

33 Letter from Edward Robinson to the director at the Bergen Museum, July 5, 1907, Cast Collection Files, The Met.

34 Letter from Haakon Shetelig to V&A, June 18, 1907 and several notes in a minute book dated 1907, MA/1/B1186, V&A Registry.

35 Letter from Haakon Shetelig to Gabriel Gustafson at the Historical Museum in Oslo, December 19, 1907, Copy book 1907–1909, University Museum of Bergen Archives.

** A warm thanks to Eirik Erstad, Lars Danielsen Holen, Linda Ørbekk Nikolaisen, and Ingrid Dobloug Roede, whom within my seminar “The Art of Collecting Architecture” at the Oslo School of Architecture and Design, Spring 2013, became contaminated with archive fever and obsessed by stave-church portals cast in plaster. Excavating the remains of the plaster portals takes passion, imagination, and vigor, as not only are many of the objects long lost, but also most of the documentation of the commissioning, production, and circulation of the casts. Yet, from scattered archival reminiscences they tracked down ruins of plaster portals in storage and portrayed the work of Italian-Norwegian formators in Christiania. Their final essays are printed in Mari Lending and Victor Plahte Tschudi, Arkitekturdepoter: Piranesistikk og stavkirkeportaler, Oslo, 2013.*

commodities. But not only were these replicated monuments moving between distinctive and transitory totalities, they also took on their own individuality while moving around. While the Metropolitan’s stave-church fragments purchased in the 1880s were treated to have the surface look like ancient tar, Edward Robinson preferred to have the Urnes ensemble “in the color of the plaster, not painted in imitation of the old wood.”³³ This might (if though too late, one would think) be inspired by the Trocadéro ideal of the “teinte uniforme” of the bright plaster casts, allowing for comparing architectural ornament in a way that neither original works nor patinated reproductions would allow for. Shetelig’s offer of painting the casts “in the dark color of the wood” was turned down by the V&A, who instead requested a sample in plaster “painted so as to show the general tone of the color of the original,” to have the finishing done in London.³⁴ The Urnes casts that traveled to Christiania were colored in Bergen: “The color might appear very dark; it is, however, similar to the original.”³⁵ Thus the profound surface disparity in the resurrected pale and corpse-like Metropolitan Urnes portal later relocated to Copenhagen, the almost black version in the V&A cast courts, the long-lost crispy white example in Paris, and the simultaneously coated Christiania and Bergen versions (the first in a ruined state in storage in Oslo, the second destroyed in the 1980s) testifies to the singularity of the multiplied copy.

Conceived as portable documents in three dimensions, the reproductions of the Flå, Sauland, Ål, and Urnes portals were crucial for the invention of their lost contexts as monuments, as the multiplied originals toured the world through museums and catalogues.

THE COMPLEX RELATIONSHIP BETWEEN IMAGE AND SKIN

Adam Lowe

There are times when the territory changes so fast that new groupings, new intellectual affinities, new ways of working, and new strategies and protocols are required. The way we value and experience cultural heritage is in one of those phases now. In this apophenic environment it is easy to bestow connections and importance where none exist and to project personal obsessions where they have no relevance. Generalizations are not very useful, so let’s be specific. What are these changing circumstances?

In no particular order, here are a few:

- The rapidly growing maturity of digital mediation both in terms of hardware and specially developed software targeted to niche interests.
- Digital information is inherently synesthetic and this fact is transforming many areas of creative work.
- The rapid rise of 3-D output (3-D printing or rapid prototyping). From printing buildings to human body parts, this developing technology has the potential to transform the world we inhabit.
- Virtual learning environments (VLEs) are changing academia. Information is more freely available than ever before. Opinions are more informed, more individual, and far more varied than previous generations’, which were more dependent on the official facts obtained from printed publications.
- A change is occurring in the way we understand originality and aging. This applies both to ourselves and to the things we make, and to the way we think about conservation and preservation. From botulinum toxin to hyaluronic acid, from Paraloid (acrylic resin) to solvents, the materials used in acts of aesthetic improvement of skin and paint play an active role in conditioning our aesthetic judgments. Materials science is an emerging subject of great importance, both at an atomic and genetic level and in terms of how we relate to a physical world.
- The breakdown of the material-based divisions between artistic practice (paint, print, sculpture, woodworking, ceramics, metalworking, film, etc.) and the rise of different groupings based on creative intention.
- Museums are redefining their roles, from originally being conceived as the home of the muse, a place that provided access to publicly owned groups of things that could be experienced, shared, and discussed in ideal conditions. Has the muse taken up residence elsewhere?

1 Nadja Aksamija, "The Loggetta's Skin," in Blake de Maria and Mary Frank, *Reflections on Renaissance Venice: A Celebration of Patricia Fortini Brown*, Milan, 2013, pp. 230–47.

- The rise of mass tourism is changing the way we access, experience, and protect cultural heritage. It is becoming clear in sites from painted caves to tombs, from sculptures on buildings to paintings in museums, that every object reveals its complex biography and few look like they did when they were recently finished. In this context we need to separate the act of preservation from the experience of visiting.
- Facsimiles are demonstrating that they have a crucial role to play in the relationship between originality and authenticity.

A SIMPLE QUESTION

Would the reconstruction of the Campanile in Piazza San Marco be more original if the original bricks had been reused rather than being dumped in the lagoon?

