

¹³Baglioni, Piero, et al. "An Amine-Oxide Surfactant-Based Microemulsion for the Cleaning of Works of Art." 2015.

References

Abraham, M.H., et al. "The Use of Scales of Hydrogen-Bond Acidity and Basicity in Organic Chemistry." *Rev. Port. Química* 31, 1989, pp. 85–92.

Baglioni, Piero and David Chelazzi. *Nanoscience for the Conservation of Works of Art*. Royal Society of Chemistry, 2013.

Baglioni, Piero, et al. "An Amine-Oxide Surfactant-Based Microemulsion for the Cleaning of Works of Art." *Journal of Colloid and Interface Science*, vol. 440, 2015, pp. 204–210., doi:10.1016/j.jcis.2014.10.003.

Baglioni, Piero, et al. "Dewetting Acrylic Polymer Films with Water/Propylene Carbonate/Surfactant Mixtures – Implications for Cultural Heritage Conservation." *Physical Chemistry Chemical Physics*, vol. 19, no. 35, 2017, pp. 23723–23732., doi:10.1039/c7cp02608k.

Baglioni, Piero, et al. "Micelle, Microemulsions, and Gels for the Conservation of Cultural Heritage." *Advances in Colloid and Interface Science*, vol. 205, 2014, pp. 361–371., doi:10.1016/j.cis.2013.09.008.

Baglioni, Piero, et al. "Nanostructured Fluids from Degradable Nonionic Surfactants for the Cleaning of Works of Art from Polymer Contaminants." *Soft Matter*, vol. 10, no. 35, 2014, pp. 6798–6809, doi:10.1039/c4sm01084a.

Baglioni, Piero, et al. "Polymer Films Removed from Solid Surfaces by Nanostructured Fluids: Microscopic Mechanism and Implications for the Conservation of Cultural Heritage." *ACS Applied Materials & Interfaces*, vol. 7, no. 11, 2015, pp. 6244–6253, doi:10.1021/acsami.5b00534.

Baglioni, Piero, et al. "Surfactants Mediate the Dewetting of Acrylic Polymer Films Commonly Applied to Works of Art." *ACS Applied Materials & Interfaces*, vol. 11, no. 30, 2019, pp. 27288–27296., doi:10.1021/acsami.9b04912.

Baglioni, Piero, et al. "The Use of Surfactants in the Cleaning of Works of Art." *Current Opinion in Colloid & Interface Science*, vol. 45, 2020, pp. 108–123., doi:10.1016/j.cocis.2019.12.007.

Kralchevsky, P. A., et al. "Kinetics of Triglyceride Solubilization by Micellar Solutions of Nonionic Surfactant and Triblock Copolymer. 1. Empty and Swollen Micelles." *Langmuir*, vol. 18, no. 21, 2002, pp. 7880–7886., doi:10.1021/la020365s.

Kralchevsky, P. A., et al. "Kinetics of Triglyceride Solubilization by Micellar Solutions of Nonionic Surfactant and Triblock Copolymer. 2. Theoretical Model." *Langmuir*, vol. 18, no. 21, 2002, pp. 7887–7895., doi:10.1021/la020366k.

Stavroudis, Chris and Soraya Alcalá. "Nano-Lime, Emulsions, Gels, and Nanostructured Materials." *WAAC Newsletter*, vol. 40, no. 3, Sept. 2018, pp. 18–22.

"Light Relief: Could New Lighting Technology Avert the Need for Restoration?" *The Art Newspaper*, 01/31/2020

Lighting affects our perception of a work of art. Just ask Robert van Langh, the head of conservation and science at the Rijksmuseum, where the Netherlands's most famous painting, Rembrandt's *The Night Watch*, is undergoing the most ambitious conservation effort in its 378-year history.

A chance observation made when the 1642 painting was temporarily relocated to a side gallery alerted the museum staff to details that had been previously thought lost, such as the architectural background.

Changes in technology over the past decade have transformed art lighting from a presentational aid to a tuneable precision tool that can function as a non-invasive means of limiting the need for traditional restoration techniques. The steady replacement of traditional halogen lamps with energy-efficient LEDs has resulted in significant savings for museums and galleries, while reduced heat emissions and little to no ultraviolet or infrared radiation have lowered (though not eliminated) the risks posed to works of art from light sources, thereby granting greater freedom to conservators and curators.

The treatment plan for *The Night Watch* has yet to be determined, Van Langh emphasises, and while he was not prepared to say whether lighting might offer a substitute for other conservation steps, he makes it clear that non-invasive interventions are always preferable.

Van Langh insists that observations must be substantiated by science, with one likely source of data a map of the painting's chemical constituents currently being compiled through macro X-ray fluorescence (XRF) scans. For now, Van Langh is focused on establishing "which wavelengths of light to use so that we see as much as possible of *The Night Watch*".

"'The Scream' is Fading. New Research Reveals Why." *The New York Times*, 02/07/2020

"The Scream" is fading. Tiny samples of paint from the 1910 version of Edvard Munch's famous image of angst have been analysed as scientists have used cutting-edge technology to try to figure out why portions of the canvas that were a brilliant orangeish-yellow are now an ivory white.

The research also provides insight into Munch and how he worked, laying out a map for conservators to prevent further change, and helping viewers and art historians understand how one of the world's most widely recognized paintings might have originally looked.

