



APPEARANCE AND REALITY IN ANCIENT EGYPTIAN VOTIVE ANIMAL MUMMIES

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Animals were mummified throughout Egyptian history, either as avatars of a god (cult animals), pets, food offerings (victual mummies), or votive offerings.¹ Of these categories, votive mummies are the most numerous. It is estimated that millions of animals of almost every conceivable species were artificially preserved as votive offerings, with radiocarbon dating revealing that the majority were mummified during the Late to Roman periods (ca. 664 BCE–395 CE).² The deposition of votive animal mummies at sacred sites has been interpreted as a tangible component of a religious rite that facilitated communication between the earthly and the divine worlds. The animals, once mummified, were transformed into the *b^c* of the god and, therefore, able to activate the donor's messages and convey them to the appropriate deity.³ Since archaeological, documentary, and pictorial evidence for this rite is limited, the thousands of votive mummies housed in museum collections worldwide provide a pivotal resource for the investigation of this enigmatic practice.⁴

Votive mummies often bear a superficial likeness to animal representatives of the deity to whom they were dedicated; however, non-invasive imaging including radiography and computed tomography (CT) has revealed that less than half of the specimens

studied contain a complete animal skeleton (Fig. 1).⁵ Instead, the majority of these mummies have been constructed from partial animal remains (i.e., of one or more than one individual, or in some cases human remains)⁶ (Fig. 2), non-skeletal animal material (e.g., feathers, egg shell) (Fig. 3), or non-animal material (e.g., mud, vegetable matter, dung).⁷ Previous accounts have sometimes interpreted these incomplete contents, or "empty" bundles, as "fakes"⁸ or "falsified mummies,"⁹ but we believe that this terminology can be misleading. Instead we have proposed that votive mummies containing any animal tissues should be categorised as *true mummies*, while those consisting of non-animal material should be termed *pseudo-mummies*.¹⁰ With funding from the UK Arts and Humanities Research Council, our current research at the University of Manchester aims to investigate the disjunction between the external appearance and the actual contents of votive animal mummy bundles, seeking specifically to address the following questions:

1: *Can mummy bundles containing anything other than a complete animal body be classified as "fakes"?*

"Fake" implies a deliberate intention to misrepresent the contents when, in reality, this might have occurred for several reasons. For



FIGURE 1: Photograph and radiograph of a mummy containing a complete and articulated cat skeleton (56.21.547; World Museum Liverpool). Reproduced with permission of World Museum Liverpool and Manchester University NHS Foundation Trust.

example, mummies may have been created from materials other than a complete animal body when whole specimens of the required animals were in short supply, or when the devotee could not afford to acquire a more complete specimen.¹¹ This kind of substitution is not necessarily the consequence of deception, and the term “ersatz” may be more appropriate in this instance.

2: *Were some of these partial and pseudo-mummies equally effective as votive offerings regardless of their actual contents?*

Ancient Egyptians may have believed that any materials that came into contact with sacred animals, or were found within a sacred precinct, could be considered to be equally effective as votive offerings.¹² The principle of synecdoche (the concept of the part acting for the whole) has been widely accepted in relation to ancient Greek and Roman votive offerings and might apply to Egypt as well, especially during the Late to Roman periods, which saw not only heightened contact with Greco-Roman culture but



FIGURE 2: Photograph and radiograph of a mummy containing a partial skeleton of a common kestrel (*Falco tinnunculus*) and a number of elements from a smaller bird (TN4295; Manchester Museum). Reproduced with permission of Manchester Museum and Manchester University NHS Foundation Trust.

also the proliferation of votive mummies.¹³ Thus mummy bundles created from materials collected within a designated sacred environment, including