Unlike the new Campanile, which brought back only the monumental image but none of the physical makeup of its predecessor, the new Loggetta assimilated the surviving sculptural fragments into its sumptuous surface, thus reclaiming both its age value and its relative art value as [Alois] Riegl had theorized just a few years earlier. The visible sutures and fill-ins on its sculptural reliefs legitimated its effortless posturing as a merely repaired Renaissance original, masking the fact that the new Loggetta is essentially an early twentieth-century monument, deeply indebted to the technologies and aesthetics of its time. The extent of its modernity can be ascertained by considering two types of fissures created at the time of the Loggetta's reconstruction: one between its structural and its decorative components, its skeleton and its skin so to speak, and the other between the architectural and sculptural elements of the skin itself. This conceptual fragmentation of the monument has complicated all recent discussions of Sansovino's work, making it difficult to understand the rebuilt Loggetta's exact place in architectural history and monuments' theory.¹

The Campanile, excluding all its other functions as a building, is important for its role as an image, a monumental presence by an unknown architect animating Piazza San Marco. Sansovino's Loggetta is a decorative component by a named architect, a skin, whose importance lies in its material presence. We can accept major architectural rebuilding schemes when they address the "idea" of a building. We find it harder to accept the same approach when it is applied to the skin of a sculpture and prefer not to question it too deeply. The "image" and "skin" difference is especially confusing with regards to paintings whose material surface is often barely visible under glass, seen through layers of retouching and varnish, viewed at low, non-directional light levels, or reproduced on coated paper in books.

This text is focused on how we value the heritage around us and why we can accept replication and facsimiles only in some cases while systematically turning original works of art into reproductions of themselves through cleaning and restoration in others. It is about the physical surface of things; about why the information we can grasp from close observational analysis of surface is important, how it can be recorded (digitized) and rematerialized, and how it conditions our response to the object. If "ultra" high-resolution recording and replication can become a central part of the way we look after and preserve the past, attention will shift from the dominant importance of "image" to a celebration of materiality.

Digital technologies are still associated with the virtual, but in a world where everything from buildings to body parts can be "printed," the materiality of digital output technologies is forcing some fundamental rethinking. Imagine the majority of tourists visiting a facsimile of the Tomb of Tutankhamen installed beside Howard Carter's house at the entrance to the Valley of the Kings and declaring the experience "better than visiting the original." Imagine they not only saw the tomb near its original location but in a way that focused on its history, its stories, and the difficulties of preserving a fragile site that was never meant to be visited: art, technology, documentary/forensic evidence, and storytelling all working together. Imagine that they leave knowing and celebrating the fact that their presence is part of a new approach to preservation rather than further evidence that mass tourism erodes the past. This is on the verge of becoming a reality as the facsimile, built by Factum Arte, is about to start the final leg of the journey from Cairo to Luxor. (fig. 1a, fig. 1b) In this scenario, local displacement will become accepted as normal while people focus on the topography of the surface in search for meanings and clues about why it looks as it does and why it remains important. Original intentions will emerge from under the layers of historical attempts to consolidate, preserve, and clean. Every age imposes its values on the things it values. The great achievement of our age could be to separate the act of reverence for the original from an appreciation of, and quest for, authenticity.

SKIN-DEEP

Skin is a suitably intimate material through which we can achieve this separation. Skin covers and is constantly being replaced/renewed; it protects but it reveals the signs of aging and the conditions to which it has been exposed. If we can record and study the surface of an object with sensitivity and understanding it will reveal the way it was made, the way it has been cared for, the way it has been

appreciated. This forensic study covers both its intrinsic qualities and the things that have been projected onto it. This intimacy with the physical nature of things functions like memory—it provides access to an archive of events we can only experience through an engagement with surface and shape.

Originality and memory are elusive concepts that have much in common. They both originate at relatively specific moments and locations and both are mediated and transformed by time. While we would like to think that they can be objectively shared, they are also subjectively manipulated. Their importance lies in this mix of objectivity and subjectivity. There is enough overlap so they can facilitate communication, but also sufficient separation for diversity and innovation to require an active engagement.

Once cultural things are housed in museums they are generally referred to as objects. But the museum object is actually a rich and complicated *subject*, complete with its own history and biography. Its story reveals both how it has been seen and valued over time and why it is (or is not) considered important and relevant. For too long objects have been presented as matters of fact, but this is misleading: they are much more dynamic than that. They are matters of interest, perhaps even matters of concern. It has taken a great deal of work (collecting, classifying, cataloguing, and displaying) over the last three or four centuries to turn complicated subjects into stable objects. When referring to “original” objects in museums, the term *artifact* is often used, a word in which the evidence of the making and the *art* are both present. The Greek root of the word for art is *techne*: art and technique were synonymous in antiquity. *Techne* places the emphasis

1a Facsimile of the Tomb of Tutankhamen, with sarcophagus and the sarcophagus lid. Factum Arte’s conservator Naoko Fukumaru color matching the sarcophagus. Photo: Alicia Guirao/Factum Arte.



on making, not on concepts or ideas (which are embedded in, or added onto, the artifact). In science and technology *artifact* has a double meaning—it is both the object of reference and also an anomaly or process error. All artifacts in museums contain artifacts: artifacts acquired by time, through the process of aging, through the constant attempts to arrest decay, and through the diverse stories they contain. All these things influence how we apprehend the object. Past and present are compressed in this act of understanding and displayed openly for those who take the time to look. We need to understand these compressed layers and develop a way to both look at them and look through them. This activity used to be called *connoisseurship*. The word has come to assume reactionary overtones, but it needs reclaiming. Connoisseurship is about observing subtle details and merging them with knowledge, insight, and understanding—and then actively sharing the resulting ideas.