Jennifer Mass, the president of the Scientific Analysis of Fine Art lab in Harlem, whose team is on "The Scream" research, explained the science. Nanocrystals are growing on the painting — stark evidence of the degradation near the central figure's mouth, in the sky and in the water. Dr. Mass's team was able to narrow down Munch's paint choices using his paint tubes, some 1,400 of which are held by the Munch Museum.

Over time, with exposure, the yellow cadmium sulfide has oxidized into two white chemical compounds, cadmium sulfate and cadmium carbonate. The analysis, Dr. Mass said, has implications for Impressionist through Expressionist paintings made between the 1880s and the 1920s painted with cadmium yellow, 20 percent of which she estimates are experiencing

similar phenomena. Recapturing these hues is impossible, but science can get us closer.

“HBCU Students Restore 1940s African American Art in Delaware”
WHYY PBS, 02/11/2020

In the late 1800s and into the early 1900s there was a big trend of exhibitions and world’s fairs. Unfortunately, the world’s fair has a long history of racism. At the Chicago World’s Fair in 1933, “African Americans were shoved in the back in little shanties and they couldn’t even come to the main part,” said Joyce Hill Stoner, director of preservation studies at Winterthur Museum in Delaware.

After years of work, the 1940 American Negro Exposition in Chicago finally put the spotlight on African American heroes, both historic and of that time. The event featured 12-foot-long murals and 33 diorama boxes.

The creations depict scenes as far back as the construction of the Sphinx in Egypt some 4,500 years ago. They trace African American history from the arrival of the first enslaved people in Virginia in 1619 to the Reconstruction era following the Civil War.

The exhibits were on display for two months in 1940. Most of what was created for these fairs was designed to be temporary. The dioramas were rescued from being destroyed by artist Charles Dawson, who helped organize the exposition. Dawson transported 20 of the 33 dioramas from Chicago to Tuskegee, AL.

“They were 60% destroyed when they got to Tuskegee,” Stoner said. For decades, the dioramas remained hidden in an Alabama basement.

Now, meticulous restoration work is underway at Winterthur Museum. The larger goal of the restoration effort is encouraging African American art students to study the chemistry and art history needed to work in conservation.

Only 1 to 2% of conservators are African American, Stoner said. “So by these displays, by our tours and by the four students we’re accepting each June to work on the dioramas, we’re getting more African American undergrads excited, we hope, about the rather complicated background you need as a conservator.”

“Work on Notre-Dame in Paris Halted by Coronavirus”
ArtDaily Newsletter, 03/17/2020

French authorities halted restoration work on the fire-ravaged Notre-Dame cathedral in Paris on Monday as the country braces for additional measures to contain the spread of the coronavirus.

Workers at the historic landmark in the centre of the French capital had been dismantling the molten metal scaffolding around the church’s spire, which collapsed in the catastrophic blaze last April.

Officials told AFP that decontamination measures set in place to deal with danger from the huge quantities of lead that melted in the fire were incompatible with rules set down to deal with the coronavirus.

“Newly Attributed Artemisia Gentileschi Painting of David and Goliath Revealed in London”
The Art Newspaper, 02/28/2020

Ahead of the first major UK exhibition of the work of Artemisia Gentileschi, a London conservation studio has unveiled a painting newly attributed to this best-known female artist of the Italian Baroque.

The large oil on canvas depicts David and Goliath, a favourite Biblical subject for both Artemisia and her father, Orazio Gentileschi. When the work was sold at Sotheby’s in 1975, it was attributed to Giovanni Francesco Guerrieri. However, by the time it resurfaced in 2018 at Hampel Fine Art Auctions in Munich, Artemisia had entered the art historical canon, and the work came under scrutiny from scholars and dealers.

It was reattributed at the eleventh hour to Artemisia, selling to a UK-based collector who engaged the private conservator Simon Gillespie to restore the painting in London. Gillespie and the Italian scholar Gianni Papi, a Caravaggio and Gentileschi specialist, back the new attribution of David and Goliath to Artemisia in the latest issue of the Burlington Magazine.

Gillespie’s restoration also uncovered the faint signature “Artemisia” and “16-“ along the blade of David’s sword. Such images of strong, vengeful women have often been read in the light

of Artemisia’s own biography, which has resonances in the age of #MeToo.

Aged 17 and already an accomplished painter, Artemisia was raped by an artist acquaintance of her father, Agostino Tassi, who was later tried and found guilty. Artemisia was tortured in court to prove her testimony was true. After a gruelling and high-profile trial, she was hastily married off and moved to Florence, where the “shameful” story would be less well known.

The tables were turned in Gentileschi’s work. According to a new biography by the Guardian newspaper’s art critic Jonathan Jones, she was “the most radical of [Caravaggio’s] followers... building brilliantly on his revelation that art and life are doubles of each other”.

“Greasy Scumbags Vandalize Sacred Uluru’s Ancient Aboriginal Rock Art,”
Ancient Origins, 03/01/2020

Uluru, or Ayers Rock, is the massive natural sandstone monolith standing at the sacred heart of Australia’s Northern Territory’s ‘Red Centre’ and after years of abuse, now, ancient Aboriginal rock art at the base of Uluru has been vandalized with vegetable oil.

