



# Digital Documentation of Archaeological Dye-House

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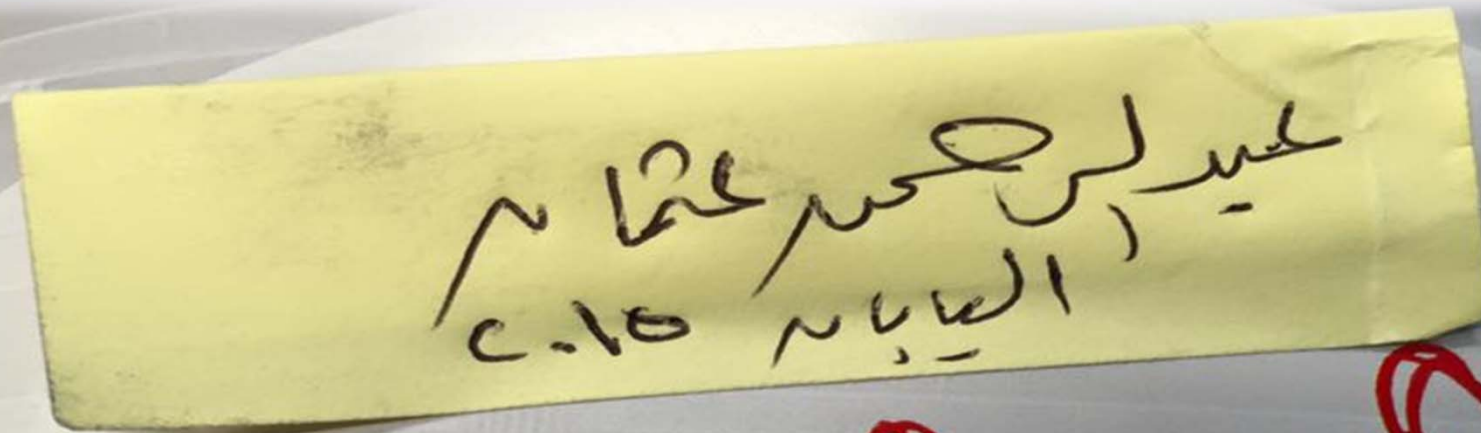
# Introduction



Museums play great roles in documenting the world's cultural heritage. It not only attempts to document tangible or intangible collections but also can document archaeological sites.

# Museum & Digital technology

There is an urgent need for museums and digital technology to work together to add new values for tangible and intangible cultural heritage



**Human  
Creativity**

×



**Technology**

=



**New  
Values**

**Applied case study  
of using digital technology  
in documenting archaeological site**

*Mahmoud Elmaghrabi*



**Fatimid Dye-House**  
**5 H / 11 AD**

# Fatimid archaeological Dye-House



## Location

National Museum of  
Egyptian Civilization  
site

## Excavated by

French Mission and  
Egyptian  
archaeologists

## Excavation year

1944

## Dating

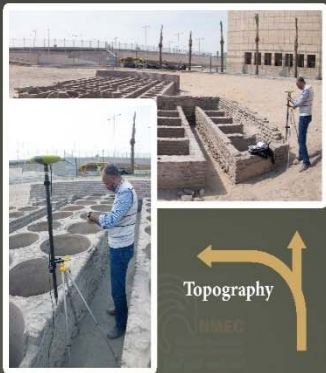
Fatimid period  
5 H / 11 AD

# Digital Documentation Project

مشروع التوثيق الرقمي لمصبغة الفسطاط  
El-Fustat dye house - digital documentation project



