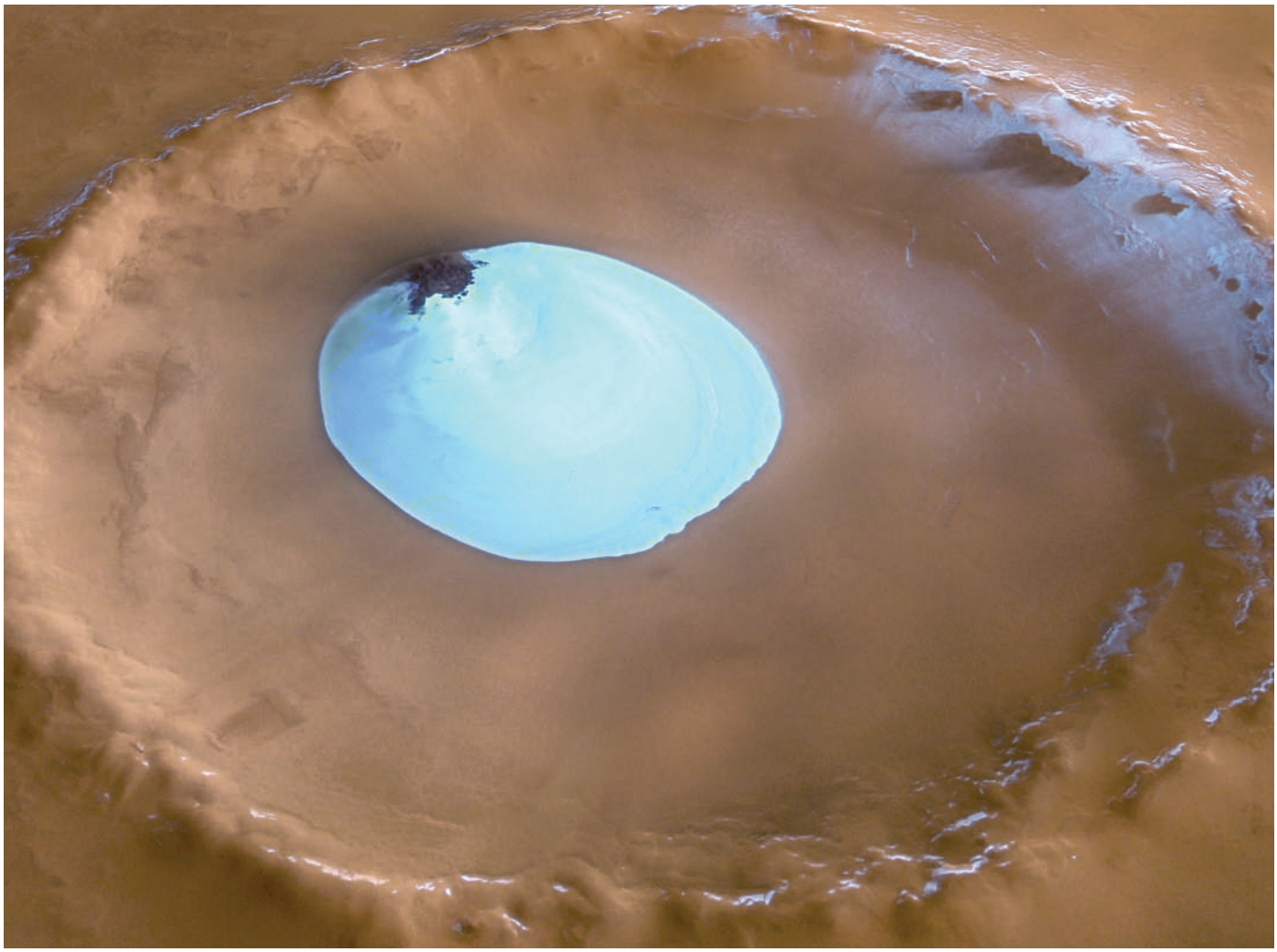
2005 GALLERY



G. NEUKUM/ESA/DLR/FU BERLIN

FIRST GLIMPSE...

It can sometimes seem as if all the great discoveries in science must have been made already. And yet, every year, we get our first glimpses of things — creatures, heavenly bodies, states of matter or molecules — that give pause for thought. In this last issue of the year, *Nature* presents a gallery of such wonders — a few of our favourite images from 2005.

Many of these pictures accompanied scientific papers, but they have a power that academic prose cannot touch. We humans often don't believe something until we see it. Here, then, are ten more things to believe in. Some are rough shots, taken on the run; others are more like considered artwork, such as the breathtaking images from space.