The surface of anything is always the first thing we confront, the sensitive membrane that reveals the material evidence we need to understand anything for ourselves. In a world of anti-aging, we have moved far from the modernist tendency of viewing original objects as something fixed and untouchable. The important element in originality is that it is a dynamic process, both as the object is being made and after the last direct touch by the maker (or makers). The object is the material evidence of how it was formed, the way it has been cared for, a record of the things that have been done to it, evidence of its career, its biography. Authenticity is essential. In this context, new (or effectively unresolved) questions surface: questions about good and bad interventions (do good restorations reveal more about the work



1b Photograph of the facsimile taken from the same angle as a photograph by Harry Burton in 1923. Photo: Alicia Guirao/Factum Arte.

of art while bad ones impose upon it?), about how we care for something or how we can kill it with kindness, about how we share and disseminate, about the way people can engage with and view the work of art. This applies to physical things like buildings, objects, and paintings, and to ephemeral things like music, film/video, or digital media that usually occupy a nebulous space.

The potential of digital technology is opening many doors. As it fulfills its potential, different recording methods and their accompanying software packages are finding a greater maturity and innovative applications. With technological developments the barriers that separated disciplines and defined the ways we think are being redrawn. It is no longer science and technology on one side and culture, connoisseurship, and the educated eye on the other. Hopefully the time when the cultural elite pay lip service to objective forensic study while refining subjective insights is over. Subjective insights will always have a place, but so does a deep and shared study that leads to an intimate understanding of the past—an understanding that animates the present and shapes the future. Restorations are still insufficiently documented and changes are poorly recorded (visually and verbally). While this is changing, the changes are unacceptably slow. Pressure groups like ArtWatch International and ARIPA (Association Internationale pour le Respect de l'Intégrité du Patrimoine Artistique) constantly call for more detailed documentation and far more caution when changing the appearance of a work of art. Now digital restorations are both possible and meaningful, allowing subjective hypotheses to be tried out in a virtual space before they are implemented in ways that will become part of the history of the original work. With the right equipment we can now record the surface, the color, and the details that lie under the surface before and after restorations. This is revealing a wealth of information that lies hidden but in public view in museums, churches, and collections around the world. The way we engage with the “monumental ideal” and the “physical skin” changes with time and is geographically and politically conditioned. With new ways of seeing and studying come new possibilities that are having a fundamental impact on the way we think about cultural heritage, both its social function and the practical aspects of its preservation. The intellectual and material landscape is rapidly changing and these changes are impacting on approaches to conservation and preservation. They require a renegotiation of the role of both digital archives and material facsimiles. The central concern is how to record an object in such a way that it can be rematerialized and retain the main characteristics of the original. Surface is the key and therefore high-resolution surface recording is critical.

REBUILDING

Every building is in a constant state of maintenance. This is usually an ongoing and gradual process, occasionally it is not. On the night of February 13, 1945, bombs seriously damaged the Frauenkirche in Dresden. Its dome collapsed a few days later. In the same saturation bombing the cathedral of the bishopric of Dresden-Meissen and the majority of buildings in the center of Dresden were destroyed. The reconstruction of the cathedral began immediately following the war and by 1962 the new altar was consecrated. Work on the Frauenkirche waited for the fall of the Soviet Union and private donations. Reconstruction began in 1994 and the resurrected church opened in time for Christmas in 2005. It is an exact reconstruction that was intended to focus thoughts on “building bridges, living reconciliation, reinforcing faith.” This phrase remains potent today. The reconstruction of the Frauenkirche has restored the image of the building, but the area around it is dramatically changed. Unlike the Campanile in Piazza San Marco, the public space around the church is a mix of reconstruction, rebuilding, and wasteland undergoing archaeological investigation while awaiting redevelopment. Awe at the scale of the achievement and the sense of “reconciliation” is accompanied by a degree of pathos and sadness: sadness at the destruction that happens from generation to generation without letup, sadness at our impotence to alter human actions, and sadness that the biography of the building has been suspended. On one level there has been a loss of the patina of time, on another a loss of authenticity (perhaps also a loss of confidence). With time the reconstruction will become the original. If its destruction is even remembered, its rebuilding will be another chapter in its story, but while it is fresh we are caught in the moment of hiatus: the rebuilt building is neither old and articulate, nor new and full of potential. The interior of the Frauenkirche asserts with confidence its rococo pastel shades that accompany its new lease of life, but a few hundred yards away the emptiness and mannered impasto in the Lutheran Kreuzkirche declares an absence and emptiness that comes from repeated rebuilding (it has been destroyed by fire five times since 1491). In 1765, Canaletto painted an extraordinary picture of the rebuilding that took place in the 1760s. The image looks remarkably like the photographs of Dresden after the allied bombing of February 1945.

