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Venerated beetles and their cultural-historical background in ancient Egypt

Hermann Levinson & Anna Levinson

"Deus sive natura"
B. de Spinoza, 1677

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The dwellers of ancient Egypt were meticulous observers of animal and plant life and were particularly impressed by conspicuous animal genera of their rural environment. The vertebrate and invertebrate animals venerated by them since the Early Dynastic Period (~3100-2686 BC)[1] comprised amphibian, avian, mammalian, reptile as well as arachnid, chilopod and insect genera. The ancient Egyptians have also been aware of amphibian and insect metamorphosis and knew the transformation of the immature into adult stages of frogs, toads, flesh flies, hide beetles and dung beetles.

The elongate (oval) ankh-beetles[2] including buprestid, elaterid and tenebrionid genera were adored from the later Predynastic Period until the end of the First Intermediate Period (~3500-2055 BC), while the roundish kheprer-beetles[2] including scarabaeine and coprine genera were venerated from the Sixth Dynasty until the end of the Thirtieth Dynasty (~2345-343 BC). The tenebrionids *Akis*, *Blaps* and *Ocnera* were adored in the form of skeletal cases and worn as apotropaic pendants by the deceased, while the tenebrionids *Scaurus* and *Tentyria* were copied in semiprecious stone, the elaterid *Lanelater*, the buprestids *Acmaeodera* and *Steraspis*, the scarabaeine genera *Gymnopleurus*, *Kheper*, *Mnematidium* and *Scarabaeus (= Ateuchus)* as well as the coprine genera *Catharsius*, *Copris* and *Heliocopris* were mainly copied in faience, schist, steatite, various (semi)precious stones, gold and silver and venerated by the living and the deceased.

1 Dates are based on the chronological table of the British Museum Dictionary of ancient Egypt (Shaw & Nicholson 1996).

2 Hieroglyphic words (mostly in parenthesis) are transliterated by Latin letters in accordance with the dictionaries of Budge (1978) and Hannig (1995). – ankh (ʿnḫ) = resurrection and eternal life; kheprer (ḫprr) = scarab beetle consecrated to the Deity of Sunrise.

The iconography of God Khepri was mainly based on the images of the genera *Gymnopleurus*, *Kheper*, *Mnematidium* and *Scarabaeus* which were supposed to roll the sunball from the Underworld upwards and subsequently accross the sky. God Khepri was identified with the Creator-God Atum, who was considered to be self-engendered like the Deity of Sunrise. The latter was also equated with Sun-God Re, because the presumed sun-circuit was imagined as the dung beetle's ball being rolled across the ground to a subterranean cavity, wherefrom eventually a new-born dung beetle emerged. From the First Intermediate Period until the end of the Thirtieth Dynasty (~2181-343 BC) God Khepri was innumerably represented in the form of stone copies of dungball-rolling (Scarabaeinae) and dung-collecting beetles (Coprinae), which served as apotropaic charms and signet rings (length: 0.6-2.7 cm), heart scarabs protecting the deceased's heart (length: 3.5-11 cm), funerary scarabs watching over the vulnerable mummies (length: 2-6 cm), royal medals commemorating significant events (length: 5-11 cm) as well as votive monuments set up in sanctuaries (length: 1-1.5 m). Human beings wearing or doing homage to such stone scarabs were permanently linked with Sun-God Khepri and protected by this Deity. The unusual impact of the above coleopteran genera on the ancient Egyptian religion is certainly unique among the cultures of the Old World.

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Preface

The present contribution is neither an essay on conventional entomology nor on history but rather a supplement to both subjects. It is to be hoped that entomologists will enjoy an assessment of their discipline in view of the fascinating cultural history of coleopteran genera being venerated or consecrated by the ancient Egyptians. It is certainly not an exhaustive study of the subject nor does it claim to answer all queries.

In this treatise we have attempted to describe venerated coleopteran genera and species being either employed as such or as stone and metal imitations as well as to comment on their religious and cultural significance in predynastic and dynastic Egypt. In doing so, we intended to identify the skeletal cases of the elongate dull-grey beetles discovered in grave 120 at Tarkhan (near the Fayum depression) which originated from the time of Den, probably fifth King of the First Dynasty (~2950 BC). We also attempted to correlate the structural and behavioural characteristics of certain coleopterans with the adoration rendered to them by the ancient Egyptians. A brief outline of predynastic and dynastic chronology (Table 3) is included for reasons of clarity.

The skeletal cases of the elongate beetles (Figs 2a-h; UC. 36337) from the above archaeological site where kindly lent to us by Dr. Rosalind M. Janssen, Curator of the Petrie Museum of Egyptian Archaeology, University College, London.

Introduction

The philosopher F. W. Nietzsche (1844-1900) wrote about 120 years ago that one may estimate the morality of men on base of their attitude to animals. In his book "Human, all too human" (1880) he expressed his indignation with the selfish conduct of his contemporaries towards living beings: *"When some animals inflict damage on us, we aim to destroy them in every possible way and the measures to this end are often very cruel, but when certain animals are of use to us, we exploit them ..."*. Interestingly enough, the ancient dwellers of the Nile valley had a completely different opinion on this matter and regarded every animal as a creature of God, whose love and care belonged to all living beings including the harmful ones. A hymn dedicated to Amun-Re (the Supreme God of the Egyptian pantheon), originating from the early Eighteenth Dynasty (~1550-1352 BC), reveals the ever-recurring act of creation induced by this Deity:

> *"Hail to you, Amun-Re ...*
> *you are the only one who created all beings,*
> *who gives breath to the unborn in the egg*
> *and nourishes the young serpent,*
> *who provides mosquitoes with all their needs,*
> *who feeds worms and fleas*
> *and supplies food to mice hiding in their niches ..."*
>
> (Papyrus de Boulaq 17, translated by Scharff 1922).

Moreover, the religious concept of the early Egyptians regarded animals and man as natural partners being equally entitled in life and death and rejected the credo of man's sovereign rule over the animal kingdom, as outlined in the Bible (Genesis **I**, 26)[3]. The ancient Egyptians also favoured the idea of man's transfiguration into an animal (partial or complete) as a means of pluralizing the possibilities of human existence (Hornung 1967). In view of the great esteem granted to various animals in ancient Egypt, it is not surprising that several genera of birds, mammals and reptiles as well as some arachnid, chilopod and insect genera were venerated before the Early Dynastic Period (~3100-2686 BC).

In prehistoric time, the Egyptians imagined divine powers to be linked predominantly to animals and in a smaller degree to plants and inanimate matter, found in their environment. This was certainly due to an age-long acquaintance of the inhabitants of the Nile valley with the superiority of animals to man, who was often threatened by beasts as well as depending upon their availability. Prior to the Neolithic Period (before 5500 BC), the hunter-gatherers probably noticed conspicuous attributes in some animals and were impressed by their capability to adapt, protect and defend themselves in dangerous situations. Threatening or colourful appearance, spectacular behaviour, availability of an armoured body wall, piercing thorns and stings as well as repugnant and toxic secretions found in certain animals must have evoked cautious attention in human observers. It is likely that such attributes motivated the early Egyptians to adopt

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3 Then God said: *"Let us make human beings in our image, after our likeness, to have dominion over the fish in the sea, the birds of the air, the cattle, all wild animals on land, and everything that creeps on the earth."* (Genesis **I**, 26).

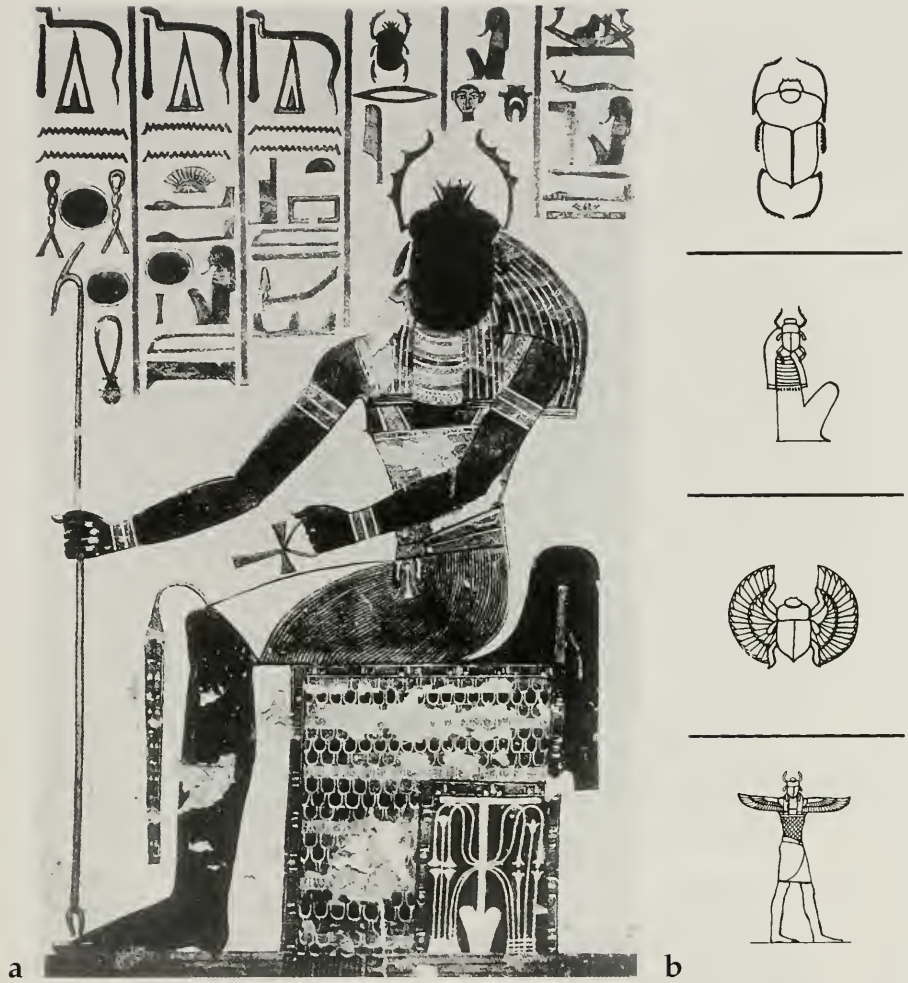
animal adoration (zoolatry) as a concept. Animals became thus mediators of divine control and primeval features, symbolizing e.g. procreative capacity by the bull, fertility by the hippopotamus, maternity by the cow, vigilance by the dog, enduring flight by the hawk and awareness of death by the jackal. A sacred animal was considered to be the ba (i.e. psychic force or soul) of a Deity, e.g. a ram, an Apis bull and a crocodile were respective ba's of the Gods Amun, Ptaḥ and Sobek. The Egyptians eventually replaced the animal forms of their Gods by images comprising a human body with the head of a mammal (e.g. ape, bull, lion, ram), a bird (e.g. hawk, ibis, vulture), an amphibian or reptile (e.g. frog, crocodile, serpent) or an arthropod (e.g. beetle, milliped, scorpion) during the Early Dynastic Period. Moreover, the animal and human body parts of deities were often interchanged. For example, Goddess Hathor was shown either as a cow, a woman with the head of a cow or as a woman with the ears or horns of a cow carrying the solar disc on her head, while God Khepri was frequently represented as a dung beetle moving the sunball (Figs 8c,d, 9) or appearing inside the Solar Disc (Figs 7b,c) or as a dung beetle with (un)folded wings or as a human being carrying a dung beetle above or instead of his head (Figs 1a,b).

One should recall that the spiritual world of the ancient Egyptians is not immediately understandable by the man of western civilization. The latter attempts to comprehend the universe by reason, logic and analysis which would have been completely alien to the dwellers of the Nile valley. The ancient Egyptians, Babylonians as well as the Greeks (to some extent) utilized magical and symbolic images in their way of thinking. This symbolic evocation was based on the supposed correspondence among things as well as the relationship between microcosm and macrocosm, being visually and intuitively understood. The world was certainly a totality for the ancient Egyptian as it is for us nowadays, and the universe does not provide less enigmas to us than to the man of ancient time.

It may appear odd to represent for instance the firmament as a cow, the God of Writing and Knowledge as an ibis or the Morning Sun as a dung beetle, but a people maintaining a mythical view of the world relies upon an imaginative rather than a reasonable outlook. Like the Evening Sun setting in the west to renew its cyclical journey in the morning, the deceased were usually buried in the western part of Egypt, so that they may gain new life in the realm of the dead. This imaginative outlook eventually led man towards the divine, the meaning of human existence and to an attempt to portray this meaning by suitable images. All Egyptian magic was rooted in the firm belief in a secret force named hekau, which evoked supernatural effects. This secret force was also an attribute of the Gods and could be effectively employed by the mortuary priests, who were believed to be capable of exorcising the "powers of death" and securing a lasting survival of the deceased.

Further amuletic tenebrionids recovered from the First-Dynasty grave 120 at Tarkhan

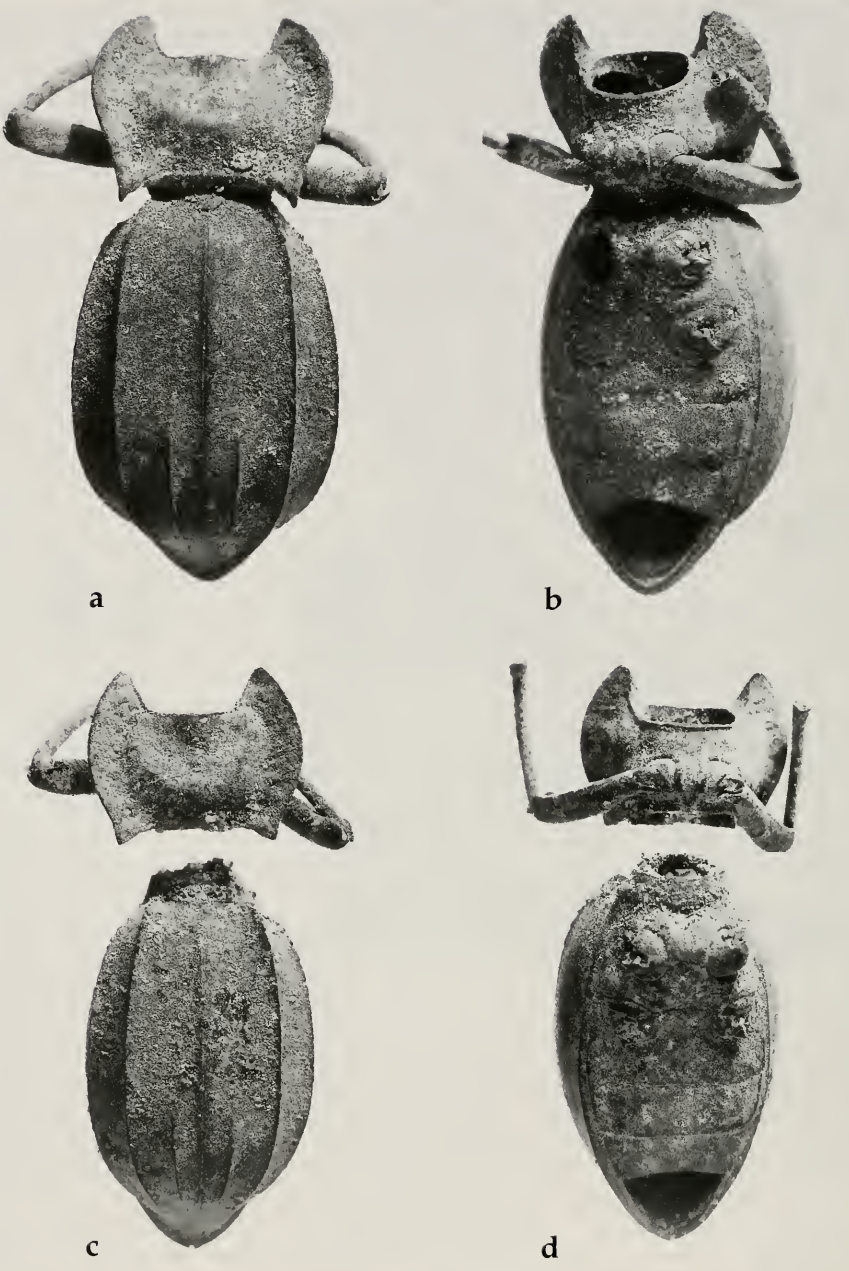
We have recently reported on an archaic clay jar (UC. 36337; Petrie Museum of Egyptian Archaeology, London) comprising 116 skeletal cases of *Prionotheca coronata* Olivier (Tenebrionidae) as well as 75 smaller skeletal cases of elongate dull-grey beetles discovered in grave nb. 120 at Tarkhan (near the Fayum depression), which was dated to the