## Data acquisition

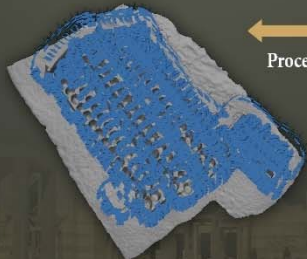


Topography



Photography

## Data Processing



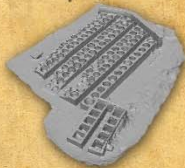
Processing

***During***

Pointcloud



3D-Mesh



3D-Texture



**COMING SOON**



***Before***

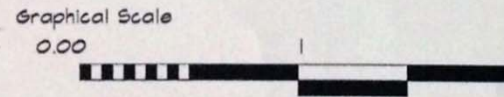
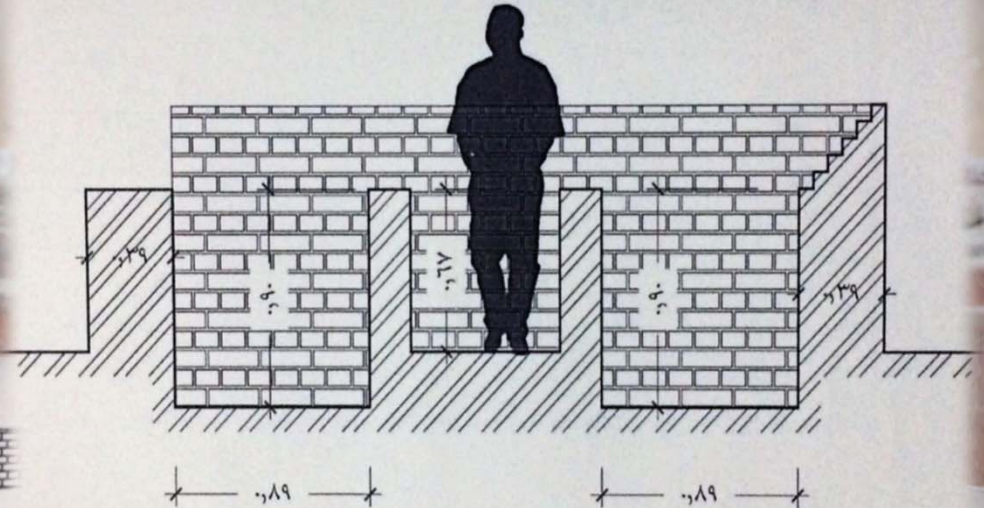
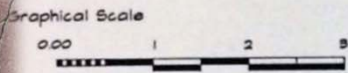
# Archaeological Studies



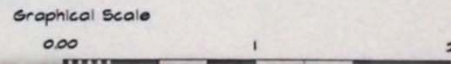
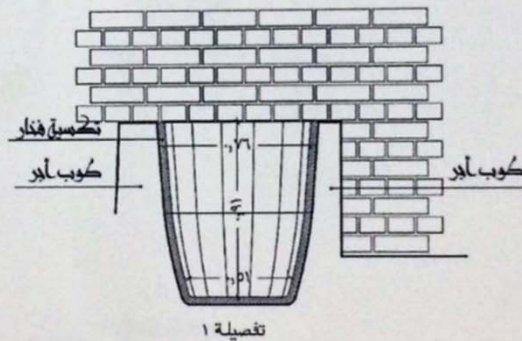
Location – Historical background – excavation archival documents-  
current issues – maps- shapes- geometric designs – GIS