DISPLACEMENT

The examples from Dresden have been rebuilt on exactly the same site as the original. In Nagasaki, following the destruction caused by the nuclear bomb that fell on the city on August 9, 1945, the

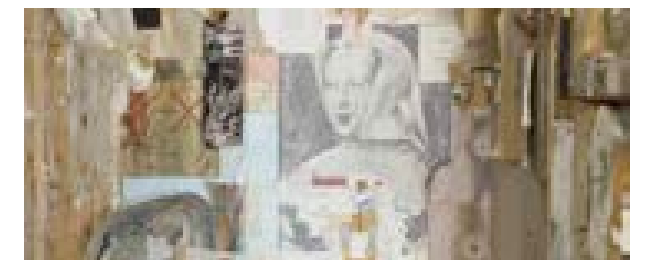
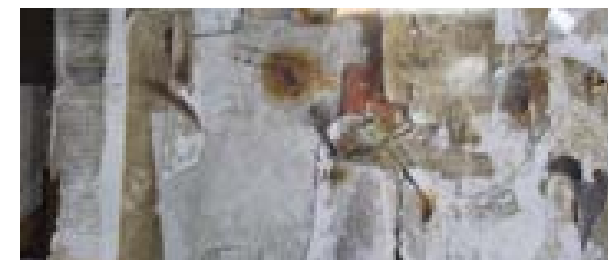
authorities decided to move Urakami Cathedral and rebuild it on a site nearby in order to retain the ruins of the old cathedral (which was five hundred meters from the epicenter of the explosion). The public outcry that followed resulted in a rethink. The cathedral was rebuilt on its original site in 1959 and in 1980 it was changed to look more like the original. Charred statues from the original stand around the present-day cathedral and some of the ruined walls of the original (or reconstructions of the ruined walls) have also been placed around the park in which the cathedral stands. A facsimile of the ruined doorframe of the cathedral is in the Nagasaki National Peace Memorial Hall for the Atomic Bomb Victims. For emotional reasons the exact location of the reconstruction was critical. Still, would it really have mattered if the rebuilt cathedral didn't occupy exactly the same footprint? If it had been rebuilt a hundred meters from its current location, would anyone feel that the original intention and memories were reduced? It is partly a question of locality. If it had been rebuilt in Tokyo it would have assumed a political dimension (a replica of Villa La Rotonda in Palestine is a very different statement from Villa La Rotonda near Vicenza).

Examples of major rebuilding are the norm and not the exception even if complete destruction and rebuilding is not so frequent. The Cathedral of Christ the Savior in Moscow, La Fenice theater in Venice, and the bridge at Mostar are complete rebuilds (although the bridge at Mostar reused some of the original stones reclaimed from the river). These facsimiles assumed the status of an original very quickly, so why is it such a different issue when a building is moved, stone by stone, to a different location? In the case of the Pergamon Altar, the Ishtar Gate, or the Market Gate of Miletus, they all became objects, in Berlin. Despite their scale, these architectural fragments have morphed into sculptural works of art. They have retained their originality by changing the category to which they belong. The Market Gate from Miletus was destroyed by an earthquake, excavated, moved, and heavily reconstructed with new materials. Yet in the Pergamon Museum it keeps its presence as a material object. In this sense it is no different from Veronese's *Wedding at Cana*, which was broken down into parts and moved from Palladio's refectory on San Giorgio Maggiore to the Musée du Louvre and heavily restored (several times). But when the nineteenth-century London Bridge was dismantled and moved to Arizona it retained its originality but lost its meaning and authenticity—becoming something of a celebrity freak in Lake Havasu City. It could be argued that London Bridge is not really an important monument, and rumors are that it was purchased by mistake with the owner imagining he had bought the iconic Tower

Bridge. But look at the Temple of Debod re-erected in Parque del Oeste, Madrid. This great Egyptian temple, given as a present to Franco's Spain in 1968 as a sign of gratitude for the help provided by Spain in saving the temples of Abu Simbel, is now poorly preserved and its importance is inadequately communicated. It has become a decorative backdrop for the nighttime activities in this inner-city park.

Open-air museums of vernacular architecture are another example of buildings moving location; their success depends on taste and sensitivity to create an environment that avoids the theme park label. The Scandinavian countries excel at this, creating public spaces that are intimate, informative, and fulfill a vital role in architectural preservation. The Romsdal Museum on the island of Hjertøya in Norway is one successful example, but by coincidence it is also home to one of the most overlooked artworks, Kurt Schwitters's only remaining *Merzbau* (the Schwittersshytte). In 2006, Factum Arte documented the hut and produced an accurate facsimile of the heavily decayed structure that reveals important traces of presence and the working process of this Dada artist. (fig. 2, a-d) With the recent explosion of interest

2, a–d Facsimile of Kurt Schwitters's *Merzbau* on the island of Hjertøya, Molde, now part of the collection of the Henie Onstad Kunstsenter.



in Schwitters (and the dramatic rise in the value of his works), there are ongoing attempts to salvage what is left of this fragile collage that was built in an annex to a potato shed and exposed to extreme environmental conditions. The hut is now going to be dismantled and moved to a new building that has been prepared for it nearby. The Factum Arte facsimile, showing the hut in its condition in May 2006, is now in the Henie-Onstad Kunstsenter near Oslo. Soon visitors will be able to see the “original” hut recreated in a museum space on the island. Both the facsimile and the original articulate different paths the object has taken. The facsimile will probably be a more accurate record of the hut as it looked before it was dismantled and moved.