According to an ABC News report, the park’s tourism manager said that about a third of the cave art was covered in vegetable oil, partially obscuring the paintings, and police are consulting the national park body with contractors to plan how to best repair the damage.

The cave containing the art fills with water during periods of rain and a viewing platform had been installed above this basin for tourists, which limits how close people can get to the ancient art. But Baldwin says the oil had been “thrown” from the platform.

Traditional owner Leroy Lester said the community was discussing its response to the damaged rock art, which he said was “old and important” to them. He suggested more education is needed regarding Uluru’s importance and explained that the art tells “creation stories” all around the base of Uluru and they “link to the landscape around Uluru.” This makes them very important to the ancestral people who protect the ancient site.

While a criminal charge looms over the perpetrator(s), Australian police

said they don't yet know who carried out the crime and they couldn't even begin to guess at this stage why someone used vegetable oil to deface the ancient art.

Meanwhile, the sites traditional owners and Parks Australia are consulting with a Melbourne-based consultant who is very experienced in rock art restoration about how to best restore the paintings without causing them any further damage. So far, the advice they have been given was "to do nothing reactively or quickly" so that the restoration project unfolds in a careful and a considered way.

"Restoration of 'The Blue Boy' Complete at California Museum" *US New and World Report*, 02/28/2020

An 18-month restoration of Thomas Gainsborough's "The Blue Boy" has been completed and the circa 1770 painting will go back on display next month at The Huntington Library, Art Museum, and Botanical Gardens in Southern California.

The conservation process involved high-tech data gathering and analysis and more than 500 hours of work to remove old overpaint and varnish, repair structural materials and restore areas where paint was lost due to flaking and abrasion, the institution said in a statement Thursday.

"Now, minute shades of color, fine brushstroke textures, and nuanced details of the famous figure of a young man in a blue satin costume, as well as the landscape in which he stands, are once again legible and closer to what Gainsborough intended," it said.

Huntington President Karen R. Lawrence said the painting has been the star of its collections since it opened as the first old masters museum in the Los Angeles area in 1928. "The Blue Boy" will be returned to public display on March 26.

"Blockbuster Raphael Show Opens in Rome Amid Coronavirus Angst, Conservation Row," *France24*, 03/05/2020

An exhibition marking the 500th anniversary of Raphael's death opens in Rome this week, with experts hailing a once-in-a-lifetime opportunity to admire the Renaissance artist's greatest works in a single show.

But the event's opening has been marred by the coronavirus outbreak sweeping Italy and a row over a treasured portrait some feared was too fragile to move.

The paintings, drawings, tapestries and sketches on show at the Scuderie del Quirinale – the most ambitious collection of Raphael's works to date – are collectively insured for €4 billion (\$4.4 billion) against theft, vandalism or other damages.

But no amount of money can guarantee that Italy's outbreak of coronavirus, the largest in Europe, won't play havoc with the three-month run in Rome of this year's eagerly-awaited art blockbuster.

The Roman gallery has sold almost 70,000 tickets in online sales even before the doors open to the public, a record for such an exhibition here, but the government battle to halt the infection could yet wreck the event.

The curators have managed to bring together 204 works of art, including 120 by Raphael himself and other pieces that give an insight into the times he lived. "I am sure we will never see again such a concentration of works by Raphael together in one venue as we do here," said Eike Schmidt, the director of Florence's Uffizi museum which itself offered up nine paintings and 40 drawings.

The entire scientific committee of the Uffizi Galleries has resigned in protest of the museum's decision to lend Raphael's portrait of Pope Leo X when it advised against it. The committee said the portrait of Pope Leo X was core to the identity of their collection and should never be let out of Florence, arguing that the work was too fragile to be moved. Schmidt overruled them, deciding that such an iconic painting deserved to return to the city it was created in.

"The Prado Museum's Unsung Workers Step into the Limelight", *The New York Times*, 03/11/2020

Manolo Osuna lacks a formal art education, but he has spent years roaming the galleries of the Prado Museum as a guard and leader of a brigade that hefts national treasures by Spanish masters like Velázquez and Goya around the building.

With that background, Mr.

Osuna has emerged from an invisible role at the museum to become an unlikely art critic in an Instagram video series that has become a hit. The videos have attracted a growing international following of up to nearly 100,000 daily viewers.

For many fans, to listen to the videos has become a routine breakfast ritual, in which art specialists share equal play with the men and women who guard the galleries, restore Goya paintings or analyze medieval pigments in the museum's lab.

The attention to unsung employees is something of a rarity for international museums, where demoralized lower-tier staff members in recent years have banded together to form online support networks. The creator of the Prado's Instagram series is Javier Sainz de los Terreros, 37, who never appears on camera but whose soft, anonymous voice guides viewers through the galleries.

If he misses a morning, he gets inquiries about his health from viewers. The videos often feature the unhurried, deliberate work of employees such as Elisa Mora, a restoration expert who is just beginning to contemplate the renovation of a Goya portrait of the Countess of Chinchón.

More than 99,000 people watched Ms. Mora's video on Instagram and 260,000 on Facebook, and many comments praised the quick lesson in the makeover process. The museum is working on an alliance with the American Friends of the Prado Museum to create videos in English. Museums in Málaga and Venice have sought the Prado's advice about creating their own live Instagram videos.