# Archaeological Studies

Mahmoud Elsaghier

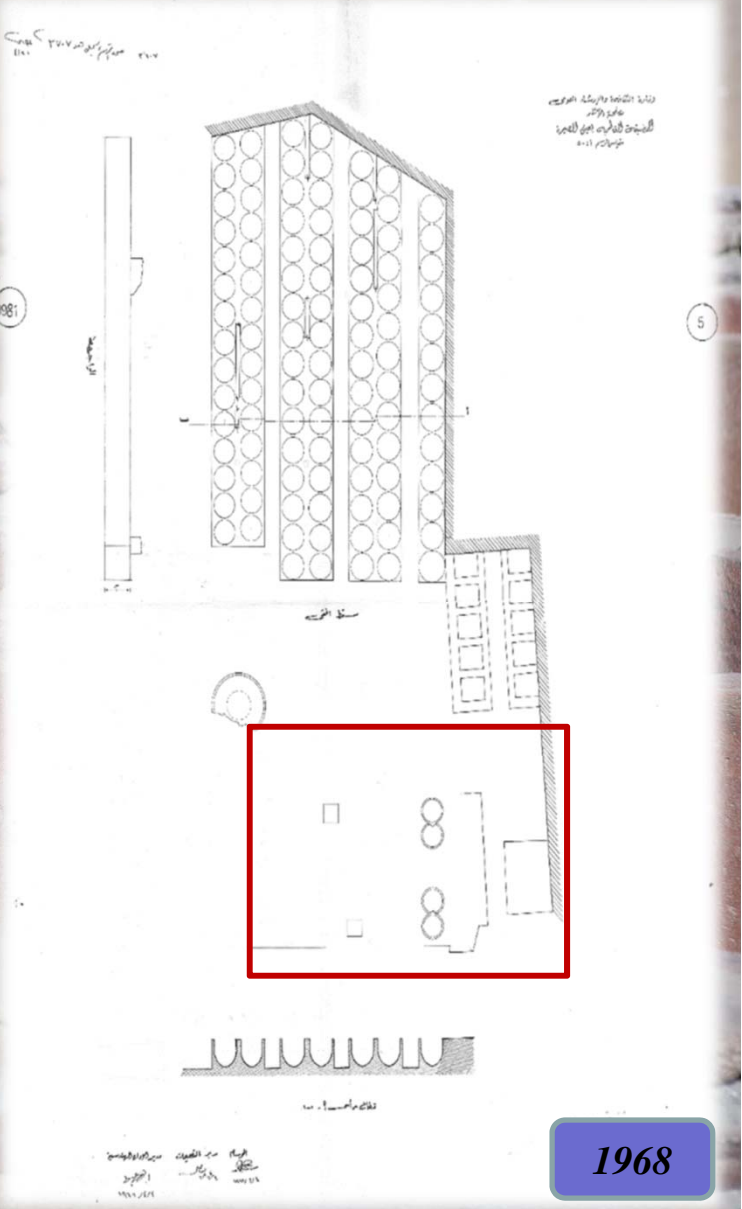
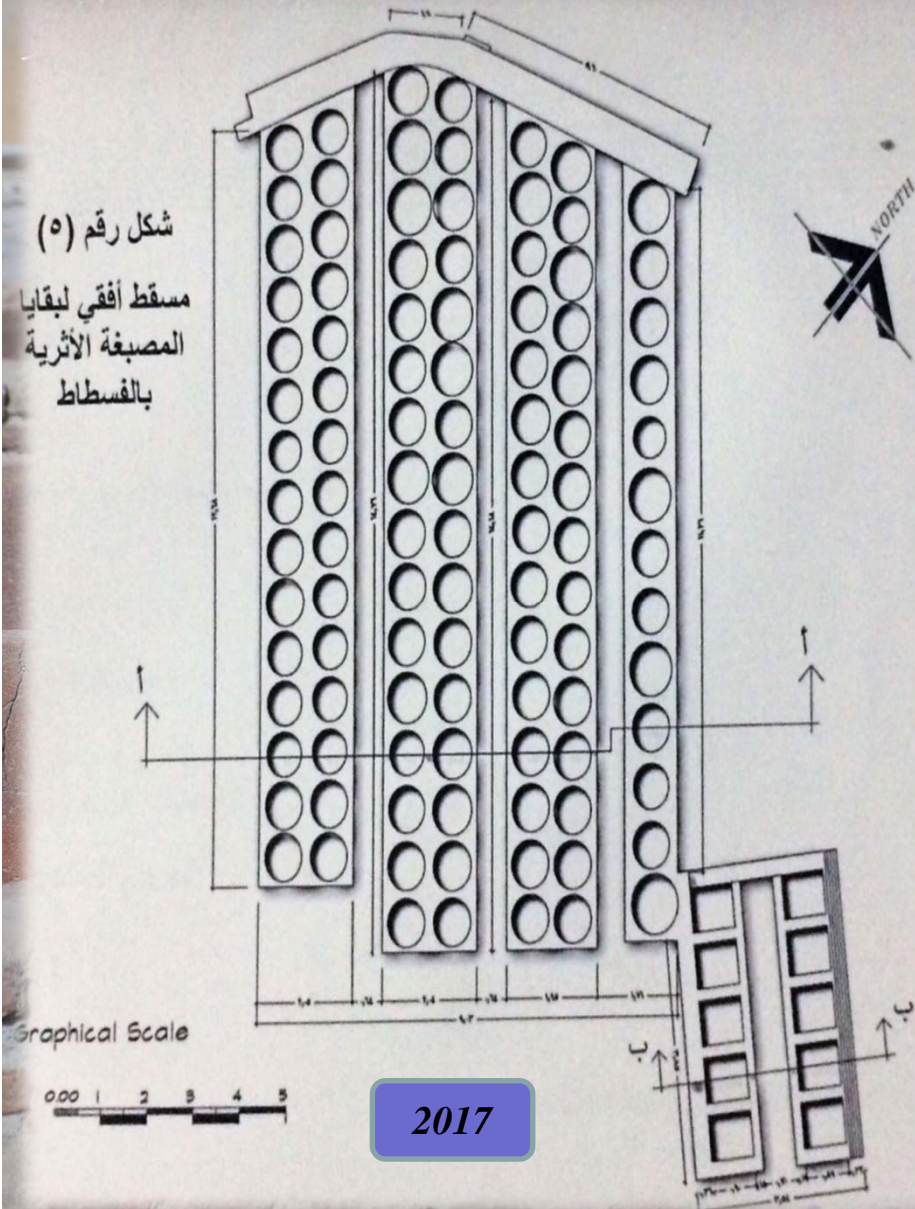


شكل رقم (٦)  
قطاع رأسي لبقايا  
المصبغة الأثرية بالفسطاط  
"الخوابي المستديرة"





# Archaeological Studies



# Anthropological Studies

Dye-House

vs

leather Tannery

# Anthropological Studies

**Fez leather tannery**



**Fustat Archaeological  
Dye-House**

# Leather Tannery techniques

1.



PILE OF HIDES  
READY FOR  
DYEING.

2.



SOAKED IN DILUTED  
ACIDIC PIGEON EXCREMENT  
TO SOFTEN HIDE

3.