REPLICATION

The surface of the Schwitters collage was literally like a fragile skin covering makeshift wooden walls. The skin of sculptures that cover many of the great cathedrals and churches are more robust but still decay with time. These sculptures, often by important named artists, are removed and replaced with copies when necessary. Since the nineteenth century, the great period of plaster casting, there have been attempts to record the things that were being lost through erosion, neglect, and replacement. Palais de Caillot in Paris, the Tsvetaev Collection in the Pushkin Museum, the Victoria and Albert Museum in London, the Metropolitan Museum of Art in New York—most great nineteenth-century museums kept plaster cast collections. The importance of these collections didn’t only exist in trophy sculptures like Laocoön, the Medici Venus, the Borghese Gladiator, or the Apollo Belvedere but in the original molds. Not only did the molds contain a “theoretically” accurate, full-contact record of the surface at a specific moment in time, they also often contained traces of paint. The “squeezes” taken from the walls of the tomb of Seti I (some still exist in the British Museum, London and the Museum of Fine Arts, Boston) contain most of the original paint that once adorned the walls and whose pristine condition and beauty led Giovanni Battista Belzoni to make the casts. Theoretically it would be possible to sacrifice the mold and recuperate the paint (although its color and appearance would be dramatically changed). Many of the alabaster Assyrian works in the British museum arrived with paint and have suffered from London’s pollution, gas-lighting in the museum in the nineteenth century, and the effects of various cleanings with different materials over the years. The molds that were made from the original objects when they arrived are in some cases a more accurate record of the surface of the object than the forms that are on exhibition today.

Plaster casting is one of the great artisanal skills. A visit to the plaster cast workshops that are still functioning in the Real Academia de Bellas Artes de San Fernando, Madrid confirms the complexity of the process of making piece molds, a skill that can be acquired relatively fast but only mastered with time. Silicon molds have changed the process but not removed the level of human skill required to make an accurate physical cast. It is difficult work in a studio environment and even more demanding perched on scaffolding on the façade of a cathedral or church. Domenico Brucciani and his team are reputed to have made molds of the façade of the Pórtico de la Gloria in about three months in the 1860s, something that today seems almost impossible.² The V&A not only has a complete cast of the Pórtico de la Gloria but they also have a copy of the central door of the church of San Petronio in Bologna, purchased from the Florentine workshop of Oronzio Lelli in 1887 for £865 5s 9d (32,000 lire for two copies: one for South Kensington and one for Edinburgh). Various copies have been taken that show unequal levels of finish. As with contemporary debates about the manipulation of digital data, it is very clear with plaster casts that objective accuracy is a relative concept.

The era of contact molding and casting plaster (and electroplating) is over, and we are in the time of non-contact 3-D scanning and rapid prototyping. For many years surface scanning has been a technology on the verge of transforming conservation practice. Like X-ray recording and infrared photography, both of which are able to reveal certain information about what is happening under the surface, 3-D scanning can reveal essential information about the skin that prevents a physical work of art from becoming an abstract ideal. Recently the Basilica of San Petronio and the conservation architect Roberto Terra commissioned Factum Arte to undertake an ambitious project to record Jacopo della Quercia’s central door and the two side doors that contain important carvings by twenty-four named artists. (fig. 3a, fig. 3b) This endeavor provided important insights and reveal the degree to which the skin has been neglected in the pursuit of idealized content. The plaster casts reveal surprising differences both from the 3-D scanned renderings and the actual surface. It has always been assumed that there is a direct correspondence between the cast and the object. This is clearly not the case and needs to be studied in depth. Sadly, many of the nineteenth-century collections of plaster casts are a shadow of their former glory, the result of one of the greatest iconoclastic gestures of the end of the modern period and economic problems that faced many collections in the 1970s. A wall label in the Germanisches Nationalmuseum in Nuremberg says it all:

² Victor Borges, senior sculpture conservator at the V&A, believes that they also made the plaster casts at the same time. It would seem easier to do this back in London than on site in Galicia. The Victorians were the masters of budgeting and there must have been a reason for this approach. Working at this speed means corners will have been cut and a close correspondence between the surface and the cast will have been sacrificed—relying on hand finishing to define the form. Borges has observed a lot of work on the surface done with rasps both when the plaster was cast and after installation. What emerges is that the plaster casts were intended more as an image than as forensic recordings of the skin that covered the buildings. Victor Borges in conversations with the author, February 14–16, 2013, Museo Nacional de Escultura, Valladolid. Victor Borges delivered a paper entitled “The Conservation of the Cast Courts at the Victoria and Albert Museum: The Cast of the Pórtico de la Gloria” at the conference “Copia e Invención. Modelos, réplicas, series y citas en la escultura europea,” Museo Nacional de Escultura, Valladolid, February 14–16, 2013; the publication of the proceedings is forthcoming.

3a Pedro Miro, leader of the scanning project on the façade of San Petronio, working with the Nub3d white light scanner while recording the figure of San Petronio holding the city of Bologna in his arms.



3b The San Petronio restoration revealed that one of the arms of Amico Aspertini's *Deposition* had denatured due to previous restorations. It has now been cast in a marble-resin compound and a decision is being made about attaching the facsimile arm while conserving the fragile original.