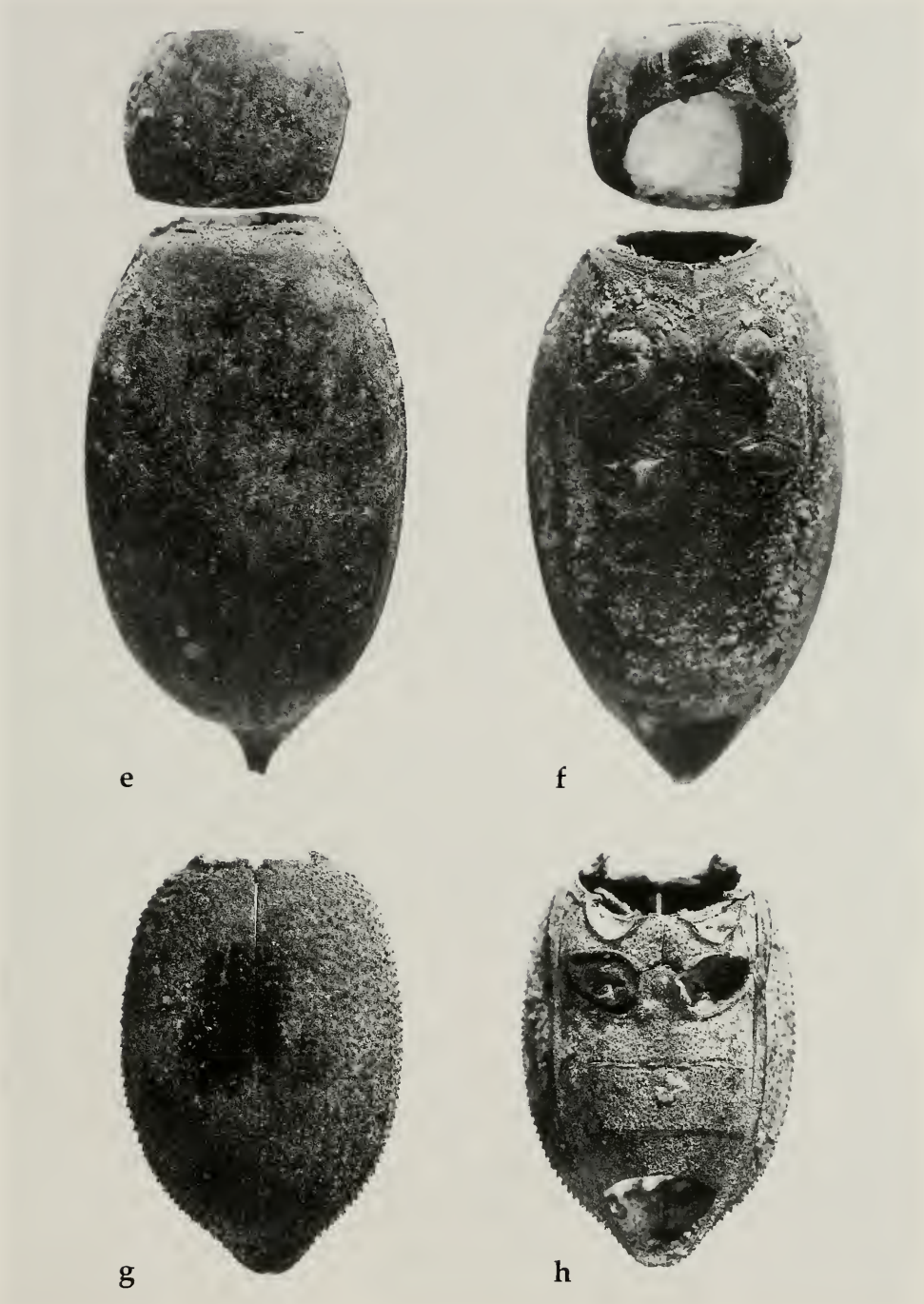
Figs 1a,b. Anthropomorphic and zoomorphic versions of God Khepri symbolized by a dung beetle.

a. Anthropomorphic beetle-headed version of God Khepri, originating from a royal tomb of the XIXth Dynasty (~ 1295-1186 BC). Ḫprj, God of the Rising Sun, is dressed in divine clothing and seated on a throne decorated by the emblem of united Lower and Upper Egypt. The regalia displayed by the Deity are the was-sceptre (representing happiness and well-being) in his right hand, the ankh-sign (promising eternal life) in his left hand, and the nḫāḫā-flail (representing authority) protruding between his knees. Two adjoining wall paintings in the tomb of Queen Nefertari reveal the Gods Khepri and the falcon-headed Re-Harakhty with a Sun Disc above his head (not depicted) as the respective morning and midday images of the Solar Deity rising from the eastern horizon, passing through the zenith and setting in the western sky. The large wall painting of God Khepri was found in the antechamber of the rock-hewn tomb of Queen Nefertari, principal wife of King Rameses II (Usermaatre Setepenre, ~ 1279-1213 BC), in the Valley of Queens in western Thebes. The photograph was made by Mr. G. Leichter, Luxor.

b. Hieroglyphic ideograms of some customary versions of Khepri, the Deity of Sunrise, shown from top to bottom: walking dung beetle, seated God with a dung beetle replacing his head, flying dung beetle, walking God with a pair of hawk-wings instead of his arms and a dung beetle replacing his head.

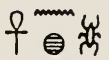


Figs 2a-h. Dull-grey skeletal cases of certain chthonic tenebrionid species, found in an archaic clay jar (UC. 36337, Petrie Museum of Egyptian Archaeology, London) which were unearthed from the First-Dynasty grave nb. 120 at Tarkhan (~2950 BC).
The depicted beetle carcasses had been skilfully hollowed out by human hand, in order to use them as apotropaic pendants protecting the deceased in their presumed Underworld (dwat). Skeletal cases of the following species were found: *Akis elevata* (Solier), dorsal view of male (**a**, ~19×9.5 mm) and female (**c**, ~17.5×8 mm), ventral view of male (**b**) and female (**d**).



Blaps bifurcata (Solier), dorsal (**e**, ~30×7.5 mm) and ventral view (**f**). *Ocnera* (syn. *Trachyderma*) *hispida* (Forskål), dorsal (**g**, ~16×11 mm) and ventral view (**h**). The identification of the tenebrionid species was confirmed by Dr. Roland Grimm, Stuttgart, and the photographs were made by Mrs. Marianne Müller, Munich.

Table 1. Venerated beetles found in ancient Egyptian tombs as skeletal cases, mummified bodies and stone or metal imitations.

Body outline	Hieroglyphic denotation	(Sub)family	Genus	Object of veneration	Period of employment and Dynasty Time, ~ BC	Period
elongate, oval	ᶜnḫ	**Buprestidae:**	*Buprestis*	mummified beetles (3)	?	
			Acmaeodera	beetle imitations (4, 5)	3500-2055	Late Predynastic - XIth
			Steraspis	beetle imitations (4, 5)	3500-2055	Late Predynastic - XIth
				body segments, femora (5)	3500-3100	Late Predynastic
elongate, slender	ᶜnḫ	**Elateridae:**	*Lanelater*	beetle imitations (5, 6, 7)	3200 -2345	Protodynastic - Vth
				relief fragments (5, 7, 8)	3200-2345	Protodynastic - Vth
elongate, stout	ᶜnḫ 	**Tenebrionidae:**	*Akis*	skeletal cases (9, 10)	3100-2890	Ist
			Blaps	skeletal cases (9, 10)	3100-2890	Ist
			Ocnera (syn. *Trachyderma*)	skeletal cases (9, 10)	3100-2890	Ist
			Scaurus	beetle imitations (5, 11)	2181-2055	VIIth-XIth
			Tentyria	beetle imitations (5, 11)	2181-2055	VIIth-XIth
roundish, stout	ḫprr	**Scarabaeinae:**	*Gymnopleurus* (1)	beetle imitations (12, 13)	1550-656	XVIIIth-XXVth
			Kheper (1)	beetle imitations (12, 13)	2345-343	VIth-XXXth
			Mnematidium (1)	beetle imitations (12, 13)	2345-343	VIth-XXXth
			Scarabaeus (1)	beetle imitations (12, 13)	2345-343	VIth-XXXth
			(syn. *Ateuchus*)	mummified beetles (14, 15)	?	
roundish, stout	ḫprr 	**Coprinae:**	*Catharsius* (2)	beetle imitations (12, 13)	1985-1550	XIIth-XVIth
			Copris (2)	beetle imitations (12, 13)	1985-1550	XIIth-XVIth
			Heliocopris (2)	beetle imitations (12, 14)	?	
				mummified beetles (14, 16)	?	
roundish, stout		**Dynastinae:**	*Temnorrhynchus*	beetle imitations (14)	?	
			Heteronychus	mummified beetles (14, 17)	?	
roundish, stout		**Tenebrionidae:**	*Prionotheca*	skeletal cases (9, 18)	4000-3300	Predynastic
					3100-2890	Ist

time of King Den (~2950 BC) of the First Dynasty (Levinson & Levinson 1996). The skeletal cases of the smaller dull-grey beetles were found to originate from additional deserticolous tenebrionids (Figs 2a-h), viz. males (Figs 2a,b) and females (Figs 2c,d) of *Akis elevata* (Solier 1836), *Blaps bifurcata* (Solier 1848) (Figs 2e,f) and *Ocnera* (syn. *Trachyderma*) *hispida* (Forskål 1775) (Figs 2g,h). The above species were checked by comparison with present-day specimens found in the Zoologische Staatssammlung München using the taxonomic keys and lists of Koch (1935) and Gebien (1937). The identity of those tenebrionids was confirmed by Dr. Roland Grimm (Stuttgart).

Akis elevata can be readily recognized by the inflected extensions on both sides of the pronotum and two short inner ribs on the posterior region of the elytra (Figs 2a,c). Male *Akis elevata* are provided with a pointed process on both posterior edges of the pronotum (Fig. 2a), while the respective processes on the female's pronotum are relatively short and blunt (Fig. 2c). *Blaps bifurcata* reveals the typically oval, elongate body shape with a truncate pronotum, distinct ribs on the posterior region of the elytra as well as a mucronate process extending from each elytron. However, these caudal tips were partly broken off in the fossil specimens (Figs 2e,f). *Ocnera hispida* is characterized by elytra which are densely covered with rows of coniform and posteriorly directed tubercles as well as erect hairs. The latter were largely abraded from the fossil specimens (Fig. 2g). The epipleural margin of the elytra bears three rows of pointed denticles (Fig. 2h). The depicted beetle cases either comprise pro-, meso- and metathorax, elytra and abdomen (Figs 2a-f) or consist of meso- and metathorax, elytra and abdomen (Figs 2g,h), revealing a dorsal length and breadth of ~19×9.5 mm in male *Akis elevata*, ~17.5×8 mm in female *Akis elevata*, ~30×7.5 mm in *Blaps bifurcata* and ~16×11 mm in *Ocnera hispida*.

The skeletal cases of the above tenebrionid species were found to be densely impregnated with fine sand particles, probably due to sintering in the course of underground storage for nearly five millennia. They were usually deprived of their head, legs and last two abdominal sternites (nbs. 4 and 5). The prothorax was frequently cut off from the beetle carcasses, while the entrails were removed from the skeletal cases (Figs 2c-h). However, in some specimens of *Akis elevata* the prothorax and forelegs were left on the beetle cases (Figs 2a,b). The well-preserved carcasses of those tenebrionids had been skilfully hollowed out by human hand ~ 4.9 millennia ago, with the aim of wearing the

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◁ (1,2) The Dungball-rollers named Scarabaeinae and the Dung-collectors called Coprinae differ with regards to their nesting behaviour. (1) Scarabaeinae shape mammalian excrements into nutritive balls and subsequently roll them to distant underground nests. (2) Coprinae are stocking masses of animal excrements in subterranean burrows which they have dug beneath dung heaps deposited by pasture animals. (3) Passalacqua (1826). (4) Pendants comprising dummies made of gold, lapis lazuli, steatite, stoneware or serpentine. (5) Keimer (1931, 1936). (6) Pendants comprising dummies made of gold, stoneware or steatite. (7) Hendrickx (1996). (8) Schist fragments comprising copies of *Lanelater notodonta* and the evil-averting symbol of Goddess Neith. (9) Emptied beetle cases to be worn on cords. (10) see chapter "Further amuletic tenebrionids recovered from the Ist Dynasty grave 120 at Tarkhan". (11) Dummies made of amethyst or carneol. (12) Frequently made of steatite, faience, alabaster, schist, serpentine or semiprecious stones, and rarely of gold, silver or bronze. (13) Petrie (1917). (14) Bishara (1978). (15) *Scarabaeus sacer*. (16) probably *Heliocopris gigas*, see chapter "Religious implications of Scarabaeinae and Coprinae". (17) probably *Heteronychus licas*. (18) *Prionotheca coronata*, Levinson & Levinson (1996).

beetle cases on strings or chains as amulets protecting the deceased in their imaginary Netherworld (jmnt nfrt)[2].

Many deserticolous tenebrionids have a subterranean and cryptic way of life, while they are well protected against various enemies by their armoured and bulky exoskeleton, disgusting taste as well as repulsive and poisonous secretions. It is most likely that these chthonic and protective attributes motivated the early Egyptians to venerate *Akis elevata*, *Blaps bifurcata* and *Ocnera hispida* (Figs 2a-h) as well as *Prionotheca coronata* (Levinson & Levinson 1996) and to employ them as apotropaic amulets for the deceased. The tenebrionid species served as funerary emblems in the form of threaded skeletal beetle cases, while stone dummies of the latter were neither discovered in predynastic nor in archaic graves. The convenient handling of such armoured and durable beetle cases rendered the use of stone imitations superfluous. However, stone-made dummies of other venerated tenebrionids were employed in later time: amethyst- and carneol-made imitations of *Scaurus* (Fabricius) and *Tentyria* (Latreille) originating from the First Intermediate Period (~ 2181-2055 BC) were found by Keimer in 1936 (Tab. 1).

