Progetto Sekhmet

The 'Sekhmet Project'

A study of the most spectacular setting of statues in Ancient Egypt

The largest funerary temple in the Nile Valley, the most powerful and greatest pharaoh in the history of Egypt who was also t greatest builder, and the most impressive setting of sculptures ever made.
Situated in Kom el-Hettan in West Thebes (modern Luxor), where today are the 'Colossi of Memnon', the funerary temple of Amehotep III (1390-1352 B.C.) has, each year since 20 years, been providing exceptional traces and evidence of the sculptural production of the New Kingdom (second half of the second millennium B.C.).
From the archaeological excavations in this temple hundreds of statues of the goddess Sekhmet have emerged, both complete and fragmented, carved in granodiorite. The goddess is shown with the head of a lioness, generally crowned with the solar disc and the uraeus, and is one of the most important goddesses in the Egyptian pantheon: she was daughter of the Sun-god Re, and was simultaneously the healing goddess and a terrific lioness who guaranteed royal power.
There are two typologies of the goddess: sitting on a throne, holding an ankh, the symbol of life, in the left hand, and standing, holding a papyrus sceptre, the symbol of regeneration, in the left hand.
This extraordinary arrangement of statues was made to celebrate the Sed festival or royal 30th years jubilee of the pharaoh, Amenhotep III: this celebration guaranteed stable and strong power for 'millions of years' to the king. It's estimated that between 700 and 1000 statues of the goddess were produced and placed in position within the temple, one next the other, to form a powerful line of protection against the forces of the Chaos that daily threatened the Order of the created world.
Although the statues were originally placed in the funerary temple of Amenhotep III at Kom el-Hettan, many of them today are to be found scattered in museums around the world (Egypt, London, Paris, Rome, Turin, Berlin, Tokyo, New York etc.): they have fascinated archaeologists and travellers since the 19th century, when they were able to be transported to enhance the world's most important collections of Egyptian antiquities.

The project and its interdisciplinary team

The project is focused on the study of the sculptural production of the goddess Sekhmet, in order to reconstruct their original arrangement within the temple, including their technical construction and the organisation of this gigantic building site.
It was set up in 2016 following the restoration of the Sekhmet statues conserved in the Vatican Museums, then extended to include the larger collection of Sekhmet statues in the Museo Egizio in Turin.
The team is interdisciplinary and directed by the Vatican Museums, in the person of Alessia Amenta (Curator, Dept. of Ancient Egypt and Near East), with the collaboration of Mario Cappozzo (Dept. of Ancient Egypt and Near East) and Emiliano Ricchi (conservator); Christian Greco (Director, Museo Egizio in Turin), the Diagnostic Laboratory for Conservation and Restoration of the Vatican Museums, the Dept. of Sciences of Earth and Sea (University of Palermo), Azimut LP (for 3D scanning and graphic documentation), Stefano Mastrostefano (Machine-learning engineer, Tuscia University-Viterbo) and Luigi Mastrostefano (research mathematician, MIUR) have also participated.
The project has recently begun to co-operate with Dr. Hourig Sourouzian, director of the excavation of the funerary temple of Amenhotep III at Kom el-Hettan ('The Colossi of Memnon and Amenhotep III Temple Conservation Project').

Seriality and uniqueness of the statues of Sekhmet

Contrary to an apparent homogeneity, the statues of the goddess Sekhmet differ from one another in lithotype, dimensions, proportions, iconographic detail, state of finishing and state of conservation.
The first batch of statues examined were 150 and were the subject of a careful measurement campaign (62 measurements for each statue), giving a total of 9.300 measurements.
In this way, the Sekhmet statues have been 'translated into numbers' and let 'to speak' by means of these numbers.
The statues were converted to 3D-models, which provide for the accurate measurement of the very large statues, which are difficult to move and in different states of conservation.
This in turn gave rise to the software, called 'Seek-hmet', created to manage these numbers as far as to compare (on different levels) almost 1000 statues, so different and located in collections so distant from one another geographically. The very name of this software underlines its end purpose, which is the study and research of how much more information can possibly be obtained from each one of the hundreds of Sekhmet statues.
Study for the creation of this software brought us into the field of statistics and employs the clustering method, a powerful technique of Artificial Intelligence (AI). Statistics is that mathematical body of science that pertains to the collection, analysis, interpretation or explanation, and presentation of data. It is concerned with the use of data in the context of uncertainty and decision making in the face of uncertainty.
How to better define the 'Sekhmet-question' at the site?

