

Here is an example of a fully illustrated CT scan report  
of the scan and analysis of a

**Fake Han Dynasty Dancer in terracotta**

Report are printed in color,  
put in a plastic folder and sent overnight by FedEx

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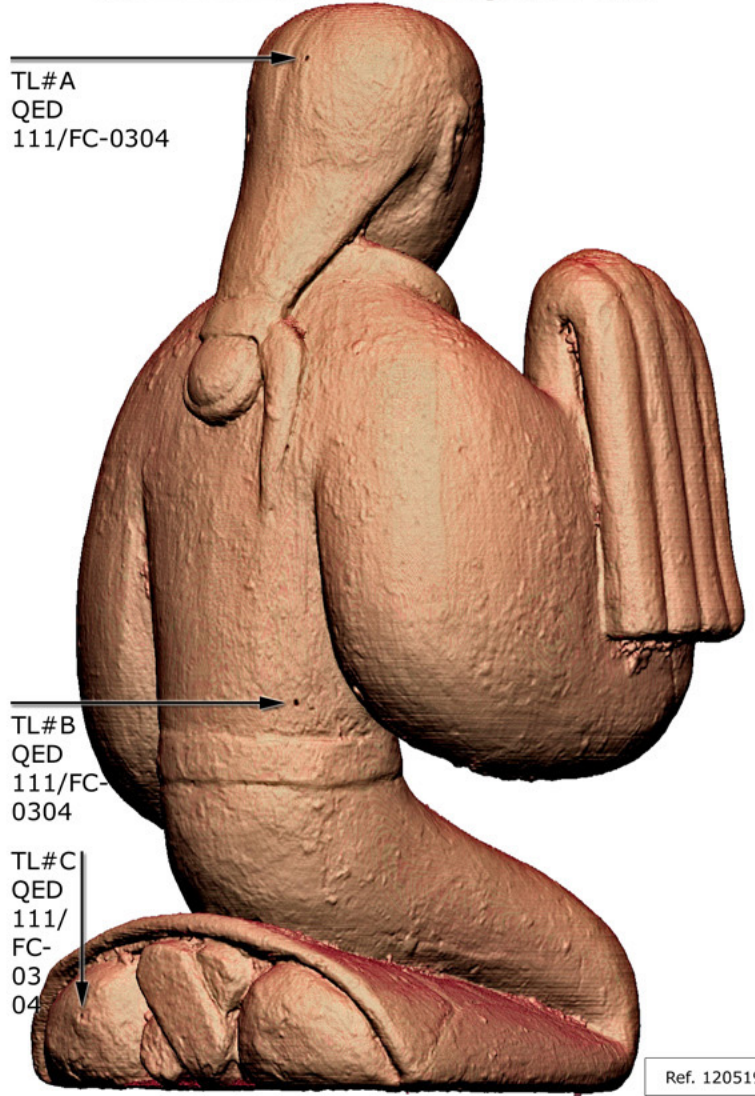