Fragments and stone imitations of jewel beetles (Buprestidae)

The family Buprestidae or jewel beetles comprises most brilliantly coloured insects, among which many species display an iridescent green or blue splendour. The beetle fauna of Egypt comprises at least 27 buprestid genera which mainly inhabit the regions of the Nile Delta, western coast and Sinai peninsula. Bright sunshine usually induces jewel beetles to spread their wings and to take off. When alarmed, they may drop to the ground and feign death until the danger has passed. This behaviour could have suggested to the early Egyptians that such buprestid beetles are capable of regaining their life after death. Their unique green or blue lustre and vigorous flight must have symbolized life and rebirth, motivating the Egyptians to adore, embalm and copy those splendid beetles.

Keimer (1931, 1936) recorded representative findings of body parts and stone imitations of buprestids from various archaeological sites and periods. A predynastic necklace comprising interlocked prothoracic segments of iridescent green colour, excised from *Steraspis squamosa*, was discovered in the necropolis of Armant (~ 9 km southwest of Luxor), while a Twelfth-Dynasty necklace composed of threaded fruits and bright green femora of *Steraspis squamosa* was found in the burial ground of el-Lisht (~ 50 km south of Cairo). Moreover, one of King Tutankhamun's (~ 1336-1327 BC) throw-sticks was covered with tree bark and decorated by beautifully iridescent elytra of buprestid beetles.

Amuletic and decorative stone imitations of *Acmaeodera polita* Klug (metallic bluish-green dorsum, ~ 14 × 4 mm), *Steraspis squamosa* Klug (metallic green dorsum with red margin, ~ 38 × 16 mm) and some other buprestids were produced during the later Predynastic, Protodynastic and Early Dynastic Periods as well as during the Old Kingdom and First Intermediate Period (i.e. ~ 3500-2055 BC). Crude buprestid copies were made of green serpentine and discovered in the cemeteries of Naqada, Abydos (Upper Egypt) and Tarkhan (near the Fayum depression), while additional copies of jewel beetles cut in reddish cornelian were unearthed from a cemetery in Abusir el-Meleq (Lower Egypt). A necklace bearing a life-like copy of *Steraspis squamosa* (devoid of legs and antennae) originated from the First Dynasty and was found in Abusir el-

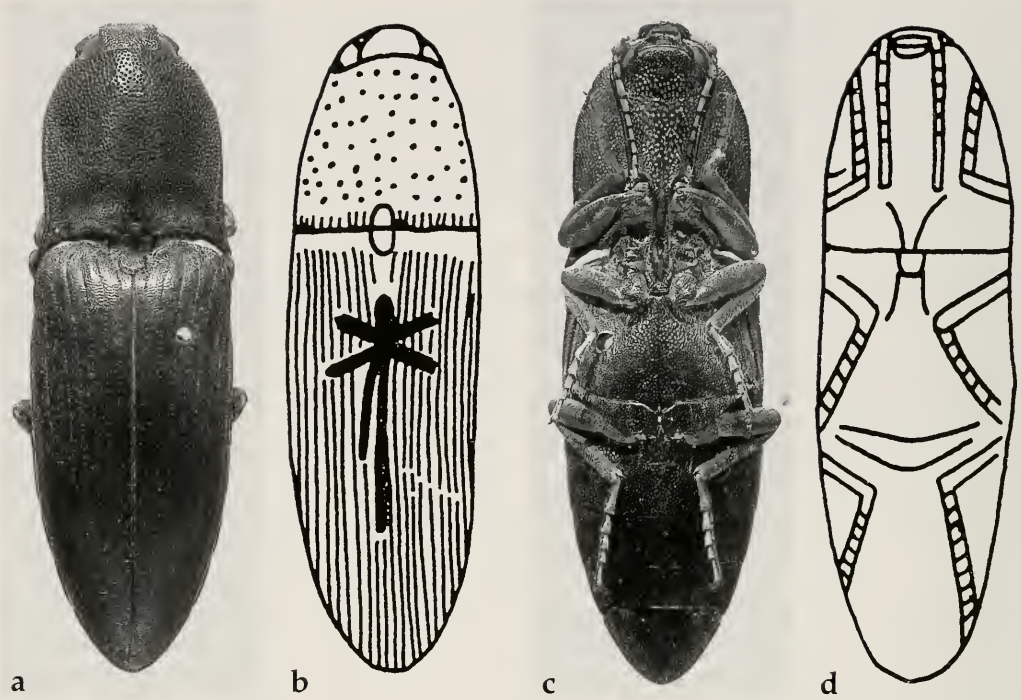
Meleq. A First-Dynasty copy of *Acmaeodera polita*, provided with striate elytra and made of green faience, was recovered from the burial ground of Abydos, while a necklace comprising a copy of the same species in dark blue lapis lazuli from the First Intermediate Period was found in Girgah (Upper Egypt). Since jewel beetles had first been embalmed and interred in Thebes (Passalacqua 1826), numerous copies of Buprestidae, made of green and blue stone, were employed for an amuletic and decorative purpose throughout the Old Kingdom and First Intermediate Period.

First-Dynasty imitations of a click beetle species (Elateridae) dedicated to Neith, the bellicose Goddess of Sais

An apotropaic gold-dummy (JE. 35706; Egyptian Museum of Cairo) closely resembling the click beetle *Lanelater* (Arnett 1952) *notodonta* (Latreille 1823) was found in tomb nb. 1532 of the First-Dynasty Cemetery at Nag el-Deir (opposite Girgah) in Upper Egypt (Keimer 1931, Hendrickx 1996). The dummy (~ 63 × 21 mm) was covered by gold foil, inlaid by blue paste with the evil-averting symbol of Neith (Belligerent and Mortuary Goddess) along the median line between the elytra (Fig. 3b); it was originally discovered as two complementary parts at the above archaeological site (Reisner 1908, 1932). One should recall that the present species name *notodonta* (i.e. provided with pronotal teeth, Fig. 3a) was given to this elaterid species by Latreille in 1823, while its previous generic name *Agrypnus* (Eschscholtz 1829) was changed to *Lanelater* by Arnett in 1952 on base of conflicting taxonomic considerations (von Hayek 1973).

Figs 3a-d reveal an oval body shape of both gold-dummy and *Lanelater notodonta*, while the two pointed processes on the posterior edges of the click beetle's pronotum are not evident on the gold-dummy (Figs 3b,d). The small and almost transverse head, the stippled pronotum as well as the striate elytra are alike in the click beetle and its imitation. Moreover, the gold-dummy is provided with a semioval, vertical mesoscutellum being engraved in the centre between the posterior margin of the pronotum and the inclined border of the elytra (Figs 3a,b). The structures, evident on the ventral side of the gold-dummy, definitely recall the jumping equipment occurring on the pro- and mesosternum of *Lanelater notodonta* (Figs 3c,d). The prosternal peg and the mesosternal pouch can be clearly seen in the middle of the border line between the prosternum and mesosternum of the gold-dummy. When the prosternal peg, capable of suddenly penetrating the mesosternal pouch, is retained by this receptacle, the elaterid is clicking and leaping upwards from an inverted position (Evans 1972a,b, 1975). The ventrum of the gold-dummy (Fig. 3d) represents an inverted click beetle in pre-jump position wherein both forelegs are withdrawn to the prosternum, midlegs retracted to the mesosternum, hindlegs held tightly on the ventral abdomen and antennae inserted to the prosternal grooves, while the prosternal peg is retained by the catch of the mesosternal pouch (Figs 3c,d).

The shield-like elytra (protecting the membranous hind wings of the click beetle) were labelled by the image of two crossed arrows, bound together on the anterior part of a staff and marked centrally on the collateral fore wings of the gold-dummy (Fig. 3b). The above cult-sign was considered as a protective emblem of the Warrior-Goddess Neith from the Protodynastic Period (~ 3200-3050 BC) until the end of the Fifth Dynasty (~ 2494-2345 BC; Tab. 1). Moreover, Hendrickx (1996) remarked that *Lanelater notodonta* per se served as an emblematic personification of Neith, as evident from a fragmentary



Figs 3a-d. Dorsal (**a**) and ventral view (**c**) of *Lanelater notodonta* (Latreille), magnified to the size of an apotropaic gold imitation (**b, d**) of this click beetle species.
The gold dummy (length ~ 63 mm) was recovered from a First-Dynasty grave (nb. 1532) at Naga ed-Deir in Upper Egypt (Keimer 1931, Hendrickx 1996) and is preserved in the Egyptian Museum of Cairo (JE 35706). The depicted click beetle specimen (length ~ 32 mm) was collected in Qaljubija (Delta region) in 1992. The close resemblance between the beetle dummy (**b, d**) and *Lanelater notodonta* (**a, c**) is obvious, except for the lacking pronotal teeth, its gold surface and dark blue cult-sign of the Warrior-Goddess Neith. This cult-sign comprises two crossed arrows being tied up by a ribbon to a staff and is superimposed on the striate dorsum of the beetle dummy (**b**). The ventrum of the beetle dummy (**d**) reveals the retracted antennae and legs as well as the prosternal peg being held by the catch of the mesosternal pouch. This posture suggests that the copied click beetle is about to click and to leap (**c, d**). The photographs were made by Mrs. Marianne Müller, Munich.

protodynastic plate (E. 578, Musées Royaux d'Art et d'Histoire, Brussels) showing a life-like relief of the above elaterid species provided with two human arms holding the divine was-sceptre in each hand. Further evidence for the apotropaic significance of *Lanelater notodonta* is provided by a protodynastic relief palette (E. 6261, Musées Royaux d'Art et d'Histoire, Brussels) revealing two confronted click beetles next to the evil-averting symbol of Goddess Neith (Hendrickx 1996, Houlihan 1996). The latter consists of two small, shield-like wing cases of click beetles transfixed by two crossed arrows on a long staff (cf. Fig. 3b). The same evil-averting symbol of Neith can also be seen on both tomb stelae of Queen Merneith (probably the fifth Sovereign of the First Dynasty) which had been found in the Royal Cemetery of Abydos (Emery 1991, Spencer 1993).

The ancient Egyptians were attentive observers of nature and knew the peculiarities

of many plant and arthropod species thriving in the Nile valley. Hence, it is conceivable that they were deeply impressed by the conspicuous behaviour of click beetle species being capable of leaping without using their legs. The Elateridae of Egypt comprise at least 11 genera which mainly inhabit the Nile Delta and valley, the western coast and the Sinai peninsula. When disturbed, the elaterids often drop to the ground and simultaneously retract their legs and antennae, in order to evade capture. Having landed upside down, the click beetles become temporarily immobilized and apparently feign death (thanatosis). Such quiescent elaterids suddenly produce a click-like sound and a spectacular jump, whereupon they may reach the ground in upright position and run off to a safe shelter. This unique behaviour sequence can be regarded as a protective adaptation of click beetles to their biotope, whereby they will evade risks threatening their life. On base of the above survival tactics, it is likely that click beetles were considered sacred to Goddess Neith who protected the ancient provinces of the Southern and Northern Shield in the western Nile Delta, where elaterids probably occurred in abundance.

Chronology of adoring elongate, oval and roundish beetles in ancient Egypt

Tab. 1 provides evidence for the timely employment of venerated beetle genera pertaining to the darkling beetles (Tenebrionidae), jewel beetles (Buprestidae), click beetles (Elateridae) as well as dungball-rollers (Scarabaeinae) and dung-collectors (Coprinae). The elongate and leaping click beetles (e.g. *Lanelater notodonta* Latreille, Figs 3a,c) were venerated and copied from the Protodynastic Period to the Fifth Dynasty (~3200-2345 BC), while the oval and conspicuously coloured jewel beetles (e.g. *Acmaeodera polita* Klug, *Steraspis squamosa* Klug) were adored and copied from the later Predynastic Period up to the end of the First Intermediate Period (~3500-2055 BC). Certain elongate and sturdy darkling beetles including *Akis elevata* (Solier), *Blaps bifurcata* (Solier) and *Ocnera hispida* (Forskål) (Figs 2a-h), were venerated in the form of skeletal cases during the First Dynasty (~3100-2890 BC), while other tenebrionid genera, viz. *Scaurus* (Fabricius) and *Tentyria* (Latreille), were adored and copied in amethyst and cornelian during the First Intermediate Period (~2181-2055 BC). However, an exceptionally roundish tenebrionid species, *Prionotheca coronata* (Olivier), was venerated in the form of skeletal cases during the later Predynastic Period (~4000-3300 BC) and the First Dynasty (~3100-2890 BC). It is likely that *Prionotheca coronata*, originating from the predynastic tomb B 17 of *Diospolis parva*, is one of the earliest coleopteran species venerated in the funerary cult of prehistoric Egypt (Levinson & Levinson 1996).

Adoration of the above buprestid, elaterid and tenebrionid beetles was gradually superseded by veneration of the roundish dung beetles, pertaining to the subfamilies Scarabaeinae and Coprinae (suborder: Lamellicornia), during the Sixth Dynasty and the First Intermediate Period (~2345-2055 BC). An elongate, oval beetle was the hieroglyphic determinative for a ᶜnḫ (= eternal life) beetle (first recorded in Pyramid Texts 1633 and 2107)[4], while a roundish beetle was the respective determinative for a ḫprr

4 These early funerary texts were carved on the internal walls of the pyramids belonging to the last King of the Fifth Dynasty (~2375-2345 BC) and six Kings of the Sixth Dynasty (~2345-2181 BC) at Saqqara (Lower Egypt).

Sc. s.

Mn. m.

Kh. ae.

Gy. g.

Ca. s. ♂

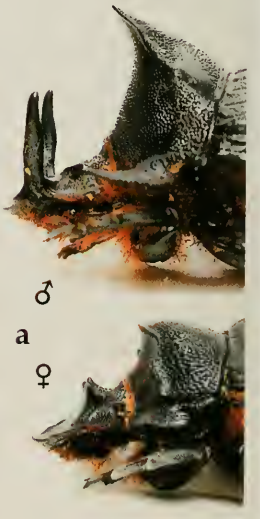
Ca. s. ♀

Co. h. ♂

Co. h. ♀

He. g. ♂

He. g. ♀



♂

a

♀

♂

♀

b

♂

♀

c

Figs 4a-c

(= sacred scarab) beetle (first mentioned in Pyramid Texts 366 and 1301)[4] (Faulkner 1969). Veneration of the elongate, oval beetles (named ʿnḫ) was abandoned during the Eleventh Dynasty and eventually replaced by the roundish dung beetles (named ḫprr) which were copied for this purpose from the Eleventh Dynasty (~ 2055-1985 BC) up to the end of the Thirtieth Dynasty (~ 380-343 BC).

The following chapters are devoted to the entomological and mythological aspects of those roundish lamellicorn beetles being either rollers of dungballs (e.g. *Gymnopleurus* Illiger, *Kheper* Janssens, *Mnematidium* MacLeay, *Scarabaeus* Linné) or collectors of dungclods (e.g. *Catharsius* Hope, *Copris* Geoffroy, *Heliocopris* Hope).

Biological and mythological aspects of dungball-rollers (Scarabaeinae) and dung-collectors (Coprinae)

Human interest in coprophagous lamellicorn beetles can be traced back prior to the time of the Sixth Dynasty (~ 2345-2181 BC). The ancient Egyptians associated dungball-rolling beetles (Scarabaeinae) with their primeval Sun-God and gave them the name ḫprr, i.e. sacred scarab beetle. The common names of the dung beetle in classical antiquity were Kantharos in ancient Greece (Aristophanes, ~ 445-385 BC) and Scarabaeus in ancient Rome (Plinius Secundus, AD 23-79). The Greek word Kantharos was probably derived from the beetle's capability to utilize dung of asses as a food source (Kanthôn = ass), while the Latin term Scarabaeus is reflected by an annotation of Plinius Secundus, viz. "Scarabaeus qui pilas volvit" (a ball-rolling dung beetle).

