THE RE-MATERIALISATION OF IDRIMI

Recorded at the BRITISH MUSEUM
February 2017

Made as a facsimile by
FACTUM FOUNDATION
FOR DIGITAL TECHNOLOGY
IN CONSERVATION
for
MAKING LIGHT

THE RE-MATERIALISATION OF IDRIMI

SEPTEMBER 2017

The Statue of Idrimi photographed during the recording session at the British Museum in February 2017

THE STATUE OF IDRIMI

The statue of Idrimi, carved in magnesite with inlaid glass eyes, too delicate and rare to ever travel, has been kept in a glass case at the British Museum since its discovery by the British archaeologist Sir Leonard Woolley in 1939. It was excavated in what is now part of Turkey at Tell Atchana, the remains of the ancient Syrian city-state of Alalakh.

From the autobiographical cuneiform inscription on the statue, we know that Idrimi was King of Alalakh in the 15th century BC. A son of the royal house of Aleppo, Idrimi fled his home as a youth with his family and after spending some years in Emar and then amongst the tribes in Canaan, became King of Alalakh. At the time of inscribing the statue, Idrimi had ruled Alalakh for thirty years.

The inscription is considered one of the most interesting cuneiform texts ever found, both because of its autobiographical nature and because of the rarity of the script. It describes Idrimi's early life and escape from Aleppo into the steppes, his accession to power, as well as the military and social achievements of his reign. It places a curse on any person who moves the statue, erases or in any way alters the words, but the inscription ends by commending the scribe to the gods and with a blessing to those who would look at the statue and read the words:

"I was king for 30 years. I wrote my labors on myself. May one regularly look upon them (the words) so that they (the words) may call blessings on me regularly." [ed. Jacob Lauinger]

This special project is a collaboration between Factum Foundation and Making Light, with the support of the British Museum, to record the statue of Idrimi and produce a facsimile. A 3D model of the statue can be viewed online and the facsimile of Idrimi, a refugee from Aleppo 3500 years ago, will travel the world in an exhibition that aims to challenge negative stereotypes of present-day Syrian refugees.

RECORDING THE STATUE OF IDRIMI

The recording was carried out at the British Museum over two consecutive days in February 2017. The statue was removed from its case and recorded in the gallery, the doors kept open to allow the public a glimpse of the recording process and a rare close-up view of the statue. Two different systems were used to obtain the data: the Breuckmann scanner and photogrammetry.

BREUCKMANN SMART SCAN 3D

The Breuckmann is a structured or white-light scanner that works by projecting patterns of white light onto the surface of an object. Two cameras record the patterns and triangulate the position of points on the surface of an object, converting them to points in 3D space. The surface of the statue was recorded in sections, which were checked on-site by merging with OPTOCAD software to obtain a low-resolution model. The system produces accurately scaled 3D

The Statue of Idrimi with projected patterns of white light on its surface during the recording with the Breuckmann

models with sub-millimetre resolutions. In this case, the Breuckmann was used to obtain a model that would complement the photogrammetric data by enabling us to correctly establish the scale of the statue.

PHOTOGRAMMETRY

Photogrammetry is the science of obtaining 3D information from 2D images taken of an object or landscape from multiple angles. Specialised software is used to recognise common points between the images and plot them in 3D space. It has been used in the past to record large-scale structures - for example topography or architectural features. With the advent of powerful processing computers, close-range photogrammetry has becom a reality and can be used to obtain high-resolution data for study and for the production of facsimiles.

At the British Museum over 2500 images of Idrimi were taken with a Canon 5DSR, each image weighing about 8000x7000 pixels. The images were processed using Reality Capture software to produce 3D models for printing and screen-viewing.

Pedro Miro from Factum recording Idrimi with the Breuckmann at the British Museum with the public observing the process in the galleries

PRODUCING A FACSIMILE OF IDRIMI

PRINTING AND CASTING

The model obtained with photogrammetry - which had captured the fine relief of the cuneiform script - was 3D printed by Hobs Studio, London, in resin. A mould obtained from this print was used to cast the statue in hard plaster (Exaduro), which is used in the production of models and plaster casts that need to be especially hard.

After casting, the quality of the data for the inscription on the left arm of the statue was found to be lower than for the rest of the model. The photogrammetry data was too noisy, very likely the result of photographic glare caused by the flash units. The decision was taken to re-process the Breuckmann model to try to extract the script on this arm more clearly. The 'new' 3D arm was printed in resin. Following the presentation of the Idrimi facsimile in September 2017, the original arm on the facsimile will be replaced by a finished plaster cast of the 'new' arm.

After casting, the work to make the facsimile can begin. The difference between a plaster cast and a facsimile is subtle. The plaster cast seeks to capture the shape and surface of an object, while the facsimile adds a material correspondence as well.

