



SIMULATION: A simulation showing the new planet called Gliese 581e after the star it circles. The new planet is 14 times closer to Gliese 581 than the Earth is to the sun. ESO VIA GETTY IMAGES

Smallest exoplanet found in search for Earth's twin

SANTIAGO (Reuters)—Scientists searching for a planet like Earth say they have found the smallest planet ever detected outside the solar system, less than twice the size of our own.

The exoplanet, a planet that orbits a star beyond the solar system, is called Gliese 581e after the star it circles. Because of its relatively small size it is likely rocky, like Earth, as opposed to gas giants such as Jupiter or Saturn, the astronomers said.

"It is the lightest planet detected outside the solar system so far," Dr. Gaspare Lo Curto, an astronomer at the European Organization for Astronomical Research in the Southern Hemisphere, told a news conference.

"We are not too far away from finding a planet like Earth," he added.

Gliese 581e orbits its star in just 3.15 days, but lies outside a so-called habitable zone and could not sustain life, Lo Curto said. Its

mass is just 1.9 times that of Earth, and it is 20.5 light years away.

But while the small planet is outside the habitable zone, the biggest of three other previously discovered planets in the same system appears to be inside this just-right zone.

"The most outlying planet is inside what is defined as a habitable zone, which is a zone where there could be water in a liquid state on the surface of the planet," Lo Curto said.

The international team of researchers used an 11.8-foot telescope at the Paranal Observatory in La Silla, 370 miles north of Chile's capital Santiago. Their findings were also presented to an astronomical meeting last week in Britain.

Around 340 exoplanets have so far been found orbiting other stars besides the Earth's sun, most of them gas giants with characteristics similar to Jupiter and Neptune.

Tree 'found' in Ethiopia raises hopes for species

OSLO (Reuters)—A tree that covers a large area of eastern Ethiopia but has only recently been categorized by botanists raises hope for finding new species elsewhere, experts said.

The acacia fumosa tree, which grows in an area the size of the island of Crete, was not "found" for scientific purposes until 2006-7, most likely because its main habitat is a war zone.

"I have spent a lifetime looking at plants and describing species—it knocked me sideways when I heard about this tree," said David Mabberley of the Royal Botanic Gardens in Kew, England.

"The total numbers must be in the millions," he said of the pink-flowered, 20-foot-tall tree that covers hillsides in an inaccessible

area of 3,100 square miles near the border with Somalia.

In an article in the journal *Science*, he wrote that the tree had been overlooked by generations of botanists, apparently because of few visits to the area where the Ogaden National Liberation Front is fighting for autonomy.

The discovery was an encouraging sign that other overlooked large species might still be found, from rainforests to the ocean depths. Still, he said, scientists were "highly unlikely" to find another tree dominating such a large area.

The discovery contrasts with gloom about destruction of habitats and global warming threatening more extinctions. Environment ministers of the Group of

Eight met in Italy April 22-24, discussing ways to slow a loss of biodiversity. "It's an upbeat story for a change," Mabberley said. The tree was found by Swedish botanist Mats Thulin and previously described in a Nordic journal.

People in the sparsely populated region did not exploit the tree except for firewood, but it might have commercial uses—for instance, in gum used for foodstuffs or glues.

About 10,000 new species of plants or creatures are described worldwide every year, most of them tiny, he said.

Coelacanth

Among exceptions, a coelacanth fish known only from fossils was caught off South Africa

in 1938. The wollemi pine, also known from fossils, was found in Australia in 1994. And the saola antelope in Vietnam and Laos was identified in 1992.

"I suspect there are still large species out there to be discovered," Craig Hilton-Taylor, head of the International Union for Conservation of Nature's Red List of endangered species, told Reuters.

He said that countries that have suffered conflicts—such as Democratic Republic of Congo, Cambodia, or Colombia—were likely places to find overlooked species.

And some types of beaked whales that dive to great depths were only known from washed up corpses. "There are probably still a few things in the deep ocean we haven't found," he said.

Ice study offers good and bad news for planet

SINGAPORE (Reuters)—A study of Greenland's ice sheet has revealed that a vast store of planet-warming methane appears to be more stable than thought, easing fears of a rapid rise in temperatures.

Methane is about 25 times more powerful at trapping heat in the atmosphere than carbon dioxide (CO₂) and vast amounts of the compound are trapped in permafrost in the far northern hemisphere or in seabed deposits called clathrates.

Scientists have feared climate change could trigger a huge release of methane from the clathrate reservoir, sending global warming spiraling out of control.

An estimated 5,000 billion tons of carbon are locked up in these deposits, said Vasili Petrenko of the Institute of Arctic and Alpine Research at the University of Colorado.

"That's about equal to all of the oil, coal, and gas reserves that we

think we have," he told Reuters from Boulder, Colo.

Petrenko and an international team of scientists spent six years studying air samples from vast blocks of Greenland ice to see if a rapid rise in temperatures about 12,000 years ago was triggered by methane from clathrates or another source.

The results showed the methane was most likely to have come from wetlands rather than the clathrates, deposits that resemble ice and are held in place on the ocean bed by high pressures and relatively low temperatures.

Petrenko said temperatures in Greenland 12,000 years ago had increased about 10 degrees Celsius in 20 years. But it took 150 years for methane levels in the atmosphere to increase by 50 percent.

The rapid warming was driving the release of methane, he said, with the most likely sources being tropical wetlands and the vast northern wetlands created after

the large-scale retreat of ice sheets about 18,000 years ago.

Going back in time

Previous studies of ice core samples from Greenland and Antarctica had shown an increase in methane levels about 11,500 years ago came from the tropics and the northern wetlands.

