

“Revealing Paintings’ Secrets with Scientific Technology,” *Forbes*, 03/19/2019

Last month, researchers from Northwestern University announced that they had developed a small, handheld tool that can be used to monitor the gradual development of paint protrusions in artworks. They created the device after discovering small bumps in Georgia O’Keeffe’s paintings. The researchers found that fatty acids in the binding material of the paint had formed metal soaps by reacting with lead and zinc pigments.

Meanwhile, across the Atlantic, another artwork was diagnosed with a paint condition. In January, researchers from the Netherlands and the UK announced in Chemical Communications that they figured out why Rembrandt’s 1663 painting *Homer* was covered in a thin white crust.

They analyzed a minuscule sample of the paint layer using a technology called X-ray diffraction to study the chemical properties of the paint that Rembrandt used. This required a visit to the Diamond Light Source, a synchrotron radiation facility in the UK.

When the Rembrandt researchers analyzed the paint layer from *Homer*, they discovered that the white crust was caused by a reaction between lead in the outermost layer of paint with sulfur from the air. In their paper, they suggest that “external sources, most likely in the form of SO₂, are the origin of the sulfur. Combustion from domestic heating in the past may have released sulfurous gases into the atmosphere, as did the industrial revolution.”

“Greenwich’s Painted Hall Reopens with Day Beds for Visitors to Admire ‘England’s Sistine Chapel,’” *The Art Newspaper*, 03/20/2019

When the Painted Hall in Greenwich reopens on 23 March, visitors can have a nice lie-down if overcome by the 4,000 sq. m interior painted by James Thornhill in 1707-26 with a tumult of kings and queens, beefy nymphs and cherubs, billowing clouds, cascading draperies, allegorical figures including peace, time, truth, Europe and America, and a thinly disguised image of Louis XIV squirming like a serpent while being trampled underfoot.

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One hobby isn't enough. You need three – one that lets you be creative, one that gets you moving physically, and one that will help you meet beneficial social and professional contacts.

The project to restore the dizzying grandeur of the centrepiece of the former Royal Hospital at Greenwich, originally designed by Christopher Wren as a home for old sailors, included commissioning beautiful oak day beds upholstered in crimson leather.

“We want visitors to really take their time to appreciate this extraordinary space,” says Will Palin, the conservation director at the Old Royal Naval College. “But they don’t have to stand there cricking their necks. Now they will be welcome to sit down, or even lie down, and marvel in comfort.”

Apart from gently cleaning the 300-year-old painted surfaces—including a brown stain said to be gravy from a rollicking dinner—and restoring damaged areas, the project included a subtle new lighting scheme and mesh blinds allowing views through the towering windows.

The Painted Hall is not true fresco, but oil paint applied directly on to the plaster. It has survived remarkably through centuries of candle smoke and London grime. Palin salutes his 1950s predecessors, who did him a favour by removing 15 coats of discoloured varnish.

“Mutual Interest Develops in Heritage Restoration,” *China Daily*, 03/22/2019

Italy is a leader in the restoration and conservation of art and archaeology. Its experts are frequently called upon by countries around the world. This includes China, which is second only to the Mediterranean peninsula in terms of UNESCO World Heritage sites.

Gilberto Corbellini directs the Dept. of Human and Social Sciences and Cultural Heritage at the National Research Council (CNR), an institution whose long-standing relationship with China dates back more than 20 years.

In 2014, the CNR entered into an accord with the Chinese Academy of Cultural Heritage. Both institutions selected three-year projects they want to work on together, with each side putting in a share of the financing. “Cultural heritage should be seen as the result of innumerable human choices, stratified over centuries and millennia,” Corbellini wrote in a foreword to the 2018 book *China and Italy: Routes of Culture, Valorization and Management*.

It was edited by CNR researchers Heleni Porfyriou and Bing Yu.

But what makes Italy a leader in this sector and why do Chinese archaeologists and scholars seek out its experts? According to Porfyriou, it is because Italy has an extraordinary tradition in terms of a theoretical approach. For the past eight years, she has been working on a comparative project with China on its so-called “water cities”, which are comparable to Italy’s historic medieval villages, or borghi.

“How Did Raphael Do It? To Find Out, Get Up Close,” *The New York Times*, 03/26/2019

Preparatory cartoons for Renaissance frescoes — the full-scale drawings that artists used to transfer their designs to the wall — rarely survived the finished commission. Functional and fragile, they weren’t meant for posterity.

But thankfully, Raphael’s cartoon for “The School of Athens,” a famous fresco in the Vatican, survived.