The Germanisches Museum held one of the great collections of casts relating to the German-speaking world. It was systematically built up from the founding of the museum in 1852 until about 1890. It represented a unique overview of German sculptural art from prehistoric idols to Renaissance sculpture. It was part of a cultural endeavor that sought an encyclopedic overview—but the high regard for this approach to knowledge dwindled and after the second World War it was not considered worth salvaging or moving most of the collection to safe locations—as a result little is left of these important historical testimonies to museum and cultural history. The work being done by Factum Arte reveals that the digital files are both more accurate

and more dynamic. They are facilitating a close study of the surface, and different ways of elaborating the data are being developed. New display methods are entertaining and informing the public, and, perhaps most importantly, a debate is beginning about the long-term preservation of the original pieces. Is it better to leave the deteriorated originals on the façade where they have already suffered from weathering and failed conservation attempts, or is it better to bring them into a specially designed space within the church and replace them on the façade with exact copies? Are we interested in the overall illusion or in an intimate engagement with the “skin”?

COMPROMISED IMAGES

Many of the sculptures that clad the outside of temples, cathedrals, mosques, and synagogues were painted, but for diverse reasons this layer has to a greater or lesser degree gone. We know little about painted stone, about the techniques and subtle qualities that could be achieved. One example, in almost perfect condition, was found sealed into the wall of the Tudela Cathedral in Navarre: a virgin and child slightly less than life-sized from the twelfth or thirteenth century. The varied paint surface is detailed, subtle, and exquisite. In 2012, Factum Foundation initiated a project at the invitation of Luis Durán and Javier García Ullate, from the Asociación de Amigos de la Catedral de Tudela, to record the Romanesque capitols and use the data to stimulate discussions about the gravity of the problem posed by their rapid decay. Two of the capitols were recorded in three dimensions capturing accurate surface data at a resolution of one-tenth of a millimeter. Since then this digital archive has been processed and analyzed. The results reveal the alarming speed at which the stone is crumbling. A comparative study with historical photographs and recent documentation reveals the gravity of the current position. The cause is clear. The fragile limestone has been denatured by contact with Portland cement used in a restoration in the 1950s, and the “image” of the cloister is now in a seriously compromised condition. In a couple of years the “skin” will have eroded to a condition that will only remain as a poetic echo of an important document, thought by some historians to depict the specific details of dress and decoration to assist in the identification and expulsion of the Jewish community of Tudela. The loss of this material evidence is made more painful by the proximity of the painted Virgin in almost perfect condition. With accurate three-dimensional recordings the surface can be safeguarded in virtual form while decisions are made about what to do with the originals. One of the principles of the Factum Foundation is to record data of sufficient accuracy and variety with

enough correspondence to the original so that it can be rematerialized if and when required. In Madrid, the data that was recorded in the cloisters was routed in three dimensions and the physical object taken and compared with the original. The results were totally convincing. There were small differences in terms of undercut and some tool marks (artifacts of the routing process), which, in line with the Factum Foundation's approach, were left. The goal is verification not falsification.

The interesting thing revealed in this kind of work is the importance of accurate, high-resolution data and an exact correspondence between the layers of data that are recorded. In August 2013, in the National Gallery in London, a team supported by the Factum Foundation recorded both the color and the surface of *Saint Vincent Ferrer*, painted by Francesco Del Cossa in 1442. This recording is part of a project to document all the panels of the Polittico Griffoni and is being carried out in conjunction with the Basilica of San Petronio, Bologna. The Polittico Griffoni was named after the Bolognese family of the same name who commissioned the work from Francesco del Cossa and Ercole de' Roberti. The paintings remained in the Basilica until the late 1720s, when they were inherited by the Aldovrandi and Cospi families, who in turn sold them as valuable antiques. Ever since then, the panels have not been displayed together. There are sixteen known panels from the altarpiece in collections in London, Milan, Washington, Gazzada, Vatican City, Paris, Ferrara, Rotterdam, and Venice. The aim of the project is to record the surface and color of each panel in its current condition and to make one physical facsimile that will be put back into the recently restored chapel in the church. (fig. 4a-c) In addition, nine virtual reconstructions will be made that pool all existing information together. These will be given to each of the museums and collections, contextualizing and adding historical information to the panels they now own.

