

# Feline mummies as a fertilizer. Criticisms on the destruction of archaeozoological remains during the 19<sup>th</sup> century

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**ABSTRACT:** A paper, wrote in 1890 by the Egyptologist Gaston Maspero, reveals a pioneer attempt to preserve the animal mummies from ancient Egypt with the purpose of expanding our knowledge on the former and present-day faunas of the Nile Valley. That request to enhance our historical understanding of the past from the standpoint of the animals was innovative at a time when the prevailing historical currents focused on human mummies and so-called “valuable” remains. The approach represents the earliest instance of a scientific shift to obtain information on the complex and intimate relationships developed in ancient Egypt between humans and animals.

**KEYWORDS:** FELINE MUMMIES, ARCHAEOZOOLOGICAL REMAINS, EGYPT, IDENTIFICATION

**RESUMEN:** Un artículo de 1890 del egiptólogo Gaston Maspero pone de manifiesto un intento pionero por conservar las momias animales del antiguo Egipto al objeto de ampliar nuestros conocimientos sobre las faunas, tanto pretéritas como modernas, del valle del Nilo. Tal intento por potenciar nuestra comprensión del pasado desde el punto de vista de los animales resultaba innovadora toda vez que las corrientes históricas del momento estaban centradas sobre momias humanas y objetos de los denominados “valiosos”. EL hecho constituye el primer capítulo de un cambio en la corriente científica conducente a valorar las complejas e íntimas interrelaciones establecidas en el antiguo Egipto entre seres humanos y animales.

**PALABRAS CLAVE:** MOMIAS FELINAS. RESTOS ARQUEOZOOLOGÍCOS, EGIPTO, IDENTIFICACIÓN



## A WARNING FROM THE PAST: THE USE OF MUMMIES TO EXPAND KNOWLEDGE

In popular religion, as in the daily life of the Egyptians, animals played a fundamental role. The relative abundance of their representations in hieroglyphics, as well as in the paintings and in reliefs on the walls of temples and tombs of all periods (Te Velde, 1979-1980, 1982), show the importance of animals in the Egyptian world.

In Egyptian culture, even after death animals could access the afterlife world. Therefore, the practice of mummification was not reserved, only for men, but it also concerned animals (Hornblower, 1943; Westendorf, 1968; Kurushima *et al.*, 2012).

Without a doubt, the most famous animal of ancient Egypt was the cat, associated with the goddess *Bastet*, protector of love and fertility. Above all, the cat was considered a sort of “bridge” between heaven and earth, capable of maintaining the harmony of creation. In fact, specimens of mummified cats were discovered in many Egyptian tombs (Conway, 1890, 1891; Newberry *et al.*, 1893; Petrie *et al.*, 1925; Shehada, 2012).

The first findings of the mummified animal, in the same way as the human ones, must refer to the great phenomenon that began with the first European travelers in the land of the pharaohs.

The account of an unknown Venetian merchant, housed in the National Library of Florence, is the first written document of the journey to Upper Egypt (along the Nile to Thebes) undertaken by a westerner between August and September of the 1890.

The search of ancient finds for the creation of private collections included every type of Egyptian artefact and among them the mummies.

The Egyptian Napoleonic expedition (1798-1801) led to the discovery of many of these finds. The *Description de l’Égypte*, published between 1809 and 1828, contains various tables that illustrate different mummies and among these animals were also featured. At the end of the nineteenth century and at the beginning of the twentieth century, the explorations and discoveries of mummies intensified, but unfortunately, a lack of consideration towards these type of findings was evident in an interesting story published in 1890 by Dr. Gaston Camille Charles Maspero (Maspero, 1890).

In 1888, an Egyptian peasant digging in the sand near the village of Beni Hassan (a site about 100 miles south of Cairo) casually discovered a large common grave. The pit, contemporary described as a ‘seam of cats’, did not contain human remains, but a large number of mummified remains of felines embalmed and buried for thousands of years (Buckley *et al.*, 2004; Watson, 2016).

