

Lab detectives help expose art fakes

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In under two weeks, the art world has been rocked by cases of forgery in which paintings with a potential value of millions were unmasked as worthless fakes.

The two episodes, entailing a bogus Marc Chagall and a Ferdinand Leger, have shed light on the expanding role of forensic scientists in probing the authenticity of works attributed to masters.

"For years, scientists played only a marginal part in these assessments," said Gerard Soussi, founder of the Art and Law Institute, a Paris-based organisation that specialises on legal issues in art.

"Today, they are being called upon more and more."

One of the biggest weapons in the scientific arsenal is chemical analysis of [paint](#).

Just a fleck is enough for a spectrometer to get a signature of the compounds that comprise it—and in turn, this gives a good idea of when the paint, and thus the work, was made.

For instance, if someone offers you to sell you a Rembrandt with brushstrokes of Prussian Blue, you should always decline.

The dark blue pigment, explained Philippe Walter, director of the archaeology laboratory at the Pierre and Marie Curie University in Paris, was discovered accidentally in 1704—a whole 35 years after

Rembrandt's death.

In 2008, a paint called Titanium White helped expose one of the greatest art scams of all time.

Suddenly suspicious about "Red Picture with Horses", supposedly painted in 1914 by expressionist Heinrich Campendonk, the owners of the work—who had shelled out 2.8 million euros (\$3.8 million) two years earlier—called in [forensic scientists](#) in Munich.

Paint not old enough

They found a tiny trace—less than one percent—of Titanium White... a paint made in the 1920s.

The trail led to a prolific German forger, Wolfgang Beltracchi.

At least 13 other works, sold sometimes for millions, turned out to be Beltracchi fakes. They included a "Max Ernst" that had hung in a show at the Metropolitan Museum of Art in New York, another "Ernst" acquired by French media mogul Daniel Filipacchi and a bogus Campendonk bought by Hollywood star Steve Martin.

The forged Chagall, unwittingly bought by a British businessman and tested in a BBC documentary this month, was unmasked in part through the discovery that its blue and green pigments were too recent.

They were invented in the 1930s, whereas the portrait of the reclining nude was supposedly made in 1910.

Another scientific tool used in the discovery of fakes is a particle accelerator, which measures concentrations of the isotope carbon 14 to establish when the cotton used to make a canvas was grown.

A supposed work by Leger from 1913-14, "Contraste de Formes", was one forgery exposed in this way.

It had been part of the prestigious Peggy Guggenheim Collection in Venice, but was never shown given doubts about its authenticity.

The mystery was finally laid to rest thanks to a team at the Italian Institute for Nuclear Physics which announced last week they had found a spike in levels of carbon 14 in the canvas.

These showed that the cotton that made it was grown in the late 1950s, when concentrations of the isotope in the environment leapt because of atmospheric nuclear tests. Leger had died in 1955.

Impressive as all this may sound, science is not a substitute for art historians, who are not only familiar with the style and life history of an artist but also the context in which a work was made, said Walter.

He gave the example of jewellery from ancient Egypt.

Shown pieces of jewellery made of pure gold incrustated with semi-precious stones like turquoise or lapis lazuli, and others fabricated of a gold-and-silver alloy inlaid with coloured glass, the novice is likely to mistake the latter for cheap knock-offs.

In fact, silver and glass at the time of the Pharaohs were far more rare and valuable, said Walter.

Even though scientists are more important in the field than ever, they are asked to investigate an artwork only when doubts exist, added Soussi.

"In the art market, transactions are often carried out swiftly, and in conditions lacking transparency, and due diligence can suffer," he

explained.

And, he observed, owners of a doubtful, but expensively-bought, piece of work may be keener to hand it on rather than risk having it exposed as worthless.

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