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## Articles You May Have Missed

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### **“Art Conservation Key to Preserving Cambodia’s Cultural Treasures,”** Southeast Asia Globe, 06/17/2016

In Phnom Penh and Penang, experts in art conservation are meticulously preserving Cambodia’s artistic legacy, but a punishing climate and scarcity of resources have forced them to get creative.

Working to restore the artwork is Borany Mam, a French national of Cambodian heritage. She trained in Paris at the Ecole de Condé, then worked on Tibetan religious artworks before coming to the museum in 2012.

“I met the National Museum director in order to offer him my services, as I noticed some of the paintings needed urgent restoration,” says Mam. “The director was pleased and provided me with an atelier at the museum.” But it was made clear that if she wanted to carry out her project, it would have to be self-funded, spurring Mam to found the Association pour la Sauvegarde de la Peinture Khmère (Association for the Protection of Khmer Painting) in 2012.

Restoring the paintings has been her passion ever since, partly paid for from the profits of a Phnom Penh restaurant that she co-owns. If Mam’s project seems somewhat improvised, that is because it is. She is working in a field of one, being the only person in Cambodia with her expertise specialising in the conservation of preah bot, Cambodian religious paintings.

### **“European Museums are using Nanotechnology to Preserve and Restore Modern Artworks,”** Fastco Exist, 06/17/2016

In Kurt Vonnegut’s Bluebeard, the main character, the abstract expressionist artist Rabo Karabekian, makes his works with Sateen Dura-Luxe paint. The paintings destroy themselves when the Sateen Dura-Luxe separates itself from the canvases, turning to ribbons.

Fact follows fiction. The modern materials used by artists from the last century onwards are falling apart, because plastic doesn’t last as well as oil paint. A project called NanoRestArt plans to fix this, using nanotechnology to

repair and restore these real-life versions of Sateen Dura-Luxe. NanoRestArt is almost entirely funded by the EU and will work with galleries to bring technology to restoration and preservation.

Cleaning modern works can be a difficult task, which is why the project is researching new kinds of solutions that use nano technology and material science to develop new restoration techniques. One of the participating museums is the England’s Tate, which will help evaluate the new techniques “using a range of prepared test samples and through research related to case studies of works of art from Tate’s collection.”

The hope is that these nanoscale products can get inside the polymers that make up the artworks, cleaning them from the inside, as well as stabilizing the materials. The project is running for three years, until 2018, with the participation of 27 museums, universities, and chemical companies, by which time the new techniques should have started to co-mingle with time-tested restoration techniques.

### **“New Mexico Scientist Builds Carbon Dating Machine that does not Damage Artifacts,”** Albuquerque Journal, 06/24/2016

The contraption he built looks a little like something you might see from “The Nutty Professor.” But Marvin Rowe is no nut. That machine he built, and what it’s used for, helped Rowe win the prestigious Fryxell Award for Interdisciplinary Research from the Society of American Archeology two years ago.

“We call the process Low Energy Plasma Radiocarbon Sampling,” said New Mexico’s state archeologist Eric Blinman, who credits Rowe with inventing the process. “But a lot of people just refer to this as ‘Marvin’s Machine.’”

The process is important because, unlike other methods of radiocarbon dating that destroy the sample being tested, LEPRS preserves it. It also works on tiny samples – even a flake of ink or paint – and is considered a more accurate means of dating.

Blinman adds that, under the best of circumstances, standard radiocarbon dating requires 30 milligrams of carbon.

Rock art pigments don’t have that much carbon in them. But “Marvin’s Machine” can date material 100 millionths of a gram or less. Blinman explained that Rowe’s alternative process is based on plasmas – ionized gas made up of groups of positively and negatively charged particles, and one of the four fundamental states of matter, alongside solid, liquid and gas.