"Ancient Egyptian Mummy Reveals her Secrets to Perth Conservation Team"

The Courier.co.uk, 03/14/2020

The Perth Mummy has been resident inside the gallery since the 1930s and now visitors to the museum can watch as conservators carry out their expert work.

The exhibit, a survivor from the time the pyramids were built, is being prepared as a star attraction for the soon-to-be launched Perth City Hall museum. The 3,000-year-old priestess Ta-Kr-Hb – pronounced Taherheb – has

been a source of fascination since she was first presented to Perth Museum and Art Gallery in the 1930s.

A conservation programme is now under way, and Ta-Kr-Hb has come out of her coffin so she can be fully assessed.

The lower part of the coffin is a forensically rich environment featuring soil, plants and insects. The conservation team at the museum is confident scientific analysis of these substances, as well as the resin used to cover the bandages, will reveal more about the mummification process and the places her body was kept.

Perhaps the most exciting development so far is the discovery of painted figures on the internal and external bases of the trough. They are representations of Egyptian goddess Amentet or Imentet, known as ‘She of the West’ or ‘Lady of the West.’

The best preserved of the two paintings is on the inside of the coffin and had been hidden by Ta-Kr-Hb’s body. It shows the goddess in profile, her arms slightly outstretched and standing on a platform, indicating the depiction is of a holy statue or professional figure.

Conservators Helena and Richard Jaeschke have been working closely on the project with the Culture Perth and Kinross’ Conservation in Action team. The conservation project is the first time Perth Museum has hosted this style of display, bringing meticulous preservation work into the public domain, allowing visitors to get a glimpse behind the curtain.

“Thyssen-Bornemisza Museum restores Canaletto’s ‘The Piazza San Marco in Venice’” *ArtDaily Newsletter*, 03/17/2020

The Thyssen-Bornemisza Museum has completed the technical study and restoration initiated more than a year ago of Canaletto’s painting *The Piazza San Marco in Venice*.

Painted between 1723-1724, the painting is one of the few works by Canaletto in a Spanish museum and one of the most representative of his style and finest quality.

The museum’s restorers removed old varnish and areas of deteriorated repainting while also reintegrating some areas of paint loss. This has been a complex and delicate undertaking due to the damaged and

altered state of the pictorial layer, particularly in the darkest zones and due to the presence of old areas of repainting and different layers of oxidised varnish.

For this reason, the entire restoration process has benefited from a supervisory procedure by the museum’s laboratory, which evaluated the risks of intervention at each moment. This allowed for any necessary adjustments to be made to the working method and the techniques employed on the basis of the results obtained.

The painting was relined at an unknown date and its original size was altered, with around 2cm of the canvas folded over the stretcher at the top and another 2 cm added at each side, modifying the original dimensions.

The cleaning has revived the crispness and precision of the numerous details in the composition, such as the figures, either alone or in groups, the architectural and ornamental elements, the market stalls with animals and other objects, etc.

Some small details that were difficult to see with the naked eye have now reappeared and can be appreciated in the macrophotographs taken. These images bring us closer to Canaletto’s working method and to his mastery in the depiction of minute details, painted with rapid but very precise brushstrokes.

“Met Museum Prepares for \$100 Million Loss and Closure till July”, *The New York Times*, 03/18/2020

In a powerful sign that casualties of the coronavirus outbreak include even the country’s strongest cultural institutions, the Metropolitan Museum of Art is projecting a total shortfall of close to \$100 million for the near future and expects to be closed until July.

The Met is an important canary in the coal mine for arts institutions all over the country; when the museum announced on March 12 that it was closing, others followed close behind.

If even a behemoth like the Met — with an operating budget of \$320 million and an endowment of \$3.6 billion — is anticipating such a steep financial hit, smaller institutions may not be able to survive at all.

About a third of museums surveyed in the United States were operating in the red or close to it before coronavirus, said Laura Lott,

the president and chief executive of the American Alliance of Museums, a professional association that has urged Congress to include \$4 billion in relief for museums.

The Met has developed a three-phase response: having all staff members work from home and continue to be paid through April 4 as the museum evaluates possible furloughs, layoffs and voluntary retirements; from April to July, evaluating how to control spending and reduce operating costs, including freezing discretionary expenditures and hiring; and from July to October, “reopening with a reduced program and lower cost structure that anticipates lower attendance for at least the next year due to reduced global and domestic tourism and spending.”

The Met, which estimates the overall damage from the virus will be spread over this fiscal year and next, is also creating an emergency fund of more than \$50 million by reallocating discretionary resources usually used for acquisitions and programming toward operating expenses, fund-raising from foundations and donors and pursuing government assistance.

Looking at lost revenue, together with carrying costs, the Met estimates losses around \$60 million through the end of the fiscal year on June 30. The museum estimates another \$40 million in lost revenue heading into July and the expected early phases of recovery.

“Swiss Museum Settles Claim Over Art Trove Acquired in Nazi Era”, *The New York Times*, 03/27/2020

Twelve years after the city of Basel, Switzerland, rejected a claim for restitution of 200 prints and drawings in its Kunstmuseum, officials there have reversed their position and reached a settlement with the heirs of a renowned Jewish museum director and critic who sold his collection before fleeing Nazi Germany.