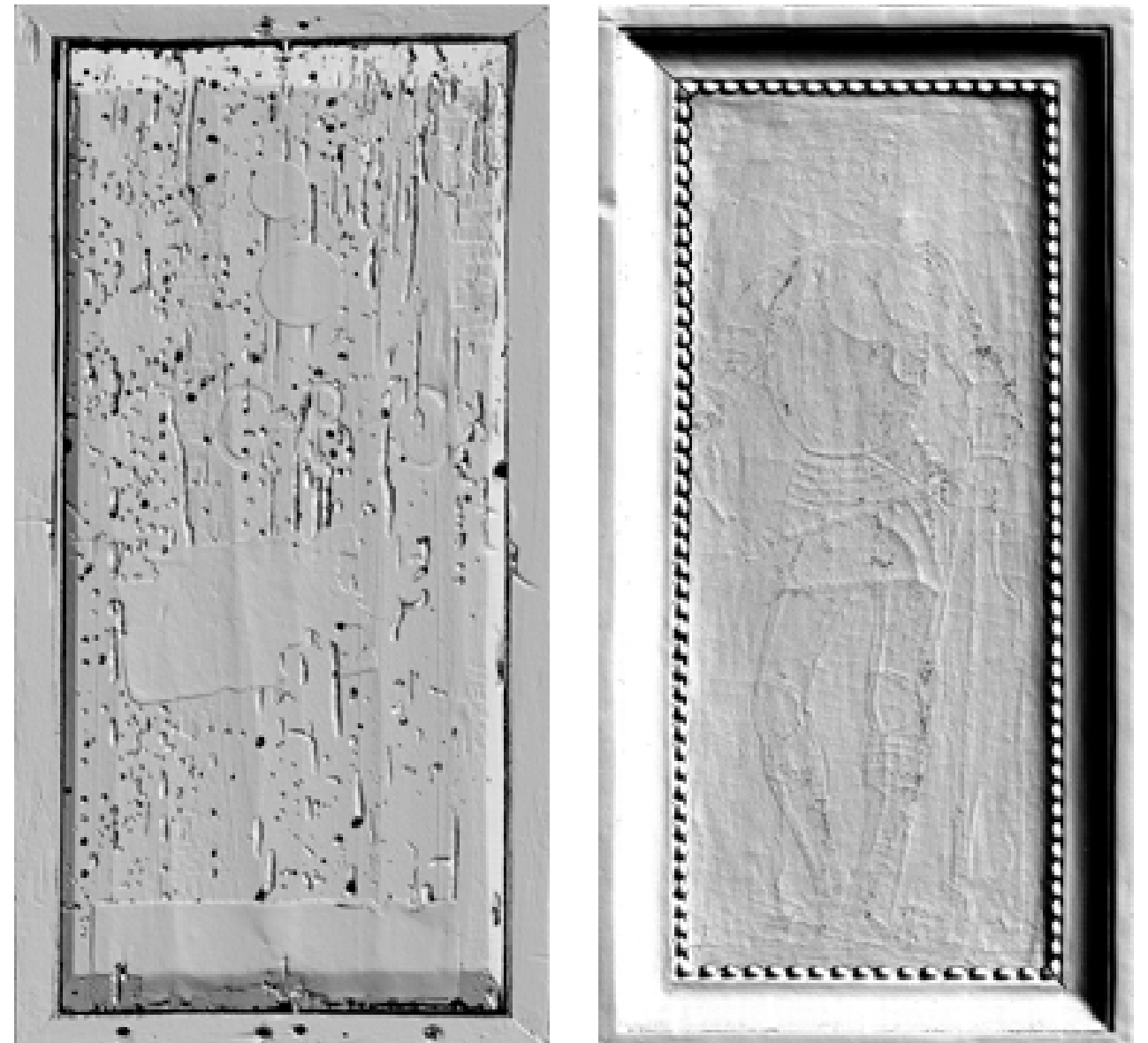
The recordings that are being carried out on panels from the Polittico Griffoni are coupling together two layers of data (color and surface), but ongoing work with the Museo del Prado has resulted in layered archives that bring together historical images, color, 3-D, infrared, and X-ray, all at high resolution and all in combinations that reveal the complexity of the image as a physical object.

THE CAREERS OF OBJECTS

As every researcher knows, the more data we have access to the more we crave. Despite some opinions to the contrary, the speed at which new technologies are taken up by museums and those charged with the difficult task of preserving cultural heritage are slow. The



4a-c The surfaces of the paintings that make up the Polittico Griffoni being scanned in three dimensions using the Lucida scanner designed by Manuel Franquelo. Data is stored as raw black-and-white video that can be processed into three-dimensional files at increasingly high resolution in the future.



transformations and manipulations that are required to get “good” data are meticulously studied. Transparency is essential in all methods of recording and archiving data, but what is beyond doubt is that the technology is now available to facilitate forensic study of both objects and their careers. In this case, career signifies the ways, often unpredictable, that things evolve, are valued, and change according to historical time and geographic location. In addition to ensuring the creation and preservation of digital and physical archives, we need to be more aware of how the paintings themselves change. The emerging digital technologies are making it possible in both virtual and physical ways to separate the act of interpretation from the act of preservation. This is essential in terms of protecting the image and the skin.

These words are really a bramble of thoughts about the dynamic nature of originality and authenticity. As a result, a conclusion seems wrong. So I will conclude with a recent experience in the Gemäldegalerie Alte Meister, Dresden. This collection of paintings was assembled in about fifty years by Augustus II the Strong (1670–1733) and his son Augustus III (1696–1763). In 1855, in one of the most ambitious museum projects of the time, it was housed in a building designed specifically for the collection by Gottfried Semper. It was rebuilt after World War II and most of the paintings taken to Moscow and Kiev at the end of the war were returned to Dresden in 1956. A total of 450 paintings were lost during this period. Now as you enter the Gemäldegalerie there are two equal and conflicting feelings. The dominant one is wonder—amazement at the quality and focus of the collection. The other is more complex, an awareness of how different the paintings look one from another. While most museum collections have a homogeneity of restoration styles, in Dresden a variety of restoration approaches seem to coexist side by side. It is a bit like entering a collection of color photographs, each of which has been adjusted according to different criteria and taste at different times.