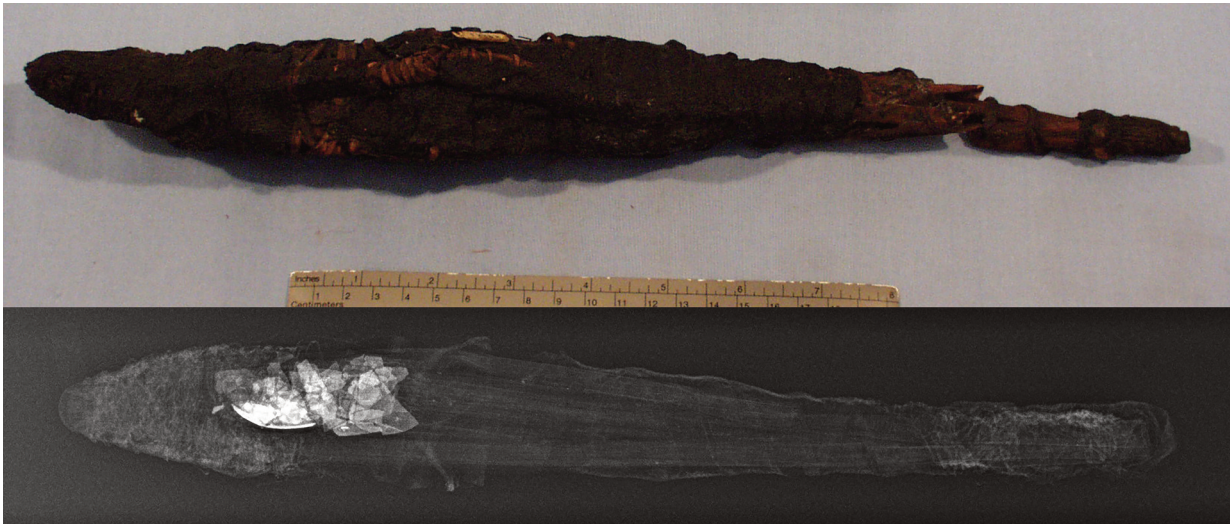


FIGURE 3: Photograph and radiograph of a mummy containing egg shell fragments (5373b; Manchester Museum) Reproduced with permission of Manchester Museum and Manchester University NHS Foundation Trust.

the remains of decomposed and partial remains of predeceased animals, might be expected to show evidence of the same elaboration of mummification treatment as is observed for complete, articulated animals. For example, an inscription discovered on a limestone sarcophagus in the Falcon Catacombs, North Saqqara, describes the recovery, mummification, and deposition of a bird found dead outside the entrance to the Serapeum's southern vault. An inscription on a ceramic jar (unfortunately without provenance) describes the intended contents as the remains of an ibis found deceased in a canal bearing the name of Ramesses I. These sources provide evidence that predeceased material was collected from within the temple complex and prepared for votive deposition in the same way as animals acquired specifically for votive purposes.¹⁴

3: Were partial and pseudo-mummies used for different ritual purposes?

Mummy bundles that contained less than one complete animal body may have been intended to serve a different votive function. The representation of species in partial mummies might be different from those in complete mummies, as has been noted at the animal cemetery of Tuna el-Gebel in Middle Egypt where specimens of ibis and of birds of prey were usually mummified whole, whereas other bird

species were mainly represented as incomplete bodies or as single body parts.¹⁵ The decree "one god in one vessel" from the Archive of Hor,¹⁶ an officiant of the ibis at Saqqara during the Ptolemaic Period, is often interpreted as evidence of fraudulent activity by the embalmers charged with mummifying animals as votive offerings.¹⁷ However, the use of the word "vessel" refers to the ceramic pots within which the mummified ibises were deposited in the catacombs, rather than to the production of the mummies themselves. Therefore, "one god in one vessel" could be interpreted as one mummy in one pot, rather than one animal in one votive ibis mummy, thereby negating the Archive of Hor as evidence of "fake" mummy production. Collating evidence of species representation, completeness of animal parts, and (where available) location of deposition of the animal mummies will be used to test whether partial and pseudo-mummies had different ritual functions.

OUR APPROACH to investigating these research questions is interdisciplinary, as it combines the macroscopic and radiographic analysis of mummy bundles and their contents with careful consideration of surviving documentary sources relating to animal mummification, mainly in the form of letters from donors petitioning the gods. The

letters provide evidence for the donor's motivations for making an offering and outline the nature of the transaction.¹⁸ Gaining a positive identification of the actual contents, as opposed to simply accepting their recorded museum identifications, will enable mummies to be classified as either true or pseudo-mummies, and their original identifications will be either reassigned or validated. Examination of the existing dataset of 1,100 individual mummies from 68 institutions, with 20–30% definitively provenanced to site, will enable quantitative analysis across a diverse mummy collection, which has not previously been attempted on this scale. Furthermore, non-invasive clinical and industrial imaging techniques will be used to assess the relationship between the internal content and external appearance and provide species and body part identifications for wrapped specimens. The processing of data to isolate items of interest will be investigated, with 3D printing techniques used to create physical replicas of unidentifiable anomalies. This will allow direct comparison with skeletal reference collections to aid in zooarchaeological identification, following procedures established in pilot studies.¹⁹ A variety of 3D printing technologies will be explored and their capability in accurately replicating identifiable bone morphology will be investigated. Once species identifications have been made, completeness of animal parts and (where available) location of deposition of the animal mummies will be compared to establish whether different types of offerings (complete, partial, and pseudo) were being dedicated to different deities.

Evidence for the breeding, embalming, and ritual uses of animals in temples, including the effectiveness in votive rituals of animal parts and mundane materials received from the sacred precinct, will be established using documentary sources from the Ptolemaic to the Roman period (ca. 332 BCE–395 CE). Costs and wealth indices for the actual and relative ancient values of raw materials, commodities, embalming procedures, and labor costs²⁰ derived from these sources will test the prediction that “higher value” mummies (those of “exotic” species or those displaying elaborate wrappings) were more likely to contain incomplete remains or be fashioned from non-animal materials.