Opaque  
3D views  
#1



TL#A  
QED  
111/FC-0304

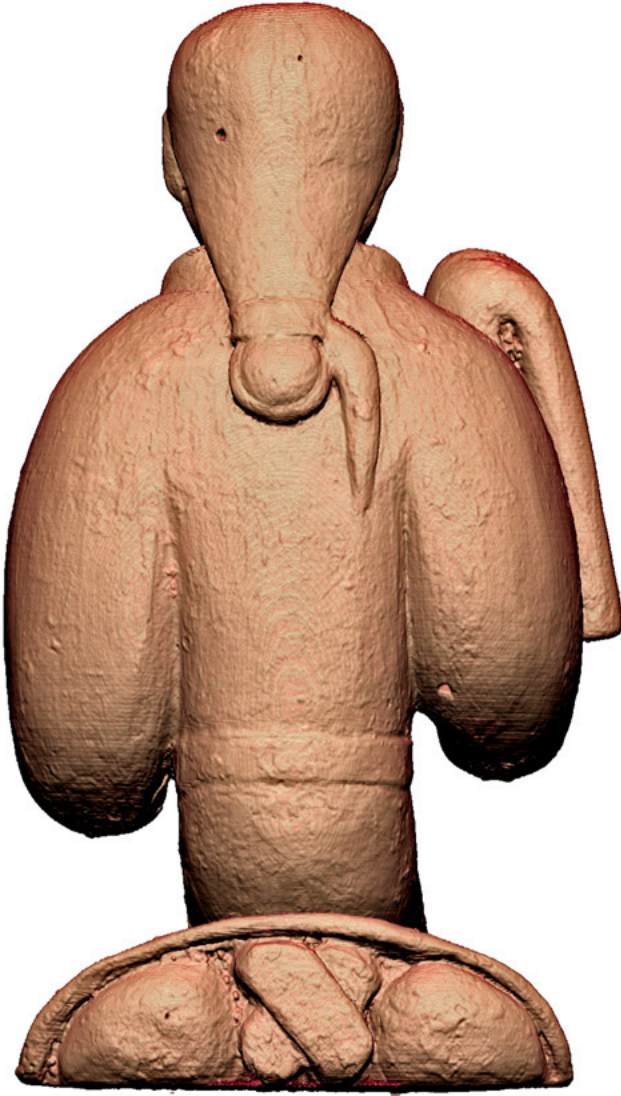


TL#B  
QED  
111/FC-0304

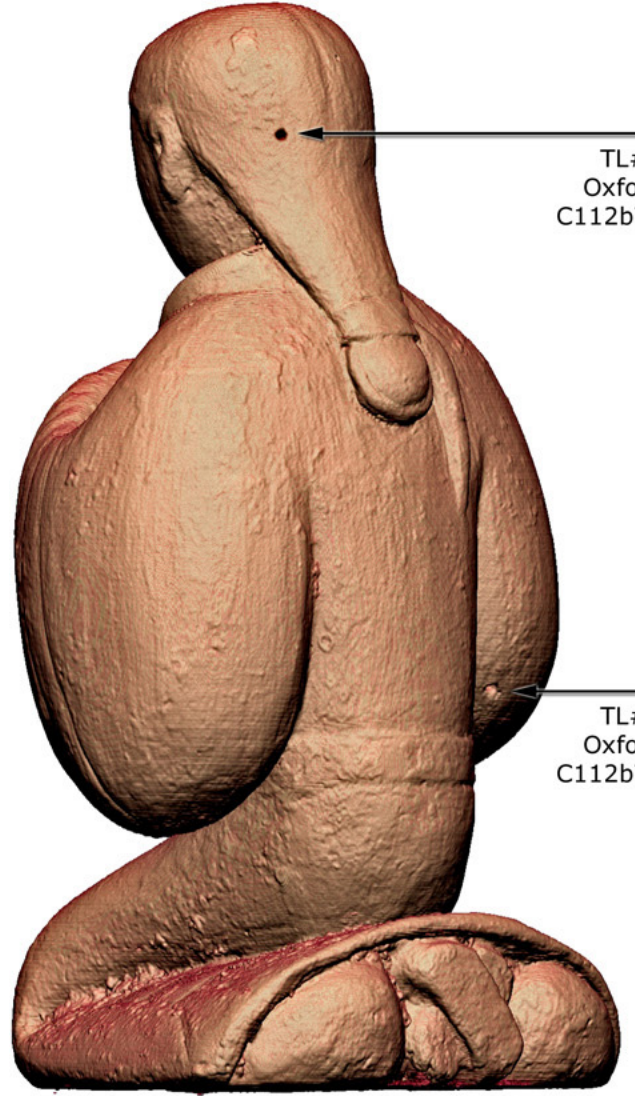
TL#C  
QED  
111/  