Researched and written by Emma Marris.

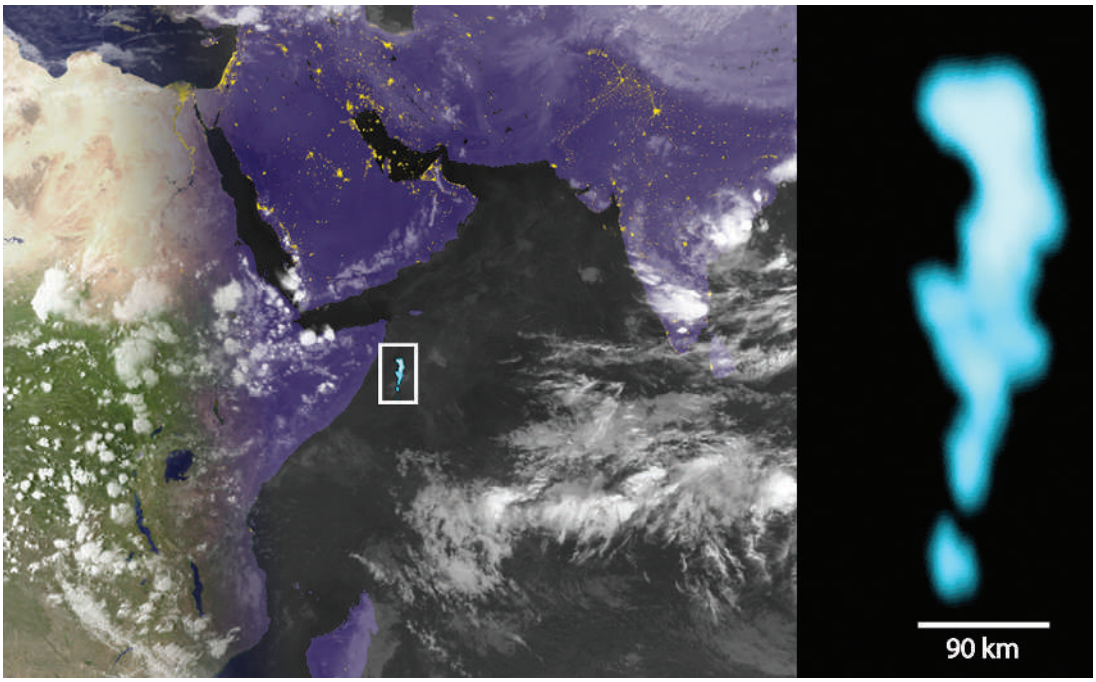
MARS

What gives this image of a frozen lake on Mars, taken by the European Space Agency's Mars Express orbiter, its air of mystery? The colours, which have been added to the original black-and-white image? Or the spray of white along the lip of the crater, which looks like early morning frost?

MONSTER FROM THE DEEP

At last, the giant squid (*Architeuthis*) is photographed alive. Japanese researchers lured this eight-metre specimen with a baited line. Tsunemi Kubodera of the National Science Museum, and Kyoichi Mori of the Ogasawara Whale Watching Association, both in Tokyo, took the shot, and a 5.5-metre-long piece of the creature's arm, which became tangled in the line. "We were so excited that we could not stop shouting 'We have hooked a giant squid!'" says Kubodera.

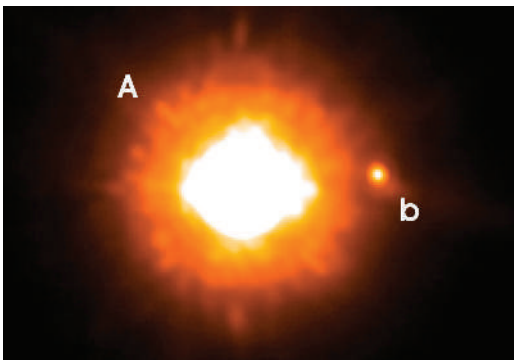
T. KUBODERA & K. MORI *PROC. R. SOC. LOND. B* **272,** 2583–2586 (2005)



S. D. MILLER *ET AL. PROC. NATL ACAD. SCI. USA* **102,** 14181–14184 (2005)/NRL

MILKY SEA

Maritime lore was doubly vindicated this year. Seafloor sensors confirmed that ship-swamping 'rogue waves' really do exist, and this satellite image offered support for the 'milky seas' of legend. The Connecticut-sized glowing smudge, first spotted by a ship in the Indian Ocean, is thought to be made by bioluminescent bacteria. The picture was tracked down by the US Naval Research Laboratory in Monterey, California.