SOAKED IN VEGETABLE  
DYE 1

4.



SOAKED IN VEGETABLE  
DYE 2

By V.Ryan

5.



HIDES LEFT TO DRY

6.



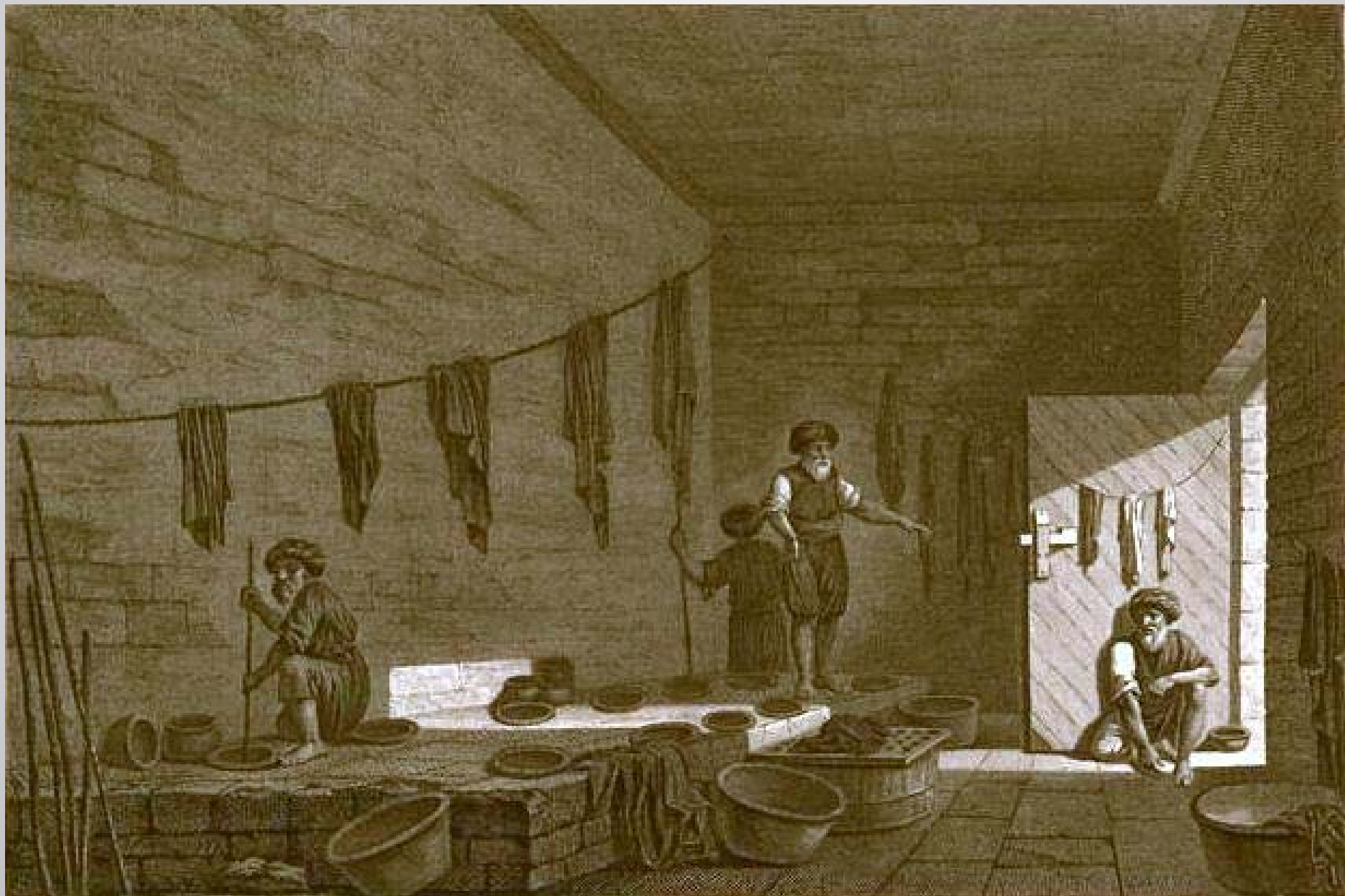
HIDES CUT TO A PATTERN

7.