FC-  
03  
04



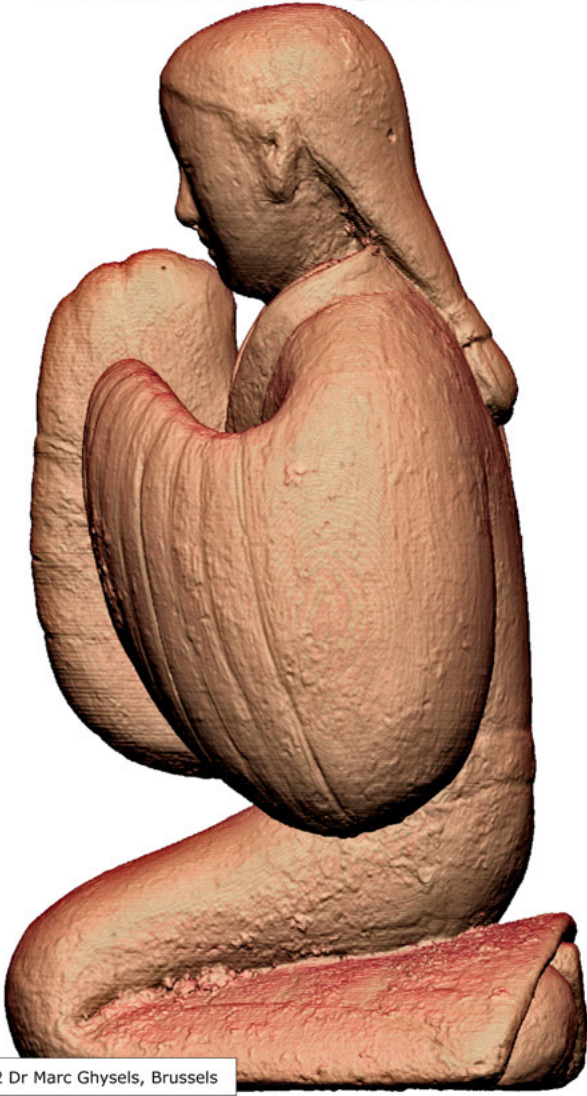
Opaque  
3D views  
#2



TL#B  
Oxford  
C112b76

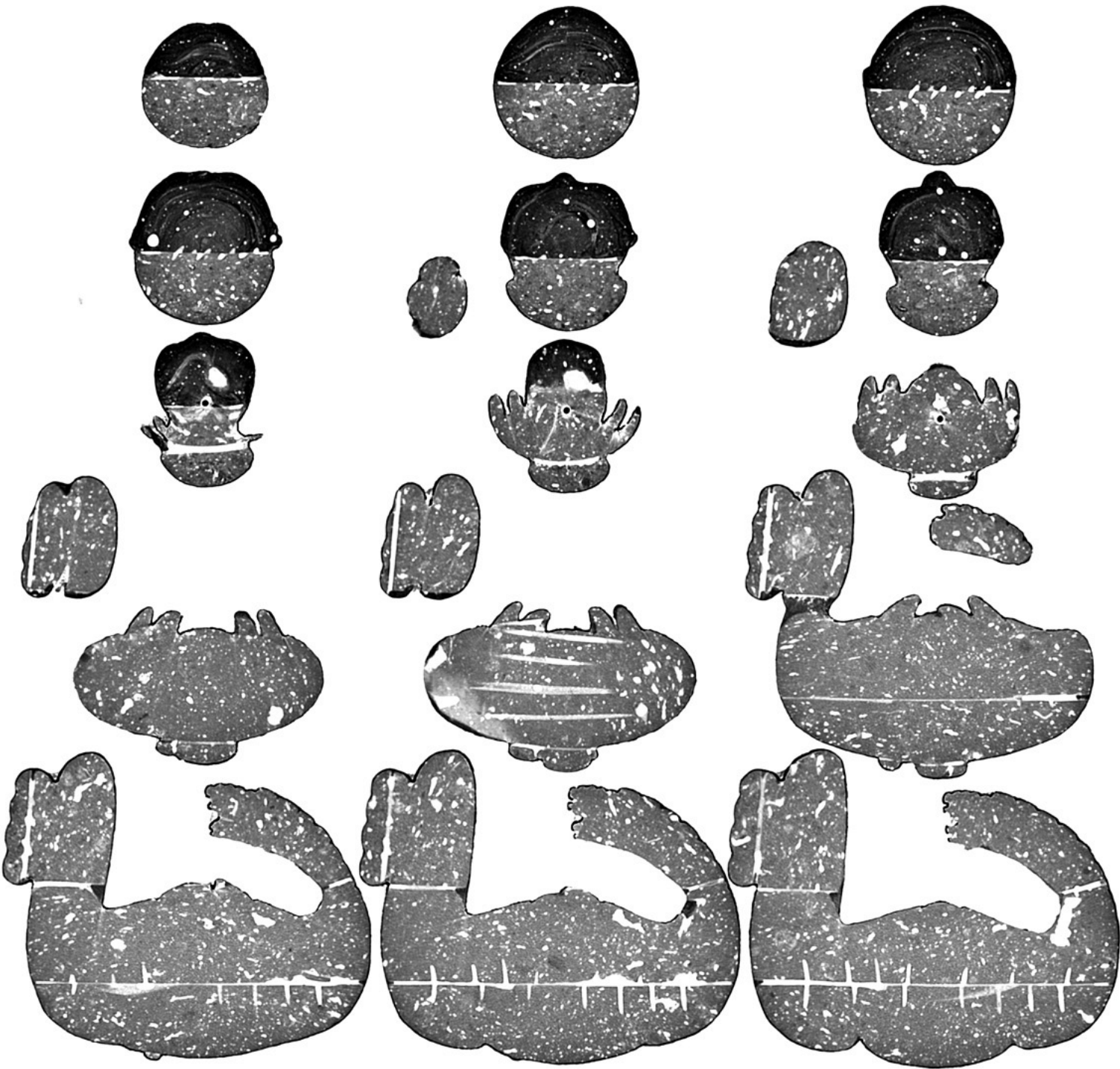


TL#A  
Oxford  
C112b76