In an interesting article, published in 1890, the doctor Gaston Camille Charles Maspero (Paris, June 23, 1846 - Paris, June 30, 1916), emphatically reports the news that “180,000 mummies of Egyptian cats were disembarked in London” to be sold as a fertilizer. Feeding the land with ancient mummified animals was common practice and, in fact, the French Egyptologist Maspero recalls that already a few years ago “an entire necropolis of monkeys had been sent to Germany to fertilize fields of beets” (Maspero, 1890: 89).

Near the place of the discovery, there was a chapel, dug into the rock, and consecrated by the kings of the eighteenth and nineteenth dynasty to a local deity depicted with the body of a woman and the head of a cat or lion.

The scientist indicated that cemeteries of this kind existed everywhere and the mummies of the cats were buried in deep areas, sometimes simply wrapped in bandages, sometimes enclosed in small coffins reproducing the image of the animal. Some of these coffins were made of wood covered with white, gilded stucco, painted in bright colors, others, however, in bronze or with the wooden body, a bronze head with gold elements that adorned the forehead and the eyes (Maspero, 1890: 89-90). According to the author, the Egyptian cats, mummified and represented in the monuments, are *Felis maniculata* or *Felis chaus* which differ from European domestic cat.

The author concludes his brief note with the hope that the entire load of mummies of Egyptian cats does not go to feed the earth, but that even science and natural history can take advantage: “It is so long that we discuss the origin of our cat. Some make it come from Egypt, others from Europe itself. It would be really damaging if it did not take advantage of so many Egyptian cats to try and give the issue a definitive solution” (Maspero, 1890: 90).

The nineteenth century was the era when archaeological expeditions dredged acres of desert in search of regal tombs, sarcophagi and precious

finds with which to enrich the museums of Europe and America.

The thousands of animals mummified during the Greco-Roman period in the history of Egyptian civilization and discovered in different sites were, at that time, considered to be devoid of scientific value and, at most, mere tools to recover the findings “interesting” or “precious”.

However, although mostly used in the past as fertilizer, fuel, medicinal powder or ballast for ships, many mummies of animals have survived and are now preserved in museum collections around the world (Ikram & Dodson, 1998).

## THE USE OF MUMMIFIED BODIES OVER THE CENTURIES

The peculiar incorruptibility of the body of a mummy over the millennia has generated not only curiosity but also thaumaturgical interest over time.

The attribution of specific magical properties had indeed developed the interest of using mummies as talismans and medicines (Gordon-Grube, 1988, 1993; Lugli, 2013).

The set of medicinal substances that accompanied the mummification process (pepper, natron, cedar oil, myrrh, cinnamon and various balms) together with a strong susceptibility of the population, has contributed to reinforce the belief in the therapeutic value of mummies and to expand its diffusion. The Persian doctor and philosopher Rhaze was one of the main authors to write about the mummy and compare it to a drug: “*Substance that is found in the lands where the bodies of the dead are [...] conserved precisely with the precious bitumen, this mixed with pudrico mood dripping from the corpses, it is a valuable drug*” (Arberry, 1950). Its mechanism of action can thus be summarized: just as it preserves the bodies of the dead, it can also preserve that of the living (Arberry, 1950). The physician, philosopher and mathematician Avicenna (980-1037 AD), a strong supporter of the use of the mummy in the pharmacopoeia, wrote: “*Mumia calida est in fine tertii sicca prout creditur in primo. Inest autem ei proprietates omnem spiritum confortandi, quod adiuvat continuativa viscositas*”. He believed that the use of their powders were incredibly effective against a large number of ailments (including abscesses, eruptions, fractures,

*concussions, paralysis, affections of the throat, and debility of the stomach, disorders of the liver and spleen and as an antidote for poison*). The thaumaturgical use of mummies is particularly widespread in the Middle Ages (Lugli, 2013). In 1492 in France, a mummy was sold at 25 gold scuds per quintal (Grilletto, 1996). To increase their use also contributed to the terminological confusion on the meaning of the term mummy attributed to a type of bitumen that was believed to have healing capabilities (Marinozzi & Fornaciari, 2005). The Flemish chemist, physiologist and doctor J.B. van Helmont, remembered above all for his ideas on spontaneous generation, attributed to the mummy an “*occultae indolis qualitas*”, that is the power to attract the blood of wounds by restoring them.