The 'open-air' museum

The mission of Dr. Hourig Sourouzian has among its aims that of reconstructing the largest museum of statuary in situ in Egypt.
The Sekhmet statues found in the excavation and subjected to cleaning and conservation, are today being kept in storerooms close to the archaeological site.
The study and understanding of this fascinating statuary complex, which the Sekhmet Project has undertaken, will finally allow the philological relocation of the statues of the goddess in their original context, contributing to the restitution of the grandiose funerary temple of Amenhotep III as an open-air museum.

THE SCIENTIFIC SPECIALIZATION AND PROJECT GOALS OF EACH GROUP

The 'Sekhmet Project' is directed by Alessia Amenta (Curator of the Egyptian and Ancient Near East Dept., Vatican Museums), with the collaboration of Emiliano Ricchi (conservator).

1) Egyptology /Archaeology, coordinated by Alessia Amenta
Goals:

- Study and reconstruction of the original temple setting where the statues were located.
- Study of the iconography of the statues.
- Study of the inscriptions on the statues.
- Previous work on the grid and proportions of the statues.
- Identification of the 'typology' of the statues.
- Identification of any granodiorite workshop and study of its organisation.
- Comparison between the statues from Kom el-Hettan and from the Mut precinct in Karnak (Luxor, East Bank).
- Catalogue of the Sekhmet statues in museum collections around the world.
- Collecting history of the Sekhmet statues in and outside Egypt.
- Cooperation with The Colossi of Memnon and Amenhotep III Temple Conservation Project for the opening of the museum "open-air" on site (Kom el-Hettan, Luxor West Bank).

1a) Database, coordinated by Mario Cappozzo (Assistant of the Egyptian and Ancient Near East Dept., Vatican Museums
Goals:

- 1) Development and update of the database of the statues collected.

2) Stone working technology / Geology, coordinated by Emiliano Ricchi (conservator)
Goals:

- Study of the sculpture techniques of granodiorite statues and related tools.
- Engraving and painting techniques.
- Scientific analyses to investigate the materials and the sculpture and painting techniques.
- Reconstruction of the sculptural processes of the statues, from the quarry to their final destination in the temple.
- Study and analysis of the lithotypes of the statues and identification of the related quarries.

3) Mathematic and computer science, coordinated by Stefano Mastrostefano (machine-learning engineer, Tuscia University - Viterbo)
Goals :