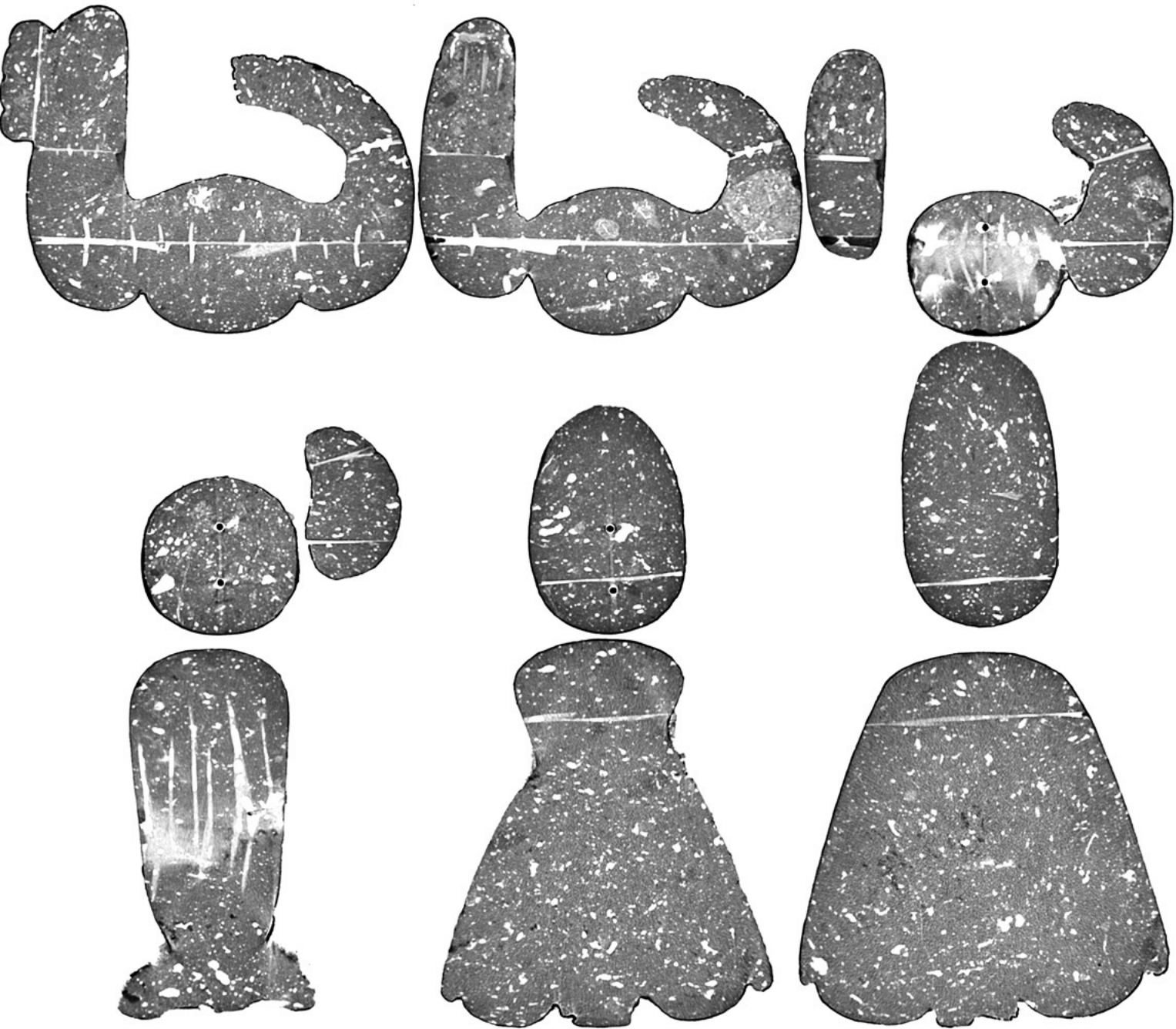


Axial  
2D slices  
#1



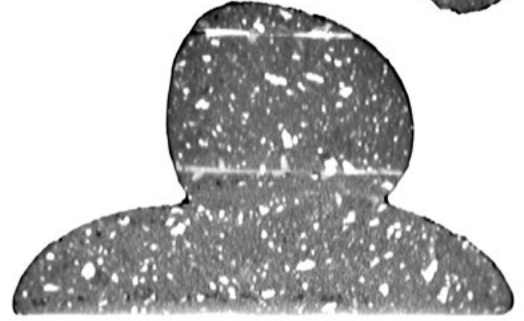


Axial  
2D slices  
#2





Coro-sagittal  
2D slices  
#1