In 2008, the museum argued that the original owner, Curt Glaser, a leading figure in the Berlin art world and close friend of Edvard Munch, sold the art at market prices. The museum’s purchase of the works at a 1933 auction in Berlin was made in good faith, it said, so there was no basis for restitution.

But after the Swiss news media unearthed documents that shed doubt

on that version of events, the museum reviewed its earlier decision and today announced it would pay an undisclosed sum to Glaser's heirs.

In return, it will keep works on paper estimated to be worth more than \$2 million by artists including Henri Matisse, Max Beckmann, Auguste Rodin, Marc Chagall, Oskar Kokoschka, Ernst Ludwig Kirchner and Erich Heckel.

Among the most valuable pieces are two Munch lithographs, "Self Portrait" and "Madonna." The Kunstmuseum said it also plans to mount a comprehensive exhibition in 2022, in consultation with the heirs, about Glaser's role as "a collector, art historian, critic and museum director."

"Philly Museums and Med Students Band Together to Donate Protective Gear to Front-line Health-care Providers", *The Philadelphia Inquirer*, 03/30/2020

In the scramble to find PPE — personal protective equipment, an acronym unknown to most just a month ago — some unexpected groups have stepped up with donations to help out the area's hard-pressed hospitals, all of which say they are running critically short of protective gear.

Museums and art schools, it turns out, use PPE virtually daily in their conservation departments and to care for and create artworks. At the University of Pennsylvania Museum, as word of shortages spread, officials knew they had a stockpile of PPE stashed away.

"The head of conservation went down into the belly of the beast" — the museum's basement storage — "and basically gave them everything," said a museum spokesperson. Anna Dhody, curator at the College of Physicians of

Philadelphia's Mutter Museum, closed now for more than two weeks, returned to the building on South 22nd Street last week and gathered up 20 boxes of gloves, a pair of wrapped goggles, gowns, packages of hair nets, respirator cartridges, and a few full-body Tyvek suits. Down in the basement conservation lab, she pulled out everything she could find that might be useful to hospitals. The cartload of supplies was picked up by Penn medical students at the end of last week.

The med students have organized PPEnn PALS, a growing

effort to gather supplies from across the region for donation to the Hospital of the University of Pennsylvania, although the effort is almost certain to be broadened to include other facilities as the pandemic engulfs the region.

The Philadelphia Museum of Art, the Barnes Foundation, and the Pennsylvania Academy of the Fine Arts contributed a significant supply of masks, respirators, gloves, shoe covers, and Tyvek suits.

As of last week, the students had solicited and delivered more than 5,650 face masks, 1,700-plus N95 respirators, more than 380 face shields and safety glasses, more than 500 boxes of gloves, and 1,100 pairs of sterile surgical gloves.

"Germany Offers Help in Restoring Notre Dame's Stained-glass Windows," *The Art Newspaper*, 04/15/2020

A year after the devastating fire at Notre-Dame cathedral in Paris, Germany has put forward concrete proposals for its role in the reconstruction including funds from the government and donors and expertise in stained glass and cathedral restoration.

A fund-raising campaign launched in Germany a day after the fire has raised more than €450,000 according to a statement issued by Armin Laschet, the prime minister of the state of North Rhine-Westphalia, and Culture Minister Monika Grütters.

"The reconstruction of Notre-Dame offers an opportunity to become a European symbol of hope," Laschet said. "For me this reconstruction is also a symbol of German-French friendship." Germany's contribution is to be coordinated by Barbara Schock-Werner, formerly the official in charge of conservation at Cologne Cathedral, the statement said.

"German cathedrals' glass workshops can offer real help," Grütters said. The exact scope and nature of Germany's contribution will be determined in the coming months on the basis of studies on the ground, the statement said, adding that three glass workshops at German cathedrals have the extensive expertise and experience necessary to undertake the restoration of the clerestory windows. Germany would cover the costs of restoring the upper windows, Grütters said.

"X-ray Analysis Sheds Light on Construction and Conservation of Artefacts from Henry VIII's Warship" *EurekAlert.com*, 04/28/2020

Three artefacts believed to be remains of chainmail recovered from the hull of the Tudor ship Mary Rose have been analysed by an international team of scientists led by the Universities of Warwick and Ghent using a state-of-the-art X-ray facility called XMaS (X-ray Materials Science) beamline.

They analysed three brass links as part of continuing scientific investigations into the artefacts recovered during the excavation of the wreck.

Often considered to be King Henry VIII's favourite warship, the Mary Rose sank in the Solent during a battle with a French invasion fleet in 1545. Over time the silts covered and preserved its remains as a remarkable record of Tudor naval engineering and ship board life.

In 1982 the remaining part of the hull was raised and is now housed in the Mary Rose Museum in Portsmouth alongside many thousands of the 19,000 artefacts recovered.

The three artefacts were subjected to different cleaning and conservation treatments to prevent corrosion. This research also analysed the surface chemistry of the brass links to assess and compare the levels of corrosion between the different techniques, finding that all had been effective at preventing corrosion since being recovered.

The analysis shows that basic measures to remove chlorine followed by storage at reduced temperature and humidity form an effective strategy even over 30 years.

"Spongy Hydrogels Clean Textured Paintings", *Physics Today*, 05/01/2020

Piero Baglioni and colleagues at the University of Florence in Italy have developed a polymer hydrogel that safely removes dirt from the roughest of painted surfaces.