Animal mummies produced as votive offerings represent a unique and plentiful resource with much to reveal to researchers. Through the application of non-invasive techniques, the study of these ancient

artifacts can be brought into the 21st century while ensuring that the artifacts themselves are protected for the future. The multi-disciplinary nature of this project across a large multi-collection dataset will dramatically improve our understanding of the practice of votive animal mummification in ancient Egypt.

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REFERENCES

- Bleiberg, Edward. 2013. “Animal Mummies: The Souls of the Gods.” In Edward Bleiberg, Yekaterina Barbash, and Lisa Bruno (eds.), *Soulful Creatures: Animal Mummies in Ancient Egypt*, 63–105. New York: Brooklyn Museum.
- Bruno, Lisa. 2013. “The Scientific Examination of Animal Mummies.” In Edward Bleiberg, Yekaterina Barbash, and Lisa Bruno (eds.), *Soulful Creatures: Animal Mummies in Ancient Egypt*, 107–138. New York: Brooklyn Museum.
- Charron, Alain. 2011. “Les momies d’animaux: une classification des espèces dans l’Égypte ancienne.” *Espèce* 1: 58–65
- . 2015. “Les animaux sacrés, du sauvage à l’élevage.” In Magali Massiera, Bernard Mathieu, and Frédéric Rouffet (eds.), *Apprivoiser le sauvage/Taming the Wild*, 67–92. Cahiers Égypte nilotique et méditerranéenne 11. Montpellier: University Paul Valéry Montpellier 3.
- Cooney, Kara. 2007. *The Cost of Death: The Social and Economic Value of Ancient Funerary Art in the Ramesside Period*. Leiden: Nederlands Instituut Voor Het Nabije Oosten.
- Cornelius, Izak, Liani Swanepoel, Anton du Plessis, and Ruhan Slabbert. 2012. “Looking Inside Votive Creatures: Computed Tomography (CT) Scanning of Ancient Egyptian Mummified Animals in Iziko Museums of South Africa: A Preliminary Report.” *Akroterion* 57: 129–148;
- Draycott, Jane and Emma-Jayne Graham (eds.). 2017. *Bodies of Evidence*. Oxford: Routledge.
- du Plessis, Anton, Ruhan Slabbert, Liani Swanepoel, Johan Els, Gerrie Booyesen, Salima Ikram, and Izak Cornelius. 2015. “Three-Dimensional Model of an Ancient Egyptian Falcon Mummy Skeleton,” *Rapid Prototyping Journal* 21: 368–372
- Endreffy, Kata. 2010. “Business with Gods. The Role