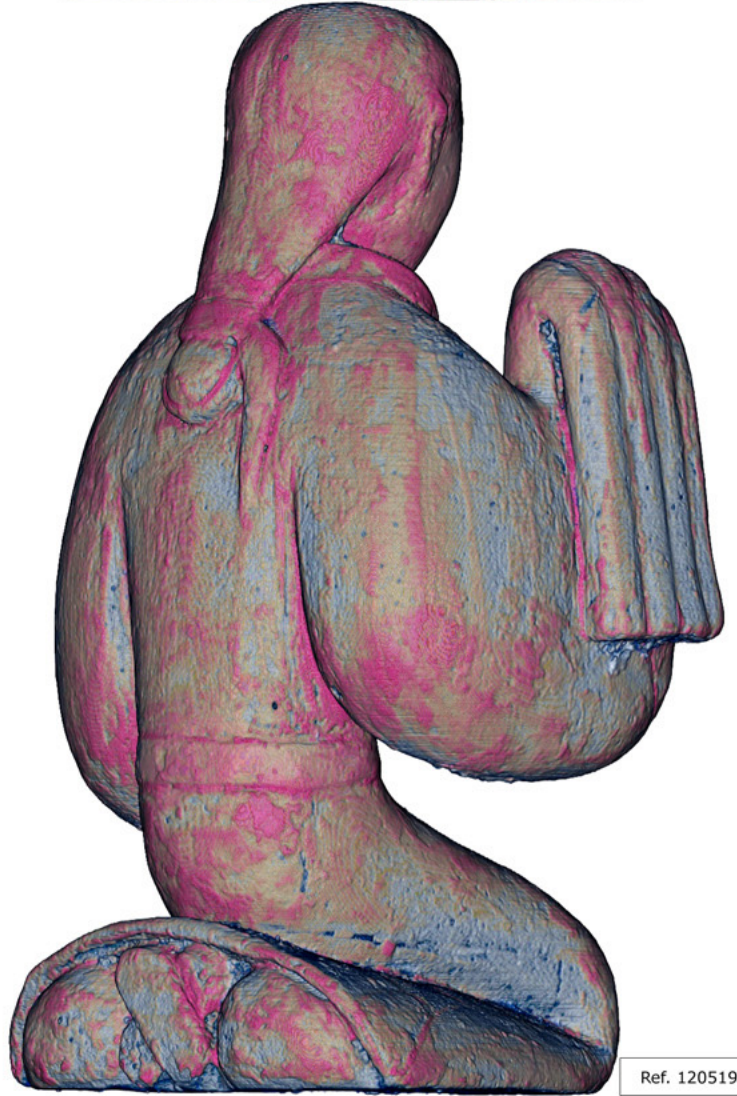
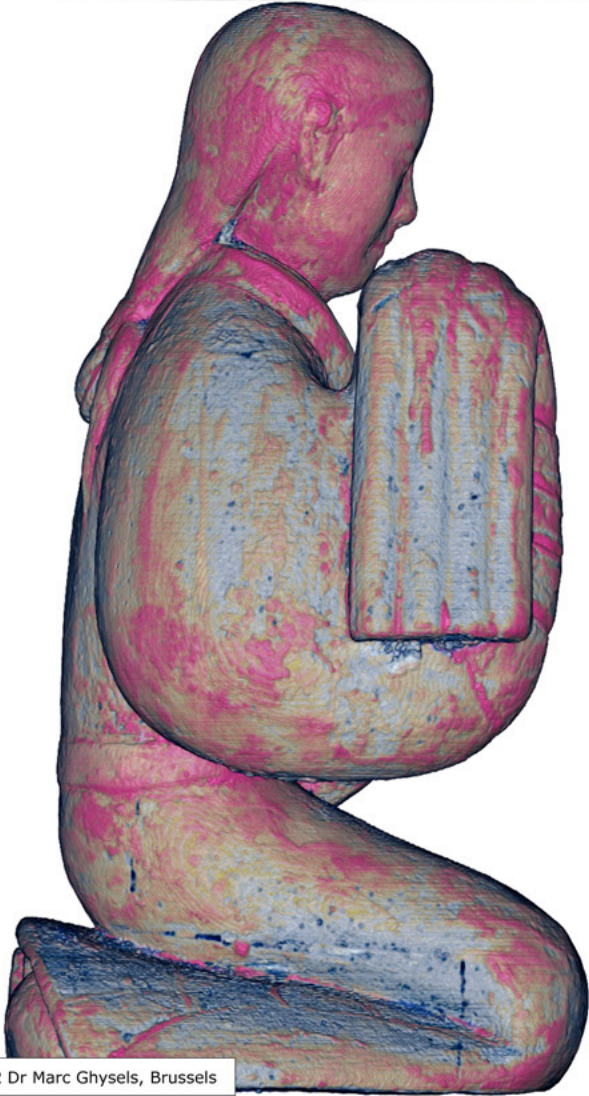


Coro-sagittal  
2D slices  
#2



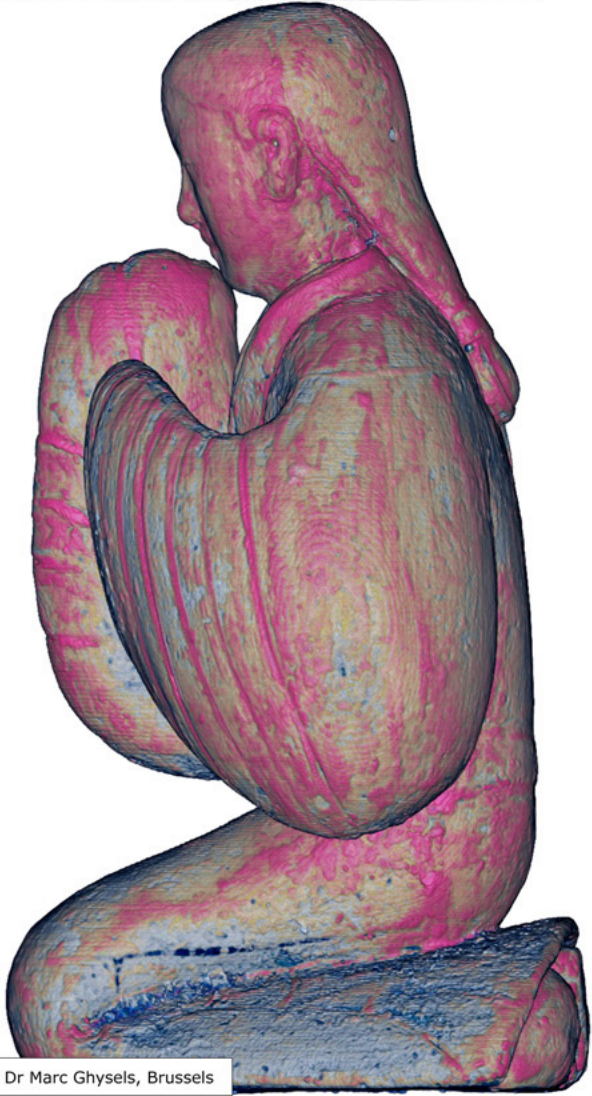
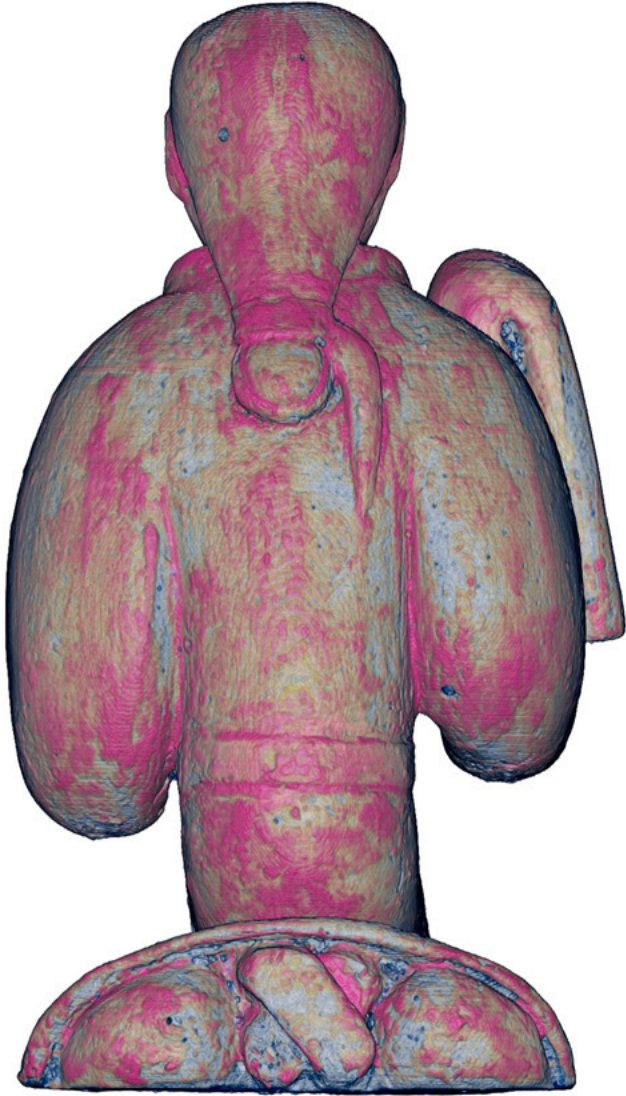