Commissioned in 1508, the fresco is part of the decoration of a suite of four rooms in the Pontifical Palace that Pope Julius II used as his residence.

This week the cartoon for the “School of Athens” has gone on public view again after a four-year restoration by the Pinacoteca Ambrosiana, an art gallery in Milan that has had the cartoon in its collection for some 400 years.

The fresco was painted by Raphael and his assistants, and is set just above eye level. The cartoon, however, was drawn by Raphael alone, and the new layout of the room that houses it — now placed inside a state-of-the-art vitrine with nonreflective glass — lets visitors get up close, enough to detect individual charcoal strokes and shading.

One significant restoration of the cartoon was carried out in 1797-78 at the Louvre in Paris, where it ended up after Napoleon’s troops swept through northern Italy in 1796.

Since 1966 it has been on display in its own room at the Pinacoteca, but it was set back behind a guardrail. In the new arrangement, visitors can walk directly up to vitrine, made by the Italian display case experts Goppion, who claim it is the largest single-door vitrine in the world.

Five years ago, the cartoon

came under the scrutiny of a fresh crop of scholars and restorers, who were concerned about its state of conservation. Funded through a private donation, the restoration took four years because of its complex nature, and required various stages of intervention, said the chief restorer, Maurizio Michelozzi.

“Preserving the Sistine Chapel Is a Never-Ending Task. See Stunning Behind-the-Scenes Photos of What It Takes,” *ArtNet News*, 03/28/2019

In the 1980s, the Vatican began an extensive restoration of the Sistine Chapel, clearing away centuries of dirt and grime from Michelangelo’s famed frescos.

When that project ended in 1994, a new one began: the careful monitoring and so-called “preventative conservation” of the works, which are now seen by close to seven million visitors each year.

The name of the game? Constant vigilance. In a special behind-the-scenes look, the *Wall Street Journal Magazine* visited the chapel after hours to see how the delicate artworks are carefully monitored to make sure they are not threatened by contaminants brought in by hoards of visitors (more than 1,000 can crowd in at a time) who inadvertently track in dirt, dust, and leave behind traces of hair and skin.

To preserve the ceiling, the Vatican has installed LED lighting that doesn’t emit UV rays and won’t cause the paintings to fade. There is also a special HVAC system, that keeps the temperature constantly between 22 and 24 degrees Celsius. To keep out impurities, four diffusers bring in and take out air.

At night, staff members painstakingly dust and vacuum the entire museum. (All dust is analyzed to detect bacteria or fungi.) “The humidity must never be more than 60 percent,” Vittoria Cimino, the director of the Conservator’s Office at the Vatican Museums, told the *WSJ*. “The carbon-dioxide level has to be kept lower than 800 parts per million.

All these values have to be kept stable. But the number of people in the room makes that complicated and despite the Vatican’s best efforts, thin layers of contamination inevitably develop.

To prevent the work from being damaged, staff clean the frescos regularly

and remove contaminants while they are still soluble, using a crane-like machine nicknamed the Spider—a Multitel SMX 250 self-propelled tracked platform—to access the high-up paintings.

“J. Paul Getty Trust Gives \$5m to Courtauld Institute for ‘Ethical’ Wall Painting Conservation,” *the i newsletter*, 03/29/2019

The J. Paul Getty Trust will fill a hole in sponsorship of the arts in Britain with a \$5m (£3.8m) grant to the Courtauld Institute of Art to support “ethical” conservation of the UK’s most important medieval wall paintings.

The Los Angeles-based Trust, the world’s wealthiest art benefactors with a £5bn endowment, said the grant demonstrated its renewed commitment to support the UK’s cultural heritage. The award is welcome news for the arts sector, following the National Portrait Gallery’s decision not to accept a £1m grant from the Sackler family, a billionaire branch of which owns a pharmaceutical company implicated in the opioid crisis.

“Ernest Hemingway’s Legacy to be Preserved with New Centre in Cuba,” *Lonely Planet*, 04/02/2019

A state-of-the-art restoration centre has opened in Havana with the aim of preserving Ernest Hemingway’s literary legacy.

The American writer moved to Cuba in 1939, living part-time in his house called Finca Vigia. He wrote much of his two most famous works – For Whom the Bell Tolls and The Old Man and the Sea – at the house which has now been turned into a museum.

The new restoration centre sits on the grounds of the property, which Hemingway donated to the people of Cuba when he left the island for good in 1960. The donation also included the thousands of documents he left behind, including 10,000 letters and 5000 photos, and the house has more or less been left untouched since Hemingway left.

