4	–	–	–	–	–	–	–	–	–	–

(*continued on next page*)

Table 2 (*continued*)

	Origin	Sex	Humerus			Ulna		Pelvis		Fem.	Tibia				Astr.
			GL	SD	Bd	BPC	DPA	GL	LA	Bd	GL	Bp	SD	Bd	GL
Gautier (2005)	El Kab		–	–	–	–	–	–	14.0	–	–	–	–	–	–
Gautier (2005)	El Kab		–	–	–	–	–	–	–	21.6	–	–	–	–	–
Gautier (2005)	El Kab		–	–	–	–	–	–	–	–	–	–	–	–	15.4

( ) not yet fused; *left and right one individual.
Note: some measurements are approximate (±) since they were taken on mounted recent specimens or poorly preserved archaeological specimens.

evidence for a healed fracture, which had also led to a shortening of the bone (Fig. 6c). Most baboons from Tomb 12 also seem to have suffered bone fractures on capture, or during their life in captivity. The majority of the healed fractures were recorded on the hands and feet, but they occasionally also occurred on limb bones and in one instance on a mandible (Van Neer and Linseele, 2002). A cause of death could not be established for the cat of Tomb 12, nor for any of the other animals found buried at Hierakonpolis' elite cemetery, but they were presumably deliberately killed for the purposes of burial in this cemetery.

The cat of HK6 is an exceptional find in such early Egyptian funerary contexts. A felid buried with a gazelle in a human grave at Mostagedda (tomb 330, Badarian, before 4000 B.C.), has been described as ''perhaps a cat'' (Brunton, 1937, p. 34) and as ''apparently a cat'' (Brunton, 1937, p. 57), but no figures or metrical data were provided and the finds have never been re-analysed. At Hierakonpolis, remains of cats were also identified in some of the excavated settlement contexts (Van Neer and Linseele, unpublished data). Likewise, at the nearby Predynastic site of Adaïma, cat bones were found among settlement debris (Van Neer, 2002). From deposits near the settlement of Hemamhieh, Caton-Thompson reports the mandibular rami of two cats which were believed to be domestic, but the material has never been reinvestigated and the date of the deposit is unclear (mid-Predynastic to Old Kingdom) (Brunton and Caton-Thompson, 1928, p. 94). However, the felid remains were found in a dog burial, situated immediately under the surface and above the Predynastic settlement structures (Brunton and Caton-Thompson, 1928, pl. LXIV). They therefore probably date to the Old Kingdom or more recent periods, rather than to the Predynastic, although some Predynastic potsherds were found at the same depth. A fragment of a felid mandible from the Predynastic settlement at Abydos (Peet, 1914, p. 7) was described as *Felis maniculata*, a synonym for *Felis silvestris.*

4. Discussion

While wild cat remains from settlement contexts merely prove that the species was hunted, the buried individual from HK6 indicates that during Predynastic times it was also caught to be kept in captivity. The severity of the cat's injuries suggests that they were not caused by an accident during its life in the wild, but that they were the result of human actions during the capture of the animal, or perhaps during the period of captivity. The bone fractures of the HK6 animal probably healed without direct intervention, but without human protection against predators and without nursing, the cat would probably not have survived. Taking the length of the healing period into account, the animal must have been held in captivity for at least 4–6 weeks (Udrescu and Van

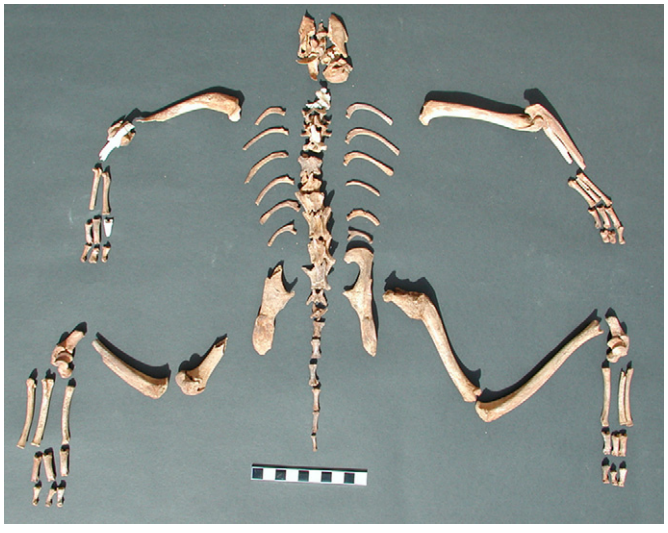

Fig. 3. Skeletal elements of the cat from HK6 at Hierakonpolis, approximately in anatomical position (for Inventory see Table 1).

