From Execration Texts to Quarry Inscriptions
Combining IR, UV and 3D-Imaging for the Documentation of Hieratic Inscriptions
The Egyptian Exe克拉tion Statuettes (EES) Project

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EES Project

• “Conservation, IR, UV, and 3D-Imaging: The Egyptian Execration Statuettes (EES) Project”
• Development multispectral dome
  – Royal Museums of Art and History (RMAH) Brussels
  – ESAT KU Leuven
  – Digital Lab KU Leuven
  – RICH Project (KU Leuven)
• Multispectral 3D digitalisation
• Conservation and study of small decorated and/or inscribed objects
  – E.g. ostraca, papyri, tablets, bowls,…
• Funded by Brain-be Pioneer (Belgian Science Policy Office BELSPO): BR/121/PI/EES

Multispectral Minidome

Based on the Portable Light Dome (PLD):
https://portablelightdome.wordpress.com

Spread of the MS LED’s inside the MS microdome prototype © RICH Project, KU Leuven
Case study 1

- Egyptian Execration Figurines
  - Middle Kingdom (12th Dynasty)
  - Saqqara
    - Teti Pyramid Cemetery
    - Excavations Firth & Gunn 1921-1922
  - Representing bound (foreign) prisoners
  - Hieratic execration texts
    - Black
    - Red ochre


http://nbn-resolving.de/urn:nbn:de:bsz:15-qucosa-201900
Preliminary Results

- MS Microdome images
  - No additional post-processing
- Enhancing red ochre paint
  - Illegible text can be reconstructed

\[ msy \ n \ Sn-wsr.t \]
(He who is) born for Sesostiris
Based on the Photometric Stereo datasets, 3D models of all recordings can be generated at any moment

- Raw data-set of 2.79 GB (with 29MP camera)
  - computed into working file of 49 MB
  - generated into a 256 MB 3D model with 26.2 million faces
More information:

• Online:
  – [https://portablelightdome.wordpress.com](https://portablelightdome.wordpress.com)

• Print:
Dayr al-Barsha Project

The Dayr al-Barsha Project (2002-present) is an international and interdisciplinary research endeavor directed by the Egyptology department at Leuven University, Belgium.

http://www.dayralbarsha.com

Project Director: Harco Willems

Vice Director: Marleen De Meyer
Case study 2

- Limestone gallery quarries at Dayr Abu Hinnis
  - Amarna Period
  - Exploitation of talatat blocks
  - Hieratic inscriptions on ceiling
- Documentation and study of inscriptions and chisel marks
Agisoft PhotoScan

- Collaboration KU Leuven and Ghent University (Rudi Goossens, Marijn Hendrickx, Cornelis Stal)
- Ceiling map based on 3D models
- Structure from Motion (SfM)
  - Extracts the camera motion from a series of overlapping 2D images
    - Feature points
    - Point cloud
    - Camera position
    - Camera parameters

Ceiling of Quarry 003
Dayr Abu Hinnis, Zone B

- Work Progress (Hieratic dates)
- Direction of exploitation (chisel marks and inscriptions)
- Exploitation techniques (chisel marks)
More information:

• Online:
  – http://www.dayralbarsha.com

• Publications:
Questions?

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