In the *Civil commercial and literary history of the Genoese from the origins of the year 1797*, Michele Giuseppe Canale (1808-1890) described the mummy among other products such as zendadi, silk, verzino, nocisarche, pome, mirabolani, nutmeg, carnations, mace, galica, spigo, scamocca, beaver, aloe, dragon blood (Gardini, 2016: 22).

The ban imposed by the Egyptian mummies’ export authorities did not prevent the clandestine trafficking of mummies. With the increase in demand, however, the interest of counterfeiters began to spread. We also know that at the time “false mummies” were being made to appear as to be Egyptian mummies (Dawson, 1927). Also, Paracelsus accepted the curative value of the ancient embalmed Egyptian corpses. He highlighted the medicinal power of the mummies resided in an intrinsic virtue (quintessence) of the human body, for which it could also be obtained from the corpses of the executed or of who had suffered a violent death, as long as the treatment of the body took place immediately after death (Dannenfeldt, 1985).

Therefore, the so-called *mumia patibuli* [ / i ] had much following, particularly in England and in Denmark until the end of the seventeenth century.

According to Paracelso and van Helmont, mummies obtained from the bodies of those condemned to death appeared to be more effective than those obtained from the bodies of the dead of natural causes, already consumed by disease.

Ambroise Parè, a famous French surgeon who lived in the sixteenth century, said that “false” mummies were also made in France, from the corpses of hanged people using pitch from Judea, called *asphaltite*, and old bandages soaked in this

liquid, to give them an ancient appearance and to sell them as Egyptian mummies in the apothecaries.

Parè openly specified that neither the doctor who prescribed the use of mummies, nor the merchants who sold them and nor the patients who took the drugs containing the mummy's dust knew the origin, age, or whether the mummies belonged to a person who had died from plague or from other illnesses (Parè, 1582). However, already in the sixteenth century, some scholars strongly criticized the use of mummies in medical practice. The famous Italian humanist and naturalist physician Pier Andrea Mattioli pointed out in his discourses that the term mummy used in ancient Arabic and Greek texts did not refer to corpses and the preparations used for embalming. The dangers to health had been strongly reported also by Ambroise Parè, with particular regard to falsification.

In the era of Enlightenment and of Reason, the popularity of these remedies faded, even though in 1911, the term "mummy" appeared in a Viennese pharmaceutical price list (Dawson, 1927).

We must, however, remember that the use of the mummy among the Jews of Jerusalem is documented until the end of the nineteenth century and that, around 1960, the vestiges of this tradition are still found in the folklore of the Sephardi population established in Seattle, in the United States, at the beginning of the century (Firestone, 1962).

Animals were embalmed in Egyptian history for various reasons: they were considered earthly manifestations of the god, food offerings to humans in the afterlife or, simply, companions that held special importance to the humans who would remain loyal to them for eternity. The growth of animal cults and mummifications in the Late and Greco-Roman Periods is related to the great invasions suffered by Egypt by other world powers and the desire of the people to express their sense of identity, individualism, and nationalism in different ways. Animal cults might also express a request for help to divinities in particular during difficult times for the Egyptian people (Ikram, 2012).

The first studies addressed exclusively to animal mummies date back to 1905 with Gaillard and Daressy, who published the general catalog on the antiques and on mummified fauna of the ancient Egypt in the Cairo Museum (Gaillard & Daressy, 1905) with the aim of expanding knowledge about the fauna found in the ancient Nile Valley. Around the same period Lortet and Gaillard published

their monumental catalog "La faune momifiée de l'ancienne Égypte" that identifies many mummified species and is an important reference work nowadays (Lortet & Gaillard, 1908). The hypothesis of the presence, in the land of ancient Egypt, of the cult of sacred animals already from the Predynastic period finds correspondence in the discovery of animal burials, some of these were also provided with funerary equipment. However, these cults obtained a great expansion only in the Late Epoch and in the Roman Ptolemaic periods. This is testified by an enormous expansion of the cemeteries and temples dedicated to the gods with animal appearance.