The restoration centre, which includes new laboratories and an air-conditioned vault, will help clean and preserve the items for generations of visitors to come. The project is a successful collaboration between Cuba’s

National Cultural Heritage Council and the US-based Finca Vigia Foundation, despite a setback in diplomatic relations between the two countries in the last couple of years.

“Desperate Battle to save Notre Dame’s Priceless Collection of Art and Relics: Firefighters Formed a Human Chain to Save Treasures – Including the Crown Of Thorns from Jesus’ Crucifixion,” *Daily Mail*, 04/15/2019

Firefighters, police, and churchmen risked their lives last night to carry priceless historical artefacts and religious relics away from the flames which engulfed Notre Dame de Paris.

The Mayor of Paris tweeted her thanks to first responders for forming ‘a formidable human chain’ to save irreplaceable objects including the relic believed by Catholics to be the crown of thorns which was put on Jesus’ head as he died on the cross.

Parisians applauded and cheered fire crews as they drove through the streets in the early hours of the morning. The church’s treasure trove of priceless artworks and religious relics include the Crown of Thorns, a piece of the True Cross, and a nail from the crucifixion. The relics were obtained from the Byzantine Empire in 1238 and brought to Paris by King Louis IX.

Notre Dame is also home to priceless paintings dating back to the 1600s, including a series known as the Petits Mays, gifted to the cathedral once a year from 1630 to 1707. In the 1790s, Notre Dame was desecrated during the French Revolution when much of its religious imagery was damaged or destroyed and its treasures plundered.

The 28 statues of biblical kings located at the west facade, mistaken for statues of French kings, were beheaded. All of the other large statues on the facade, with the exception of that of the Virgin Mary on the portal of the cloister, were destroyed.

The cathedral was restored over 25 years after the publication of the book *The Hunchback of Notre Dame* by Victor Hugo in 1831 brought it into the spotlight. Sixteen statues that were part of the cathedral’s destroyed spire were safe and unscathed after being removed as part of a renovation a few days ago.

“Assassin’s Creed Unity’ & Art Historian’s Laser Scans may Prove Critical to Notre Dame restoration,” *RT.com*, 04/16/2019

As France and the wider world mourns the blaze that gutted the iconic Notre Dame Cathedral, speculation is growing online that help in rebuilding the national treasure may come from the unlikely of places: a video game.

Restoring the French Gothic cathedral to its former glory is a task that will take years if not decades regardless of the resources deployed in the endeavor. However, speculation online suggests that the work of a now-deceased art historian Andrew Tallon in combination with the two-plus years of developmental research that went into faithfully recreating the structure for Ubisoft’s game ‘Assassin’s Creed: Unity’ may provide some hope that the bold restoration project is indeed feasible.

According to National Geographic, Tallon, who passed away late last year, used detailed laser-scanning techniques to produce 3D maps of the iconic landmark in recent years, that are reportedly “accurate to within five millimeters.”

Tallon took scans, in addition to spherical panoramic photographs, from 50 locations in and around the cathedral, collecting more than one billion points of data in the process and capturing the 3D space in immense detail. In addition to Tallon’s impressive efforts, video game artist Caroline Miousse told *The Verge* that she had dedicated two years to modelling the cathedral down to each individual brick while working on Ubisoft’s ‘Assassin’s Creed: Unity’.

“Not only Notre-Dame: Guide to all the Disasters around France by Viollet-Le-Duc,” *LINKiesta*, 04/17/2019

If he were still alive, he would cry more than everyone. The French architect Eugène Viollet-Le-Duc, with the fire of the cathedral of Notre-Dame of Paris, would have witnessed the spectacle of a symbol that is destroyed, but above all would have seen the collapse of much of its creation.

Viollet-Le-Duc was the most famous restorer of medieval buildings in the world, at a time when France was seized by a cultural movement that called for the restoration of medieval heritage.

Notre-Dame was not his only work: he restored (essentially rebuilding it) the cathedral of Saint-Étienne d'Auxerre, he intervened by integrating the medieval part with later structures also at the Cathedral of Notre-Dame d'Amiens.

There is his hand in the recovery of the Basilica of Sainte-Marie Madeleine of Vézelay (an important place of pilgrimage on the road to Santiago), in the church of Notre-Dame de Saint-Père, and in the substantial reconstruction of the Saint-Denis basilica. He also intervened in 14 other important churches.

Viollet-Le-Duc worked often in the midst of controversy over his imaginative reconstructions, including castles and villas. Not to mention the buildings he created from scratch, in full eclectic imaginative neo-Gothic style. For him the restoration of a building was not "maintenance, repair or renovation". It was "to restore it to a complete state that may never have existed in time". In short, an artist who transformed the French architectural landscape.