HIDES STITCHED TO  
PRODUCE A FINAL  
PRODUCT

## Dye-House techniques



# Anthropological studies



## Field Study in the oldest leather Tannery in Fustat Mohamed Grade, 1950



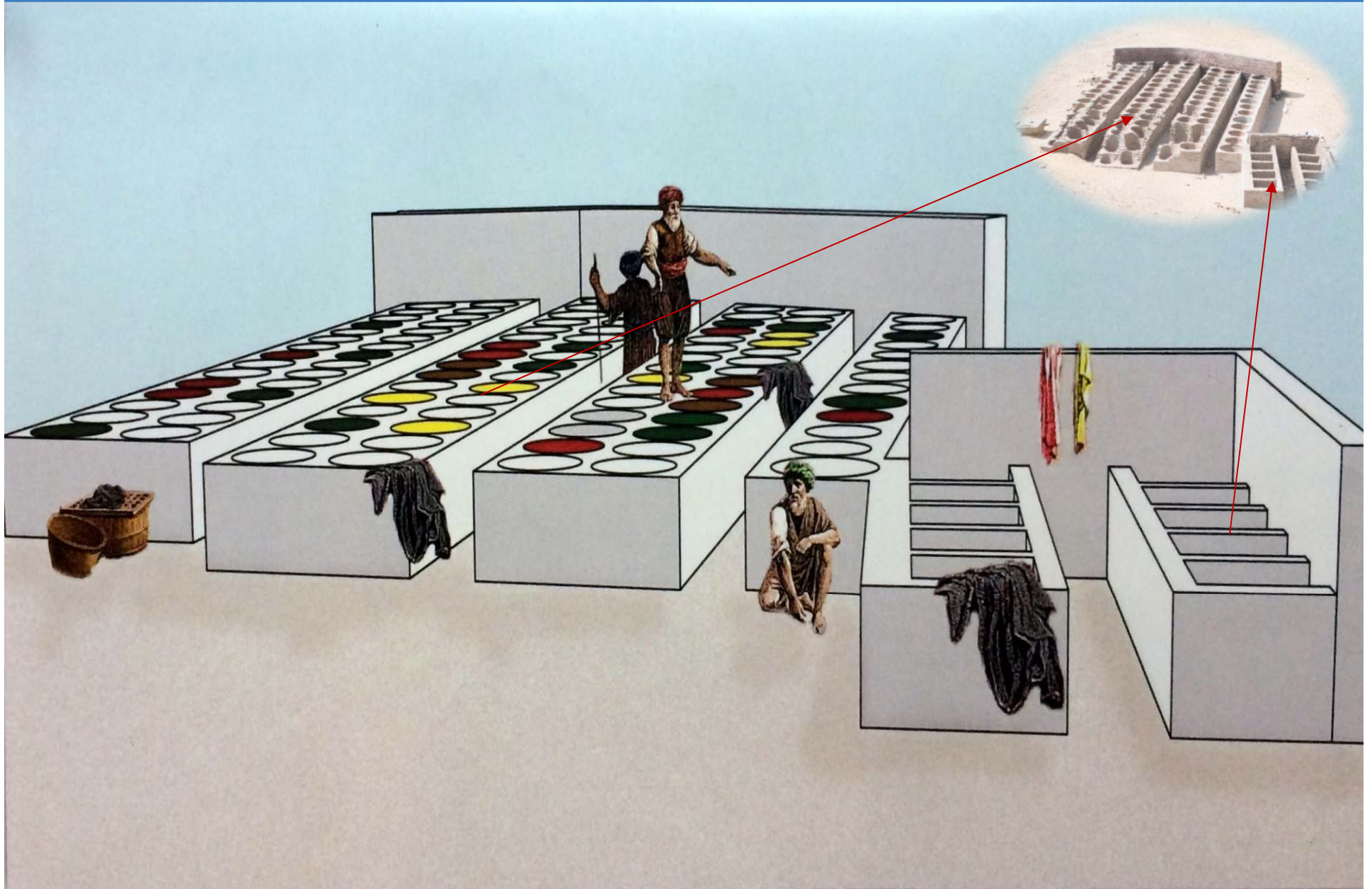
# Anthropological studies



Field Study in the oldest modern Dye-House in Cairo  
Salama Ahmed, 1901



# Reimagine techniques





# Photogrammetrical process




Photogrammetry is the conversion of the archaeological site into a three-dimensional model - a comprehensive study of the site - measurements for each wall and basins - method of construction - type of materials have been used. topographical documentation of the site in minutes such as contour maps - elevations - architectural maps - sectors and virtual reality and accessible for special needs