Half opaque  
3D views  
#1



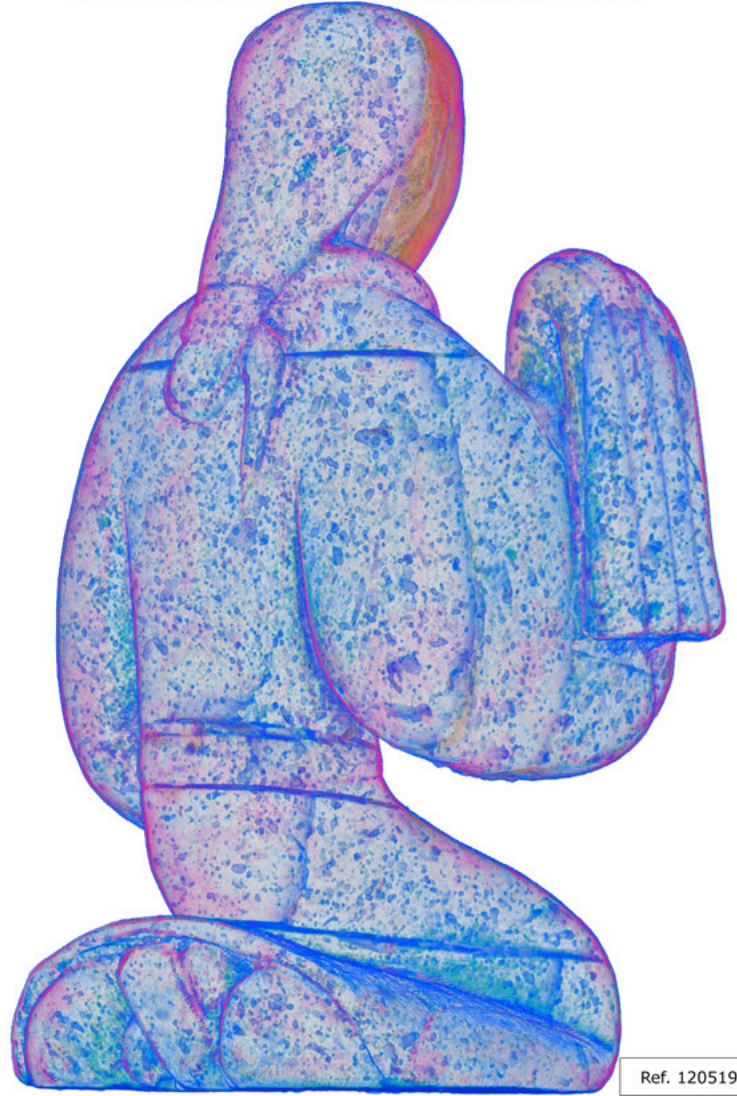
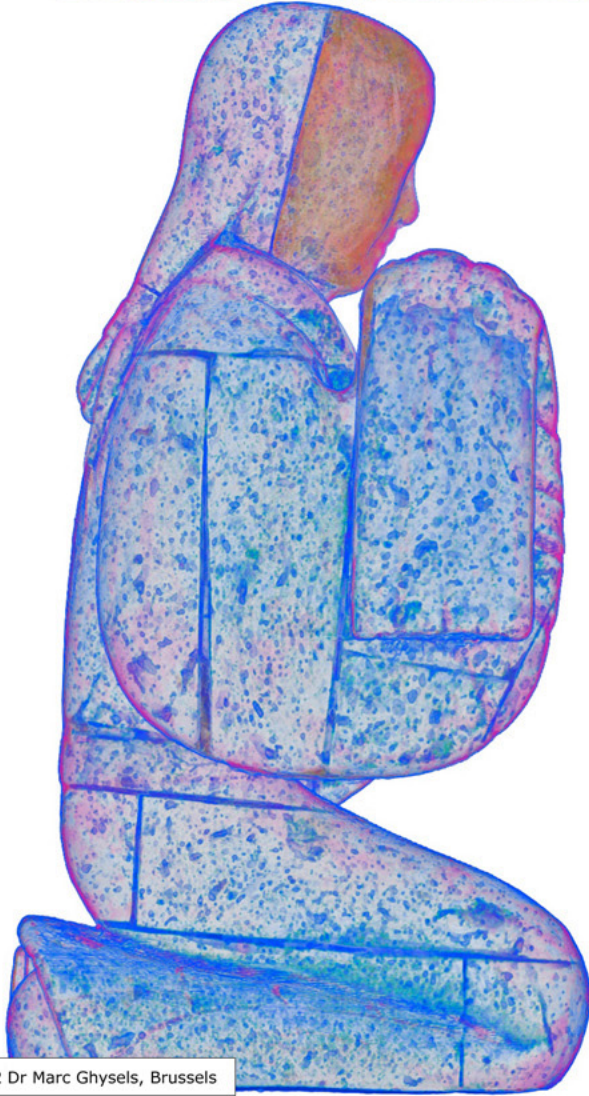
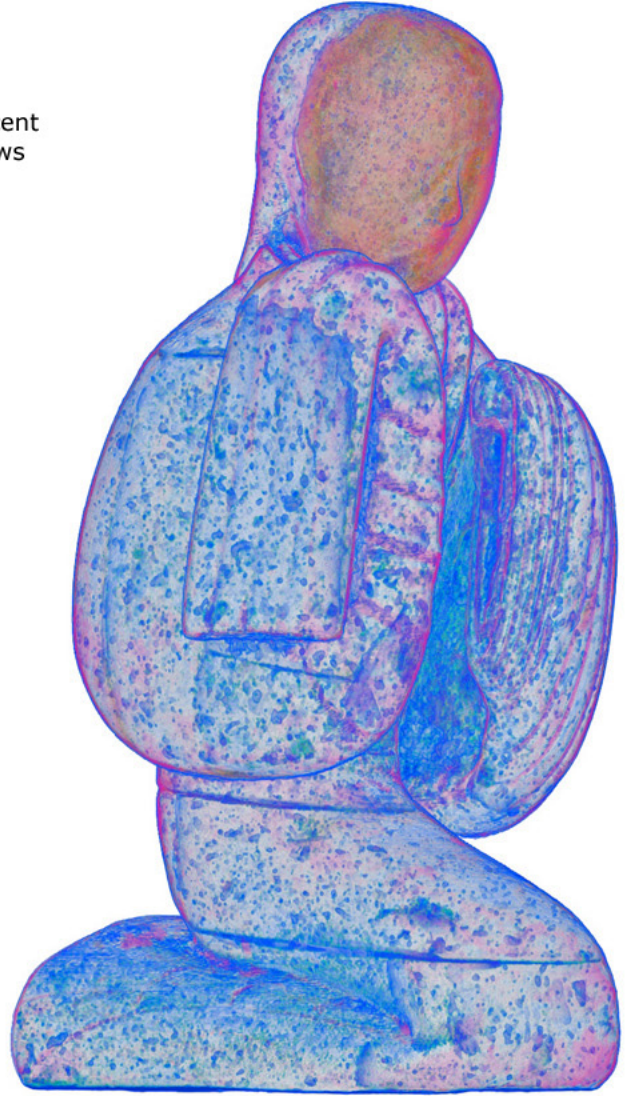
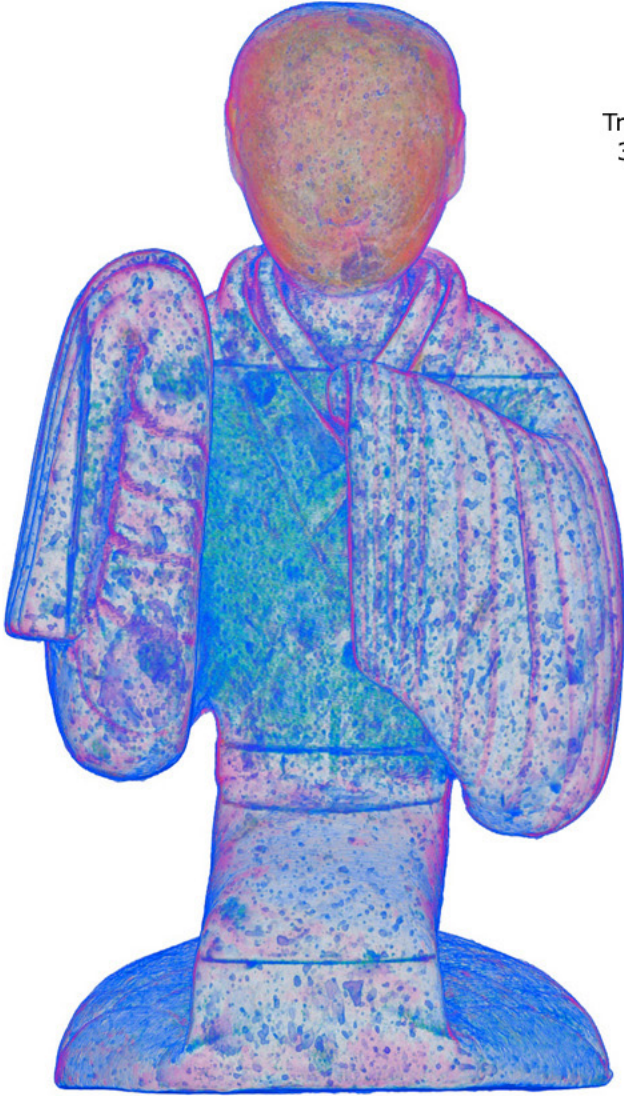