In Rowe’s non-destructive method, an entire artifact goes into in a vacuum chamber with a plasma. The gas gently scrubs or oxidizes the surface of the object to produce carbon dioxide – CO<sub>2</sub> – for the C-14 analysis, without damaging the artifact. The plasmas in Rowe’s machine are generated with radio frequencies, rather than electricity, and work like a cleaning agent to scrub off the CO<sub>2</sub>.

The Archaeology Institute of America’s Archaeology magazine noted that he has refined the method to work on objects coated in sticky hydrocarbons, such as the resins that cover Egyptian mummy gauze.

### **“The Uncertain Future of Saving the Past,”** Popular Mechanics, 06/28/2016

Art conservators fight a constant, never-ending battle against time, an unwinnable war against entropy to bring works of art back to nearly immaculate condition and keep them there.

Conservators rely on science to aid their efforts. They conduct chemical analyses of an object to determine its molecular makeup and decide how best to clean or repair it. They place a sculpture or painting in storage or on display under environmental conditions that will delay its slide into destruction.

And yet, art conservation is not quite a science. Saving the past means navigating a sea of unanswered or unanswerable questions about what the artist intended an object to look like or how efforts to fix a piece of art could damage it. Sometimes conservators make mistakes—mistakes that destroy irreplaceable objects. And though the field has become much more scientific in the past few decades, conservators still have some big questions about how to preserve the past without destroying it.

“We have to take the long view of the history of these objects,” says

Pamela Hatchfield, the head of objects conservation at the Museum of Fine Arts in Boston. Today conservators are less likely to clean objects, and there's a push to make their treatments more reversible and use them more sparingly. That's partially because of a newfound value in keeping artifacts as intact as possible. But it's also because of a larger cultural shift, an understanding that objects in museums don't show up looking just as they did when they were created, and the evidence of that doesn't need to be totally erased.

"These days we allow objects their own history, to have a trace of what they've been through," Hatchfield says. "They have a story to tell beyond just their manufacture and ancient use." But even after the painstaking restoration process, it remains a challenge to put them on display to the world without letting them fall apart.

**"Jackson Pollock's 'Alchemy' Analyzed,"** ChemistryViews.org, 07/05/2016

Paul Jackson Pollock (1912–1956) is famed for his "drip painting" technique. Pollock poured and dripped streams of commercial paint onto the canvas from a can using a stick.

It is the nature and composition of those paints that interests both heritage scientists and analytical chemists, who might use the latent data of a Pollock to provide the art world with the details of his process and inform conservation.

Costanza Miliani of the CNR Institute of Molecular Science and Technologies (ISTM) and the SMAArt, Centro di Eccellenza, Università di Perugia, Italy, and colleagues used recent advances in non-invasive and mobile spectroscopic methods based on point analysis and hyper(multi)-spectral imaging. They employed these methods to take a close look at an early drip painting, "Alchemy" (1947).

The researchers explain how Pollock built up layers of color on top of a previously dried layer. This means that each deposit is to an extent separated from the underlying layers, forming a complex stratigraphy with some intersection between colors. "The molecular identification of pigments, colorants, and extenders contained in fifteen different paints has been achieved

combining key spectral markers from elemental, electronic, and vibrational spectroscopies," the team reports.

They add that for colors exhibiting similar hues but different chemical compositions, they used a mapping technique to compare the pigments with a false-color rendering.

The team was able to identify the specific traditional oil-based paints and oil-modified alkyd media. In addition, point analysis by reflection Fourier-transform infrared spectroscopy (FTIR) scattered throughout the painting allowed them to map the traditional and new binding media among painted, squeezed, and dripped paints. The team's non-invasive multi-technique method has revealed many details that would have remained hidden without their approach. The tool, they suggest, can acquire much information about a complex painting's chemistry and the palette used to create it.

**"Another Dodgy Art Restoration Raises Alarm in Spain,"** The Local Spain, 07/19/2016

An amateur artist in the Spanish town of Peñaranda de Bracamonte took a restoration of a 17th century statue into their own hands recently, with less than satisfactory results.

