



Roman port, Indian monkeys, and 3D scanning

Information about the discovery of monkeys imported from India and buried in the Egyptian port of Berenike aroused great media attention around the world, from the Spanish edition of National Geographic to the British The Sun. This discovery is the result of research by the American-Polish archaeological expedition under the auspices of the Polish Centre of Mediterranean Archaeology of the University of Warsaw and the University of Delaware.



Berenike is located in the Eastern Desert, on the coast of the Red Sea. The city, founded in the 3rd century BC by the Hellenistic ruler Ptolemy II, has everything needed for archaeological excavations to make headlines. *It was a long-distance trading port, through which valuable goods and spices from the Arabian Peninsula and India were brought into Egypt and later on, to Rome. War elephants from Africa had been imported by Ptolemy, while the trade in exotic animals became the domain of the Romans at the time of the Empire. For the next several centuries, many peoples and cultures mixed there, which is why the site is full of fascinating finds* – says Iwona Zych from the PCMA UW, who led the project.

Among these finds is a pet cemetery from the 1st and 2nd centuries CE, where the port's inhabitants buried domestic pets, some provided with grave goods. The research of animal remains from Berenike is carried out by Assoc. Prof. Marta Osypińska, an archaeologist from the Institute of Archeology and Ethnology of the Polish Academy of Sciences, cooperating with the PCMA UW.

In 2012, an intriguing concentration of burials of cats and a few dogs was accidentally found in the ancient city's rubbish dump. *Further studies have shown that we are dealing with a unique finding: a cemetery for companion animals* – says Prof. Osypińska, adding that the pets buried there were mainly cats, less often dogs and monkeys. *We also had one falcon*, says the researcher.

All monkeys buried in Berenike died young or very young, and bones of young animals are notoriously difficult to identify. Considering the location of Berenike, Prof. Osypińska initially described them as vervet monkeys of African origin. They were commonly kept in the Nile Valley since antiquity. In order to precisely determine the species, characteristic bones, including the skulls, were documented in such a way as to enable their digital reconstruction in 3D. As Egyptian legislation prohibits the export of samples of archaeological material, this was the only way to analyze the bones against comparative collections available in European zoological laboratories.

Documentation of archaeozoological finds using the 3D method is a pioneering project undertaken under the supervision of Prof. Marta Osypińska by scientists working in Berenike. In the same way, an Asian ox (*Bubalus bubalis*) skeleton imported from India via a US laboratory as part of the Berenike archaeozoological project was documented. *Precise calibration of all skeleton elements allows not only to compare the smallest details of the skeletal structure but also to take*



measurements in all planes, says the researcher. We plan to create a virtual comparative collection of various skeletons and to make it available to archaeozoologists from around the world. It will be an excellent tool for fieldwork, especially with "problematic" bones and species, she adds. The unexpected discovery of macaques in Berenike gives further support to the need for such a collection.

Comparing the 3D scans from Berenike with reference collections from Delhi showed that they represented Asian, rather than African monkeys. The remains belonged to two species: the larger ones were the royal rhesus macaques (*Macaca mulatta*), and the smaller ones belonged to the bonnet macaque (*Macaca radiata*). Both species are native to India. Rhesus monkeys inhabit the western and northern parts of the subcontinent, while bonnet macaques dwell in the south-western part of India.

The logistics of importing live animals through the Indian Ocean and the Red Sea must have been a great challenge. Considering the need to care for young animals, to provide them with freshwater and food, even today it would be an impressive enterprise. Given the young age at death of most of the monkeys, the new owners were unable to provide them with good living conditions in the unfavorable, salty region of the Eastern Desert. The way the pets were buried in the cemetery: the arrangement of the bones, or the fact that one of the monkeys had two fragments of amphorae added as grave equipment – one holding a piece of woolen "rag", and the other, a piglet – attested to strong emotional relations between the caretakers and the animals.

According to Prof. Osypińska, the pet cemetery from the early Roman Berenike has no parallels in Europe or Africa. Although the finds of animal mummies in the Nile Valley are quite common, they should be considered as mummy depositories corresponding to the deities worshiped in a given sacred complex rather than as cemeteries. *Often the animals from which mummies were made, were killed and dismembered. In Berenike, not a single mummy was registered in the nearly a thousand burials, and no traces were recorded on any of the animal skeletons that would indicate any mutilations related to, for example, making sacrifices,* the researcher emphasizes.

The identification of two Indian macaque species in a Red Sea port is a unique scientific achievement. So far, researchers have had no evidence, whether archaeological or textual, to suspect such a far-reaching trade in living animals in antiquity. The discovery of macaque burials also supports the thesis that in Berenike we are dealing with an actual cemetery, which could only have functioned in such a cosmopolitan, multi-cultural place as this Red Sea port.

Assoc. Prof. Marta Osypińska is heading a project in Berenike financed by the National Science Center grant *Africa-Europe-Asia: Importance of Intercontinental Trade in the Roman Period for Livestock History. New archaeozoological data from the Red Sea port of Berenike (Egypt)* (OPUS 12: 2016/21/N/HS3/00040).



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Polish Centre of Mediterranean Archaeology, University of Warsaw coordinates Polish archaeological research in the Eastern Mediterranean since 1959 (since 1990 under the present name). In recent years it broadened its scope of interest into the Arabian Peninsula and the Caucasus. Currently, about 25 projects are ongoing in Egypt, Sudan, Ethiopia, Cyprus, Lebanon, Jordan, Kuwait, Oman, Armenia, and Tunisia. The PCMA also runs a Research Centre in Cairo and the Polish Archaeological Unit in Khartoum.

For more information on the PCMA go to: www.pcma.uw.edu.pl/en/ ; www.facebook.com/pcma.uw/

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