- of Bargaining in Demotic Letters to the Gods and Graeco-Roman Judicial Prayers." In Andras Hudešcz and Mate Petrik (eds.), *Commerce and Economy in Ancient Egypt*, 49–54. Oxford: Archaeopress.
- Hughes, Jessica. 2008. "Fragmentation as Metaphor in the Classical Healing Sanctuary." *Social History of Medicine* 21: 217–236.
- Ikram, Salima. 2015a. "Speculations on the Role of Animal Cults in the Economy of Ancient Egypt." In Magali Massiera, Bernard Mathieu, and Frédéric Rouffet (eds.), *Apprivoiser le sauvage/Taming the Wild*, 211–228. Cahiers Égypte nilotique et méditerranéenne 11. Montpellier: University Paul Valéry Montpellier 3.
- (ed.). 2015b. *Divine Creatures: Animal Mummies in Ancient Egypt*. Cairo: American University in Cairo Press.
- , Ruhan Slabbert, Izak Cornelius, Anton du Plessis, Liani Swanepoel, and Henry Weber. 2015. "Fatal Force-Feeding or Gluttonous Gaggling? The Death of Kestrel SACHM 2575," *Journal of Archaeological Science* 63: 72–77.
- Janssen, Jac. 1975. *Commodity Prices from the Ramesside Period: An Economic Study of the Village of Necropolis Workmen at Thebes*. Leiden: Brill.
- Kessler, Dieter and Abd el Halim Nur el-Din. 2015. "Tuna al-Gebel. Millions of Ibises and Other Animals." In Salima Ikram (ed.), *Divine Creatures: Animal Mummies in Ancient Egypt*, 120–163. Cairo: American University in Cairo Press.
- Manassa, Colleen. 2013. *Echoes of Egypt: Conjuring the Land of the Pharaohs*. New Haven, Connecticut: Yale Peabody Museum of Natural History.
- Martin, Geoffrey. 1981. *The Sacred Animal Necropolis at North Saqqâra: The Southern Dependencies of the Main Temple Complex*. London: Egypt Exploration Society.
- McKnight, Lidija. 2010. *Imaging Applied to Animal Mummification in Ancient Egypt*. BAR 2175. Oxford: Archaeopress.
- and Stephanie Atherton-Woolham. 2014. "How to Pigeon-Hole your Animal Mummy—A Proposed Categorisation System for Ancient Egyptian Wrapped Animal Remains Based on Radiographic Evaluation." *Yearbook of Mummy Studies* 2: 109–116.
- and ——— (eds.). 2015. *Gifts for the Gods: Ancient Egyptian Animal Mummies and the British*. Liverpool: Liverpool University Press.
- , Judith Adams, Andrew Chamberlain, Stephanie Atherton-Woolham, and Richard Bibb. 2015a. "The Application of Clinical Radiography and 3D Printing to the Identification of Anomalies in Wrapped Ancient Egyptian Animal Mummies." *Journal of Archaeological Science: Reports* 3: 328–332.
- , Stephanie Atherton-Woolham, and Judith Adams. 2015b. "Imaging Ancient Egyptian Animal Mummies," *RadioGraphics* 35: 2108–2120.
- Nicholson, Paul, Salima Ikram, and Scott Mills. 2015. "The Catacombs of Anubis at North Saqqara." *Antiquity* 89: 645–661.
- Ray, John. 1976. *The Archive of Hor*. London: Egypt Exploration Society.
- . 2011. *Texts from the Baboon and Falcon Galleries: Demotic, Hieroglyphic and Greek Inscriptions from the Sacred Animal Necropolis, North Saqqara*. London: Egypt Exploration Society.
- . 2013. *Demotic Ostraca and Other Inscriptions from the Sacred Animal Necropolis, North Saqqara*. London: Egypt Exploration Society.
- Richardin, Pascale, Stéphanie Porcier, Salima Ikram, Gaëtan Louarn, and Didier Berthet. 2017. "Cats, Crocodiles, Cattle, and More: Initial Steps toward Establishing a Chronology of Ancient Egyptian Animal Mummies." *Radiocarbon* 59: 595–607.
- Rouse, William. 2010 (1902). *Greek Votive Offerings*. Reprint. Whitefish, Montana: Kessinger.
- Scalf, Foy. 2012. "The Role of Birds within the Religious Landscape of Ancient Egypt." In Rozenn Bailleul-LeSuer (ed.), *Between Heaven and Earth: Birds in Ancient Egypt*, 33–40. Chicago: The Oriental Institute, University of Chicago.
- Smith, Harry and Sue Davies. 2014. "Demotic Papyri from the Sacred Animal Necropolis at North Saqqara." *Orientalia Lovaniensia Analecta* 231: 263–317.
- Spiegelberg, Wilhelm. 1928. "Neue Urkunden zum ägyptischen Tierkultus." *Sitzungsberichte der Bayerischen Akademie der Wissenschaften Philosophisch-philologische und historische Klasse, Abhandlung* 3: 14–17.
- von den Driesch, Angela, Dieter Kessler, Frank Steinmann, Véronique Berteaux, and Joris Peters. 2005. "Mummified, Deified and Buried at Hermopolis Magna—The Sacred Birds from Tuna el-Gebel, Middle Egypt." *Egypt and the Levant* 15: 203–244.

NOTES

¹ Ikram 2015b.

² Richardin et al. 2017.

³ Bleiberg 2013; Charron 2011; Ikram 2015b; Charron 2015; McKnight and Atherton-Woolham 2015; Ray 1976.

⁴ Spiegelberg 1928; Ray 1976; Ray 2013; Smith and Davies 2014; Nicholson et al. 2015.

⁵ McKnight and Atherton-Woolham 2015; McKnight et al. 2015a.

⁶ McKnight et al. 2015a.

⁷ McKnight et al. 2015b; McKnight 2010.

⁸ Cornelius et al. 2012; Bruno 2013; Ikram 2015b.

⁹ Richardin et al. 2017.

¹⁰ McKnight and Atherton-Woolham 2014.

¹¹ Martin 1981.

¹² Von den Driesch et al. 2005; Kessler and el Nur el-Din 2015.

¹³ Rouse 1902; Hughes 2008; Draycott and Graham 2017.

¹⁴ Ray 2011, 271–273; Scalf 2012.

¹⁵ Kessler and Nur el-Din 2015.

¹⁶ Ray 1976, 2013.

¹⁷ Manassa 2013, 61; Ikram 2015b.

¹⁸ Bleiberg 2013; Endreffy 2010.

¹⁹ McKnight et al. 2015a; du Plessis et al. 2015; Ikram et al. 2015.

²⁰ Janssen 1975; Cooney 2007; Ikram 2015a.