The unknown parishioner gave the statue of Saint Michael the Archangel in the Chapel of Humilladero a makeover, much to the dismay of restoration experts. The restoration attempt, which includes adding a pair of pronounced black eyebrows and giving the statue a shiny coat of paint, was uncovered during a recent visit to the town of Peñaranda de Bracamonte, near Salamanca by a group of Heritage experts.

It had not been reported to the bishop or local authorities and had, until then, seemingly gone unnoticed. The restoration attempt has been criticized by experts, who argue that Spain is not doing enough to protect its cultural heritage. "Our work is very serious, professional and specific and not as easy as you might imagine," María Luisa López, secretary of the Association of Conservationists and Restorers of Castilla and Leon, told Catalan daily, *La Vanguardia*.

The association has criticized the lack of legal protection for artwork

and items of cultural heritage in Spain, as well as the absence of a general governing body that can oversee and approve restorations.

**"The Mary Rose Revealed Once More on the very Day of its Sinking, 471 years Ago,"** ArtDaily.org, 07/20/2016

After a six-month closure and a multi-million pound investment, the Mary Rose Trust today unveiled to the world the Mary Rose, Henry VIII's favourite warship, 471 years to the day after it was sunk.

The ceremony held at the ship's home, Portsmouth Historic Dockyard, included a spectacular kabuki drop, revealing the ship after having undergone 23 years of extensive treatment, including state-of-the-art innovations, which has changed the face of conservation.

Revealed for the first time ever was a carved wooden Tudor rose, which was discovered at the time of the second excavation in 2005 but only recently identified as the original emblem of the ship, and the first figurehead of its kind, as depicted in 16th-century drawings in the Anthony Scroll.

For the first time in 23 years visitors can breathe the same air as the Mary Rose. The Mary Rose Museum provides stunning panoramic views of the ship from all nine galleries through floor-to-ceiling glazing on the lower and main decks. On the upper deck visitors enter the Weston Ship Hall via an airlock and are separated from the ship only by a glass balcony.

A one-of-a-kind Tudor time capsule, the Mary Rose has been undergoing continuous conservation since she was raised in 1982. The hull was first sprayed with a mist of fresh chilled water and then with a water-soluble wax from 1994 to April 2013 when the Mary Rose entered a stage of controlled air-drying. The hull has now reached a stable state within this drying process.

**"Sydney's Most Important Statues Fall into the Careful Hands of Anne Cummins,"** Sydney Morning Herald, 07/23/2016

Over the past 25 years, art conservator Anne Cummins has worked on most of Sydney's major public

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artworks. She was a rather unenthusiastic engineering student when she switched courses to art conservation. As well as looking after public sculptures, fountains, commemorative plaques and the occasional cannon, much of her work is for private clients.

"It astounds me, some of the collections here," she says. "In backyards and lounge rooms all over Sydney there are striking sculptures by Antony Gormley, Anish Kapoor, Edgar Degas, Pablo Picasso, Henry Moore, and Barbara Hepworth. I've even worked on an outdoor Auguste Rodin sculpture in a paddock surrounded by sheep."

Her engineering background has been useful at times, such as dismantling Crossed Blades, Alexander Calder's imposing 1967 sculpture outside Australia Square on George Street, which had to be moved so new paving could be put down. With the help of a rigging company, the 17 tonne, 10 metre high work was broken down into three pieces and moved into storage by crane.

Wanting to do a full conservation treatment, she contacted the Calder Foundation which suggested completely dismantling the work to treat all the components individually to rust-proof them. Unfortunately, there wasn't enough money to do this, so Cummins had the sculpture repainted and dealt with the more accessible corrosion. This sort of compromise is common, she says, because of the cost of major treatments – for public art, often the budget isn't there.

**“Look What Lindbergh Left Inside the Spirit of St. Louis,”** Air and Space Magazine, August 2016

The Spirit of Saint Louis is sitting temporarily on the floor of the National Air and Space Museum for conservation.