◁ **Figs 4a-c.** Dorsal view, colour, size and sexual dimorphism of some dung beetle species (Scarabaeinae and Coprinae) serving as main prototypes of venerated beetles which were employed as amulets, stone seals and medals from the Sixth Dynasty until the end of the Thirtieth Dynasty (~ 2345-343 BC).
Subfamily Scarabaeinae: *Sc. s.* = *Scarabaeus* (syn. *Ateuchus*) *sacer* (Linné): black, subopaque, ~ 33 × 20 mm; *Mn. m.* = *Mnematidium multidentatum* (Klug): black, slightly shining, ~ 30 × 18 mm; *Kh. ae.* = *Kheper aegyptiorum* (Latreille): copper-red, metallic-green or metallic-blue, ~ 36 × 22 mm; *Gy. g.* = *Gymnopleurus geoffroyi* (Fuessly): black, opaque, ~ 16 × 9 mm.
Subfamily Coprinae: *Ca. s.* = *Catharsius sesostris* (Waterhouse): black, slightly shining, male ~ 22 × 13 mm, female ~ 18 × 11 mm; *Co. h.* = *Copris hispanus* (Linné): shining black, male ~ 26 × 15 mm, female ~ 22 × 11 mm; *He.g.* = *Heliocopris gigas* (Linné) syn. *Heliocopris isidis* (Latreille): black-brown, shining, lateral reddish hairs, male ~ 50 × 29 mm, female ~ 46 × 26 mm.
The species of the Scarabaeinae hardly reveal external differences between the sexes, while the horn-bearing species of the Coprinae display a pronounced sexual dimorphism. The head and prothoracic region of the males and females of certain coprine species is depicted in lateral view.
a. *Heliocopris gigas*: Male with two vertical horns projecting from the clypeus, two horizontal horns laterally protruding from the pronotum as well as a truncate hump extending from the median pronotum. Female with a three-notched ridge on the head as well as a median protrusion and two lateral notches emerging from the pronotum.
b. *Copris hispanus*: Male with a long incurved horn on the head and a long declivity of the anterior pronotum. Female with a short cephalic horn and a short prothoracic declivity.
c. *Catharsius sesostris*: Male with an erect cephalic horn, two lateral protrusions on the pronotum and a long prothoracic declivity. Female with a short cephalic elevation and a short prothoracic declivity. The photographs were made by Dr. Anna Levinson, Seewiesen.

One of the most significant events in the life of scarab beetles is gathering and storing of animal dung, which is subsequently utilized as food supporting sexual maturation of the adults as well as growth and development of the larvae. Since the pulpy excrements of ruminants are quickly drying up under intense insolation, dung beetles have to locate such droppings soon after defecation by grazing animals. The lamellate antennal clubs of dung beetles (being provided with numerous olfactory sensilla) are capable of recognizing dung volatiles (including amines, ammonia, fatty acids, indole, mercaptans, phenol derivatives, skatol, sulphides and water) among which some components will guide the beetles to their rapidly desiccating food. When those beetles are searching for dung, they hold their antennae aloft with both clubs spread open. The dung beetles are likely to gain most of their nutrients from the microbial flora (comprising bacteria, fungi, moulds and yeasts) thriving on animal faeces and to a lesser extent from the dung as such (which is nutritionally inadequate). Some dung beetle species, belonging to the subfamilies Scarabaeinae[5] or dungball-rollers and Coprinae[5] or dung-collectors, which differ with regard to their foraging and nesting behaviour, are depicted in Figs 4a-c. The adults of Scarabaeinae shape recently deposited mammalian excrements into nutritive balls and roll them to distant and self-made underground nests, while the adults of Coprinae stock masses of mammalian excrements in subterranean burrows which they dig underneath dung heaps of pasture animals (Figs 5a-e).

Plutarch (AD ~ 45-120) described the above activities, as understood by the ancient Egyptians: *"The tribe of scarab beetles has no female, but all the males release their sperm into a round mass which they construct, since they are no less occupied in arranging for a food supply than in preparing a place to rear their young … they roll up the round pellet of material by pushing it from the opposite side, just as the sun seems to turn the heavens in the direction opposite to its own course, which is from east to west."* Horapollo (AD 4th Century) also reported on the views of the ancient Egyptians (Cory 1840, Boas 1993) concerning the reproductive behaviour of scarab beetles: *"To denote the only begotten, or birth, or a father, or the world, or a man, they drew a scarab beetle. The only begotten, because this animal is self-produced and unborn of a female. Its birth only happens in the following way: when the male wishes to have offspring, he collects some cow dung and forms a small sphere of it, resembling the shape of the world. The male rolls this dungball by his hindlegs from east to west, while he faces the east, so as to give it the shape of the world, as the world is born from east to west. Having dug a cavity in the ground, the scarab beetle buries the dungball in it and leaves it there for 28 days. On the 29th day (when the conjunction of moon and sun as well as the birth of the world occur) he rolls the dungball into water, whereupon the ball breaks open and a new beetle emerges. The scarab beetle symbolizes birth for this very reason. It also signifies a father since it is engendered by a father only and world because its birth occurs in the shape of the world and a man since females do not exist among those beetles."*

Some of the statements on reproduction of dung beetles made by the above authors are incorrect from an entomological viewpoint, while they are certainly of mythological significance. J. H. Fabre (1897, 1899) has proved once for all that the dungballs, being rolled by male and female *Scarabaeus sacer* to their underground niches, merely serve as adult food and never as an oviposition site. In her nest, the mated female transforms another dungball (usually consisting of goat or sheep excrements) into a pear-shaped food supply, wherein she deposits a single egg.

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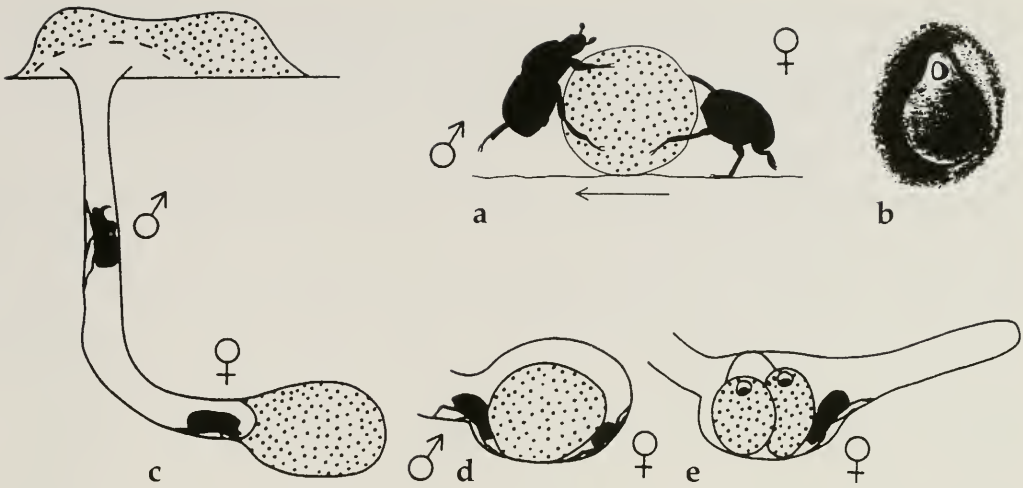
5 Taxonomic nomenclature is based on Balthasar (1963) and Janssens (1940a,b).



Figs 5a-e. Food acquisition and brood care by dungball-rolling *Gymnopleurus* Illiger (Scarabaeinae) and dung-collecting *Copris* Geoffroy (Coprinae).
a. Freshly deposited dung of herbivorous mammals (usually cow or sheep droppings) is raked in by the front tibiae of female and male *Gymnopleurus* spp. (Illiger) and is pulled beneath the beetle's ventrum, where the dungball is shaped. The completed dungball (diam. ~ 18 mm) is rotated between the claws of both hindlegs, while the beetle is walking on his forelegs in reverse direction (arrow). Sexually mature males and females often alternate each other in rolling their dungball to a distant and self-constructed underground nest (modified from Prasse 1957).
b. The female of *Gymnopleurus* spp. converts the dungball into a pear-shaped substrate (length ~ 20 mm) providing shelter and food to the growing offspring. When the hitherto cooperative male leaves the underground nest, the female will lay a single egg into the apical, porous chamber of the brood pear and will then also withdraw from the nest.
c. Foraging and reproduction by cooperatively breeding *Copris* spp. (Geoffroy) are shown in three successive steps (after Halffter & Matthews 1966). Deeply beneath a dung heap (~ 13-18 cm), the female digs a nesting gallery which merges into a large chamber serving as a dung store. The male is carrying dung from the heap to the gallery, while the female is gathering this food in the store.
d. The stored dung is moulded by female and male beetles to yield a fermented dung cake, which is surrounded by an insulating air layer.
e. The female usually cuts 3-5 similar portions from the above dung cake, shaping them into ellipsoid brood substrates, each being provided with an apical egg cell. The female is caring for her offspring (preventing growth of fungi, repairing damaged brood cells) as long as the latter are immature. The females of both dung beetle genera are exceptional in having one ovary only and lay very few eggs throughout life. The preadult stages of those genera are accordingly well protected in their brood chambers.

Brood care by dung beetles mainly depends on a maternal instinct providing the offspring with an optimal environment, food supply and shelter for preimaginal development (cf. Figs 5a-e). The egg is invariably laid into the narrow part of the brood pear, where the larva successively feeds on the compressed, bacteria-infested dung of the neck and lumen until it moults to a pupa and later to a pharate scarab beetle. The preimaginal development of *Scarabaeus sacer* may require about one month in the warm desert region (dšrt) adjacent to the Nile valley (kmt), which is in congruence with a

respective statement made by Horapollo. Strangely enough, the classical authors failed to describe the preimaginal stages of Scarabaeinae and Coprinae. Horapollo's suggestion that eclosion of a dung beetle from its hard cocoon shell is caused by "the father beetle who throws it into water", is certainly wrong. In fact, the hard cover of the brood

Table 2. Stone scarabs grouped according to the time of use, engraved base, purpose and availability in ancient Egypt (1).

Time, ~ BC	Dynasty(ies)	Scarab length in cm	Engravings on base	Main use	Rate of occurrence
2345-2125	VIth-VIIIth	0.6-1.3	ornamental design	amulet (2)	scarce
2055-1550	XIth-XVIIth	1.0-2.2	designs, hieroglyphics	adornment (3)	frequent
2055-525	XIth-XXVIth	1.3-2.0	royal throne names	amulet (2)	abundant
2055-1750	XIth-XIIIth	1.9-2.7	titles and names of officials	amulet (2), seal (4)	abundant
1650-1550	XVth-XVIIth	1.9-2.7	titles and names of officials	amulet (2), seal (4)	scarce
2055-1750	XIth-XIIIth	1.0-2.1	figures and names of Gods	amulet (2)	scarce
1650-343	XVth-XXXth	1.0-2.1	figures and names of Gods	amulet (2)	frequent
1550-343	XVIIIth-XXXth	1.1-2.1	blessings and good wishes	mascot	frequent
1550-1295	XVIIIth	5.2-11.0	historical events	memorial scarab	scarce
1795-1550	XIIIth-XVIIth	3.5-11.0	Spell 30B of Book of the Dead	heart scarab (5)	scarce
1550-343	XVIIIth-XXXth	3.5-11.0	Spell 30B of Book of the Dead	heart scarab (5)	frequent
747-343	XXVth-XXXth	5.0-6.0	figures of Osiris, Isis, Nephtys	funerary amulet (6)	frequent
664-343	XXVIth-XXXth	2.0-3.0	no engravings	funerary amulet (7)	frequent

(1) Data based on the works of Petrie (1917), Ward (1978) and Ben-Tor (1989). (2) Protective objects put on living or dead persons, which were supposed to avert hostile forces. (3) Scarabs were also employed as personal jewellery. (4) To stamp documents and seal receptacles. (5) Heart scarabs, usually made of green stone (symbolizing renewed life), were suspended by a cord from the neck of the deceased during the Judgement of the Dead. A heart scarab was later attached to the ventral chest in the heart region and held by the wrappings of the mummy. Spell 30B of the Book of the Dead, engraved on the flat underside of the heart scarab, was believed to prevent the heart from testifying against the deceased, while weighing his heart against the feather of Goddess Maat. (6) Mostly blue- or green-glazed scarabs with wings, which were adjusted to the bead net or wrappings of the mummy. (7) Stone scarabs, copied nearly true to nature, were attached to various regions of the mummy.

pear containing the pharate adult is drenched with water, either due to the annual Nile flood (between July and September) or by occasional rainfall, whereupon the dung beetle is able to emerge from the softened brood pear.

The religious conception of a dung beetle, e.g. *Scarabaeus sacer*, *Mnematidium multidentatum* and *Kheper aegyptiorum* (Figs 4a-c; Tab. 1), as an embodiment of the Creator-God Atum (= Jtmw) who merged with the Sun-God Re (= R^{c}w) during the late Old Kingdom (~ 2345-2181 BC), led to the selection of Khepri (= Ḫprj) as God of the Rising Sun. Khepri was often depicted as a scarab beetle with folded wings (Figs 7b, 8c, 9) or with extended hawk-wings (Fig. 8d), a scarab beetle-headed man (Figs 1a,b) or a man with a scarab beetle above his head. This Deity is attested as early as from the Fifth Dynasty (~ 2494-2345 BC) when certain utterances of the Pyramid Texts (e.g. nb. 222 and 606)[4] invoked the sun to appear in the name of God Khepri. The ancient designation of a scarab beetle (ḫprr) was derived from the verb "to be created" or "to come into existence" (ḫpr), since the early Egyptians regarded the dung beetle as an incarnation of the "paternal" Creator-God Atum who was self-engendered like a newly emerged and quasi self-created scarab beetle. The embodiment of the male Creator-God by the image of a dung beetle may thus explain, why the ancient Egyptians considered the dungball-rollers (Scarabaeinae) to be unisexually males. Moreover, male and female *Scarabaeus sacer* could not have been readily distinguished unless their tibiae were carefully examined. A close fringe of dark brown hairs on the fore- and hind tibiae as well as relatively wide middle tibiae are evident in males of the above species.

Horapollo described three "forms" of dung beetles which were consecrated to ancient Deities. The first genus, being "cat-like" and provided with six ray-like cephalic protrusions (as evident in *Scarabaeus* and *Kheper* spp.), was dedicated to Khepri, God of the Rising Sun (cf. Figs 4a-c, 6c). This author also claimed that the genus *Scarabaeus* has "30 toes" representing the thirty days of a monthly solar cycle. Since tarsi are lacking in both forelegs of *Scarabaeus* spp., the midlegs and hindlegs of the latter merely reveal a total of 20 tarsal segments. Hence it is likely that Horapollo also counted the 8 notches and 2 terminal spurs occurring on both forelegs, whereby he attained a total of "thirty toes". The second genus being double-horned and "bull-shaped" (as evident in male *Heliocopris gigas* Linné, Figs 4a-c) was sacred to Khonsu, God of the Moon, and the third genus being single-horned and "resembling an ibis" (as evident in male *Copris hispanus* Linné, Figs 4a-c) was considered sacred to Thot, God of Writing and Knowledge. Despite of failing to roll dungballs overground, dung-collecting Coprinae were primarily consecrated to God Khepri (in addition to the above Deities) and were often reproduced in stone as small scarab dummies as well as monumental votive scarabs (Tabs 1, 2, Figs 7a,d). It is worth recalling that Coprinae display marked external differences between male and female beetles, whereas Scarabaeinae hardly reveal a sexual dimorphism.