In Room 8, containing many great paintings by Rubens, the subjective nature of restoration and color correction is especially clear. “*Quos ego!*”—*Neptune Calming the Tempest* (ca. 1635) is less varnished and feels “natural.” There are a range of tones and colors in all parts of the painting, the “whitest” white in the painting is on the horse’s head and eyeball. It can also be found as a similar but slightly warmer white both in the whitest clouds behind the right-hand boat (tonally slightly darker to create a sense of spatial recession) and in the drapery of the naked nymphs in the bottom left corner. *Hero and Leander* (1605), another churning ocean scene with writhing bodies, is high gloss, high contrast, and blue/green in the shadows on the flesh, giving the

painting a cold tonality completely at odds with the other paintings on the same wall. *The Champion of Virtue (Mars) Crowned by the Goddess of Victory* (1615) has a high-gloss surface but yellow flesh, while *Drunken Hercules, Being Led Away by a Nymph and a Satyr* (ca. 1613/14) is also highly varnished but has a magenta cast with hot reddish shadows. In the next room is another Rubens on wood panel, a naturalistic *Boar Hunt* (1615–20). Here something strange has happened. The painting is essentially in good condition and freshly varnished but the whites have yellowed a little. However, all the colors feel as though they are desaturated. The overall sense is that the image has a very flat contrast and a general grayness of color. In Adobe Photoshop, colors can be desaturated or saturated, selectively adjusted, sharpened, contrast added, reflections removed, or altered using a host of other algorithms written by different people over many years striving to perfect the art of image manipulation. In a digital space, the original object or painting is not touched or altered, it is only recorded and archived. In the physical world actions carried out on the surface of paintings can never be completely reversed. Some treatments, like varnishing, are intended to be removed, but even this should be done as seldom as possible as it alters the surface of the painting in small and subtle ways. If I had to guess which painting in the Gemäldegalerie is closest to Rubens’s original intention I would suggest *Neptune Calming the Tempest*. But this is a personal opinion from someone who used to paint a great deal and who loves the free-flowing, fluid dynamics of paint applied to canvas in the most direct ways with minimum hesitation. But I can’t help feeling that this really isn’t the right question. Why am I trying to read the changes rather than looking through the natural effects of aging? Why is it not easy to find the restoration history of each painting? Why are the records of each restoration usually scantily illustrated and incomplete?

The changes that are imposed onto cultural artifacts are an essential part of their dynamic careers. Perhaps if they remained unchanged and unmoving we would no longer be able to see them clearly. The paintings in Dresden reveal a sensitive and understated approach to cleaning and the removal/reapplication of paint coupled with a delight in gloss varnish (damar varnish rather than the optically clear synthetic varnish used on Veronese’s *Wedding at Cana*).

Restoration styles vary from country to country, from person to person, and from generation to generation. Originality was once an *aura*, a singular wisp on the edge of nothingness. Facsimile was a dirty word associated with fakes and falsification. The perception is shifting. Facsimiles in the twenty-first century are opening the door to truth and verification. The word copy does not need to be

derogative. It comes from the same etymology as “copious,” and thus designates a source of *abundance*, a proof of fecundity. If originality is redefined as something that is fecund enough to produce an abundance of copies, the future for our shared cultural heritage is very bright.

ON SELF-EFFACEMENT: THE AESTHETICS OF PRESERVATION

Jorge Otero-Pailos

Just as Linda Nochlin asked why women had been excluded from the art world,¹ one might wonder why there are no famous preservation architects, male or female. It is not for shortage of prestigious commissions. Everyone knows the Parthenon, for instance, but even architects are hard-pressed to name their colleagues who created its contemporary image. Architectural education is partly to blame. Introductory courses teach about the Acropolis as if it had come down to us in its present form, without ever a mention of Leo von Klenze (1784–1864), Nikolaos Balanos (1860–1942), or the Ottoman town and Frankish fortress from which they extricated the Periclean stones we see today. Only preservation insiders know such figures and their accomplishments in the preservation field, even though preservationists have reworked almost every major building older than half a century. There are cultural reasons too for why preservationists are not acknowledged. When we visit monuments we like to suspend disbelief in the same way as when we attend theatrical performances. We allow ourselves to think that we are witnessing the untainted evidence of the past, when in fact it has been heavily manipulated, and we can only grasp it as such thanks to the staging effects produced by preservationists. Without discounting all these factors, I would like to focus on the active role that preservationists play in keeping their creative achievements undetected. Contrary to other design fields where creativity is judged in terms of recognizable self-expression, preservation’s central expressive ideal is self-effacement. To understand the relative anonymity that preservationists pursue and enjoy, what follows traces the common theme of self-effacement through some of the emblematic twentieth-century theories of preservation aesthetics. What preservationists have achieved through their self-effacement is nothing short of a new art form, which is like all other art forms in that it aspires to explain our contemporary moment. These architectural interventions are also different in that they confront us with the question of how long our contemporary moment will last. They ask us to imagine that temporal horizon by presenting us with the fact that the ability of objects to endure intelligibly into, or be undone by, the future depends on our ability to preserve them.

¹ Linda Nochlin, “Why Have There Been No Great Women Artists,” *ArtNews* 69, no. 2 (January 1971), pp. 25–71.