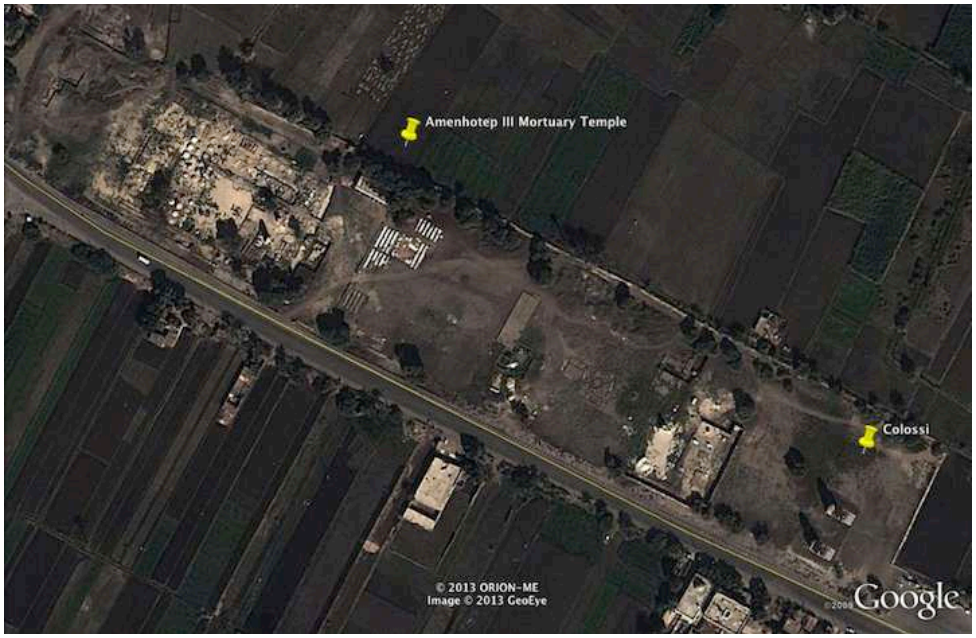
- Seek-hmet' software (cluster analysis).
- Update of the 'Seek-hmet' software.
- Development GUI of the 'Seek-hmet' software.
- Validation of classification/predictive existing models.
- Adding new classification/predictive models.
- Computer Vision (image classification of the 3D-models of the statues).
- Development of the Interface between the 'Seek-hmet' software and the database of the Sekhmet statues collected.
- Development of the website of the 'Sekhmet Project'.

4) 3D scan, 3D modelling and documentation, coordinated by Emiliano Ricchi
Goals:

- Measurement and comparison of the dimensions, proportions and iconographic details of the statues.
- 3D modelling of the statues in Kom el-Hettan, as well as in museum collections around the world.
- 3D virtual modelling of the sculptural processes.

5) Study and investigations of the lithotype and the quarries, coordinated by Silvio Rotolo (University of Palermo

6) Scientific publications of the results (journals, monographs, conferences dedicated to the different topics, web site of the project, exhibitions), coordinated by Alessia Amenta and Hourig Sourouzian


Amenhotep III Mortuary Temple
Colossi
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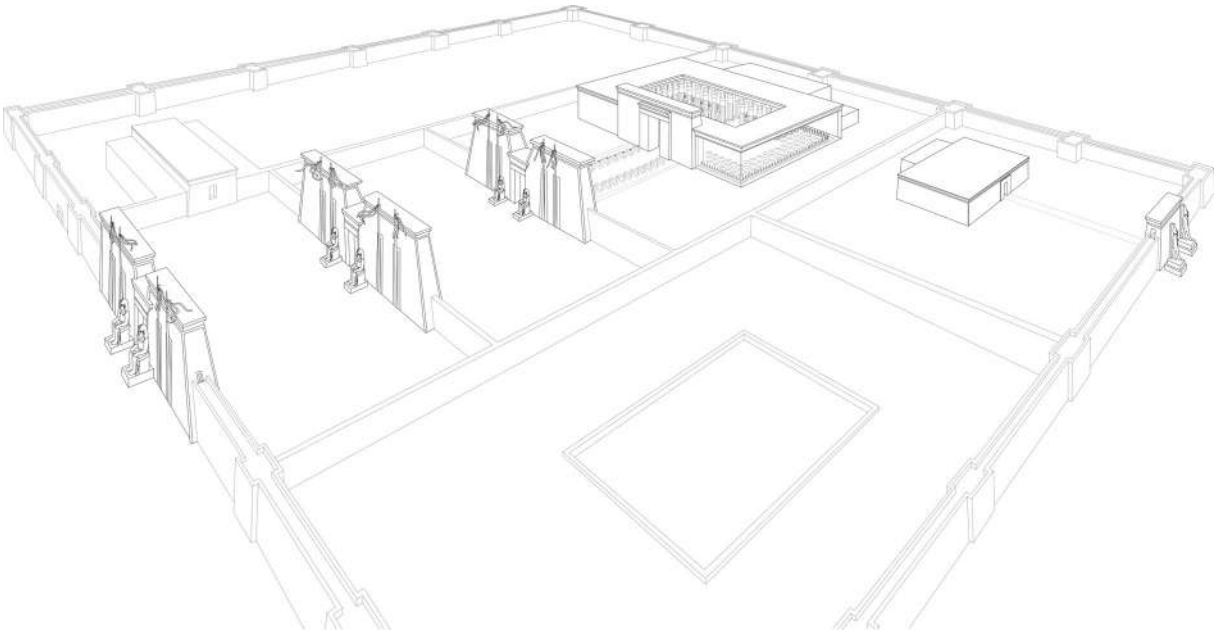