Scarabaeinae and Coprinae as models for stone scarabs

Innumerable stone artefacts in the shape of dung beetles, ranging from stylized to life-like forms, were manufactured and worn in ancient Egypt (Tab. 2) from the beginning of the Sixth Dynasty until the end of the Thirtieth Dynasty (~ 2345-343 BC). Such scarabs were mostly made of glazed steatite (soapstone) and faience as well as alabaster

(gypsum), amethyst, feldspar, jasper, cornelian (chalcedony), lapis lazuli, schist, serpentine, and rarely of ivory, resin, bronze, silver and gold. They were usually provided with a flat underside and a central perforation along the longitudinal axis, in order to add inscriptions to their base and to put them on threads or mount them as swivels to metal rings. The earliest stone scarabs were small (length: 0.6-1.3 cm) and engraved by ornamental designs on their flat underside, had an amuletic purpose and were employed from the Sixth to the Eighth Dynasties (Ward 1978). As evident from Table 2, the medium-sized scarabs (length: 1-2.7 cm) were either protective amulets (engraved on the underside with royal names, divine names and figures as well as good wishes) or served as stamp seals (engraved on the underside with names and titles of officials) which were largely employed as signet rings. Other medium-sized scarabs (length: 1.4-2.2 cm) were decorated by geometrical designs, hieroglyphics, animal and human figures, and probably had a magical purpose, while the larger-sized and unperforated scarabs (length: 3.5-11 cm) served as memorial, heart and funerary emblems.

W. M. F. Petrie (1917) was probably the first to notice a pronounced similarity between stone scarabs and certain beetle genera pertaining to the Scarabaeinae, Coprinae and Cetoniinae (Figs 4a-c, Tab. 1). The following characteristics are obvious in stone imitations of dung beetle genera: *Scarabaeus* with a serrated clypeus (i.e. four V-shaped notches surrounded by two genae) on a lunate or merging head, *Gymnopleurus* with a bilobed clypeus and a lateral indentation on both elytra, male *Catharsius* with a smooth clypeus and an erect cephalic horn on an almost square head, male *Copris* with a smooth clypeus and a cephalic horn, male *Heliocopris* with a smooth clypeus bearing two erect horns and *Hypselogenia* with a long rostrum extending from the head. The medium-sized stone scarabs were mostly copies of the genus *Scarabaeus*, being amply used from the Sixth to the Thirtieth Dynasties, while the less frequent mimics of the genera *Catharsius* and *Copris* were in use from the Twelfth to the Sixteenth Dynasties. Stone imitations of the genus *Gymnopleurus* were seldomly made and used from the Eighteenth Dynasty up to the Twentyfifth Dynasty, whereas copies of the cetoniid *Hypselogenia* were scarcely produced and only used from the Twelfth Dynasty up to the Eighteenth Dynasty.

It is not surprising that *Scarabaeus sacer* (Linné) was copied more frequently than other dungball-rollers, since it was likely to be the most abundant species among the Scarabaeinae found in ancient Egypt (Alfieri 1976). The nesting habits of *Catharsius sesostris* (Waterhouse), *Catharsius inermis* (Castelnau), *Copris hispanus* (Linné) and *Helio-*

Figs 6a-c. Heart scarab as compared to a scarab beetle. ▷
The depicted heart scarab (size ~ 5.7 × 4.1 × 2.5 cm), carved in grey-green serpentine, probably originated from the XIXth Dynasty (~ 1295-1186 BC) and belonged to a standard-bearer named Kenro. It has a realistically shaped dorsum comprising a pronotum with many concave dots and striate elytra (**a**). The flat base of the heart scarab (**b**) carries the following hieroglyphic text partly taken from chapter 30B of the Book of the Dead: *"Recitation by Osiris Kenro / O my heart which I had from my mother! O my heart which I had from my mother! O my heart of my different ages! Do not stand up as a witness against me / in the presence of the Keeper of the Balance"* (Freud Museum, London; Inventory nb. 4004). Head, pronotum, elytra and forelegs of the stone scarab (**a**) resemble the corresponding body parts of *Scarabaeus laticollis* (Linné) (**c**). It is most probable that this species was utilized as a model for the production of such heart scarabs.

a

b

c

Figs 6a-c

copris gigas (Linné) (Coprinae) were definitely less conspicuous than those of *Gymnopleurus* spp. and *Scarabaeus* spp. (Scarabaeinae), as the former habitually store dung in subterranean burrows just below mammalian droppings, rather than shaping and rolling dungballs above ground (Figs 5a-e). However, the males of Coprinae, being provided with one or two eye-catching cephalic horns (Figs 4a-c), probably motivated the ancient Egyptians to observe and to copy these peculiar dung beetles. Despite their relatively small size, *Gymnopleurus* spp. (Figs 4a-c) were occasionally carved in stone, since they were eye-catching due to the fact that pairs of male and female beetles roll their dungballs jointly (Fig. 5a). Bishara (1978) remarked that the genus *Hypselogenia* (Burmeister) does not occur in Egypt and could have been mistaken for another cetoniid species, viz. *Oxythyrea noemi* (Reiche), which is found in the Arabian desert and the Sinai peninsula.

Memorial scarabs were produced in order to glorify the names of Kings and Queens as well as to remember historical events. Such scarabs (length: 5.2-11 cm), issued e.g. by King Amenhotep III (~ 1390-1352 BC), can be grouped according to the events they commemorate into medals recording his marriage with Queen Tiy, successful bull and lion hunts, construction of an artificial lake in western Thebes as well as arrival of a Mitannian princess to the King's court. Moreover, the memorial scarabs issued by King Amenhotep IV (~ 1352-1336 BC) were dedicated to the Sun Disc Aten, King Amenhotep IV and Queen Nefertiti (Budge 1987; Tab. 2).

The memorial scarabs originating from the reign of King Amenhotep III reveal the dorsal characteristics of *Kheper* and *Scarabaeus* spp., including a four-notched clypeus, bilaterally protruding genae, two eyes on the posterior head capsule, an angular margin of the posterior pronotum as well as a humeral callosity on each elytron, while other memorial scarabs issued by Kings Amenhotep III and Amenhotep IV display an unserrated clypeus and a curved margin of the posterior pronotum, being characteristic for female *Heliocopris* spp. (Coprinae).

Heart scarabs (length: 3.5-11 cm) were usually carved in green stone, e.g. basalt, feldspar, jasper, phyllite, serpentine (Fig. 6a) and less frequently cut in black stone including amphibolite, basalt, phyllite and steatite. Selection of the above colours was based on their symbolic value: green signified renewed vegetation and resurrection, while black symbolized the Underworld and funerary Deities (Wilkinson 1994). Moreover, the ancient Egyptians preferred green over other colours for heart scarabs, since a supplement to chapter 30B of the Book of the Dead asked for the use of green nmḥf-stone (probably jade) for the production of such amulets. Heart scarabs are remarkable for the inscription of the above chapter on their flat underside (Fig. 6b). The text of chapter 30B of the Book of the Dead, originating from the Papyrus of Ani (BM 10470), was translated by Faulkner (1985) and runs as follows:

"O my heart which I had from my mother! O my heart which I had from my mother! O my heart of my different ages! Do not stand up as a witness against me, do not be opposed to me in the tribunal, do not be hostile to me in the presence of the Keeper of the Balance, for you are my ka which was in my body, the protector who made my members hale. Go forth to the happy place whereto we speed; do not make my name stink to the Entourage who make men. Do not tell lies about me in the presence of the God; it is indeed well that you should hear!"

This spell was supposed to help the deceased during the Judgement of the Dead when his or her heart was weighed against the feather of Goddess Maat (Deity of Truth and

Justice) on the great Balance. When a position of equilibrium was attained between both, the deceased was granted eternal life (maã-ḫrw) in the realm of God Osiris. The deceased was then found worthy of resurrection (ʿnḫ), i.e. his heart was equated with the hearts of Gods Re and Osiris and approved for travelling in the Sun Boat on its eternal circuit.

Heart scarabs were occasionally employed from the Thirteenth Dynasty up to the Seventeenth Dynasty (~1795-1550 BC), while they were more frequently used during the period ranging from the Eighteenth Dynasty up to the Thirtieth Dynasty (~1550-343 BC). Prior to the Eighteenth Dynasty, heart scarabs were usually unframed, whereas in later time they were often provided with a gold frame and suspended on a cord (Tab. 2).

The dorsal side of numerous heart scarabs reveals a crescent-like forehead comprising a four-notched clypeus and two laterally protruding genae, two eyes on the posterior head capsule as well as an angular margin of the posterior pronotum and a humeral callosity on each elytron. An obvious resemblance between stylized heart scarabs and *Scarabaeus sacer* (Linné), *Scarabaeus cristatus* (Fabricius), *Scarabaeus gangeticus* subspec. *isidis* (Castelnau), *Scarabaeus puncticollis* (Latreille), *Scarabaeus sennaariensis* (Castelnau) and *Kheper aegyptiorum* (Latreille) renders their use as models for the above imitations most probable. Some of the heart scarabs resembling *Scarabaeus laticollis* (Linné) were provided with distinctly striate elytra and were covered either amply or sparsely with concave dots on the pronotum, recalling this region in *Scarabaeus semipunctatus* (Fabricius) or *Scarabaeus laticollis* (Figs 6a-c).

Funerary scarabs, cut in naturalistic (length: mostly 2-3 cm) or stylized shape (length: mostly 5-6 cm) and varying from light green to dark blue in colour, were usually attached to the surface of the ventral abdomen, chest, neck and hands of human mummies. Many scarabs of this type were also provided with a pair of feathered (hawk-like) wings as well as small holes and loops around or under the scarab's body, so that the protective amulets could be stiched on the mummy's wrappings or be incorporated to the bead net, by which mummies of the Late Period (~747-332 BC) used to be enveloped (Tab. 2; Andrews 1994).

The funerary scarabs (with flat base) and naturalistic scarabs (with convex base) were often imitations of the genera *Kheper*, *Mnematidium* and *Scarabaeus* (Figs 4a-c). The forelegs, midlegs, hindlegs, prothorax and striate elytra of naturalistic scarabs were carved almost true to nature. Heart, funerary and naturalistic scarabs were usually copies of dungball-rollers (Scarabaeinae) and served as symbols of resurrection.

Scarab monuments consecrated to Khepri, God of the Rising Sun

It is likely that every temple in ancient Egypt was originally provided with an oversize votive scarab on a pedestal, representing the latter as "the primeval mound" or bnbn-stone[6] from which the Sun-God emerged, in order to initiate the creation of the universe. Several gigantic and stylized scarab monuments originating from the New Kingdom (~1550-1069 BC), the Late Period (~747-332 BC) or the Ptolemaic Period (~332-30 BC) were discovered in modern time, and some of them are displayed in Figures 7a-d.

6 Corresponding to the ancient Greek term Omphalos.

a

b

Figs 7a-d. Gigantic stone scarabs originating from the New Kingdom, the Late Period or the Ptolemaic Period.

a. The grey granite monument (height ~2 m) of King Amenhotep III (Nebmaatre, ~ 1390-1352 BC), originally set up on the west bank of the Nile in Thebes, was dedicated to Khepri (God of the Rising Sun), Re (Sun-God of Midday) and Atum (God of the Setting Sun). An oversized imitation of a dung beetle (length ~ 1 m) resembling a female *Heliocopris* (Hope) of the subfamily Coprinae on top of a plinth was worshipped as an image of the Morning Sun. The front side of the column depicts, i.a. the winged Sun Disc of Re, Amenhotep III offering wine to Atum as well as the following inscription: "*Nebmaatre is loved by Khepri, who came forth from the earth, while creating himself*". Photograph taken by Prof. Dr. Jean Capart (1923), by kind permission of the Fondation Égyptologique Reine Élisabeth, Bruxelles.

b. Part of a lime stone relief (c) resembling an oversize dung beetle carved at the entrance to the tomb of King Sety I (Menmaatre, ~ 1294-1279 BC) in western Thebes. The upright scarab beetle is shaped almost true to nature and is similar to the genera *Kheper* and *Scarabaeus* (Scarabaeinae). Photograph taken by Dr. Kurt Lange (1952).

c

c. A drawing of the relief picture evident at the entrance to the tomb of King Sety I in Thebes. The scarab beetle representing the Morning Image (Ḫprj) is shown next to the ram-headed Night Image (Jwf) of the Sun-God (Rᶜw) within the Solar Disc (Jtn), suggesting the daily reappearance of the sun following its nocturnal journey through the Underworld.

d

d. A huge simplified imitation of a dung beetle exhibited in the British Museum of London (Inventory nb. EA 74) was probably copied from a female *Heliocopris* (Hope) (Coprinae). The monolithic scarab is made of green granite and rests on an oval plinth, beneath which a square pedestal with bevelled edges and without an inscription is found. The stone beetle has a length of ~ 152 cm, a breadth of ~ 86 cm and a height of ~ 84 cm. It probably originated from the Saite Dynasty (~ 664-525 BC) or the Ptolemaic Period (~ 332-30 BC) and was initially set up in a temple at Heliopolis (Hall 1913). Photograph taken by Dr. Anna Levinson (1992), by kind permission of the Department of Egyptian Antiquities, British Museum, London.

A columnar monument of grey granite (height ~ 2 m) comprising an oversize imitation of a dung beetle (length ~ 1 m) which recalls a female of some coprine genus, possibly *Heliocopris* (Hope), can be seen on the east bank of the sacred lake in Karnak (Fig. 7a). The monument was originally set up during the reign of King Amenhotep III (Nebmaatre, ~ 1390-1352 BC) on the west bank of the Nile in Thebes. The flattened front of the column reveals the winged Solar Disc of Re (Sun-God at midday) with two suspended serpents representing the Goddesses Nekhbet and Wadjet, who were supposed to protect Upper and Lower Egypt, as well as King Amenhotep III kneeling and offering two pitchers of wine to Atum (God of the Setting Sun) and a supplementary text confirming that Nebmaatre is loved by Khepri, who created himself and emerged from the earth. This unique scarab monument was thus dedicated to the three images of the Heliopolitan Sun-God and was probably set up in an ancient local temple.

A greyish-green granite monument (Fig. 7d) comprising a colossal scarab (length ~ 1.5 m, breadth ~ 0.9 m) on the platform of an oval plinth and a bevelled substructure is preserved in the British Museum of London (EA nb. 74). The monument was brought from Constantinople, whither it was taken after the Roman occupation of Egypt (Hall 1913) and is supposed to have originated from the Saite Dynasty (~ 664-525 BC) or the Ptolemaic Period (~ 332-30 BC) and probably served as a votive memorial in some unknown sanctuary. The stone scarab reveals a smooth lunate clypeus with two lateral genae, as well as a cephalic elevation and declivity, and may thus be a rather stylized imitation of a female *Heliocopris* (Hope) pertaining to the subfamily Coprinae. Moreover, a huge reddish granite scarab resembling the greyish-green colossal scarab in the British Museum (cf. Fig. 7d) is found to the east of "Pompey's Pillar" (erected in honour of Diocletian, ~ AD 297) close to the site of the former Ptolemaic temple of Serapis in Alexandria.