Half opaque  
3D views  
#2



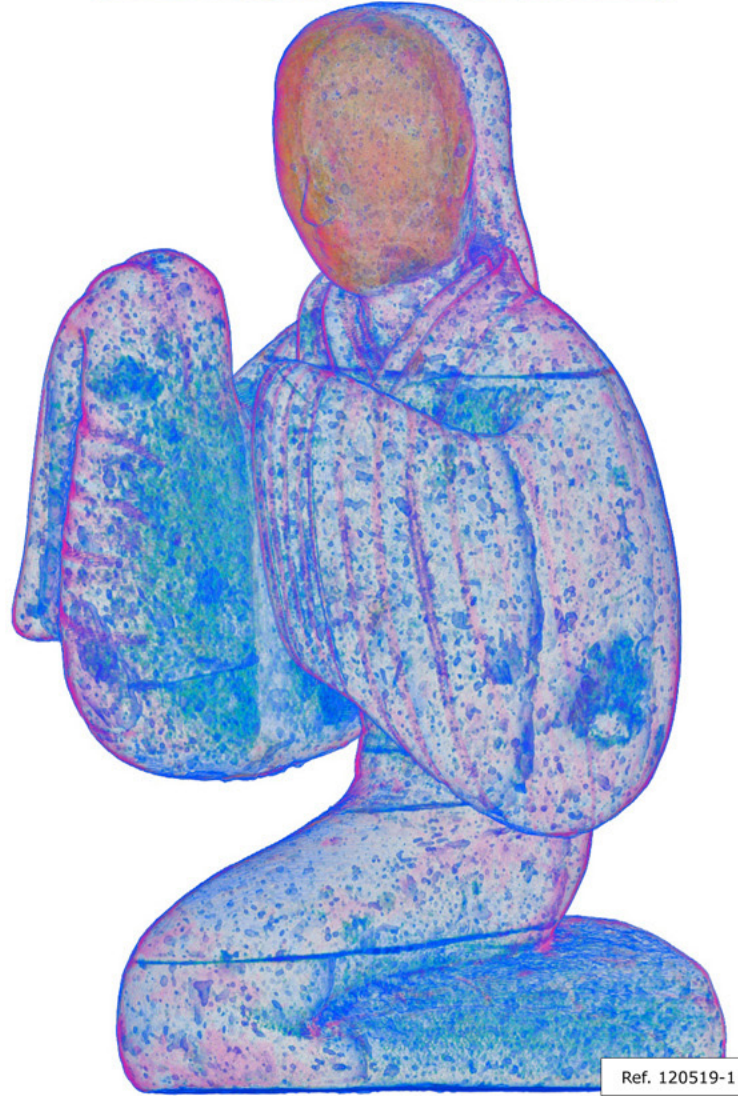
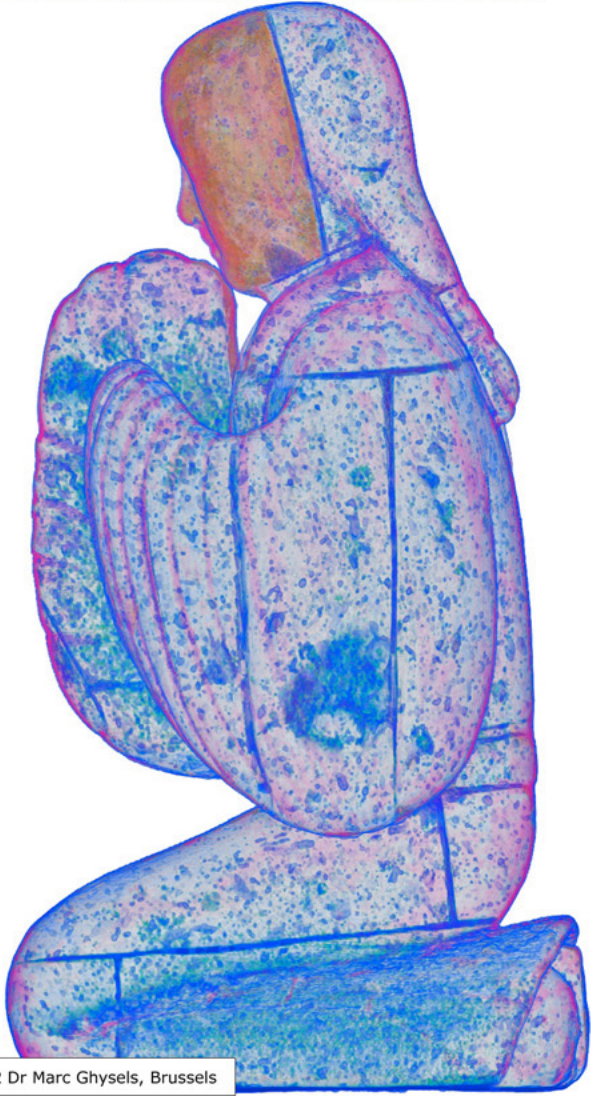
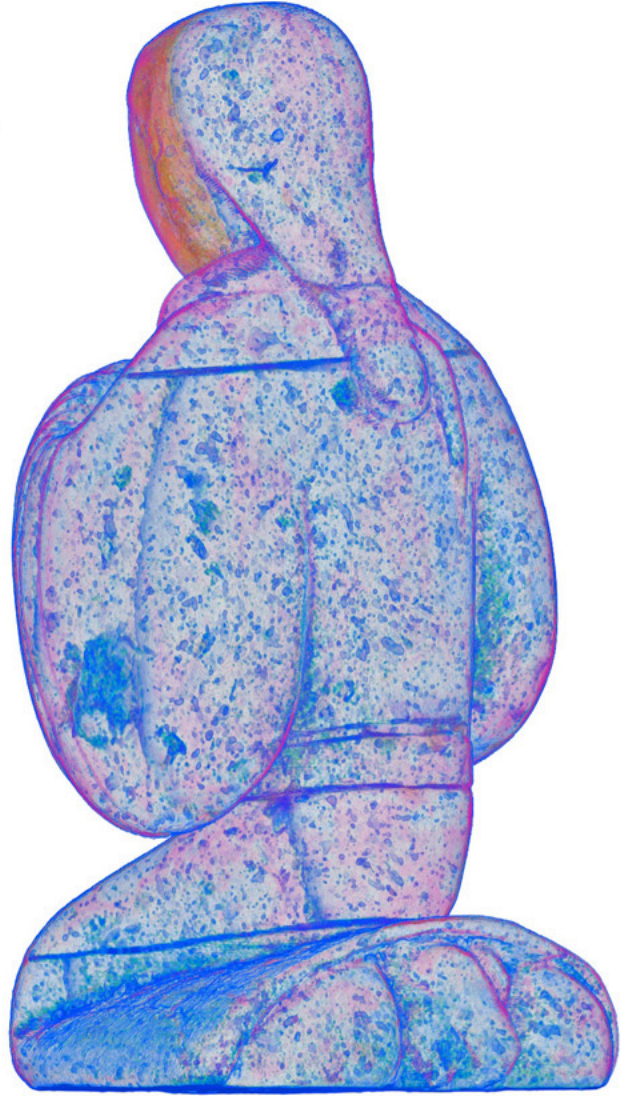
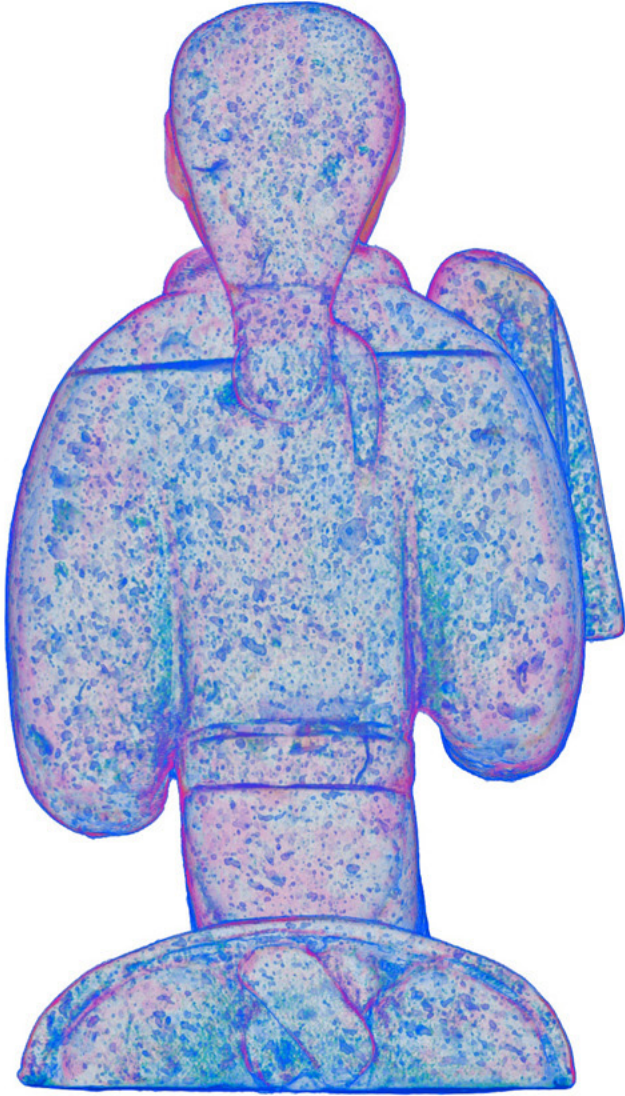


Translucent  
3D views  
#1





Translucent  
3D views  
#2





Transparent  
3D views





MIP:  
Maximum  
Intensities  
Projections





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## A Tomodensitometric Analysis by X-ray Scanner

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**Subject:**

*according to the owner's statement:*

Kneeling dancer, Han dynasty, China (206 BC – 220 AD).  
Terracotta and polychromy.