"Nancy Holt's Sun Tunnels to Undergo Conservation Work," *Art Forum*, 04/24/2019

The Dia Art Foundation announced that it will lead the first major effort to conserve Nancy Holt's iconic Sun Tunnels, 1973–76, in its forty-six-year history.

Located on a remote forty-acre plot in Utah's Great Basin Desert, the important work of Land art was acquired by the organization last year. Consisting of four concrete cylinders that are eighteen feet in length and nine feet in diameter and arranged in an "X" pattern on the desert floor, the work merges Holt's interests in perception and time.

During the summer and winter solstices, the tunnels align with the angles of the rising and setting sun. Each tunnel also has a different configuration of holes that correspond to the constellations Capricorn, Columba, Draco, and Perseus.

Led by Rosa Lowinger, a team of conservators will address cracks in the concrete and damage sustained by erosion, since the tunnels are exposed to extreme temperatures and weather conditions year-round. The project will take place over the course of ten days beginning in May.

"Guggenheim Launches Conservation Fellowship with Help from Russian Billionaire Vladimir Potanin," *The Art Newspaper*, 05/10/2019

One of Russia's richest men has endowed a new fellowship for the conservation of contemporary art at the Solomon R. Guggenheim Museum in New York.

Vladimir Potanin, the billionaire chief executive of Norilsk Nickel, is a longstanding trustee of the Guggenheim Foundation and chairs the board of the State Hermitage Museum. In 2013, he joined the Giving Pledge campaign launched by Bill Gates and Warren Buffet to channel most of his wealth into philanthropy.

His grant-making Vladimir Potanin Foundation, established in 1999, has become a major player in the Russian museums world, supporting exhibitions, educational initiatives and training programmes for cultural leaders. Announced yesterday at the Peggy Guggenheim Collection in Venice, the Vladimir Potanin Conservation Fellowship is open to Russian-speaking conservation professionals (although they are not required to be resident in Russia).

From January 2020, the fellow will spend 12 to 18 months embedded in the Guggenheim's conservation department in New York, supporting treatments and research, including an ongoing study of more than 200 paintings by Vassily Kandinsky in the museum's collection.

As artists' practices evolve to incorporate new technologies, conservators internationally "are dealing with challenges we've not met before", says Lena Stringari, the Guggenheim's deputy director and chief conservator. The Guggenheim has taken a pioneering role in the field, launching initiatives to preserve video, performance, conceptual art and, most recently, computer-based works that "defy rigid concepts of conservation", Stringari says.

"Eye of the Beholder: Preserving Public Art for Future Generations," *Charleston Gazette-Mail*, 05/16/2019

When the McKay Lodge Conservation Laboratory came to Charleston to assess Charleston's public art collection as part of a National

Endowment for the Arts grant, they quickly prioritized the most urgent projects — important pieces of public art that were showing the signs of corrosion from decades of exposure to the elements.

The two pieces that needed the most immediate conservation treatment were the Henry Gassaway Davis sculpture at Davis Park, and the "Cabriole" sculpture, both in downtown Charleston.

McKay Lodge returned to Charleston in April to begin the restoration process with "Cabriole." While past conservation efforts had helped to preserve the piece, it had sustained minor corrosion. The conservation treatment is meant to stabilize the surface of the sculpture while improving the appearance of the bronze.

There were many steps to the process, including cleaning, and coating with hot wax, which is the most effective way to keep sculptures from corroding. The sculpture of Henry Gassaway Davis, a millionaire and West Virginia senator, needed more advanced conservation techniques.

This piece was created in 1926, 10 years after his death. Very little conservation had been done since the sculpture was originally installed. The first step was to remove the decades of corrosion from the bronze with a water-based blasting system. The next step was to apply a chemical patination, which creates an environment for the patina process to occur more rapidly. This step is crucial to restoring the bronze to its original statuary brown surface color.

Proper conservation and maintenance planning will prevent long-term damage and expensive restoration expenses in the future. Moving forward the hope is that the sculptures will be hot-waxed every three to five years. Conservation of public art is as important as creation of new works.

"Aquatic Park Bathhouse Marks 80th with Restored Murals," *NBC Bay Area*, 05/16/2019

A roomful of trippy, nautical-themed murals that were covered-over with paint 50 years ago, are emerging from a long restoration and open to the public for the first time in decades.

The murals, which include abstract renditions of tugboats and nautical symbols, have occupied the third floor of the historic Aquatic Park Bathhouse building at San Francisco's northern waterfront since it opened in 1939. The iconic building — created in the shape of a ship — is marking its 80th anniversary this year.