An upright limestone relief depicts an enlarged dung beetle of the genus *Scarabaeus* or *Kheper* being provided with a four-notched clypeus, two lateral genae, toothed front tibiae as well as a damaged tarsus and a terminal spur extending from each hind tibia (Figs 7b, c). This remarkably naturalistic imitation is evident at the entrance to the tombs of King Sety I (Menmaatre, ~ 1294-1279 BC) and other Kings of the Ramesside Period (~ 1294-1069 BC) in western Thebes (Hornung 1988). The scarab beetle (ḫprr) assumed to embody the God of the Morning Sun (Ḫprj), next to the ram-headed man as God of the Night Sun (Jwf)[7], are shown within the Solar Disc (Jtn) representing God of the Daytime Sun (R^{c}w; Fig. 7c). This relief symbolizes the daily reappearance of the sun following its supposed nocturnal journey through the Underworld and also suggests a perpetual motion of the universe. The scarab beetle rolling his dungball was interpreted by the priests of ancient Heliopolis (Jwnw) as a means of propelling the sun across the sky and as a symbol of the daily regeneration of this celestial body.

The Sun-God of the ancient Egyptians was also imagined as an association of three major Deities pertaining to the solar orbit, viz. Khepri, God of Sunrise; Re, God of the Midday Sun; Atum, God of Sunset. It follows that the day and night cycle of the sun comprised the three phases induced by the above Deities. In this context it is noteworthy that the British Museum of London possesses a large relief sculpture (EA nb. 980), representing a composite Deity (Fig. 10) consisting of a headless scarab beetle (standing for Khepri), the body and wings of a falcon (signifying Re-Harakhty) and the four-

7 Linked to the Creator-Gods Atum of Heliopolis (Jwnw) and Khnum of Elephantine (Abw).

horned head of a man provided with an erected genital (symbolizing Atum), which originated from the Ptolemaic Period (~ 332-30 BC). The above icon is certainly an outstanding example of syncretism, i.e. a process resulting in the fusion of two or more Deities into a single God, which often recurred in the course of development of the ancient Egyptian religion.

Religious implications of Scarabaeinae and Coprinae

Among the numerous insect taxa occurring in the Nile valley and its environment, relatively few coleopteran genera have plaid a unique rôle in the religious culture of ancient Egypt. The dramatic changes in form and behaviour of an enclosed grub developing into a six-legged and four-winged dung beetle, the particular skill of Scarabaeinae in shaping and rolling dungballs to feed their adults, and shaping dung pears to nourish their larvae (Figs 5a,b) as well as the startling cephalic horns of male Coprinae (Figs 4a-c) certainly aroused the curiosity of the dwellers on the Nile. Since the early Egyptians observed that dung beetles quasi emerged spontaneously from clods of dung, it can be understood that they associated these scarab beetles with the process of creation. The early priests interpreted the above peculiarities and allegorized the dung beetle as an incarnation of the Deity of Sunrise (Ḫprj), the Creator of the Universe (Jtmw) as well as the Protector of the Deceased in their final Judgement (cf. chapter "Scarabaeinae and Coprinae as models for stone scarabs"). Moreover, the scarab beetle's hiding his dungball below ground was seen as an allegory of the Solar Disc (Jtn) setting in the western sky and entering the Underworld (dwat). This conception is corroborated by God Khepri's sailing in his Nocturnal Barque (meskтt) following sunset (Amduat and Book of Gates, first hour; Hornung 1972, 1997).

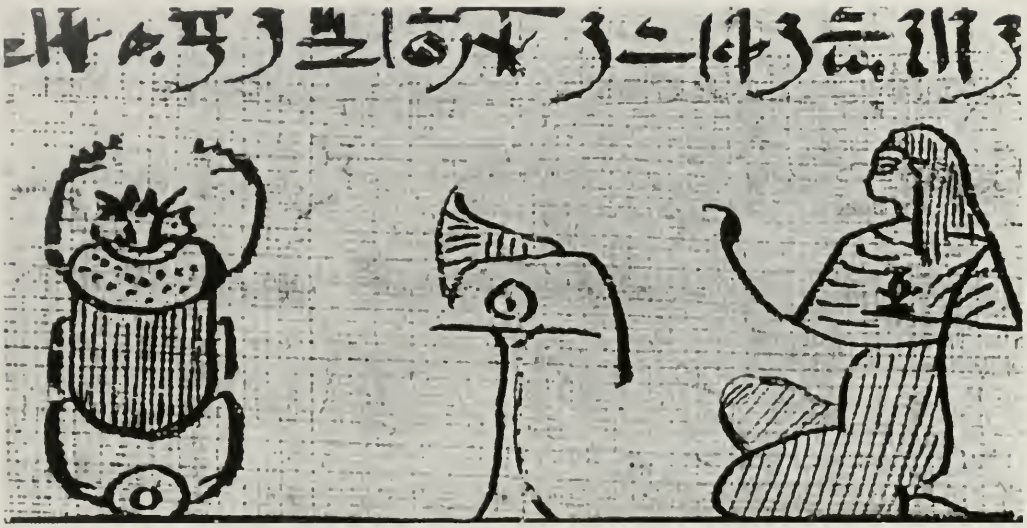
Notably, some scarabaeid beetles were recognized as divine insect genera, ritually mummified and buried during the Dynastic and Greco-Roman Periods. The Agricultural Museum at Dokki (Cairo) exhibits specimens of such embalmed scarabaeid species being interred in crudely carved and decorated coffins of limestone or bronze. The mummified beetles found in the above museum are female *Heliocopris gigas* (Coprinae) and *Scarabaeus sacer* (Scarabaeinae), while a resin-embalmed specimen of *Heteronychus licas* (Dynastinae) is exhibited in the British Museum of London (Bishara 1978).

The Allard Pierson Museum of Amsterdam possesses an embalmed and linen-wrapped dung beetle mummy (body length ~ 5 cm) resembling the dung-collecting genus *Heliocopris* (Hope) (Fig. 8a). Since both clypeal horns and the median pronotal hump, being characteristic of male *Heliocopris gigas* (Figs 4a-c), are missing on the cephalothorax of the above beetle mummy, we may conclude that the latter is a female. Regrettably, the coffin pertaining to this mummified dung beetle has not been found. On the other hand, the Vienna Museum of History of Art exhibits a wooden coffin provided with a convex and dark blue faience lid displaying the copy of a dung beetle as well as a depression (~ 6.8 × 4.8 × 2.5 cm) in the lower part of the coffin, wherein the mummified beetle was previously accomodated (Fig. 8b). However, this beetle mummy had been lost in the course of time. The stylized dung beetle on the coffin lid resembles *Scarabaeus laticollis* (Linné) on base of its striate elytra as well as *Scarabaeus semipunctatus* (Fabricius) due to its dotted pronotum. This impressive scarab coffin may have originated from Karnak and the Twentieth Dynasty (~ 1186-1069 BC).

a

b

Figs 8a-d. Divinity of certain dung beetles, their significance for the vindication of the deceased in afterlife and the primeval Scarab-God Khepri emerging from his brood chamber (nwt or nḫpw).



c. Copy of a stylized *Scarabaeus laticollis* (cf. Fig. 6c) rolling between his hindlegs a dungball, i.e. the imaginary Solar Disc of Sun-God Re. The amuletic scarab beetle was supposed to grant vindication to the deceased at the ceremony of weighing the heart in the Hall of Judgement before Osiris, God of the Underworld. The deceased is depicted, while revealing a heart amulet to the Sacred Scarab Beetle behind an offering table. This amulet was an oval heart-like stone vessel provided with two lateral protrusions and a flat-topped rim. Hieratic funerary papyrus of Ast-Wert, daughter of Tanahebu. Ptolemaic Period, ~250-150 BC (British Museum, Inventory nb. 10039/3).

d. See page 62. ▷

◁ **a.** Mummified dung beetle (body length ~5 cm) originally embalmed and wrapped in linen, which is likely to represent a female of *Heliocopris* (Hope). Provenance and date of the beetle mummy are unknown (Allard Pierson Museum, Inventory nb. 10186). A considerable part of the wrappings was lost in the course of time, while uncovered cuticle regions reveal residues of linen and embalming material. Some body parts including the head capsule and pronotum appear completely wrapped in linen, whereas the prosternum, abdomen and elytra are scarcely covered by fabric. Like other venerated animals, specimens of *Heliocopris* (Hope) were mummified and interred in coffins after death, in order to render "immortality" to these vigorous and startling dung beetles. The photograph was kindly made available by Dr. Willem M. van Haarlem, Allard Pierson Museum, Amsterdam.

◁ **b.** Coffin consisting of a rectangular wooden base (~15 × 11.5 × 5 cm) and an oval convex lid (~12.9 × 9.4 × 5.5 cm) of dark blue faience, which reveals a stylized dung beetle resembling *Scarabaeus laticollis* (Linné) as well as *Scarabaeus semipunctatus* (Fabricius). The semicircular silhouette of clypeus and genae and the almost pentagonal dotted pronotum of the faience beetle are characteristic for *Scarabaeus semipunctatus*, while the clearly striate elytra of the beetle imitation are typical for *Scarabaeus laticollis*. An upper cavity (~7.4 × 5.4 × 3.9 cm) and a lower cavity (~6.8 × 4.8 × 2.5 cm) in the coffin's lid and base (facing each other) were meant to accomodate the embalmed insect. However, a mummified scarab beetle has not been found in the coffin. A hieroglyphic inscription on the margin of the faience lid mentions name and title of the donator. Probable origin of the scarab coffin is Karnak, XXth Dynasty (~1186-1069 BC). Photograph and information were kindly made available by Prof. Dr. Helmut Satzinger, Ägyptisch-Orientalische Sammlung, Kunsthistorisches Museum, Vienna (Inventory nb. 5023).

Fig. 8d. Solar resurrection symbolized by the emergence of a scarab beetle with unfolded wings, from a large dungball (nwt or nḥpw). The Funerary Papyrus of Nu (XVIIIth Dynasty) records this by the sentence: *"I have flown up like the primeval ones, I have become Khepri ... "*. As evident, the scarab beetle is pushing by his forelegs a small solar disc representing the rising sun. Metamorphosis of a larva to a pupa and subsequently to an adult insect within the nwt or nḥpw is followed by penetration of the former through the hollowed dungball, wing spreading and flying upwards. – Wall painting in the sarcophagus chamber of King Rameses VI (Nebmaatre Meryamun, ~1143-1136 BC) in Thebes (Book of the Earth, Part D, 3rd Register, 11th Scene).

During the Dynastic, Ptolemaic and Roman Periods, the Egyptians regarded death as a temporary interruption of survival rather than cessation of life; they imagined that eternal life can be achieved by preventing decay of the deceased's body following its ritual mummification, continual supply of food and drink as well as giving piety to the Gods. The ancient Egyptians believed that a person or an animal consists of a body (ḫt), shadow (šwt) and name (rn) as well as three spiritual components, viz. the ba (i.e. psychic force or soul), the ka (i.e. life-force) and the akh (i.e. blessed dead), which were indispensable for the existence in afterlife. The akh, resulting from reunification of the ba with his ka, was considered to be the mode of existence of a deceased man or animal in the Underworld (dwat). It follows that mummification and burial of the dead dung beetles provided a "home for their spiritual components" and thus ensured their well-being in eternity (pr n sbb nḥḥ).

A large scarab beetle rolling by his hindlegs a small dungball (representing the Solar Disc of Sun-God Re) was believed to ensure the vindication of a deceased person who

is kneeling before this scarab beetle and revealing to him a heart amulet consisting of a stone imitation of the human heart with a flat-topped rim and bilateral protrusions (recalling blood vessels) (Fig. 8c). In Dynastic Egypt the human heart (ḥaty, jb) was regarded as a central organ, being the source of intellect, memory and personality. Chapter 125 of the Book of the Dead shows the scene of weighing the deceased's heart (psychostasia) against the feather of Maat (Goddess of Truth and Justice) before Osiris (God of the Netherworld) and 42 divine judges (cf. Papyrus Ani, BM 10470). The deceased had to recite the so-called Negative Confession denying the commitment of major and minor delicts throughout his or her life. When eventually he received a favourable verdict, the deceased was presented as one "true of voice" (maã-ḫrw) and became justified for admission to the Netherworld. A heart scarab, inscribed with chapter 30B of the Book of the Dead (Figs 6a,b) was placed on the mummy's chest and was tightly wrapped within the bandages, in order to prevent the heart from making any harmful utterance directed against the deceased. Chapter 28 of the Book of the Dead was supposed to guarantee that the heart will be returned to his owner in the Netherworld, as written in the Papyrus of Nu (BM 10477/5): "... *see this heart of mine, it weeps in the presence of Osiris and pleads for mercy ...*".

The dungball-rolling Scarabaeinae owe their prominent rôle in symbolism to meticulous observation as well as mythical and religious contemplation on these beetles by the ancient Egyptians. The rolling of perfectly spherical dungballs to distant underground nests, the supposed asexual reproduction (without gametogenesis) of the Scarabaeinae and their apparent emergence from the earth were closely linked to the concept of the sun's circuit and the morning image of the Sun-God rising from the Underworld (cf. chapter "Biological and mythological aspects of dungball-rollers ..."). The hieroglyphic name of the dung beetle was ḫprr while the corresponding verb "to become or to come into being" was ḫpr, which was a key-word for regeneration in ancient Egypt. The designation of the God of Sunrise was Ḫprj, whose most important attributes were (1) paternal self-procreation (ḫpr ḏs f), (2) capability of metamorphosis (ḫprw), (3) chthonic existence (ḫpr m ta) as well as (4) flying up to the firmament (ḥfd r pt s). The above features, observed in the dungball-rolling Scarabaeinae, were ascribed to the God of Sunrise by the ancient Egyptians (Assmann 1975).

The Book of the Underworld (Amduat, origin ~1504 BC) and the Book of Gates (origin ~1323 BC) describe the perilous journey of the Sun-God and his transformations in the Underworld during the twelve hours of the night (Hornung 1972). The Sun-God starts his journey at the western horizon by travelling in his Nocturnal Barque (mesktt) as a ram-headed Deity (called Flesh of Re) and standing in a shrine, which is protected by a serpent. The sixth hour of the night reveals the disintegration and subsequent regeneration of the Sun-God, the tenth night hour shows him as a revived scarab beetle holding by his forelegs an oval clod of dung, while the twelfth hour of the night depicts God Khepri as a new-born scarab beetle, emerging from the Underworld. Eventually he sails up in his Diurnal Barque (māndt) from the eastern horizon, in order to "*shine between the thighs of Sky-Goddess Nut*".

The nocturnal transformations of the Sun-God recall the metamorphosis of the immature stages of a dung beetle into a newly ecdysed imago within the concealed and dark brood chamber (named either nwt or nḫpw). The Book of the Earth is depicted by wall paintings and texts in the mortuary chamber of King Rameses VI (~ 1143-1136 BC). One of the above illustrations shows a scarab beetle holding a small Solar Disc, while

penetrating his hollowed brood chamber, followed by spreading his wings and flying upwards. This drawing was certainly intended to symbolize the matutinal resurrection of the Solar Disc before entering his daily orbit (Fig. 8d).