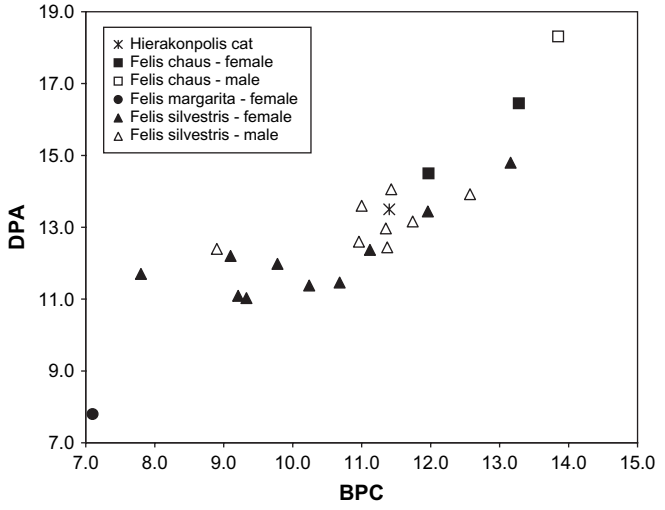

Fig. 4. Ulna measurements (mm) according to von den Driesch (1976) of the cat from HK6 at Hierakonpolis and of recent *Felis chaus*, *Felis margarita* and *Felis silvestris* specimens (see Table 2).

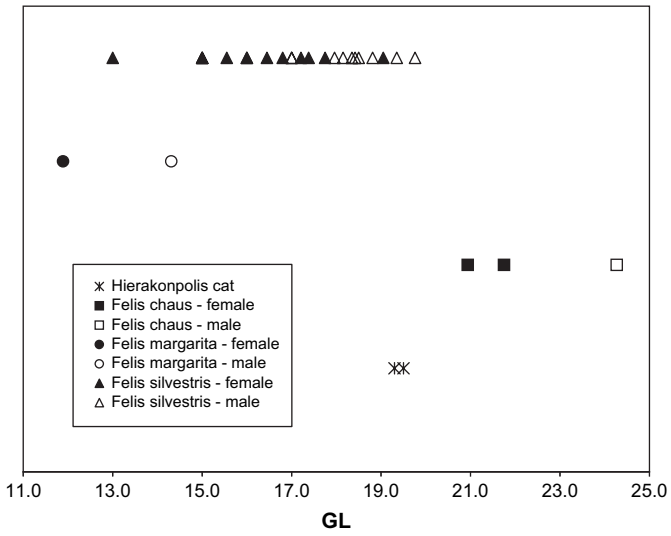

Fig. 5. Astragalus measurements (mm) according to von den Driesch (1976) of the cat from HK6 at Hierakonpolis and of recent *Felis chaus*, *Felis margarita* and *Felis silvestris* specimens (see Table 2).

Neer, 2004). *Felis silvestris* must have been locally available near Hierakonpolis, since the distribution of the animal in Egypt includes the vegetated margins of the Nile Valley. As indicated earlier, cats are moreover attracted by the small rodents living in and near human settlement (cf. Estes, 1991, p. 358). Young cats accompany their mother until the age of 3 months, and by 5 months they are independent. This was probably about the age at which the animal was captured near the site.