# Photogrammetry output




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**Data acquisition**



**Topography**


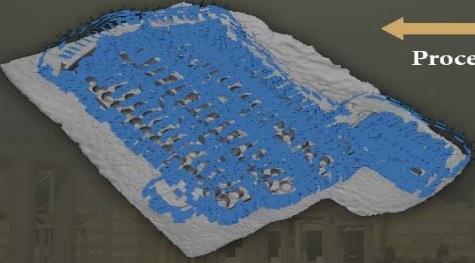


**Photography**




**Data Processing**

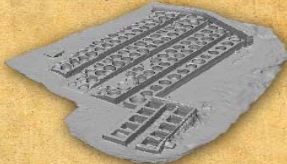
**Processing**




**Pointcloud**



**3D-Mesh**



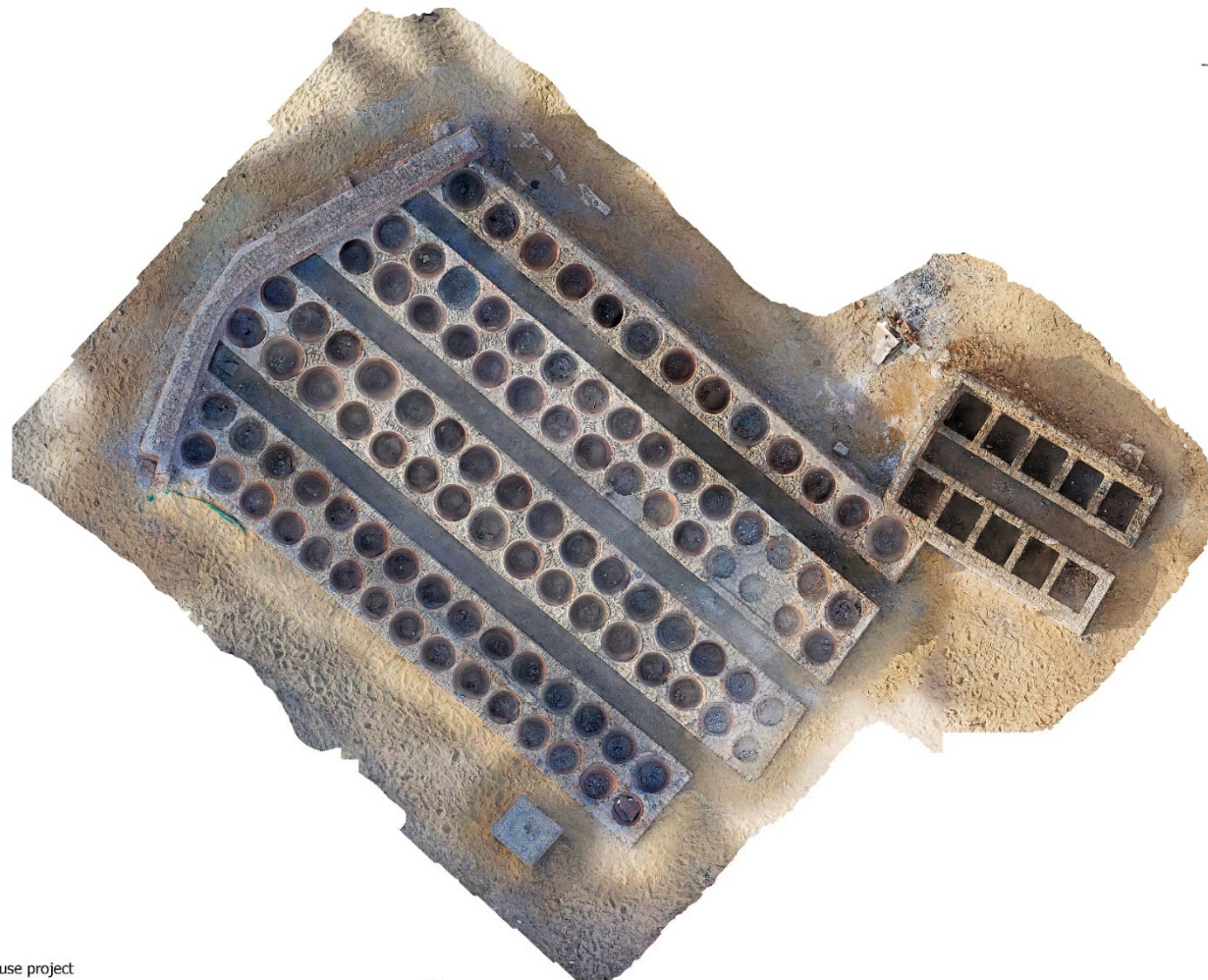
**3D-Texture**



**COMING SOON**



# Ortho Plan



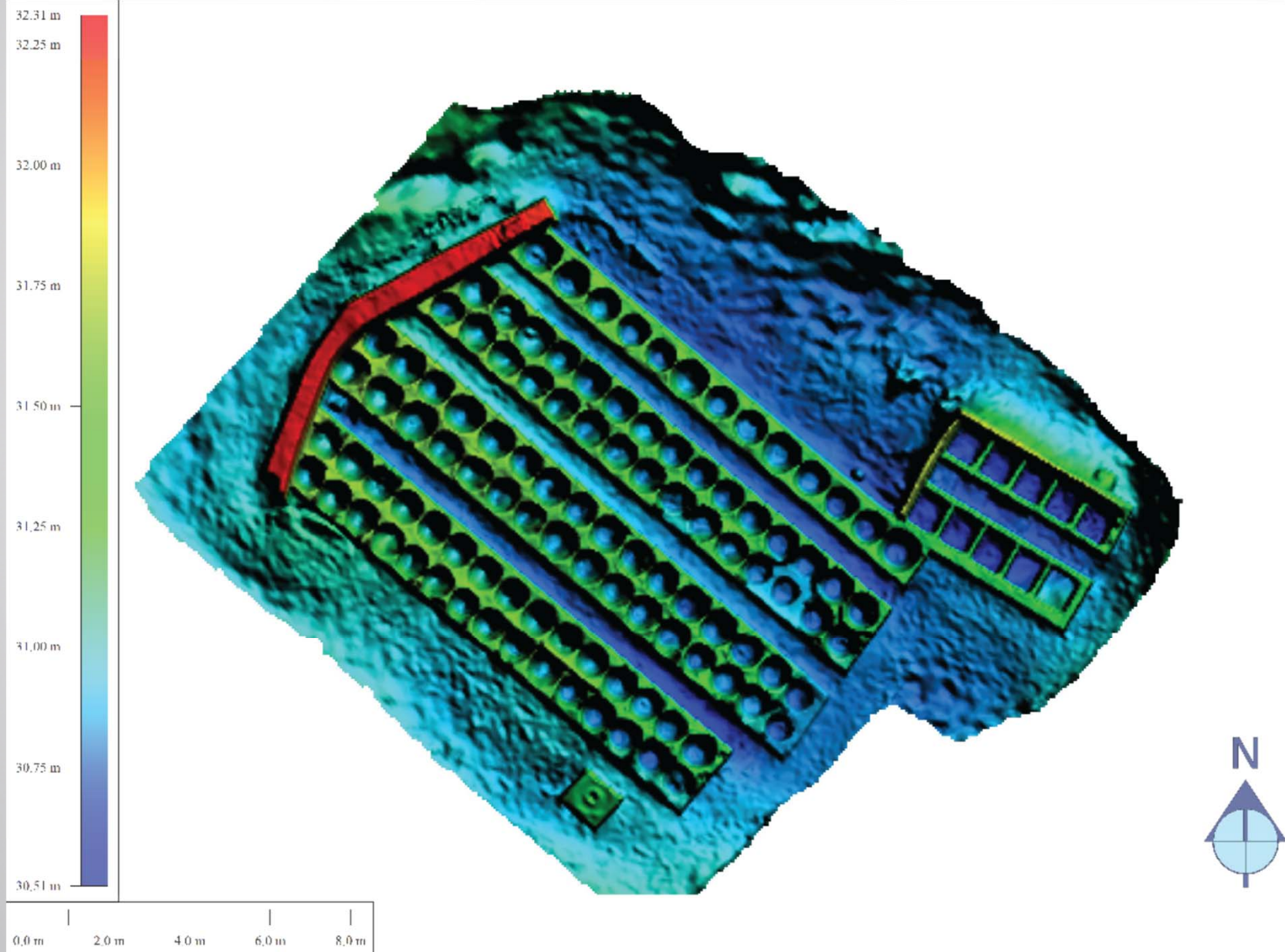