The study of these mummified animals preserved in many museum collections around the world has allowed us to understand the different ways of mummification in the course of Egyptian history. Already Herodotus and Diodorus Siculus told of the existence of different embalming methods especially in relation to financial resources and to the particular fashions of the moment (Licata *et al.*, 2019b). To mummify animals, the procedure was similar to that followed for humans: evisceration, natron drying, washing, careful wrapping and deposition in the sarcophagus. Much information on this practice was obtained from the writings of the same Egyptians, like the Ritual of Embalming of Apis or from the writings of ancient travelers who visited Egypt. Even the analysis of embalming remains provides useful information to understand this procedure.

The first high quality method, especially prevalent during the Middle Kingdom and New Kingdom, involved the removal of the brain and the extraction of the bowel through a practiced engraving on the left side of the body, or on the thorax, unlike the low quality embalming procedure practiced on human beings and large animals that involved the removal of the brain, performed by using a long metal hook that entered through the nasal cavity, breaking the ethmoid bone. The bowels, in most cases, were thrown away. In the mummification of humans, the dehydration process had a duration of forty days, while for most animals, the duration was likely to be lower and still depended on their size. The Apis embalming ritual indicates that on a tor Apis the process could take place in roughly fifty-two days. Once dehydrated, the body was dried, clean from natron, spread internally and externally, with sacred oils and resins to give back flexibility to the limbs. The disproportionate use of resins, thanks to their disinfectant and deodorant

properties, limited the spread of bacteria in large quantities on the body and it served to protect the external surface of the corpse. Animals, before being wrapped in bandages, were filled with padding to give back the roundness to their body that they had in life.

The phase of bandaging in large animals lasted 30 days, as for humans, while for smaller animals it naturally took less time. During this process, both for humans and animals, amulets were placed between each layer of the bandages.

The viscera, treated separately, were subjected to a similar procedure even if, in many cases for animals, they were thrown away. The second method used by the embalmers did not include the use of the incision for evisceration but, to dissolve the organs, an oleoresin was injected, similar to turpentine, inside the body, through the anus, with the aid of bronze "enemas". The body was then dehydrated using the natron while this oil was poured into the body, plugging the anus with a flax pad.

After that, the natron was removed and subsequently the anal plug was removed to allow the flow of the liquids and to start the normal actions of unction and bandaging of the body.

The third method of mummification involved washing, drying and anointing of the body. Evisceration was less common and the use of this method seems to have been widely used in treating votive animal mummies, especially in the Late and Greek-Roman periods. This type of mummification, more swift, must be connected to economic reasons and to the need to produce as quickly as possible a large quantity of mummies destined to be offered in honor of the deities connected to them. This led to the disintegration of the bodies as shown by the examination of these mummies that were subjected to. They show the collapse of the skeletal joints and the fragmentation of flesh, now present in the form of a black powder, due to the application of resins and hot oils on poorly dehydrated bodies. To overcome the lower quality of the treatment the ancient Egyptians indulged in wrapping the mummies in complex and well-made bandages, creating geometric motifs like lozenges and squares or herringbone motifs. Other mummification methods were reserved exclusively for animals, such as that of scarification, found on mummies of the Greco-Roman period. An unusual practice, found in Saqqara, which seems to have been addressed exclusively to baboons, consisted

in placing the bodies of these animals, at the end of the mummification process, inside rectangular wooden crates subsequently filled with plaster. From chemical investigations carried out on fabrics and bandages of different mummies of animals (a cat, a hawk and an ibis, preserved at the Liverpool Museum) it emerged that complex substances were used for animal mummification, the same as those used for human embalming (Herdman, 1890).

## PIONEERING INTERESTS OF SCIENCE TOWARDS ANIMAL MUMMIES

Around the second half of the 19<sup>th</sup> century, the largest collection of animal mummies, were presented in the Cairo Egyptian Museum.