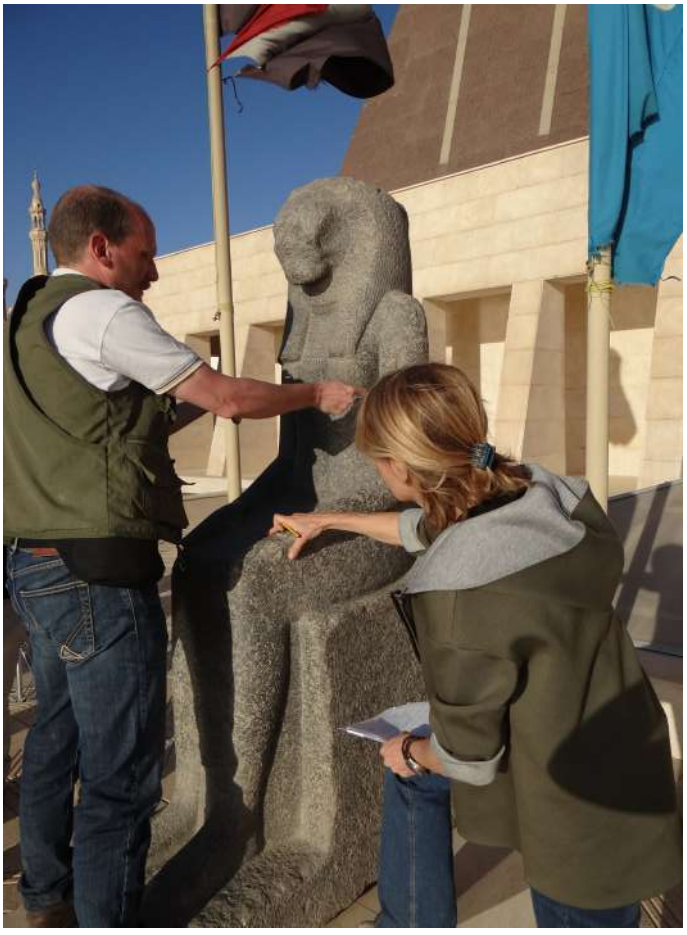

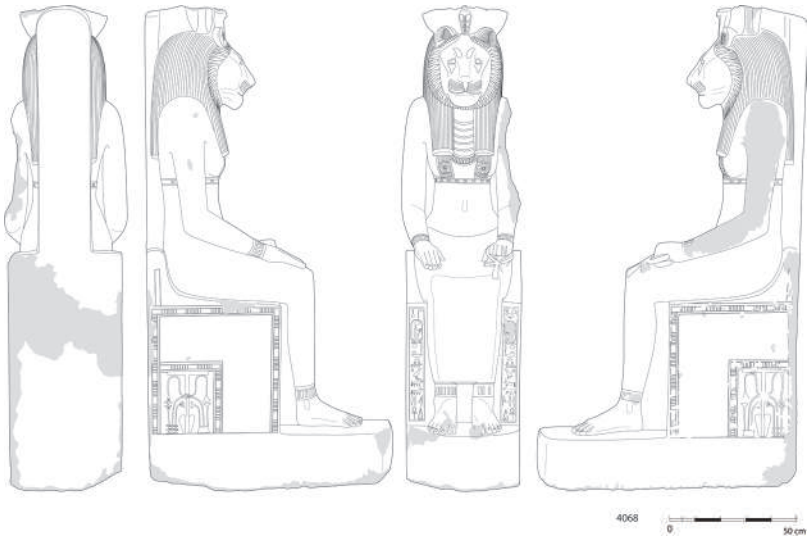
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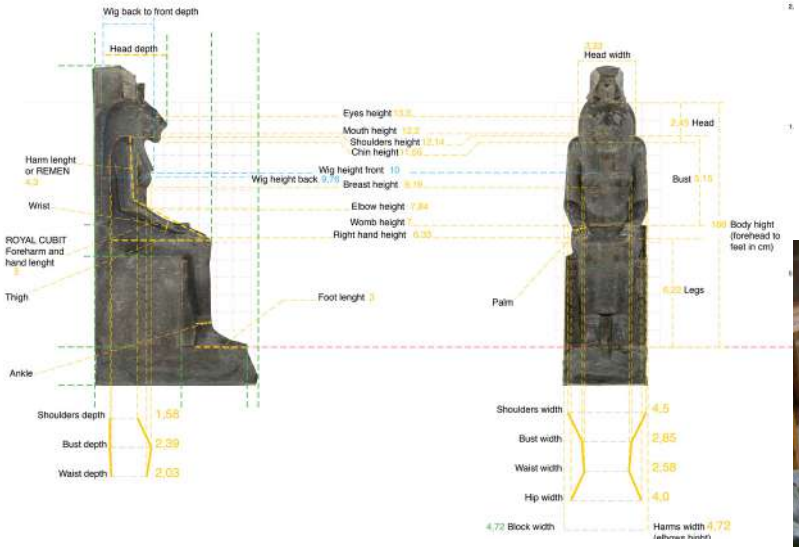
Wig back to front depth
Head depth
Head width
Eyes height
Mouth height
Shoulders height
Chin height
Harm lenght or REMEN
Wig height front
Wig height back
Breast height
Wrist
Elbow height
Womb height
Right hand height
ROYAL CUBIT Forearm and hand lenght
Thigh