But gels aren't all created equal; their diverse chemical, mechanical, and structural properties affect their cleaning performance

Baglioni and colleagues' idea is to use the tools of soft-condensed-matter physics to design new materials tailored to the needs of art conservation.

In search of a mechanically compliant gel, the Florence researchers turned to polyvinyl alcohol (PVA). Some of its advantageous properties stem from its gelation mechanism. A PVA hydrogel can be solidified simply by freezing and thawing a solution of PVA in water.

It is soft enough to drape over the peaks and into the troughs of a rough painted surface. It is not, however, effective at cleaning. The problem is the gel's pore structure. Ice crystals in PVA grow long, thin, and straight, hardly ideal for fluid mobility and dirt pickup.

It's known that a PVA gel's properties can be tuned by repeating the freeze-thaw cycle more than once. Subsequent cycles widen the pores while retaining their shape. But repeated cycling also makes the PVA walls a bit thicker and thus more rigid.

Baglioni's pivotal idea was to try making a hydrogel out of a mixture of PVA molecules of two different lengths. The resulting tangle, Baglioni reasoned, must have some effect on the size and shape of the ice crystals and thus on the gel's pore structure.

That effect turned out to be surprisingly dramatic. Instead of having long, thin pores, the twin-chain PVA gel, as it's come to be known, looks more like a sponge. When tested on a mock painting, the twin-chain gel proved excellent for cleaning.

As the gel rests on the soiled painting, water gradually evaporates from its upper surface. To compensate, water from the lower surface gets pulled through the interconnected pores into the gel bulk—and the dirt from the painting get pulled with it. Dirt particles are more reliably removed when they're lodged in the gel's pores rather than clinging to its surface. "But this is all still a hypothesis," says Baglioni. "We were working on testing it when the coronavirus hit."

"No Crowds Delight Art Lovers in Italy at Reopened Museums," *Associated Press*, 06/03/2020

Uffizi Galleries, the most-visited museum in Italy, is open after three months of COVID-19 lockdown, delighting art lovers who don't have to jostle with throngs of tourists thanks to new social distancing rules.

Uffizi director Eike Schmidt told *The Associated Press* on Wednesday that the government-ordered closure

of museums during coronavirus containment measures meant 1 million fewer visitors and 12 million euros (\$13.2 M) in less revenue for that period.

Now, at most 450 people at one time are allowed in the Uffizi's many galleries, chock full of some of the art world's greatest masterpieces. Schmidt said social distancing heralds a new era in art experience. Without being surrounded by rushing crowds, art lovers can better "feel these emotions that these works of art always transmit," he said. **"Getty Conservation Institute Helps Museums Rethink Stringent Guidelines on Conservation,"** *The Art Newspaper*, 05/22/2020

Museums are under increased pressure to find sustainable solutions to managing their collection environments. The one-size-fits-all approach traditionally applied to temperature and relative humidity levels for objects, regardless of what material they are made of, is expensive and can thwart an institution's efforts to reduce its carbon footprint.

With the help of conservators, scientists and other specialists, museums are beginning to adopt less stringent parameters that consider the specific needs of individual objects, as well as the history of their collections, which in turn could pave the way for more loans.

To aid this effort, the Getty Conservation Institute (GCI) in Los Angeles is leading the Managing Collection Environments (MCE) initiative, which combines scientific research with much-needed education.

The original guidelines, which were developed in the 1970s, set the optimum environment at 20°C ± 2°C (70°F ± 4°F) and 50% ± 3% relative humidity.

In 2014 the International Institute for Conservation and the International Council of Museums' Committee for Conservation adopted a more relaxed set of parameters, while a recent revision in a handbook published by the American Society of Heating, Refrigerating and Air Conditioning Engineers addressed the issue of different climactic zones and the importance of using the historic average of an institution's collection as a starting point.

Joel Taylor, a project lead on the Getty's MCE initiative, says the original guidelines are still so embedded in experts' everyday thinking that people

worry that "they are introducing risk that has not been there before" by not adhering to them.

But as his project co-lead Kathleen Dardes, who is head of collections at the GCI, points out: "We fell into this trap because many determined their environments based on the capabilities of what their heating and air-conditioning systems were providing, as opposed to what the objects could actually tolerate, what type of environment the museum was located in or what type of building the collection was in."

"Vatican Museums Reopening Unveils Restored Raphael Rooms," *Catholic News Agency*, 06/02/2020

After being closed for three months due to Italy's coronavirus outbreak, the Vatican Museums opened their doors June 1 allowing only 1,600 visitors -- under 10% of its usual tourist traffic -- to enter the museums, with additional safety measures.

These visitors to the museums were some of the first to see the restoration of two paintings that art historians believe to be the last works of Raphael.

During the five year restoration process of the 16th century frescoes in the Hall of Constantine, the largest and most recent of the four Raphael Rooms in the Vatican, technical and scientific analysis revealed that two figures in the scenes were distinct in their brushstrokes and technique.

Guido Cornini, the scientific director of restoration of 15th and 16th century works for the Vatican Museums, confirmed that two female figures in the scene, allegorical figures for justice and friendship, were painted by Raphael's hand.

Raphael was instrumental in forming the conceptual sketches of the Hall of Constantine, but he died before their completion. The artists in his studio continued the work after his death, mostly notably Giulio Romano.

