

# Asians Invented Oil Painting

The giant Buddha statue before its destruction by the Taliban regime.



Oil paintings have been found in caves behind the two ancient colossal Buddha statues destroyed in 2001 by the Taliban, suggesting that Asians—not Europeans—were the first to invent oil painting.

Many people were in shock when the Taliban destroyed the Buddha statues in the Afghan region of Bamian.

According to LiveScience, behind those statues are caves decorated with paintings from the fifth to ninth centuries.

New experiments performed at the European Synchrotron Radiation Facility (ESRF) show that the paintings were made of oil, hundreds of years before the technique emerged in Europe. The results are detailed in the peer-reviewed *Journal of Analytical Atomic Spectrometry*.

"This is the earliest clear example of oil paintings in the world, although drying oils were already used by ancient Romans and Egyptians, but only as medicines and cosmetics," said researcher Yoko Taniguchi.

In many European history and art textbooks, oil painting is said to have started in the 15th century in Europe.

However, scientists from the National Research Institute for Cultural Properties in Tokyo (Japan), the Centre of Research and Restoration of the French Museums-CNRS (France), the Getty Conservation Institute (United States) and the ESRF have recently identified drying oils in some samples studied from the Bamian caves.

Painted in the mid-seventh century, the murals show scenes with Buddhas in vermilion robes sitting cross-legged amid palm leaves and mythical creatures.

The scientists discovered that 12 out of the 50 caves were painted with oil painting techniques, using perhaps walnut and poppy seed drying oils.

The researchers relied on a combination of synchrotron techniques, including infrared micro-spectroscopy, micro X-ray fluorescence, micro X-ray absorption spectroscopy and micro X-ray diffraction.

"On one hand, the paintings are arranged as superposition of multiple layers, which can be very thin," said Marine Cotte, a research scientist at CNRS and an ESRF scientific collaborator. "The micrometric beam provided by synchrotron sources was hence essential to analyze separately each of these layers. On the other hand, these paintings are made with inorganic pigments mixed in organic binders, so we needed different techniques to get the full picture."

The results showed a high diversity of pigments as well as binders, and the scientists identified original ingredients and alteration compounds. Apart from oil-based paint layers, some of the layers were made of natural resins, proteins, gums, and, in some cases, a resinous, varnish-like layer.

Protein-based material can indicate the use of hide glue or egg. Within the various pigments, the scientists found a high use of lead whites. These lead carbonates are often used paintings.

The paintings are probably the work of artists who traveled on the Silk Road, the ancient trade route between China, across Central Asia's desert to the West. However, there are very few studies about this region.

"Due to political reasons, research on paintings in Central Asia is scarce. We were fortunate to get the opportunity from UNESCO, as a part of conservation project for the World Heritage site Bamian, to study these samples, and we hope that future research may provide deeper understanding of the painting techniques along the Silk Road and the Eurasian area", Taniguchi said.

## Biodiversity Loss Alarming

The world risks wiping out a new generation of antibiotics and cures for diseases if it fails to reverse the extinction of thousands of plant and animal species, experts warned.

Biodiversity loss has reached alarming levels, and disappearing with it are the secrets to finding treatments for pain, infections and a wide array of ailments such as cancer, they said, citing the findings of a coming book, AFP reported.

Achim Steiner, executive director of the United Nations Environment Program (UNEP), said more than 16,000 known species are threatened with extinction, but the number could be more.

"We must do something about what is happening to biodiversity," he said at a news conference on the sidelines of the

UN-backed Business for the Environment conference.

"Societies depend on nature for treating diseases. Health systems over human history have their foundation on animal and plant products that are used for treatment."

Technological revolution in the 19th and 20th centuries took the focus on finding cures away from nature as pharmaceutical companies relied on technical components to make medicines, he said.

These companies are increasingly turning back to nature as they run out of chemical combinations, he said.

But the world is "losing the intellectual patents of nature before we even have the chance to understand or unravel them," Steiner said.

"This is the tragedy of not understand-



ing biodiversity," he said, adding it would be a "big fallacy" to think that biodiversity is not linked to the phenomenon of climate change.

## News in Brief

### Ozone Pollution Can Kill

Even breathing in a little ozone at levels found in many areas is likely to kill some people prematurely, the National Research Council reported.

The report recommends that the Environmental Protection Agency consider ozone-related mortality in any future ozone standards, and said local health authorities should keep this in mind when advising people to stay indoors on polluted days.

"What impressed me was the consistency of the findings that ozone clearly ... does have an effect," Dr. Evelyn Talbot of the University of Pittsburgh, who worked on the study, said in a telephone interview, Reuters reported. "It's small, but when you talk about a small effect over 300 million people, it's a lot."

The report looks at ground-level ozone, a component of smog, as opposed to the ozone found in the high atmosphere, which protects the Earth from ultraviolet rays.

Ozone is a form of oxygen formed by the reaction of sunlight on air containing other pollutants such as hydrocarbons and nitrogen oxide. It is a powerful oxidizer, meaning it can damage cells in a process akin to rusting.

### Exercise Combats Cancer-Related Fatigue

Exercise appears to be beneficial for patients suffering from cancer-related fatigue, both during and after treatment, a review of published studies indicates.

According to Reuters, nearly all cancer patients experience fatigue, Dr. Fiona Cramp of the University of the West of England in Bristol, UK noted.

According to guidelines from the National Comprehensive Cancer Network, treatable factors that may be related to cancer-related fatigue, such as pain, emotional distress, sleep disturbance, anemia, nutrition, activity level, and co-morbid illnesses, should be identified and treated.

However, there is no consensus regarding the effect of exercise on cancer-related fatigue once treatable causes have been addressed.

Cramp searched the medical literature for controlled trials that evaluated the effect of exercise on cancer-related fatigue.

"Statistically significant improvements in fatigue were identified following an exercise program carried out either during cancer therapy or following cancer therapy," the researcher reported.

### Cyclists Want Airbags on Cars

Air bags in cars have helped cut traffic deaths in recent years and now cyclists want to benefit too.

The Dutch Cycling Federation said a study showed that 60 lives could be saved a year if airbags were installed on the hoods of cars, where cyclists are typically hit in accidents. External airbags could also cut 1,500 serious injuries a year, Reuters reported.

"In the past many measures have been taken to protect those sitting inside cars but hardly anything has been done to protect people outside cars," it said in a statement.

"The federation calls on politicians and the car industry to take measures that could limit the chance of serious injury."

The organization said 216 cyclists died in the Netherlands in 2006, including 106 in crashes with cars.

It said Sweden's Autoliv Inc, the world's biggest airbag and seat belt maker, had already developed a bag that inflates from the bottom of the windshield.

Cycling has always been popular in this flat country that is well-served by cycle lanes and home to 18 million bikes for its 16 million people.

## Italian Doctors Refusing Abortions

Nearly 70 percent of Italian gynecologists now refuse to perform abortions on moral grounds and the number is increasing, a report by the country's ministry of health said.

Abortion was legalized in 1978 in Italy but pressure from the Vatican—which is strongly opposed to abortion—enabled doctors to claim a "conscientious objection" clause and refuse to carry out terminations, AFP reported.

Between 2003 and 2007 the number of gynecologists claiming the conscience clause to avoid carrying out abortions rose from 58.7 percent to 69.2 percent, according to the report.

For anesthetists helping in abortions, the figure of those refusing to participate rose from 45.7 percent to 50.4 percent.

Meanwhile, the number of abortions has dropped slightly. Between 2006 and 2007 it fell from 131,018 to 127,038, a decrease of three percent.

Illegal abortions are also declining, according to the ministry, and stand at around 15,000 a year.