Because of its healed fractures, the wild cat from Hierakonpolis thus more clearly demonstrates attempts to tame

Fig. 6. Long bones of the cat from HK6 at Hierakonpolis: (a) Healthy right humerus, (b) left humerus with healed fracture, (c) right femur with healed fracture.

cats than the more ancient find from Cyprus mentioned earlier. Taming is considered as "a relationship between a particular person and a particular animal without long-term effects beyond the lifetime of that animal" (Russell, 2002). The Hierakonpolis cat was probably not associated closely with a human burial. Generally, burying companion animals with their deceased human masters seems to have been a rare practice during the Predynastic period in Egypt (cf. Flores, 2003, p. 53). The cat from HK6 at Hierakonpolis, like the other animals found at the cemetery, may rather have had a symbolic or religious meaning. Nevertheless, it is believed that the animals were buried for the benefit of the human occupants of the cemetery, rather than out of veneration or respect for the animals themselves (Van Neer et al., 2004). Despite the fact that animal representations and their symbolism are an important part of the iconography of that time, the cat is, as described earlier, completely absent from Predynastic and Early Dynastic depictions (e.g., Hendrickx, 2002). Obviously cats played no role at all in Predynastic religion or elite symbolism. In combination with the rarity of archaeozoological remains, this seems to indicate that the cat had little importance in Predynastic daily life, which would imply that domestication of the animal had not yet taken place. The find of the Hierakonpolis cat is to be placed in the context of the large number of both wild and domesticated animals found in the elite cemetery HK6 (Van Neer et al., 2004). Although the exact meaning of the animals for the elite at Hierakonpolis is not known, it is obvious that a lot of time and effort was spent in bringing the animals together and keeping them, at least temporarily, in captivity. Symbolically, the wide range of animals might well reflect the chaotic diversity of animal life. Consequently, their captivity and eventual ritual slaughter should be considered as the way in which the chaos was brought under control, a theme that has already been suggested as fundamental for Predynastic religious ideas (Asselberghs, 1962; Hendrickx, in press; Kemp, 2006, pp. 92–99), with a direct link to the political reality of developing rulership. For the Pharaonic period, the hippopotamus hunt is the best known aspect of this (Säve-Söderberg, 1953), and its symbolism probably dates back to Predynastic times (cf. Hendrickx and Depraetere, 2004). The symbolic use of the actual animals themselves seems, nevertheless, to have been exceptional and is not attested in the elite cemetery U at Abydos, for example.

The process of cat domestication was probably very gradual, leading to full domestic status only during the Middle and New Kingdom, and later, when cats were wanted on a large scale for religious and ritual purposes (cf. Baldwin, 1975). Besides the cat and the donkey—the latter already domesticated during the Predynastic period at a time when the cat was still wild—no other species were domesticated in Egypt. Baboons, which were apparently also tamed by Predynastic Egyptians, were never domesticated. In later periods, the Egyptians also kept other species in captivity (Gautier, 1999). Lions and elephants, for example, were kept in palaces as symbols of prestige or as curiosities. Several game species, including various aquatic birds, dorcas gazelle, oryx, and hyena were also held in captivity, and sometimes force-fed, for ceremonial

purposes. However, in the case of all of these animals, these practices never resulted in domestication. The basic requirements for domestication—reproduction in captivity and subsequent selection of the offspring for human profit—were probably never met (Gautier, 1999). Instead, restocking was usually effected by catching young animals from the wild. Why some animals were domesticated and others were not, is not only due to deliberate human choices and strategies, but also depends on the characteristics of the animals themselves (cf. Diamond, 2002). Some argue that the docile behaviour of *Felis silvestris lybica,* which distinguished it from the other *Felis silvestris* subspecies, must have almost predestined it for domestication (Guggisberg, 1975, p. 32; but see Cameron-Beaumont et al., 2002). The find of a captive cat from Hierakonpolis provides us with evidence for a very early stage in the domestication process. The Hierakonpolis wild cat was probably not captured because of particular characteristics of the animal, but just as one element showing the diversity of wildlife. However, it may have been on occasions such as these that the possibilities for domestication of cats first became apparent. It is not excluded that the buried cat of Neolithic Cyprus also represents an example of early contact between humans and cats, which may ultimately have resulted in domestication. However, evidence for later steps in a local domestication process in the Levant is thus far missing.

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