The restoration of the four Raphael Rooms in the Vatican, a project that began in the 1980s, is still in progress. Only one wall in the Hall of Constantine, the last room of the Raphael Rooms to be restored, remains.

Vatican Museums Director

Barbara Jatta said that the scaffolds should go up in July to begin the restoration on the north wall, which contains a fresco of the Donation of Constantine depicted as taking place inside of the old St. Peter's Basilica, which was demolished in 1505.

The unveiling of the restoration of three of the Hall of Constantine's walls coincides with this year's 500th anniversary of Raphael's death. "We were supposed to open and unveil this important restoration project on the 20th of April in an international conference on Raphael, but this was impossible," Jatta said.

Restoration of the Raphael Rooms was suspended during Italy's lockdown; however, the restoration artists were able to continue their work in May before the museums' reopening.

"Art of Conservation Science Takes Center Stage in Special Exhibition,"
Yonhap News 06/03/2020

Conservation science, the discipline of conserving art, architecture and other cultural works, serves as a tool for restoring art as closely to the creator's intended vision. The discipline combines aspects of chemistry, physics, biology and engineering -- nerdy fields that are hardly considered romantic or associated with timeless beauty by the general public.

Subverting this very notion, the National Museum of Modern and Contemporary Art (MMCA) has opened a special art exhibition themed around the very art of conservation science, titled "Conservator C's Day," from May 26-Oct. 4 at its Cheongju museum, southeast of Seoul.

The exhibition centers around an imaginary art conservator, named "C," with modern artworks themed around the daily science of conservation and metaphysical anxieties that C confronts at work.

The curation brings together some 30 art pieces centered around five keywords -- Damage, Tools, Time, Anxiety, and Thought.

The types of works on display range from paintings and sculptures to installations. Included is a non-visual sound piece by Ryu Han-kil, which merges different industrial and explosive sounds in a dim and hollow room, highlighting the emotions of a conservator when observing physical damage of an aged work of art.

Also featured is a pixel art video piece by Joo Jae-bum, juxtaposing high-definition imagery against blocky pixel images that resemble retro video games, depicting a day in the life of a conservation scientist in a video.

A gallery dedicated to C's imaginary library introduces novels and science books as sources of literary inspiration for the imaginary conservation scientist. Youn Bum-mo, head of MMCA, said the exhibition will offer special intrigue to visitors, providing unique visual representations of the art of conservation science.

"Balboa Art Conservation Center, San Luis Rey Mission Win CARES Grants,"
Times of San Diego, 06/22/2020

The Balboa Art Conservation Center in San Diego and the San Luis Rey Mission Indian Foundation in Vista are among 317 recipients of CARES Act economic stabilization grants to support cultural institutions nationwide that have taken a financial hit due to the coronavirus pandemic, the National Endowment for the Humanities announced Monday.

The Balboa Art Conservation Center received \$52,417 to support the development of "innovative tools, practices and procedures at BACC, namely cross-training art conservators and implementing a virtual pre-examination program for art objects so that staff can pivot to provide programming and services during the COVID-19 health pandemic," according to the center.

The funds will allow the BACC to retain and cross-train six full-time and one consultant conservator involved in a program to allow virtual assessments for the center's network of small cultural heritage institutions located throughout the Western United States.

Created in 1965, the NEH is an independent federal agency and one of the largest funders of humanities programs in the United States.

"Experts Call for Regulation after Latest Botched Art Restoration in Spain,"
The Guardian, 06/22/2020

Conservation experts in Spain have called for a tightening of the laws covering restoration work after a copy of a famous painting by the baroque artist Bartolomé Esteban Murillo became the

latest in a long line of artworks to suffer a damaging and disfiguring repair.

A private art collector in Valencia was reportedly charged €1,200 by a furniture restorer to have the picture of the Immaculate Conception cleaned. However, the job did not go as planned and the face of the Virgin Mary was left unrecognisable despite two attempts to restore it to its original state.

The case has inevitably resulted in comparisons with the infamous "Monkey Christ" incident eight years ago, when a devout parishioner's attempt to restore a painting of the scourged Christ on the wall of a church on the outskirts of the north-eastern Spanish town of Borja made headlines around the world.

Parallels have also been drawn with the botched restoration of a 16th-century polychrome statue of Saint George and the dragon in northern Spain that left the warrior saint resembling Tintin or a Playmobil figure. Fernando Carrera, a professor at the Galician School for the Conservation and Restoration of Cultural Heritage, said such cases highlighted the need for work to be carried out only by properly trained restorers.

"Once Hidden, Keith Haring's Amsterdam Mural is Ready for Restoration,"
The Art Newspaper, 06/29/2020

Buoyed by successful efforts to conserve outdoor murals by Keith Haring elsewhere, conservators are hoping that the recent easing of European travel restrictions will enable them to begin work in coming months on one in Amsterdam that has experienced significant paint losses since the artist created it in 1986.

The mural has been the focus of a local campaign calling for its restoration since it was uncovered in 2018. Haring, known for his fervent commitment to making his graphic art as accessible to the public as possible, painted the mural while in Amsterdam for his first solo exhibition at the Stedelijk Museum.