An alternative version to the nocturnal journey of the Sun-God through the Underworld, evident on the ceiling of the cenotaph of King Sety I (~ 1294-1279 BC) and the sarcophagus chamber of King Rameses IV (~ 1153-1147 BC), was called the Book of Nut (Hornung 1997). Goddess Nut, considered to be the personification of the vault of heaven, was shown as an outstretched woman being arched over the earth and supported by Air-God Shu, while touching the western and eastern horizons by her hands and feet. She was believed to be the mistress of all celestial bodies, who were presumed to be her children, *"entering her mouth and emerging from her womb"*. Nut was also considered to be the mother of Sun-God Re, whom she swallowed at sunset, passing him through her body overnight, whereupon he was reborn from her womb as the beetle-shaped God Khepri at dawn.

Moreover, the funerary Papyrus of Priestess Anhai (Twentieth Dynasty, ~ 1150 BC) depicts an additional version of the Sun-God's passage from the eastern to the western sky (Fig. 9). God Nun (personifying the watery chaos) is lifting up the Solar Barque from the primeval waters, where Creator-God Khepri (i.e. a large scarab beetle accompanied by seven Deities) is sailing and delivering the rising sun to Sky-Goddess Nut (in upside down position) being supported by God Osiris, Ruler of the Netherworld (Papyrus Anhai, BM 10472). The subsequent journey of the Sun-God through the Netherworld brings about metamorphosis of the ram-headed Nocturnal Sun (Jwf) into a scarab beetle symbolizing the new-born God Khepri. Life and death are thus reciprocally engendered.

Epilogue

The venerated beetle species pertaining to the Buprestidae, Elateridae, Tenebrionidae and Scarabaeidae were probably abundant in the ancient Nile valley (kmt) and adjoining desert region (dšrt). Human observers of those beetles must have been deeply impressed by their imposing appearance, startling behaviour, protective measures and safe hiding places. The adored coleopterans can thus be compared to some other chthonic and aposematic arthropod species, e.g. the arachnid *Leiurus quinquestriatus* and the centiped *Scolopendra adhaerens* which were consecrated to the protective Deities Selket and Sepa, and recorded for the first time in Pyramid Texts nb. 1375 and 244 (Faulkner 1969). The above invertebrates and their admired attributes may have appeared to the early dwellers of the Nile valley as a microcosmic reflection of the world around them.

The elongate ᶜnḫ-beetles (including buprestid, elaterid and tenebrionid species) were adored from the later Predynastic Period up to the end of the First Intermediate Period (i.e. during ~ 1.4 millennia), whereas the roundish ḫprr-beetles (including species of Scarabaeinae and Coprinae) were venerated from the Sixth Dynasty until the end of the Thirtieth Dynasty (i.e. for ~ 2 millennia). The ᶜnḫ-beetles, being the first group of venerated coleopterans, served as apotropaic charms, while the subsequently adored ḫprr-beetles were regarded as a manifestation of Sun-God Khepri rising as the Morning Sun from the Netherworld, as an image of Creator-God Atum who came into being of

himself as well as a symbol of cosmogony (pawtj tawj) and resurrection (ᶜnḫ). Most of the ᶜnḫ- and ḫprr-species (except for the earlier tenebrionids; Figs 2a-h) were amply copied and employed as stone or metal amulets, which were applied as a magical means to protect the living and the dead (mkt).

The principle of metamorphosis (Greek: transformation) was a prevalent component in the mind of the ancient Egyptians. The hieroglyphic term ḫprw (conversion) was probably inspired by knowledge on the transformation of tadpoles into frogs and toads (Ranidae and Bufonidae), larvae of cyclorrhaphous flies as well as dermestid and scarabaeid beetles into the corresponding adult insects. The early dwellers of the Nile valley, known as meticulous observers of their rural environment, must have been amazed by the conversion of a long-tailed tadpole (legless, two-legged and subsequently four-legged) into an adult frog. Hence, they wrote ḥfn by the outlines of a tadpole and qrr by the contours of a frog. Funerary priests had discovered that human mummies were frequently infested by necrophagous larvae which developed into blowflies (*Calliphora* spp.) and carrion beetles (*Dermestes* spp. and *Necrobia* spp.) in the corpse of the deceased (Levinson & Levinson 1994). Fully grown larvae of the above genera usually left the body tissues and penetrated the resinous skin coating of the mummy. The priests, having observed larvae, pupae and adults of blowflies and carrion beetles being retained between the mummy's bandages, concluded the transformation of such larvae into adult insects (cf. Papyrus de Gizeh nb. 18026; Lieblein 1895). There is no doubt that the ancient Egyptians knew that a dung beetle larva undergoes metamorphosis (ḫprw) by moulting to a mummy-like pupa and subsequently to an adult dung beetle within the oval brood chamber. This assumption is corroborated by the terms nwt and nḥpw (dung-made brood chamber) as well as ḫprw (transformation) which were currently used hieroglyphic words. Moreover, the ancient Egyptians saw the eclosion of a dung beetle from an apparently motionless pupa as a metaphor for resurrection of the dead (cf. Fig. 8d).

The strongest influence which beetles ever had on man of the Old World occurred in the culture and religion of ancient Egypt. One can imagine that the pre- and protodynastic dwellers of the Nile valley were often afraid of fatal injury or excessive suffering, while they longed for protection and safety. Hence, they readily believed that clicking, leaping, dazzling and startling beetles would help to protect them against illness and decay, in life and in death (cf. Figs 3a-d). The hieroglyphic term for the elongate buprestid, elaterid and tenebrionid species (Figs 2a-h, 3a-d) was written by the contours of a slender beetle and associated with the word for "eternal life" (ᶜnḫ), while the corresponding name for the roundish scarabaeidiform species was written by the outlines of a scarab beetle (Figs 4a-c) whose designation was derived from the word "to become" (ḫpr). The early inhabitants of the Nile valley also knew that some roundish beetles were shaping, rolling and burying their dungballs underground (Figs 5a,b), from where eventually more dung beetles would appear by crawling out of the same locality.

The ancient Egyptians imagined their Sun-God as an impressive dung beetle representing Khepri (God of Sunrise) who lifts up the sunball from the nocturnal firmament to the diurnal sky (cf. Fig. 9), across which the celestial globe is rolled to the western horizon by Re-Harachty (God of the Daytime-Sun), whereupon the sunball is lowered to the nocturnal sky by Atum (God of Sunset), causing the cyclical reoccurrence of sunrise and sunset (cf. Fig. 7c). The dung beetle became thus a lasting symbol of rebirth

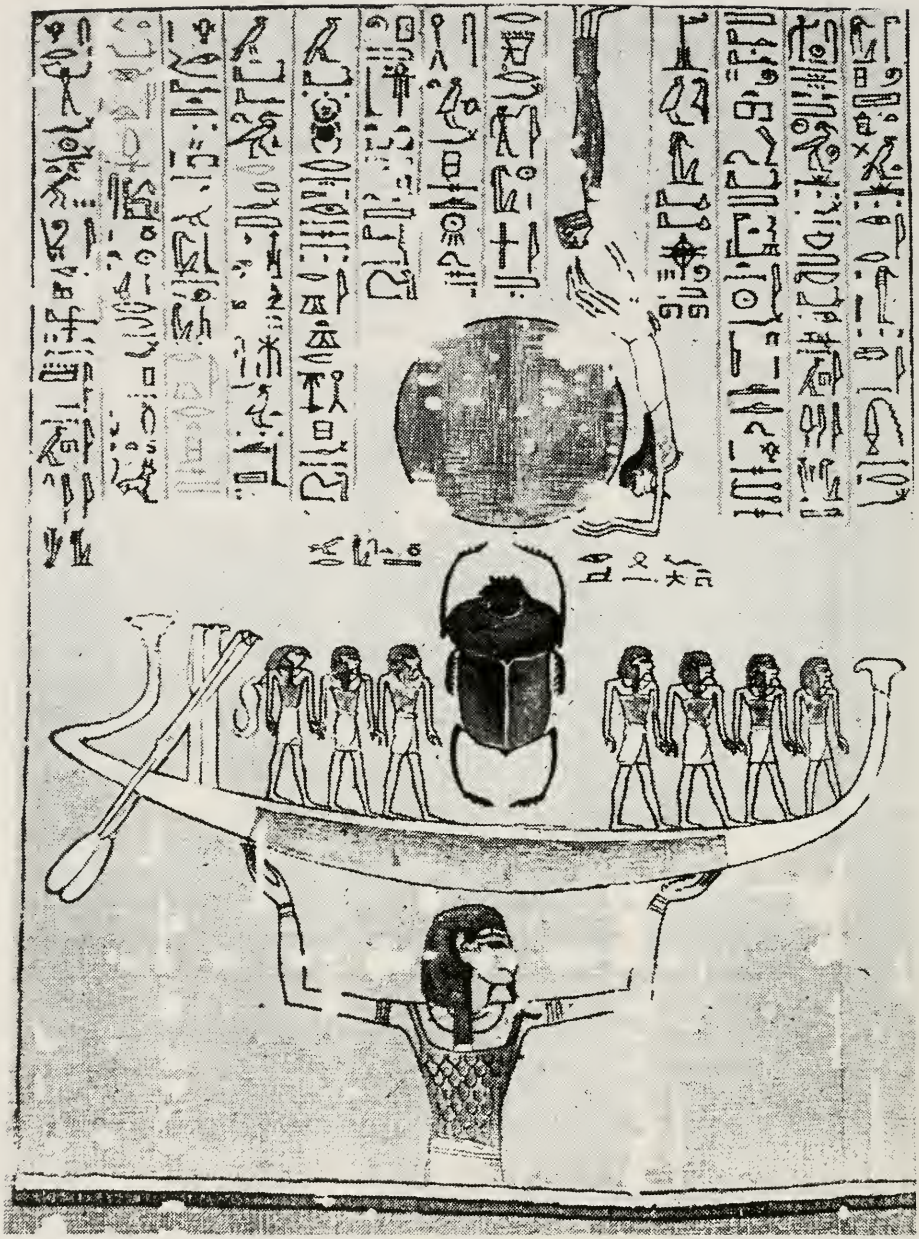


Fig. 9. Partial aspect of a funerary papyrus of Priestess Anhai from Thebes (XXth Dynasty, ~1150 BC) revealing the ever-recurring cycle of sunrise and sunset (Britsh Museum, EA 10472). The primeval Deity Nun is raising from the primordial waters the Diurnal Barque (mānḏt) carrying the Sun-God Khepri in the form of a *Scarabaeus* beetle (accompanied by seven Deities) who lifts up the morning sun. God Khepri is presenting the large sunball to Sky-Goddess Nut being suspended upside-down from the firmament and supported by Osiris (ruler of the Underworld), which symbolizes the reversal of the solar orbit to the nocturnal passage through the dark Netherworld. In this passage from the western horizon, the Night Bark (meskt) is carrying the nocturnal ram-headed Sun-God (Jwf) to the eastern sky to repeat his solar orbit.

in the same shape, after death. This may have been the reason for providing the deceased with sculptured imitations of dung beetles, in order to ensure their "immortality" in afterlife (Figs 6a,b). Stone-made scarab amulets became popular with many people for almost two millennia and their original task of ensuring rebirth after death eventually changed to that of a good luck charm. Aelianus (AD ~ 175-235) and Plutarch (AD ~ 45-125) remarked that the Egyptian soldiers used to wear scarab rings and seals, because they saw the dung beetle as a symbol of manliness and bravery. The warriors also believed that their scarab amulets will safely protect them against casualties in the battle-field and, if necessary, ensure their resurrection in the life to come.

The religion of the ancient Egyptians gradually declined during the Roman Period (30 BC-AD 395), while the symbolism of the sacred dung beetle survived in a different form. Christianization of ancient Egypt was completed during the 3rd Postchristian Century, when the hieroglyphic script had been replaced by Greek writing. The initial conception of presenting the sacred dung beetle as a parentless, "only begotten creature" appealed to some Christian Fathers, and the Bishop of Milan Ambrosius (AD 339-397) likened Jesus Christ to a "bonus scarabaeus" (Expositio Evangelii secundum Lucam X, 113). This parable is based on the suggestion that both Christ and the scarab beetle had achieved marvellous creations due to employing used-up material. However, another Christian Father, Hieronymus (AD 347-420), interpreted the above subject in a different manner and rejected the idea of equating Christ to a dung beetle on base of ethical considerations (Dölger 1930). Moreover, the mythos of ancient Egypt had an inspiring and lasting influence on the culture and religion of classical antiquity.

Zusammenfassung: Kulturgeschichtliche Bedeutung der heiligen Käfer in Altägypten

a. Tierverehrung als religiöse Vorstellung

In den vorhergehenden Kapiteln haben wir versucht, die Kulturgeschichte der heiligen Käfergattungen vergleichend darzustellen sowie deren strukturelle und verhaltensmäßige Besonderheiten mit den zoolatrischen (tierverehrenden) und religiösen Bräuchen der Bewohner Altägyptens während prädynastischer und pharaonischer Zeit in Wechselbeziehung zu bringen. Die von den vorzeitigen Ägyptern ausgeübte Zoolatrie ergab sich höchstwahrscheinlich aus der gottähnlichen Verehrung verschiedener Tiergattungen, die durch eindrucksvolle Merkmale und Eigenschaften besonders auffielen, z.B. ein bedrohliches oder farbenprächtiges Erscheinungsbild, gepanzerte Körperdecke, widerwärtige bzw. toxische Körperausscheidungen oder andere bewundernswerte Kennzeichen. Die frühdynastischen Bewohner des Niltals (kmt) und der benachbarten Wüstenregion (dšrt) sahen in den harmlosen sowie schädlichen Lebewesen ihrer Umwelt ausschließlich Geschöpfe Gottes, die sie für gleichwertige und gleichberechtigte Gefährten des Menschen in Leben und Tod hielten. Seit archaischer Zeit (~ 3100-2868 v. Chr.) verehrten die Ägypter verschiedene Wirbeltier-Gattungen, die zu den Amphibien, Reptilien, Säugetieren und Vögeln gehören, sowie manche wirbellose, zu den Arachnida, Chilopoda und Insecta gehörende Gattungen.