The murals were painted by artist Richard Ayer under the federal Works Progress Administration. Ayer's murals and reliefs in the building survived until 1976 when they were covered over with white paint as part of a remodel job. "This remodel did a lot of damage to the murals themselves," said fine art restorer Anne Rosenthal.

In a recent effort to restore the murals, Rosenthal spent months painstakingly removing the paint and repainting the images — a feat made even more challenging by the lack of photos showing the room's original appearance.

Ayer's images featured a pair of tugboats drifting over a doorway, a large ship wrapped around a wall, an actual cord of rope looped around a wall near a pair of relief fishes. The granite floor was also decorated in nautical motifs, and doorknobs in the room were also shaped like ship's wheels.

The room's windows open up to sweeping views of the actual bay and historic ships bobbing on the nearby Hyde Street Pier. "Everything in this building is deliberate," Rosenthal said, "the walls, the floors, the hardware."

The WPA program carried-out a long-envisioned dream of transforming the industrial waterfront into Aquatic Park — which included the bathhouse building — intended as a nautical palace. "I think that a lot of San Franciscans recognize this building but never come in to see it," said Rosenthal. "It's entirely unique, I've never seen anything like it."

"Restoration 3D technology," *Engineering & Technology*, 05/22/2019

From the nose of the Great Sphinx of Giza to the arms of the Venus de Milo, anatomical extremities have always posed a long-term problem for sculptors. All too often, fragile fingers, noses and toes leave classical and ancient works disfigured. However, these 3D parts can now be restored with the help

of modern technology.

Mattia Mercante, a Florence-based restorer, has been involved in a range of projects on important statues and other artefacts, using 3D scanning and 3D printing to restore stone, wood, metal and ceramic works.

Mercante uses scanning machines from Creaform and HP to build a complete picture of a statue, which he then puts through a number of software programs. Once a representation of the statue or work has been made, he creates digital models of any parts that are to be replaced. Then he uses 3D printers from FormLabs to create exact replicas of any missing digits or other features to be replaced.

One recent project with this approach involved printing out fingers which could exactly replace lost fingers on a marble funeral sculpture. Besides giving visitors to museums and other historical centres an idea of the artist's original intentions, this approach can open up many art works to part of the population who could not otherwise enjoy them: blind people.

Mercante describes how 3D scanning and printing can be used to create exact replicas of historical pieces of art, allowing people with no sight to touch works where the original would be out of bounds.

"Notre Dame: Experts Explain Why Macron's Five-Year Restoration Deadline is Impossible," *The Art Newspaper*, 04/26/2019

Heritage experts warn that restoring Notre Dame de Paris after the devastating fire of 15 April will be so complex that it could take a decade or more, despite President Emmanuel Macron's vow to rebuild the cathedral within five years.

The great unknown remains the stability of the cathedral's stone vaults, which were exposed to searing heat for hours. Engineers and scientists will need to test whether the stones were permanently weakened by the heat of the blaze, followed by the shock of the cold water used by firefighters. "Limestone can lose about 75% of its strength when it's exposed to heat over 600°C," says George Wheeler, a leading expert in stone conservation.

Once the debris inside the

cathedral has been cleared for forensic analysis, specialists can mount scaffolding to conduct systematic ultrasonic pulse velocity tests, "pinging" the stones and listening to the reverberations to detect potential areas of weakness.

Another immediate priority must be the removal of the several thousand tons of water used to extinguish the fire. The water that firefighters pumped into Notre Dame, "will create work [for restorers] for months and maybe years, by infiltrating the ancient mortar and causing mould", says the architectural historian Alexandre Gady.

Considerable survey work will be needed simply to understand how the loss of roof timbers has affected the system of loading patterns that supported the building for 800 years. The daunting prospect of replicating the cathedral's "forest"—roof timbers made of 1,300 oak trees that were as much as 400 years old when they were felled in the 12th and 13th centuries—has sharply divided opinion in France.

Rémi Desalbres, the president of France's association of heritage architects, refutes the theory that the wooden roof frame could be replaced by a lighter structure, adding that any decision to deviate from the original material would be viewed as a "betrayal" by French preservationists.

As for the carpenters, there is an "educational opportunity" to train new artisans in the woodworking and masonry techniques needed for Notre-Dame, says the director of the Paris-based Unesco World Heritage Centre, Mechthild Rossler.

Macron's government has already launched a programme to recruit young apprentices into specialist art trades in a bid to meet the president's five-year timescale for the reconstruction. But even with the manpower and materials assured, "you could argue about the conservation issues forever", Richard Carr-Archer says.

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On days like today you're better off not calling it a success, a failure, or even a wash. Just have the courage to continue.