

RAISER OF THE LOST ART

Photographs by
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Otto Lowe and his team use 3D technology to scan and even recreate ancient artefacts, preserving them for the future – and potentially offering answers to rows about restitution. This colossal task sees him abseiling down cliff faces in the Middle East and exploring remote African cave paintings. Meet an Indiana Jones for the digital age

Words by
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In a Madrid suburb, behind the doors of an anonymous warehouse, lies what looks like a dismembered classical statue's enormous head. Its skull is smashed open, its gaze fixed imperiously on the floor. Scattered among the workbenches, palettes and the din of machinery are more outsized body parts: a curled right hand, its index finger half-raised; a left foot with implausibly long toes.

This surreal assortment (the head is roughly the size of a small car) is a series of resin tests for an ambitious heritage project: a reconstruction of the Colossus of Constantine statue, on display at the Musei Capitolini in Rome since last month.

'That's the head, the arm... whatever that piece is,' says Otto Lowe, one of a team of specialists who led the reconstruction. He waves in the direction of items lying about the workshop of Factum Foundation, the non-profit organisation behind the museum's facsimile of the ancient, 42ft-tall portrait of the fourth-century Roman emperor.

The original statue, probably commissioned by Constantine himself, once adorned the Basilica of Maxentius in the Roman Forum. In the 16th century its surviving stone fragments – including the head, arm, hand, knee and feet – were moved to a courtyard in what is now the Musei Capitolini and arranged, possibly by Michelangelo, into a sculptural collage, where they remain today.

What makes Constantine's facsimile achievable now is ultra-high-resolution technology combined with expert research, which is where Otto Lowe and Factum come in.

Despite being politically neutral, the organisation's work goes straight to the heart of fraught debates about authenticity, demands for the restitution of objects by major museums to their countries of origin, and which institutions are best equipped to care for them. It also raises questions about what our leading museums might do with their vast stores of unexhibited objects.

Madrid-based Factum specialises in startlingly accurate copies of cultural artefacts from thousands of years of human civilisation – everything from the interiors of ancient Egyptian tombs (both 3D-printed and virtual)



to sacred Amazonian caves to African stone carvings to Italian Renaissance treasures. Its experts take precise digital measurements using cutting-edge scanning techniques, then build replicas using accurate colour-matching and 3D-printing technology. Conservationists have long made facsimiles with casts and samples. The difference today is that, with advanced techniques, equipment and human hands need never touch fragile originals. 'Everything we do is non-invasive,' says Lowe.

Lowe, 34, is almost supernaturally calm and speaks with an English accent so plummy that it is hard to reconcile with his outsized hoodie, tattooed arms and silver thumb rings.

His father, the British artist and art historian Adam Lowe, co-founded Factum Arte – which produces large-scale installations for contemporary artists including Marina Abramović – in 2001, and Factum Foundation for Digital Technology in Preservation eight years later. Otto's mother is Japanese and he grew up between the UK and Spain.

Otto recalls his father's work being an integral part of his childhood. School holidays were spent 'watching a laser progress very slowly across the wall of an Egyptian tomb while everyone else was on a beach,' he says.

After studying international relations at the University of Leeds and working for Lib Dem MP Simon Hughes, he joined the family business, unable to resist the combination of adventure and 'the recording of vital parts of culture' that shaped his early life.

Lowe selects words carefully, always choosing the least inflammatory adjective, always assuming good intentions. He seems like a man well suited to risky situations.

The artefacts that Factum is asked to document and replicate are often under threat of destruction, from natural disasters, encroaching development, war, terrorism and – increasingly – extreme weather and tourism. Others are for exhibition: to reassemble Constantine for a special display, the foundation worked with the Musei Capitolini and the Fondazione Prada.

'We're incredibly obsessed with detail,' says Lowe. 'There's a lag between what computers are capable of creating and what our data could do. So we always keep a raw, unprocessed data set on our servers for future historians.'

Facsimiles could even play a role in resolving stand-offs

Previous page: Otto Lowe beside the recreated Colossus of Constantine in Rome. Left: tests for Factum Arte's work on Marina Abramović's *The Communicator* series. Below: Adam Lowe at work on a replica, 2019

between countries and institutions. Factum has already been involved in the returning to Nigeria of a 500-year-old Bakor monolith from the collection of the Chrysler Museum in Virginia last year.

Originally, there were about 300 carved-stone portraits of important ancestors. Dr Ferdinand Saumarez Smith, Factum Foundation's director in London, estimates that roughly a third were stolen, possibly looted in the 20th century during and after the Biafran War, ending up in public and private collections in Europe and America.

When the Chrysler Museum returned its carving, it received a Factum replica. 'The original is very hard, made of granite. This [replica] is resin, and 3D-printed,' Lowe explains. The process of creating a replica is surprisingly short: 'A couple of hours... and just a couple of tests, mostly to test various finishes,' says Lowe.

'Ultimately the data set is measurements; you're creating millions and millions of points. And then you create vertices between any two given points in order to create a triangulated mesh, a 3D model.'

On the day we meet in Madrid, a test model sits on a filing cabinet in the workshop. It looks uncannily like solid rock, until I tap it and realise it is hollow.