Foot lenght
Palm
Ankle
Head
Bust
Body hight (forehead to feet in cm)
Legs
Shoulders depth
Bust depth
Waist depth
1,58
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Bust width
Waist width
Hip width
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Harms width
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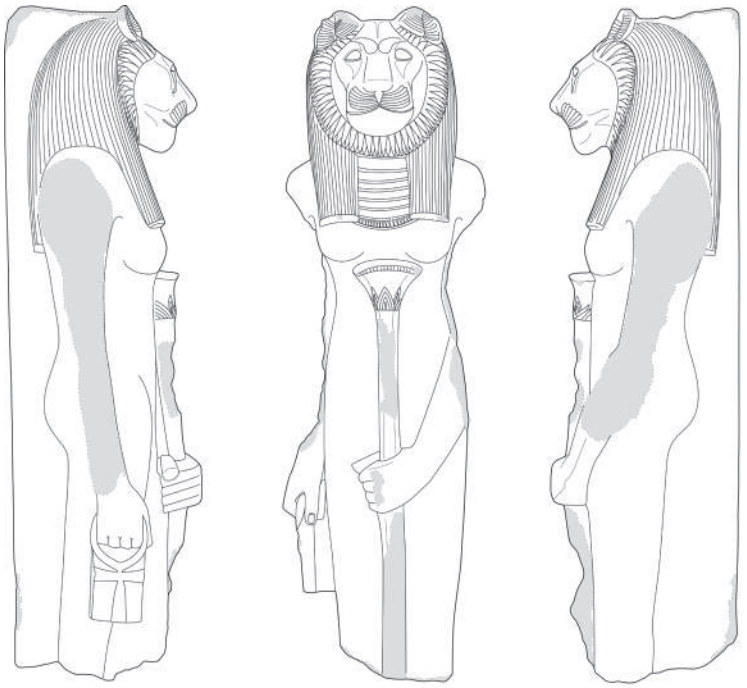
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Progetto Sekhmet