Dye-house project  
Ortho\_Plan



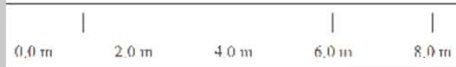
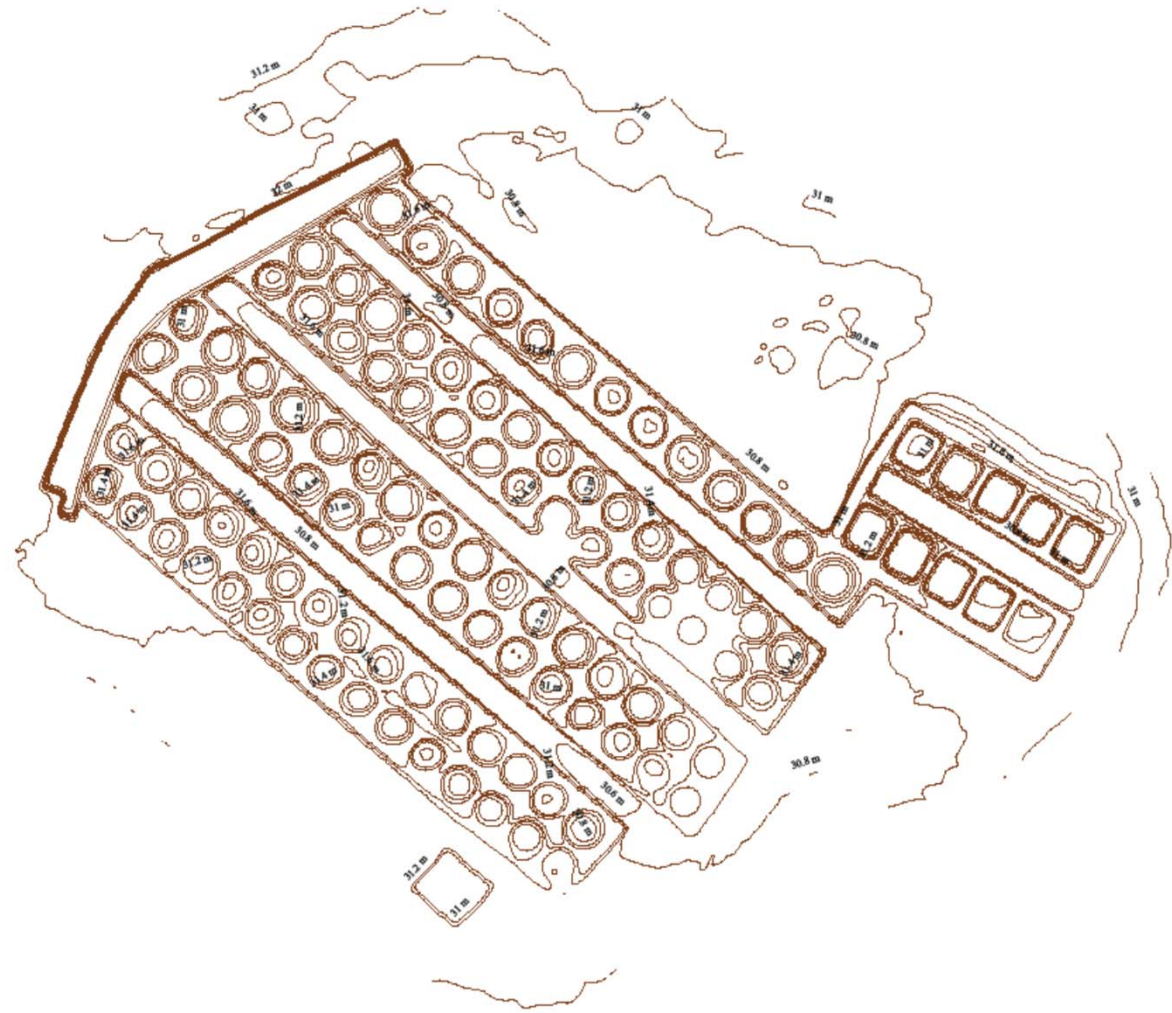
10m

0m

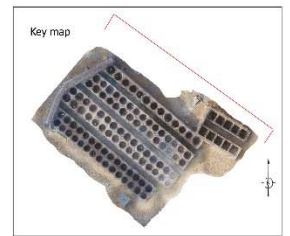
# Digital Elevation Model - DEM



# Contour Map



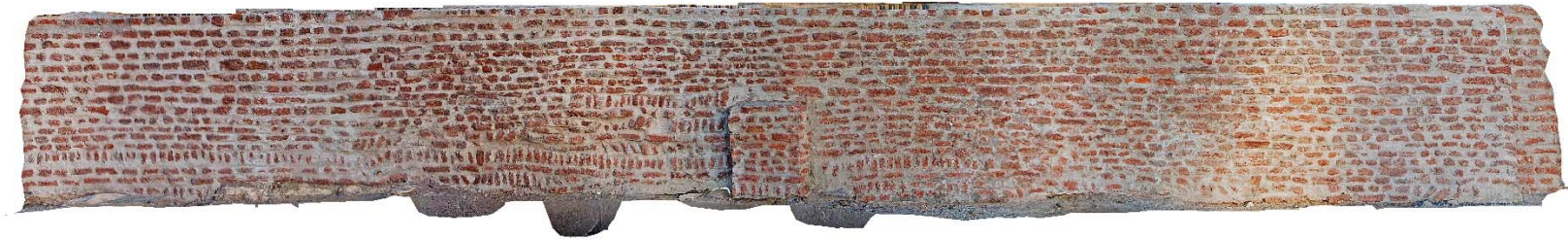
# East Elevation



Dye-house project  
East Elevation



# North Elevation



Dye-house project  
North Elevation



5m

0m

# West Elevation



Dye-house project  
West Elevation

0m



5m



# Over view



# 3D Dye-House

# Dye house LD

If you are interested in  
photogrammetry techniques and  
need any help in your museum or  
archaeological site, you can contact  
with:

**Mr. Mohamed Abd El Aziz**

3D Scanning & photogrammetry specialist

[mo.azizcealex@gmail.com](mailto:mo.azizcealex@gmail.com)



# Thank you

**Getty foundation**  
**ICOM-CIDOC**  
**Georgians**