I pick up a miniature column. It looks like marble but my grasp falters as it turns out to be almost weightless – an exact replica of a stone column in the 11th-century chapel at Durham Castle, where Factum has recorded the colour and surfaces to provide information for restoration.

Lowe is part of a team of 60 people across Factum Foundation and Factum Arte, but his job is to travel the world, high-tech scanners in tow, to record artefacts – work that is typically commissioned by governments, museums, universities and other

institutions. Home is Helsinki, where the foundation has an office (Lowe's wife is a Finnish painter), but he spends up to a third of the year on location. Some projects can take a decade, he says, with multiple return trips. He describes scanning the news constantly, preparing mentally for future projects.

Last year Lowe spent time in Istanbul recording in meticulous detail the intricate bronze Serpent Column placed at Delphi in 479BC, to celebrate the victory of the Greeks over Persia, and later moved to the Hippodrome of Constantinople.

'The data we record is also cultural heritage and the Turkish cultural authorities have thought about that,' he says. Here, and on every Factum project, collected data is given over to the custodians of the original artefact. 'Turkey is rightly very protective of its cultural heritage.'

The foundation is funded by a mix of donations and by its sister organisation, Factum Arte. Lowe's work gathering information about precious and fragile heritage demands diplomacy, patience, tenacity, technical expertise, a steady temperament and an iron nerve.

As he shows me around a warren of rooms piled high with replicas, Lowe describes descending cliff faces and trekking for days in the Middle East; on another occasion, being escorted under armed guard in Somaliland, while recording the 5,000-year-old painted chambers of Laas Geel. 'I've never particularly felt unsafe,' he says. 'Danger can be a bit overplayed. As long as you're not an idiot. Nothing bad has happened so far.'

'You learn to know secret police when you see them'

Once, in Saudi Arabia, he found himself followed by secret police. He was working on remote, sacred monuments, for a project in partnership with the government: 'I'm not sure if they were looking after me, or if it was another government. It happens quite often and you learn to know them when you see them. You're kind of meant to spot them.'

'You just take it in your stride,' he says of the risks of travelling in remote or unstable parts of the world. 'I've never been in a situation where I've felt the need to panic.'

The fastest-growing demand for the foundation's work, says Lowe, comes from the Gulf peninsula, and in particular Saudi Arabia as the kingdom attempts to diversify its economy from oil towards heritage and tourism, as part of its so-called Vision 2030 plan.



Below: the Tomb of Seti I in the Valley of the Kings, Egypt. Factum Foundation has been recording fragments that have ended up all over the world. Bottom: rock art at Laas Geel in Somaliland, site of 5,000-year-old painted chambers



Lowe descended cliffs at the Nabataean archaeological site at Al-Hijr, formerly known as Hegra ('They just threw a rope around me and said, "Off you go"'), where several years ago he was capturing scans of the monumental sandstone tombs and rock art, recording their condition before the arrival of the hoped-for streams of tourists.

Factum has also advised on the kingdom's wildly ambitious Neom project, a \$500 billion plan for a 'giga-city' roughly the size of Belgium. The earmarked region includes undocumented ancient monuments which are vulnerable, says Lowe, though he stresses that the state is keen to act responsibly.

'These things are safe when they're not known,' says Lowe. 'The second they become known a value gets ascribed and that's when they are the most at risk from overtourism: that point when they are discovered but they haven't yet sent guards to sit there all day.'

Sometimes his team arrives at a new site with no information from the authorities. 'They don't always know what they have...'

sometimes I have to say very clearly, "There is a neolithic carving HERE." He jabs his finger at an imaginary map.

One of Lowe's favourite projects has been recording fragments of the Tomb of Seti I in Egypt's Valley of the Kings, which are scattered all over the world. Since the tomb was found in 1817 by Giovanni Battista Belzoni, an Italian explorer and former circus showman, some wall decorations and treasures have been removed, looted, damaged and destroyed. Much of the original paint is scarred and

defaced. 'They even handed out plaster-cast-making sets to tourists up until the early 20th century,' says Lowe.

Fragments of artefacts ended up in museums worldwide, including a pair of decorated gate panels: one in the Louvre in Paris, the other in the Museo Archeologico in Florence. Seti's massive sarcophagus is in Sir John Soane's Museum in London – Belzoni scratched his name into the rim. Other fragments are in the US and elsewhere in Europe.

'One of the difficulties is trying to find all the missing pieces,' says Lowe. 'A lot are in people's houses in the Home Counties. They're not catalogued anywhere, they're just family heirlooms. Others are just listed as "an Egyptian piece" at auction, because it's not known where it came from.'

Big museums tend to keep more accurate records. Factum has scanned both the French- and Italian-kept gate panels in their respective museums, then printed ultra-precise replicas. They rest against a wall in the Madrid warehouse (not far from an exact replica in resin of Seti's sarcophagus).

Both panels were carved and painted more than 3,000 years ago, probably by the same artists at the same time. Both had been marked by graffiti and soot and scorching caused by intruders' torches when they were in situ. Today, they look radically different from one another.