John Norman, a career mechanic who has worked on Boeing airliners, U.S. Army Hueys and Black Hawks, DC-3s, and a B-17 Flying Fortress, is building a replica of the Spirit of Saint Louis, which he plans to make airworthy. He was using the once-in-a-lifetime opportunity at the museum to take precise measurements.

With a video boroscope he peeked into some of the crevices of the airplane where the conservators didn't

want to remove covers. "I was looking to see if I might find Lindbergh's missing logbook," says Norman. Instead he found a pair of pliers, covered in dust, resting on nearly 90 year-old fabric. Malcolm Collum, the Museum's chief conservator, opened the cockpit door, knelt down, braced himself so he wouldn't put any pressure on the fabric, and reached for the pliers, directly below and behind the instrument panel.

At first, the restorers thought the pliers were left behind during a previous restoration, but Collum recognized the painted handles as Ryan Aircraft factory paint and believes this pair of pliers is very likely one that Charles Lindbergh took with him on his famous 1927 flight from New York to Paris.

Collum and his team have now finished their conservation of the Spirit. With the Spirit back on display, Collum hopes the pliers will soon be viewable at the Museum as well, with other items Lindbergh took on his flight.

**“X-Ray Fluorescence and Image Processing Unmask the Woman Degas Painted Over,”** Art Daily.org, 08/05/2016

Researchers used super-X-ray vision to peer beneath the surface of a portrait by impressionist Edgar Degas and gaze upon the model whose likeness he painted over nearly 140 years ago.

The woman, whose image Degas turned upside down before using it as a base for a new painting, was probably Emma Dobigny -- a favourite model of 19th century French artists, the team announced. "This has been a very exciting discovery," said David Thorrowgood, conservator at the National Gallery of Victoria, Australia, where the painting hangs.

A vague, ghostly figure has been slowly emerging, spreading an increasingly dark stain over the face of the model that replaced her. But previous attempts to glean something about the jilted original yielded little more than a faint outline.

Enter the Australian Synchrotron in Victoria, a particle accelerator which generates radiation for high-resolution imaging in research, therapy, or forensic analysis. The light it produces "is a million times brighter than the Sun, many orders of magnitude greater in power and

intensity compared to standard, hospital-like X-rays," synchrotron scientist and study co-author Daryl Howard told AFP.

"Because of the brilliant light, we are able to reveal unprecedented structural detail of any material". The researchers used the synchrotron to create eleven "maps" of the original canvas -- each of a different metallic element in the pigments Degas used, including arsenic, copper, zinc, cobalt, and mercury. The process took about 33 hours. Put together, the elemental maps provide a detailed reconstitution, revealing even the artist's brush strokes. The colours, however, have to be inferred.

**“Art Conservators Estimate What it will take to Restore Historic Union Terminal Artwork,”** WCPO, 08/08/2016

Art conservators came to Cincinnati earlier this month to examine 22 panels of paintings by French-born artist Pierre Bourdelle that for decades hung in Union Terminal's main dining room.

The paintings, which were adhered to plaster, were removed in 1990 and placed in storage when the Museum Center took over the building. The concern was the art would be damaged during repairs to the ceiling in what is now called the Gateway Café, said Scott Gampfer, director of the Museum Center's History Collections and Library.

The original plan was to raise money to restore the paintings and get them back in their rightful spots, but that never happened, Gampfer said. But the painting plan resurfaced after Hamilton County voters approved a quarter-cent sales tax increase in 2014 to fund the Museum Center's restoration.

"When we started talking about the restoration of Union Terminal, we talked about putting the artwork back," he said. "No one except a few staff members has seen them since 1990." Gampfer described the artwork as "stylized and whimsical views of animals and food," and images of them were captured in early black and white photos.

But now the paintings are little more than shadowy shapes under decades of soot, nicotine stains and grime. It's up to the art conservators to determine what it will take to clean the artwork and bring it back to its original condition.