Dimensions: Height: 363 mm – Width: 207 mm – Depth: 193 mm.

**Objective:**

Overall examination to detect any restoration not visible to the naked eye.

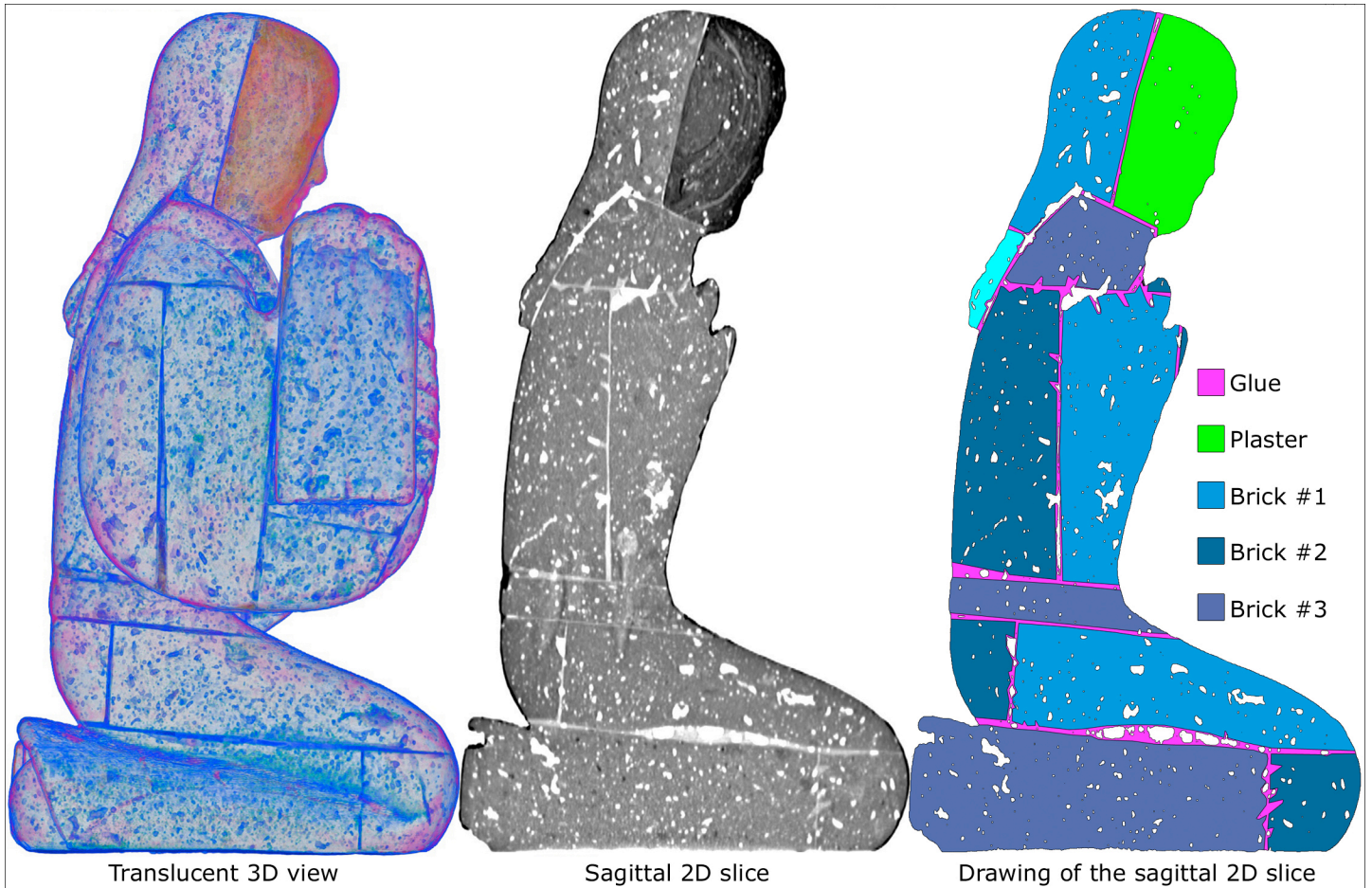


**Observations :** The scan highlighted the following anomalies and features :

- this solid statuette is made of an assembly of about fifteen pieces of terracotta varying in density from 760 to 980 Hounsfield units [HU] with an average density of  $881 \pm 38$  (SD) HU making a solid volume of 4.292 cubic cm;
- the pieces are glued together along flat planes which are deeply striated and coated with low-density adhesive (480 HU - see below the pink lines on the drawing of the sagittal 2D slice), and reinforced by 3 metal pins 3 mm in diameter (34, 47 and 54 mm long);
- the face is made of unfired material that is denser than the surrounding terracotta (1.180 HU), perhaps a silicone mould filled with plaster;
- some surface irregularities have been leveled or filled with a fine layer of hyperdense material.
- most of the colored pigments have a metallic density between 3.000 and 15.000 HU;



- five samples have been taken from the hair, the lower right of the back, the right elbow and the left of the footrest (see the black arrows on the opaque 3D views) and are related to the thermoluminescence tests carried out by the QED Laboratory and Oxford Authentication. They have been drilled in pieces of terracotta with a different density and radiological structure.



Conclusion :

The scan of this statuette shows, under the new layer of polychromy, an assembly of fifteen disparate pieces of terracotta held together by glue and metal pins. The face is made of unfired material distinct from terracotta. These observations are characteristic of a **modern construction** made from ancient material, for example, bricks from a Han dynasty archaeological site. The aim is to exploit the conclusions that may be drawn from dating by thermoluminescence tests to authenticate the piece.

*The above CT scan report answers the question set out in the objective only. It is in no way intended to certify the authenticity or age of the piece submitted for analysis.*

Dr Marc Ghysels

Appendices :

A set of computerized tomograms (0.6 mm thick) performed on a multidetector helical CT scanner: 24 axial slices, 8 frontal-sagittal slices, completed by 32 opaque, semi-opaque, translucent, transparent and maximum intensity 3-D projections *in toto* presented with 45°/90° rotational motions around a vertical axis.