Displaying the highly precise replicas side

Right: Otto Lowe says Factum Foundation is not interested in taking political positions. Below: controversial Parthenon sculptures on view at the British Museum in London

by side has highlighted what happened to each panel in the decades after they were separated, and how they have been treated by their respective custodians. The differences are arresting. The French replica is suspiciously vibrant and perfect; the Italian reveals much of the scarring and damage. Their colour palettes are entirely different.

‘Culturally, Italian restoration takes time as part of the story of the object,’ says Lowe. ‘If the object shows the effects of time, they leave it. The French approach is to take it back to how it was when it was created.’

The contrast is a reminder of how rapidly humans can damage ancient monuments beyond recovery, intentionally or not. The panels’ original colouration is lost for ever. ‘Even some restoration techniques of 20 years ago are now considered bad practice,’ says Lowe.

Another example of the value of facsimiles is the Tomb of Tutankhamun, whose real curse might be overtourism (Factum has worked on a recreation). The tomb was uncovered by the British colonial archaeologist Howard Carter in 1922 after lying hidden for more than 3,000 years. Some wall paintings have recently been restored.

‘The biggest impact,’ says Lowe, ‘has been tourism... You have millions of people visiting each year. It’s hot, they sweat and they breathe. They change the local atmosphere...’

‘It lasted perfectly well for 3,000 years. Tombs were not meant to be opened. Since its discovery, it’s deteriorated very quickly.’ What, if anything, does Lowe think should be done? ‘Short of cutting people off from the site there’s nothing much you can do to stop that kind of thing,’ he says.

Will restrictions on tourism be

inevitable in the future? ‘We never take a political stance,’ says Lowe. ‘Speaking as a private citizen, I don’t want to not be able to see these things. But since Covid, market forces have been doing the job for us. Flights are more expensive, people aren’t travelling so much. It’s given heritage a bit of breathing space. But I don’t think there’s any way you can prohibit people’s access to culture.’

The wider question of the restitution of objects and the role that facsimiles might play in that is, he says, fraught with complexity. ‘Culture is something people get very possessive about, so we always try to find a solution where someone doesn’t need to lose in order for someone to win.’

Current disputes include the fate of the 16th-century Benin Bronzes, exquisite artefacts looted and scattered across the globe after British troops sacked the west African kingdom in 1897. They are vital evidence of the Benin people’s spiritual beliefs before the introduction of Christianity, and many are in the British Museum.

Also heavily contested is another British Museum centrepiece, the Parthenon sculptures. ‘With the Parthenon, were we to be invited into that conversation, we would love to be a part of that, absolutely,’ says Lowe.

Ultra-detailed facsimiles – like Factum’s copy of the Bakor monolith in Virginia – could form part of a temporary solution to some restitution claims, perhaps via loans and

‘Our goal is never to stop people seeing the original’

temporary exhibitions. ‘Our goal is never to stop people seeing the original,’ says Lowe. ‘It’s partly to let them know what effect they are having. And to make people aware of what humans’ presence does over time.’

But copies are not always appropriate, says Professor Dan Hicks of the School of Archaeology at the University of Oxford, author of *The British Museums*, a book about the cultural restitution debate. The British Museum has been paralysed by the Parthenon issue. Were faithful facsimiles of the Parthenon sculptures to be installed in the Acropolis Museum in Athens, for example, it would miss the point.

‘It’s not a silver bullet,’ says Hicks. ‘Most museum-goers value not just patina. There is something about being present in the room with an object of such significance.’ In other words, an object’s aura is unrepeatable. And it is that intangible sense that is valuable when it comes to visitor numbers.

In any case, says Hicks, museums’ storage rooms are bursting with objects that are never displayed or catalogued



(as highlighted last year, when a longstanding British Museum curator was sacked after stolen items were offered for sale on eBay; missing objects dated as far back as the 15th century BC).

‘Let’s imagine the Parthenon marbles are returned in the coming years,’ says Hicks. ‘What should the British Museum do? Should it make 3D prints and reproduce that space again? Or should it start to understand its vast array of objects from antiquity to tell new stories? Are we going to nostalgically copy what we’ve given back? Or are we going to do something else? Because we’re not going to run out of stuff.’

Lowe agrees. ‘Each case is different, and it’s not for us to make those decisions,’ he says. ‘Factum’s place is to create a dialogue and show options for where the debate might go next, as with the Bakor monoliths.’

In the meantime, Constantine has taken up his new position at the Musei Capitolini in Rome.

His body and clothes have been digitally reconstructed. The original Constantine is thought to have been a recarving of an existing statue of Jupiter, the Roman sky god. ‘The museum has all kinds of theories [about what the original looked like], so we asked them, “What would have been the language?”’ says Lowe. ‘We looked at others in collections and tried to recreate the same language, for example the cloak, and the orb he would have been carrying as a symbol of Roman divinity.’

In other words, Constantine is partly guesswork. But then, isn’t that what we are applying when we gaze at ancient ruins, or artefacts in museums and galleries, with their layers of residues, patinas and scars?

‘Objects have a biography, just like people,’ says Lowe. ‘And it’s not necessarily a good thing to try to stop that process. But we can record it, and that helps us imagine.’