Die heiligen Tiere wurden meist durch ein religiöses Tabu-Gebot vor Verletzung beschützt, als ba oder Seele der Gottheiten verehrt und als steinerne Nachbildungen in besonderen Kulttempeln aufgestellt und göttlich angebetet. Die heiligen Tiere, ein-

Fig. 10. Composite Solar Deity consisting of Gods Khepri, Re-Harakhty and Atum.
A partly damaged relief sculpture reveals a composite Deity comprising a four-horned head with adjacent neck and a protruding phallus of a man representing God Atum, the pronotum, three pairs of legs and both elytra of a headless scarab beetle embodying God Khepri as well as the body and wings of a falcon representing God Re-Harakhty. Gods Atum (imagined as Evening and Night Sun), Re-Harakhty (envisaged as Midday Sun) and Khepri (visualized as Morning Sun) were syncretized to represent a uniform Deity of the solar orbit. The depicted icon (~ 36 × 23 cm) is originating from the Ptolemaic Period (~ 332-30 BC) and is preserved in the stores of the British Museum in London (EA nb. 980). Syncretism, a process by which two or more Gods were fused into a single idolized Deity, was an often recurring aspect of the ancient Egyptian religion. Photograph taken by Dr. Anna Levinson, Seewiesen, by kind permission of the Department of Egyptian Antiquities, British Museum of London.

schließlich der Dungkugel-rollenden Gattung *Scarabaeus* (= *Ateuchus*) (Linné) sowie der Dung-speichernden Gattung *Heliocopris* (Hope) wurden nach ihrem Tod, entsprechend dem rituellen Brauch, einbalsamiert und als Mumien in Särgen beerdigt.

b. Zeitfolge der verehrten Buprestidae, Elateridae, Tenebrionidae und Scarabaeidae

Die in Altägypten gottähnlich oder göttlich verehrten Coleoptera lassen sich entsprechend ihrer Körperform in längliche bzw. ovale sowie rundliche Käfer einteilen. Die länglichen Käfergattungen, die als ꜥnḫ (d.h. Auferstehung bzw. ewiges Leben) bezeichnet wurden, beinhalten die Prachtkäfer *Acmaeodera polita* (Klug) und *Steraspis squamosa* (Klug), den Schnellkäfer *Lanelater notodonta* (Latreille) (Abb. 3a-d) sowie die Schwarzkäfer *Akis elevata* (Solier), *Blaps bifurcata* (Solier) und *Ocnera* (= *Trachyderma*) *hispida* (Forskål) (Abb. 2a-h). Die alten Ägypter huldigten diesen Käfern von der späten Prädynastischen Periode bis zum Ende der Ersten Zwischenzeit (~ 3500-2055 v. Chr.), d.h. während etwa 1,4 Millennia. Die rundlichen Käfergattungen, die ḫprr (d.h. Heilige Dungkäfer) genannt wurden, enthielten die Dungkugel-rollenden *Gymnopleurus* (Illiger), *Kheper* (Janssens), *Mnematidium* (MacLeay) und *Scarabaeus* (Linné) sowie die Dung-speichernden *Catharsius* (Hope), *Copris* (Geoffroy) und *Heliocopris* (Hope) (Abb. 1a,b, 4a-c, 5a-e, 6a-c, 7a-d, 8a-d, 9); die Ägypter verehrten diese Dungkäfer göttlich von der Zeit der Sechsten bis zum Ende der Dreißigsten Dynastie (~ 2345-343 v. Chr.), d.h. während etwa zwei Millennia. Die ausnahmsweise rundliche Tenebrioniden-Gattung *Prionotheca* (Solier) enthielt wohl erstmals heilig verehrte Käferarten, die während der Prädynastischen Periode bis zum Ende der Ersten Dynastie (~ 4000-2890 v. Chr.) den Verstorbenen als schützende Beigabe in ihre Gräber mitgegeben wurden.

Die Schwarzkäfer-Gattungen *Akis* (Herbst), *Blaps* (Motschulsky) und *Ocnera* (Fischer) wurden lediglich als Körperhüllen – bestehend aus Meso- und Metathorax nebst Elytren und Abdomen, wovon die beiden letzten Sternite abgeschnitten sowie Kopf, Prothorax und sämtliche Beine entfernt wurden (Abb. 2a-h) – verehrt und den Verstorbenen als apotropäische Anhänger während der Ersten Dynastie (~ 3100-2890 v. Chr.) in die Gräber mitgegeben. Andere Schwarzkäfer-Gattungen, und zwar *Scaurus* (Fabricius) sowie *Tentyria* (Latreille), wurden während der Ersten Zwischenzeit (~ 2181-2055 v. Chr.) verehrt sowie in Amethyst oder Karneol nachgebildet. Die ebenfalls verehrten Gattungen der Prachtkäfer (Buprestidae), Schnellkäfer (Elateridae) und Blatthornkäfer (Scarabaeinae und Coprinae) wurden vorwiegend in Fayence, Halbedelstein, Schiefer, Steatit sowie in Silber und Gold nachgeformt.

Die Schnellkäferart *Lanelater notodonta* (Abb. 3a-d) wurde der Kriegsgöttin Neith aus Sais geweiht und ab der Protodynastischen Periode bis zum Ende der Fünften Dynastie (~ 3200-2345 v. Chr.) göttlich verehrt, wogegen die Dungkugel-rollenden Scarabaeinae sowie die Dung-speichernden Coprinae (Abb. 4a-c, 5a-e) von der Zeit der Sechsten Dynastie bis zum Ende der Dreißigsten Dynastie (~ 2345-343 v. Chr.) als Offenbarung des Morgensonnengottes Khepri (Ḫprj) sowie des Schöpfergottes Atum (Jtmw), die die Auferstehung und Welterschaffung symbolisierten, galten.

c. Nachahmung geheiligter, länglicher und rundlicher Käfergattungen

Bei der Nachbildung von Gattungen der Buprestidae, Elateridae und Scarabaeidae haben die altägyptischen Bildhauer besonders auffällige Merkmale sorgfältig ausgearbeitet, z.B. den kleinen querliegenden Kopf, den gepunkteten Halsschild (Pronotum),

das ovale Mesoscutellum, die gerieften Flügeldecken, den prosternalen Fortsatz und die entsprechende mesosternale Scheide an der Attrappe von *Lanelater notodonta* (Abb. 3a-d) sowie die ovale und grünblaue Körperoberfläche, fast rechteckige Kopfkapsel mit den beiden großen Augen und dem großen Halsschild an den Attrappen von *Steraspis squamosa* (Klug). Die Nachahmungen von Dungkäfern (Scarabaeinae und Coprinae) weisen hauptsächlich folgende Eigenheiten auf: einen halbmondförmigen bzw. übergangslosen Kopf, dessen Kopfschild (Clypeus) vier aneinander grenzende und spitze Zacken trägt, die beiderseits von einer vorstehenden Wange (Gena) flankiert sind, eine winkelförmige Halsschildbasis und zumeist einen Schulterstreifen (humeral callosity) an jeder Flügeldecke der Nachbildungen von *Kheper* und *Scarabaeus* (Abb. 6a, 7b), einen zweilappigen ungezackten Kopfschild sowie je eine Einkerbung am oberen Seitenrand beider Flügeldecken der Kopien von *Gymnopleurus*, einen glattrandigen Kopfschild sowie ein aufrecht stehendes Horn an der nahezu viereckigen Kopfkapsel der Nachahmungen von männlichen *Catharsius*, einen glattrandigen Kopfschild und ein rückwärts gebogenes Kopfhorn an den Nachbildungen von männlichen *Copris* sowie einen glattrandigen Kopfschild nebst zwei aufrecht stehenden Kopfhörnern an den Nachahmungen von männlichen *Heliocopris* (Abb. 4a-c). Es ist bemerkenswert, dass Käfergattungen mit gezacktem Kopfschild (Scarabaeinae) viel häufiger als Käfergattungen mit glattrandigem Kopfschild (Coprinae) nachgebildet wurden.

Körperhüllen der Tenebrioniden-Gattungen *Akis*, *Blaps*, *Ocnera* und *Prionotheca* sowie Nachbildungen von *Scaurus* und *Tentyria*, Nachahmungen der Prachtkäfer-Gattungen *Acmaeodera* und *Steraspis* sowie Kopien der Schnellkäfer-Gattung *Lanelater* dienten als Unheil abwehrende Zaubermittel (mkt), die ihre Träger und besonders deren mumifizierte Körper vor jeglichen Gefahren und Krisen behüten sollten. Unzählige Nachahmungen von Dungkäfern (Scarabaeinae und Coprinae) aus mineralischen, metallischen und organischen Rohstoffen – meistens aus glasiertem Steatit (Speckstein) und Fayence sowie Alabaster, Amethyst, Feldspat, Jaspis, Karneol, Lapislazuli, Schiefer und Serpentin sowie seltener aus Bronze, Elfenbein, Harz, Gold und Silber – wurden während des Zeitraumes von der Sechsten Dynastie bis zum Ende der Dreißigsten Dynastie (~ 2345-343 v. Chr.) hergestellt und getragen. Derartige Dungkäfer-Kopien wurden zumeist mit einer flach geschliffenen Unterseite versehen, um dort Inschriften oder Zeichnungen einzugravieren. Die nachgeahmten Käfer wurden entlang ihrer Längsachse mit einer durchgehenden Bohrung versehen, damit man sie an Schnüren oder Ketten aufhängen bzw. mit Metallringen verbinden konnte.

Nachbildungen der Dungkugel-rollenden Gattungen *Gymnopleurus*, *Kheper*, *Mnematidium* und *Scarabaeus* sowie der Dung-speichernden Gattungen *Catharsius*, *Copris* und *Heliocopris* (Länge: 0,6-2,7 cm) wurden als schützende Amulette (mkt) sowie Siegelringe (ḫtm) getragen (Tab. 1, 2). Die größeren Nachahmungen der *Scarabaeus*-Arten, z.B. *cristatus*, *gangeticus*, *laticollis*, *puncticollis*, *sacer* und *semipunctatus* sowie *Kheper aegyptiorum* (Länge: 3,5-11 cm), dienten vorwiegend als Herzskarabäen, die die Verstorbenen vor Verdammung im Totengericht beschützen sollten (Abb. 6a-c, Tab. 2). Grüne oder blaue Steinnachbildungen der Gattungen *Kheper*, *Mnematidium* und *Scarabaeus* wurden häufig mit geschlossenen bzw. gespreizten Flügeln entweder stilgerecht (Länge meist 5-6 cm) oder fast naturgetreu (Länge meist 2-3 cm) hergestellt und den mumifizierten Verstorbenen als schützende Amulette beigegeben. Die annähernd naturgetreu geformten Dungkäfer-Kopien hatten wirklichkeitsnah gemeißelte Körper und Beine, womit die Absicht des Bildhauers, die heiligen Skarabäuskäfer (ḫprr) als Auferstehungssym-

bol (ʿnḫ, nkaka) darzustellen, ersichtlich ist. Andere stilisierte Nachbildungen von *Kheper*, *Scarabaeus* sowie weiblichen *Heliocopris* wurden als königliche Medaillen (Länge meist 5-11 cm) zur Erinnerung an besondere Ereignisse hergestellt (Tab. 2) sowie als übergroße Votivdenkmäler (Länge ~100-150 cm) in den Kulttempeln aufgestellt (Abb. 7a,d).

d. Dungkugel-rollende und Dung-speichernde Blatthornkäfer, die die Gottheiten des Sonnenaufgangs, der Welterschaffung und der Auferstehung verkörpern

Im alten Ägypten nannte man sie ḫprr oder Heilige Dungkäfer; der diesbezügliche Name in Altgriechenland war kantharos, d.h. Eselsdungkäfer, während die entsprechende Bezeichnung im alten Rom "scarabaeus qui pilas volvit" oder Kugel-rollender Dungkäfer lautete. Die Wahl eines Dungkäfers (Scarabaeinae sowie Coprinae) zum Sinnbild von mindestens zwei Erscheinungsformen des Sonnengottes beweist die Wahrnehmungsfähigkeit der frühzeitigen Bewohner Ägyptens von den Eigentümlichkeiten gewisser Käfergattungen des Niltals und der benachbarten Wüste sowie die Vorstellungsgabe der Beobachter bei ihren Bestrebungen, das Universum zu verstehen. Die Ikonographie Khepris, Gott des Sonnenaufgangs, basierte vorwiegend auf den Erscheinungsbildern der Dungkugel-rollenden Käfergattungen *Gymnopleurus*, *Kheper*, *Mnematidium* und *Scarabaeus*, die angenommenerweise den Sonnenball (Jtn) von der Unterwelt (dwat) aufwärts und danach über das Himmelszelt rollten (Abb. 9). Die frühzeitigen Bewohner des Niltals sahen in ihrer ländlichen Umgebung, wie die Dungkäfer ihre Kugeln formten und eifrig über den Boden rollten, um sie dann in eine Erdaushöhlung zu versenken (Abb. 5a,b); schließlich erklärten die Ägypter den Tages- und Nachtkreislauf des Sonnengestirns aufgrund der oben genannten Erkenntnisse.

Bekanntlicherweise waren die frühzeitigen Bewohner des Niltals genaue Naturbeobachter und wussten auch von der Metamorphose (griech. Formveränderung) der Kerbtiere und Lurche, einem augenfälligen Entwicklungsvorgang, den sie ḫprw nannten. Zweifellos kannten die altägyptischen Priester die eindrucksvolle Verwandlung der rudimentären Jugendformen in die geschlechtsreifen Imaginalstadien der Frösche (Ranidae), Kröten (Bufonidae), Dungkäfer (Scarabaeidae), Schmeißfliegen (Calliphoridae) sowie der Speckkäfer (Dermestidae) und übernahmen das Gedankengut der Umformung in ihre religiösen Vorstellungen.

Dungkäfer, die von ihren ausgehöhlten und benetzten Brutbirnen (genannt nḫpw) ausschlüpften und an die Erdoberfläche gelangten, erweckten den Eindruck einer unterirdischen Selbstzeugung (ḫpr ḏs f). Die diesen Vorgang beobachtenden Ägypter sahen deshalb die Dungkäfer als Inkarnation des Gottes Khepri, d.h. "dessen, der von sich selbst entstand" (Abb. 8d). Früheste Aufzeichnungen, die sich auf Khepri als Gott der Morgensonne beziehen, stammen aus den Pyramidentexten der Fünften Dynastie (~2494-2345 v. Chr.), deren Sprüche 222 und 606 das tägliche Erscheinen des Sonnenballes im Namen des Gottes Khepri bezeugen. Diese Gottheit wurde ursprünglich mit dem Schöpfergott Atum gleichgesetzt, da dieser ebenso wie Gott Khepri, "von sich selbst entstand" und mit dem Sonnengott Re verglichen wurde, nachdem die Vorstellung vom Tages- und Nachtkreislauf der Sonne auf dem oberirdischen Rollen der Kugel eines Dungkäfers sowie der unterirdischen Aufbewahrung der Dungkugel beruhte (Abb. 5a,b).

Seit der Ersten Zwischenzeit bis zum Ende der Dreißigsten Dynastie (~2181-343 v. Chr.) wurde Khepri, Gott der aufgehenden Sonne, unzählige Male als kleine

Steinnachbildungen von Dungkugel-rollenden sowie Dung-speichernden Blatthornkäfern dargestellt (Abb. 4a-c, Tab. 1, 2). Menschen, die derartige Dungkäfer-Kopien an ihrem Körper trugen, waren zeitlebens und noch im Tode mit Khepri verbunden sowie von dieser Gottheit beschützt.

Table 3. Brief chronology of ancient Egypt (1).

Period	Time, ~ BC (2)	Dynasties (3)
Palaeolithic	500 000-5500	
Predynastic:		
Badarian	5500-4000	
Amratian (Naqada I)	4000-3500	
Gerzean (Naqada II)	3500-3100	
Protodynastic (Naqada III)	3200-3050	
Early Dynastic	3100-2686	Ist-IInd
Old Kingdom	2686-2181	IIIrd-VIth
First Intermediate	2181-2055	VIIth-XIth (partly)
Middle Kingdom	2055-1650	XIth-XIVth
Second Intermediate	1650-1550	XVth-XVIIth
New Kingdom	1550-1069	XVIIIth-XXth
Third Intermediate	1069-747	XXIst-XXIVth
Late	747-332	XXVth-XXXIst
Ptolemaic	332-30	
Roman	30-AD 395	

(1) Modified from Shaw and Nicholson (1996). (2) Dates prior to 747 BC are approximate. (3) Royalties mentioned in this treatise include: Merneith, Den (Ist Dyn.), Unas (Vth Dyn.), Teti, Userkara, Pepi I, Merenra, Pepi II, Nitiqret (VIth Dyn.), Tutankhamun, Amenhotep III, Amenhotep IV (XVIIIth Dyn.), Sety I, Rameses II, Nefertari (XIXth Dyn.), Rameses III - Rameses XI (XXth Dyn.).

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