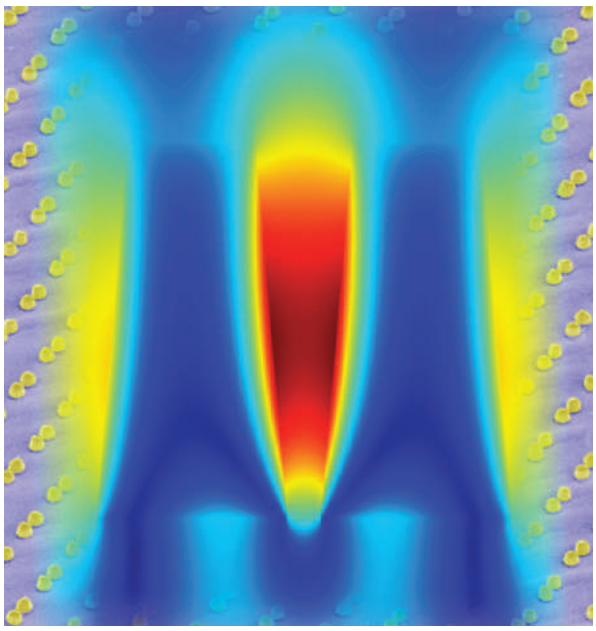
R. NEUHÄUSER *ET AL. ASTRON. ASTROPHYS.* **435,** L13–L16 (2005)/ESO

PLANET HUNT

The dot on the right of this image (b) could be the first photo of an extrasolar planet. Orbiting a sun 400 light years away called GQ Lupi, the planet is thought to be bigger than Jupiter. It is three times farther from its star than Neptune is from the Sun, giving it an orbital period of 1,200 Earth years. A group led by Ralph Neuhäuser, at the Astrophysical Institute and University Observatory in Jena, Germany, captured this image of reflected glory.

LIGHT SHOW

Alexander Grigorenko's lab at the University of Manchester, UK, got halfway to making a perfect lens, which would reflect no light. The blue bits in this image are areas where the magnetic component of light is not reflected, thanks to an arrangement of tiny gold pillars.



A. GRIGORENKO *ET AL. NATURE* **438,** 335–338 (2005)

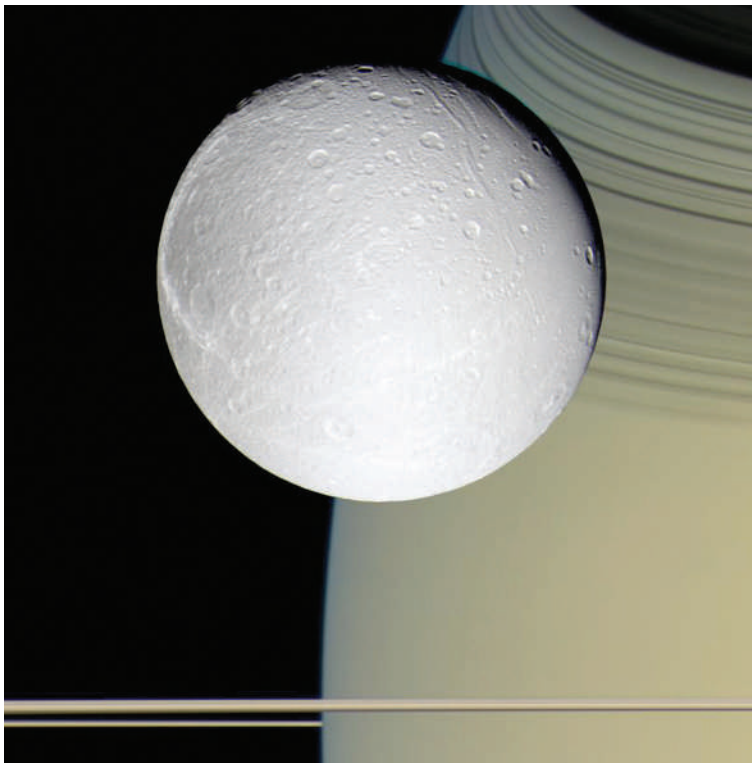
A. LEVSKAYA *ET AL. NATURE* **438,** 441–442 (2005)

A PORTRAIT

Reminiscent of an early daguerreotype, this image is made of — and by — bacteria. The *Escherichia coli* have been genetically modified both to detect light and to switch off the production of a dark pigment in response. A team consisting mostly of students from the University of Texas, Austin, and the University of California, San Francisco, made this image of Andrew Ellington, one of their professors.