Ignacio Marquez from the Consejo Superior de Investigaciones Cientificas (CSIC), an expert in cuneiform, came to Factum in Madrid to inspect the quality of the inscription on the plastercast of Idrimi
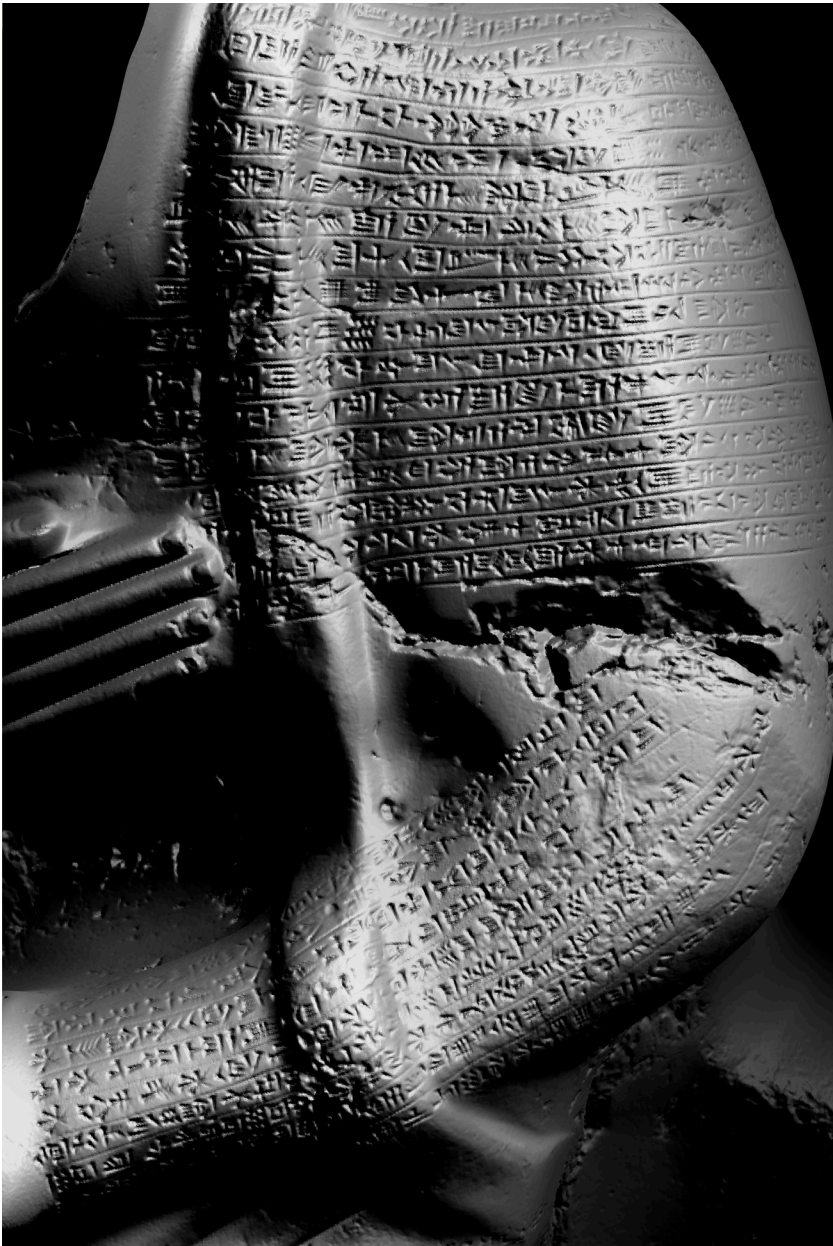
Re-processed data from Breuckmann model for the left arm of the Statue of Idrimi with the cuneiform inscription clearly visible

FINISHING THE PLASTER CAST

The plaster cast was glaringly bright. By applying a patina made from natural pigments and wax onto the detailed surface we were able to mimic the complexity of the eroded magnsite.

Adam Lowe examining the 3D print of Idrimi

Finishing touches to the plaster cast before applying the pigment

Applying the pigment onto the skirt of the plaster cast of Idrimi

Rubbing the pigment into the plaster to mimic the soft weathered magnesite

The facsimile of the statue of Idrimi at Factum Arte's Madrid workshops standing amongst printing and casting tests

FACTUM FOUNDATION

Factum Foundation for Digital Technology in Conservation was established in Madrid in 2009 as a not-for-profit organisation dedicated to the preservation of cultural heritage through digital documentation and the production of exact facsimiles. The Foundation works alongside its sister company Factum Arte to record sites and artefacts at high-resolution and develop new technologies for documentation. It is currently heavily focussed on training individuals in countries where heritage is most at risk – this engages interest in cultural heritage on a local level and can generate new economies based on its preservation. Factum Foundation is also involved in creating exhibitions that enhance public awareness of the threats facing cultural heritage and the technology used in its conservation.

Factum Foundation has collaborated on research and conservation projects with museums such as the National Gallery in London, the Louvre in Paris, or the Prado Museum in Madrid, amongst others. It is leading the Theban Necropolis Preservation Initiative (TNPI), a long-term project with the University of Basel to record the tombs in the Valley of the Kings (Luxor) and transfer skills and technologies to local communities. A facsimile of two rooms of the tomb of Seti I, the second tomb recorded through the TNPI, will open at the Antikenmuseum Basel in October 2017. Other recent projects include 3D recording at-risk rock art in Nigeria and Chad with the Trust for African Rock Art (TARA); the production of a facsimile of the Borgherini Chapel by Michelangelo and Sebastiano del Piombo for an exhibition at the National Gallery; and the digitisation of the Horace Walpole Collection for Strawberry Hill House.

www.factumfoundation.org