For his outdoor murals, Haring spontaneously relied "in good faith" on whatever commercial paints became available—in this case, an oil-based alkyd paint that "doesn't have a good track record for enduring outdoors", says Will Shank, an independent US

conservator who hopes to restore the mural with his Italian colleague Antonio Rava.

Haring painted directly onto the brick in a titanium white line without any preliminary sketches, beginning at the top right and gradually working his way down to the lower left, Shank says. "Some people mentioned what a difficult time Haring had getting the paint to stick to the wall because it was blustery and wet," Shank says. As a result, about 20% of the white line that Haring painted has not adhered and will have to be inpainted, he estimates. Compounding the challenge, the wall is made of two kinds of bricks—red and yellow—and the yellow ones are less porous and have retained less of the paint.

"We will experiment on the scaffolding with different kinds of paint to make sure that it does stick to both kinds of bricks," Shank says. A protective coating of hydrorepellent resin will then be applied to protect the line of white paint from rain, grime and ultraviolet light.

"How this Historic Mosaic Mural Will be Saved for Future Generations to Enjoy," *Long Beach Post*, 07/21/2020

If you're into learning how a floor-to-ceiling mosaic mural designed by renowned Southern California artist, designer and educator, Millard Sheets, can be safely taken apart and transported, and why a handful of people in Long Beach wanted to make the careful, meticulous effort to do so, a short video by Threaded Films is worth a watch.

As chronicled in the film, the first step of the conservation effort by Cal State Long Beach's art museum to deinstall a historic mosaic made up of tens of thousands of tiles, is complete.

The plan is to move the piece(s) from its original Lakewood location at the former Home Savings and Loan Building at 4909 Lakewood Boulevard to its future home at the Carolyn Campagna Kleefeld Contemporary Art Museum at CSULB.

Sheets, one of Southern California's most significant producers of public art, was commissioned by Howard F. Ahmanson in 1955 to design more than 40 Home Savings Bank branches throughout Southern California, with large mosaic works reflecting each location's local heritage.

In the announcement of the acquisition of the historic public art piece, Kleefeld Contemporary said the mosaic was gifted to the museum by Farmers & Merchants Bank, which additionally made a significant philanthropic contribution to support its conservation to allow future generations to enjoy the artwork, a slice of Southern California art history.

RLA Conservation of Art & Architecture was contracted to conserve the work alongside Brian Worley Art & Restoration, Inc. Both firms assisted with the deinstallation, and will continue to assist with the relocation and conservation of the piece to be installed as part of the newly expanded museum, now closed and under construction through 2022.

"Where we are Now with the Restoration of Notre Dame After the Rejection of Modern Architectural Gestures," *The Art Newspaper*, 07/22/2020

The way ahead for the restoration of Notre Dame is much clearer now after the 15-month long discussions have ended with a decision to rebuild the roof and spire as they were before the fire of 15 April 2019, rather than hazard a contemporary architectural gesture, as proposed by the French President Emmanuel Macron.

It is a victory for the conservation principles embodied by the international Icomos Charters and the World Heritage Convention, and for the architect-in-chief of the cathedral, Philippe Villeneuve.

The difficult process of removing the 250 tons of semi-fused steel scaffolding, which had been erected for the restoration of the spire prior to the fire, was suspended for several months due to the coronavirus lockdown but re-started in early June.

The debris inside the main nave and choir has been removed. A rolling platform has been put over the choir and nave to allow the workmen move around without walking on the vaults.

Debris and the burnt beams are being removed, with two-thirds of the choir's vaults already clear and work starting now above the nave.

Close examination of the vaults has revealed that the heat of the fire penetrated the 15cm-thick stone structure to a depth of 2cm. While this does not

threaten the overall stability of the vaults, they will require major consolidation. Layers of fibre-reinforced material will have to be applied to the stone surfaces to strengthen their structure at the same time as remaining flexible.

The vaults of the crossing, which collapsed completely, will be rebuilt after the new spire is finished.

Following the recommendations of the Commission Nationale du Patrimoine et de l'Architecture, the roof and spire will be rebuilt in the original manner.

The building techniques for these complex timber-framed roofs, which are considered so exceptional as to deserve inclusion in the Unesco's List of Intangible Heritage, go back to the Middle Ages and have been kept alive in France by the carpenters' ancient guild system.

"Columbus Statue Removal Tab at \$90,000 and Counting," *Columbus Dispatch*, 07/20/2020

The cost to remove and store the Christopher Columbus statue formerly outside City Hall on July 1 has cost taxpayers \$90,000 to date, according to an ordinance approved by Columbus City Council on Monday evening.

But the statue's whereabouts remains secret, with the city continuing to say only that the 65-year-old gift from the city of Genoa, Italy, was taken to "a secure location."

The statue ordinance approved Monday paid \$5,500 to the McKay Lodge Fine Arts Conservation, which operates "the Ohio Conservation Center."

It's unclear where the statue currently resides. A July 1 press release from the mayor's office said the statue was originally stored at a "city facility."

"McKay Lodge is an art conservation and historical preservation company that will oversee the removal, transport, and storage of the statue in order to ensure that its preservation conforms to industry standards and best practices," the ordinance said.

Groups advocating for the statue's removal cite Columbus' genocidal cleansing of the New World over 500 years ago and his exploitation of Native people, while Italian-Americans countered that such statues are works of art that should be preserved.