FULL MOON

Since the Cassini–Huygens mission arrived at Saturn last year, NASA's Cassini orbiter has circled the ringed giant, sending back stunning pictures, and the Huygens probe has dropped to the surface of the moon Titan. These Cassini snaps of another moon, Dione, show its icy surface in unprecedented detail, with the shadows of Saturn's rings projected on to the planet behind it.



NASA/JPL/SPACE SCIENCE INST.

LITTLE SWEEP

This brush of carbon nanotubes weighs just 50 micrograms, and can paint the inner surface of a tube 300 micrometres wide — twice the width of a human hair. The first of its kind, the broom was made by Anyun Cao, from the Rensselaer Polytechnic Institute in Troy, New York, and his team.

A. CAO *ET AL. NATURE MATER.* **4,** 540–545 (2005)

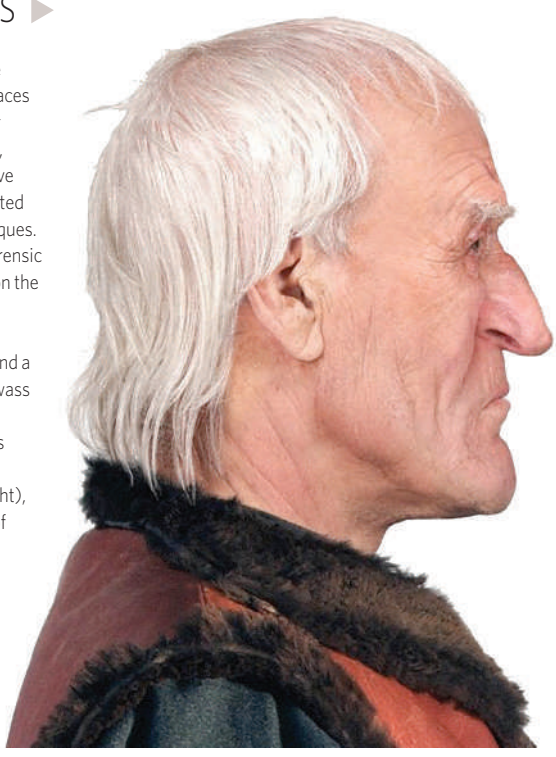
T. BREUER *ET AL. PLOS BIOL.* **3,** E380 (2005)

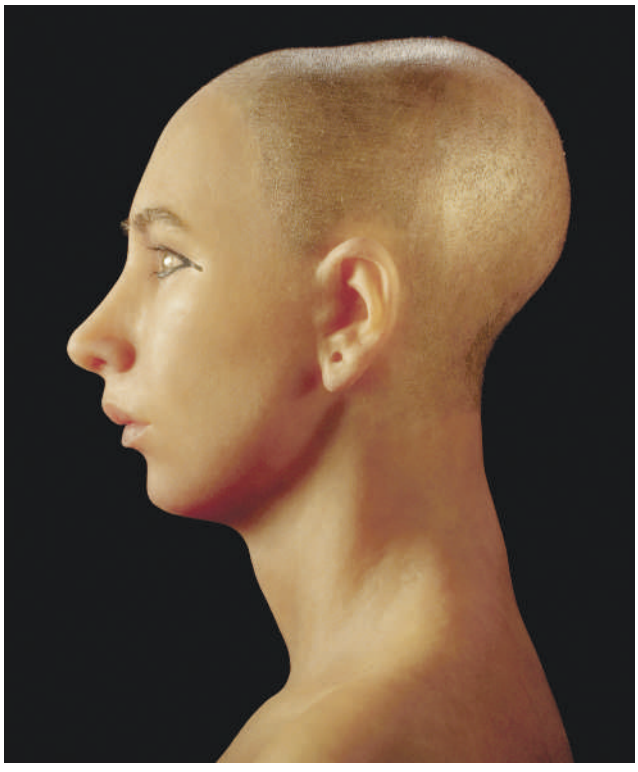
STICK WITH IT

Gorillas in captivity are known to use tools. This year, the same was shown for wild apes. Two female gorillas were spotted using a branch as a depth-finder and bridge. Thomas Breuer of the Wildlife Conservation Society in New York and team members caught them on camera.

TWO FACES

One prince among astronomers and one earthly king, whose faces have gone unseen for 462 and 3,300 years, respectively. Both have now been reconstructed using forensic techniques. The Polish police's forensic laboratory put flesh on the bones of Copernicus (right), which were exhumed this year. And a team led by Zahi Hawass of Egypt's Supreme Council of Antiquities did the same for King Tutankhamen (far right), following a CT scan of the mummy.





STR/AFP/GETTY IMAGES; E. DAYNES/NATL GEOGRAPHIC IMAGE COLLECTION