But Petrenko and his team wanted to be sure of the source, particularly since a massive release of methane from clathrate deposits is believed to have sent temperatures soaring about 56 million years ago, when the planet was much warmer than today.

His team measured the amount of an isotope called carbon-14 (C14) in tiny amounts of methane extracted from air bubbles trapped in Greenland ice going back 12,000 years.

C14 deteriorates at a known rate, so the scientists can use it to determine the age of the ice and also the likely source of the methane.

The Dorchester vessel

By **LEONARDO VINTINI**
Epoch Times Staff

An Oopart (Out Of Place ARTifact) is a term applied to dozens of prehistoric objects found in various places around the world that, given their level of technology, are completely at odds with their determined age based on physical, chemical, and/or geological evidence. Ooparts often are frustrating to conventional scientists and a delight to adventurous investigators and individuals interested in alternative scientific theories.

In the June 1851 *Scientific American* (volume 7, pages 298-299) reprinted a report from the Boston Transcript describing an ornate metal vase.

The artifact was found split into two pieces, having been blasted out of solid rock on Meeting House Hill in Dorchester, Mass. Together, the two pieces formed a bell-shape vase that was 4 1/2 inches high, 6 1/2 inches at the base, 2 1/2 inches at the top, and an eighth of an inch thick.

The report describes the bell-shape artifact in great detail. The Dorchester vessel was found to be composed of a metal alloy of zinc and a considerable portion of silver. It displays an ornate design of six flower bouquets inlaid with pure silver, with a vine or wreath design—also inlaid with silver—found at its base.

From the stunning inlay to the intricate carving details, the Dorchester vase displays the work of an unknown master craftsman. With a shape suggesting use as a candlestick holder—coupled with the nature of the design—some have

suggested that it was made for a temple of some kind.

So just when was this unique specimen created? Since it had been dynamited out of solid pudding stone (a type of sedimentary rock) from 15 feet below the surface, it gave researchers geological clues to determine its age. Since it must have been made before the rock formed around it, the bell-shape vessel was dated at more than 100,000 years old.

But how did mankind create such an exquisite vase so long ago? The delicate carving appears far beyond the talents of primitive humans, and the sophisticated zinc-silver alloy also describes a culture of considerably advanced technology.

The Dorchester artifact shook the scientific community of the time, and many researchers rejected the authenticity of the find since it directly challenged the prevailing understanding of human development.

This fascinating object was presented to Harvard University and was set to make its way across the country, traveling from museum to museum. Yet somewhere along its museum circuit, the object got lost. Unfortunately, it cannot be seen or studied today because, like many other Ooparts, the Dorchester vessel mysteriously disappeared.

Was the object simply misplaced—becoming a forgotten relic in a curator's basement—or was the controversial Dorchester vessel intentionally hidden because it directly contradicted the predominant narrative of human development? Today we are left only with documents and stories of this curious artifact.



EGYPTIAN QUEEN: Zahi Hawass, who is the head of Egypt's Supreme Council of Antiquities, and Kathleen Martinez, an Egyptologist from the Dominican Republic, display their finds at the temple of Tasposiris Magna near Borg al-Arab. CHRIS BOURN/CLEAF/GETTY IMAGES

Archaeologists hunt for Cleopatra's tomb in Egypt

ALEXANDRIA, Egypt (Reuters)—High on a hill overlooking the Mediterranean Sea, buried deep under the crumbling limestone of a temple to the goddess Isis, archaeologists believe the body of Queen Cleopatra may lie.

The tomb of the Egyptian queen has never been found, but archaeologists are discovering more evidence that Cleopatra's priests carried her body to the temple after her suicide, where it could lie with her lover Marc Antony.

"This could be the most important discovery of the 21st century," Zahi Hawass, Egypt's chief archaeologist, told reporters on a tour of the temple on last week. "This is the perfect place for them to be hidden."

Archaeologists from Egypt and the Dominican Republic plan to start digging in search of Cleopatra's tomb as early as this year.

Researchers have found by radar what may be three chambers as deep as 65 feet under the rock. Historians believe, based on the Roman writer Plutarch, that Antony and Cleopatra were buried together.

Kathleen Martinez, a Dominican Republic scholar who pioneered the theory that Cleopatra could be buried in the temple, thinks one of the chambers might contain the remains of the famous couple.

Posterity

If Martinez, 40, and her team, who have been working on the site for three years, find bodies beneath the rock, they will look for cartouches bearing the name of

Cleopatra or a crown to indicate the identity of any mummy.

The body of Antony, Martinez said, may still be adorned in the former general's Roman uniform.

Digging, however, may have to be postponed until the fall for security reasons, as the temple overlooks a Mediterranean summer home of Egyptian President Hosni Mubarak.

Archaeologists last week discovered a cemetery near the temple containing gilded mummies, indicating the burial of royals around the temple.

Archaeologists had previously overlooked the temple—which was built by Ptolemy II around 300 B.C.—focusing instead on a burial site in Alexandria submerged below the sea in an 8th century earthquake, Martinez said.

But the queen, thinking about posterity, may have felt safer in the rocky hill about 30 miles west of the city.

"She needed a place to be protected in the afterlife," Martinez said. "If she had used the other burial site, she would have disappeared forever."

The discovery near the temple of 22 bronze coins inscribed with Cleopatra's name, an alabaster mask with a cleft chin resembling the face of Antony, and numerous shafts and tunnels under the temple strengthened her belief the couple could lie beneath the limestone.

Cleopatra, facing possible captivity in Rome, killed herself allegedly by the sting of an asp. Antony is also thought to have taken his own life after his defeat to Octavian at Actium.