The volume *A History of Egyptian Mummies*, written by the surgeon and antiquarian Joseph Pettigrew and published in 1834, is the first book on mummification that also treated animal mummies.

R. L. Moodie, dealing with the human mummies of Egypt and Perù preserved at the Chicago Field Museum, in 1931 published his *Roentgenologic Studies of Egyptian and Peruvian Mummies* in which, in the appendix, a space was also dedicated to the study of mummified animals (Moodie, 1931).

Already at the time, Moody had noticed that these animals had received a treatment similar to that reserved for humans. In 1979, E. Strouhal, together with his collaborators, published his study *Egyptian mummies in the Czechoslovak collections*, scientific results of the radiographic study of seventy animal mummies (Strouhal & Vyhnanek, 1979).

In 1986 V. Weingärtner published his doctoral thesis in veterinary medicine *Une étude radiologique des momies de «chats» du Musée du Louvre* (Weingartner, 1986).

In recent years, in scientific journals of Egyptological literature, many publications show radiological investigation on ancient mummified animals (Licata *et al.*, 2015, 2019a).

New and modern techniques of medical investigation have allowed us to acquire information (genus, species of a specific animal, age, any diseases taken from the traces on the bones, causes of death and the method used for mummification) that has now involved updating the first catalog of 1905.



The use of X-rays and CT scans offer today the possibility to distinguish between human and non-human mummified remains, whose origin could not be established with the naked eye.

X-ray and CT scans, although still the most effective for mummies, may also present problems.

Many of the mummies, Egyptian and non-Egyptian, hidden different objects under the bandages such as amulets, jewels, etc. A clear visualization in the radiographs can isolate the different elements and to obtain information about amulets without damage to mummified tissues.

However, even the TAC has its limits: taphonomic changes, demineralization of the bones and particular substances used in mummification (in the case of artificial ones) can lead to an overlap of skin density, soft tissue and bone. Despite this, imaging techniques remain a valuable tool for studying mummified remains. In fact, radiological investigations allow us to identify traumatic and pathological lesions; to recognize the differentiation between authentic and false remains; and, in the case of non-human remains, to obtain a more accurate taxonomic classification of the animal.

Furthermore, information acquired through the analysis of archaeological specimens can be of great use to forensic scientists when they are analyzing mummified human remains in criminological context.

Only recently, the interest in mummified animals has developed with the scope of widening the boundaries of our knowledge on lifestyles, customs, beliefs and religious rites of ancient civilizations.

## CONCLUSION

Religious, medical or scientific reasons have supported the practice of mummification over the centuries. Beyond the various consumerist uses made in the temple on mummies for posterity, mummies represent precious testimonies of the past. Their study makes it possible to obtain important epidemiological data on the history of diseases and to reconstruct the culture (fashions, clothes) of an ancient epoch.

Together with the human ones, the study of mummified animals is also very important because it allows us to broaden our knowledge regarding

ancient fauna, animal domestication, veterinary practices, general life styles in relation with fauna and obviously the Egyptians animal mummification practices.

The information and teachings that are derived from mummies, as from other biological or anthropological findings, constitute a valid motivation to enhance, implement and preserve museum collections.

It is interesting to highlight that, already in 1890, Gaston Maspero suggested the scientific and cultural choice to preserve and to study the animal mummies in order to contribute to the progress of the historical development of science. The possibility of expanding the knowledge also regarding the fauna present in the ancient Nile Valley was an absolutely original and innovative approach compared to the dominant orientation at the time. Mummified animal remains from ancient Egypt can be learned about the fauna of ancient Egypt, the species diversity, the methods of preservation (Kurushima *et al.*, 2012). In addition, the study of animal mummies has yielded information some rather unusual religious practices in that ancient land.

Today the interest in animal mummies, in the constant search for an investigation extended to many aspects, finds correspondence in the realization of research using the most modern non-invasive techniques such as X-rays and Computerized Tomography (McKnight *et al.*, 2015).

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