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2007 GALLERY

IMAGES OF THE YEAR

Many formulations of the scientific method begin with observations. And the images here are indeed exciting observations — new pictures from Earth and space that will serve as the starting points for great science. But often the most arresting scientific images are captured at the end of the process, in the form of a solution. Such pictures represent the culmination of months of tireless work in the laboratory and have a still, completed quality. The structure of a protein or material, the high-resolution image revealing microscopic handiwork, the elegant visualization of data. Whether from the start or the end of an investigation — or from somewhere in between — these images are some of the most striking from 2007.

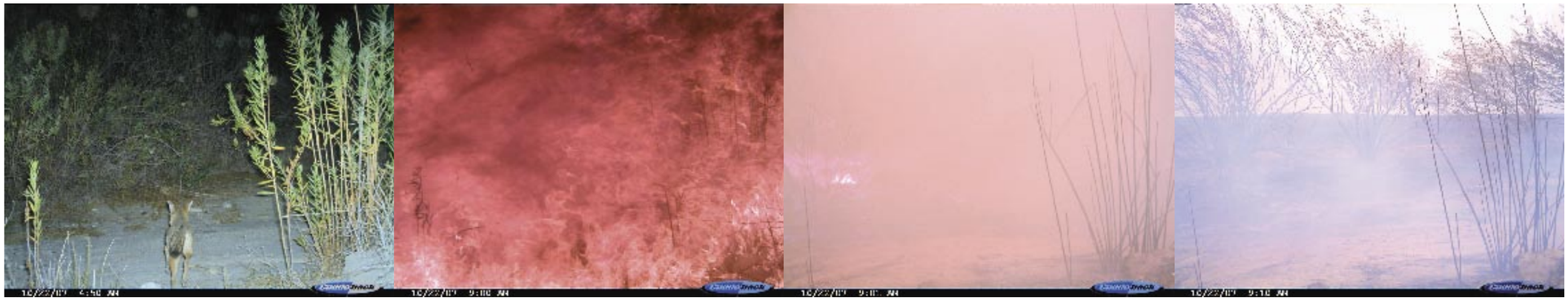
Researched and written by Emma Marris.

NASA/JPL/SPACE SCI. INST.

BACK OF IAPETUS

This false-colour mosaic is the first high-resolution image of the pale half of Iapetus, Saturn's two-faced moon. Iapetus is tidally locked, so it doesn't rotate, and it orbits Saturn with its dark face (just visible on the right) on its leading hemisphere. Cassini captured the picture on 10 September.

USGS



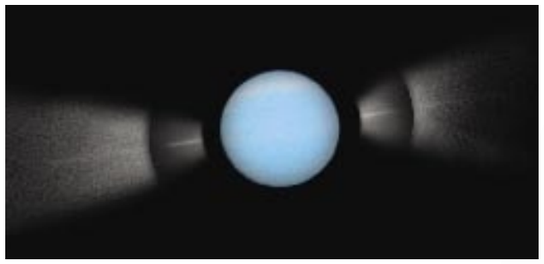
FIRE ON FILM

The Santiago fire in Orange County, one of the many wildfires in Southern California this year, was photographed by a camera set up to shoot wildlife. On 22 October, at 04:50, the camera snapped a coyote probably fleeing the fire. Then, at 09:00, the flames came. The final two pictures in the sequence were taken at 09:01 and 09:10.

NASA, ESA AND M. SHOWALTER/SETI INST.

RINGSIDE SEAT

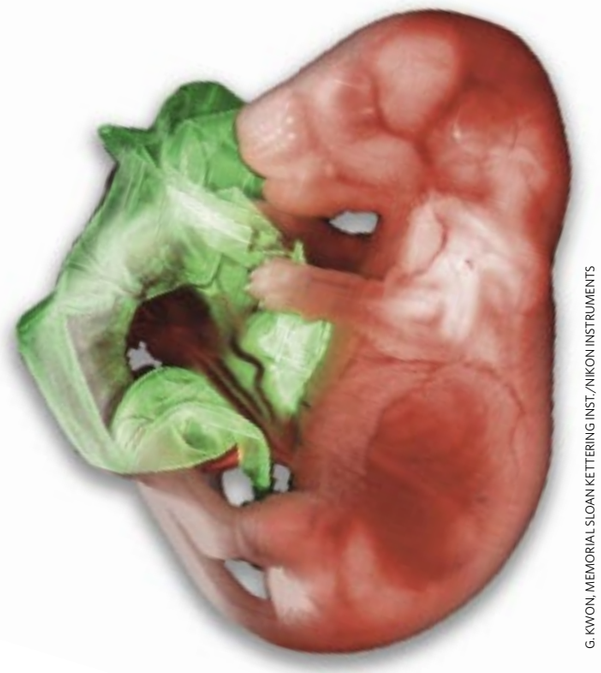
Uranus's rings are edge-on to Earth once every 42 years — and 42 years ago, no one knew the planet even had rings. So this year was the first chance to capture them from Earth, or at least its environs. The Hubble Space Telescope caught the moment on 14 August — in this enhanced image the rings show up as white spikes either side of the planet.



E. MASON

COMET LACE

This is Comet McNaught as it steamed across the January sky, leaving a filigreed tail. It was the brightest comet to be seen from Earth for more than 30 years.

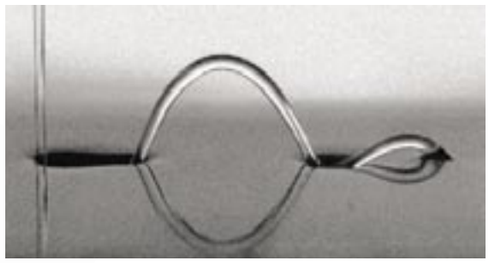


G. KWON, MEMORIAL SLOAN KETTERING INST./NIKON INSTRUMENTS

INSIDE THE EGG

This image of a transgenic mouse embryo and its yolk sac won first prize in Nikon's 2007 Small World competition. The yolk sac glows green and the mouse red because of different tagged proteins expressed in each.

M. THRASHER, H. SWINNEY ET AL.



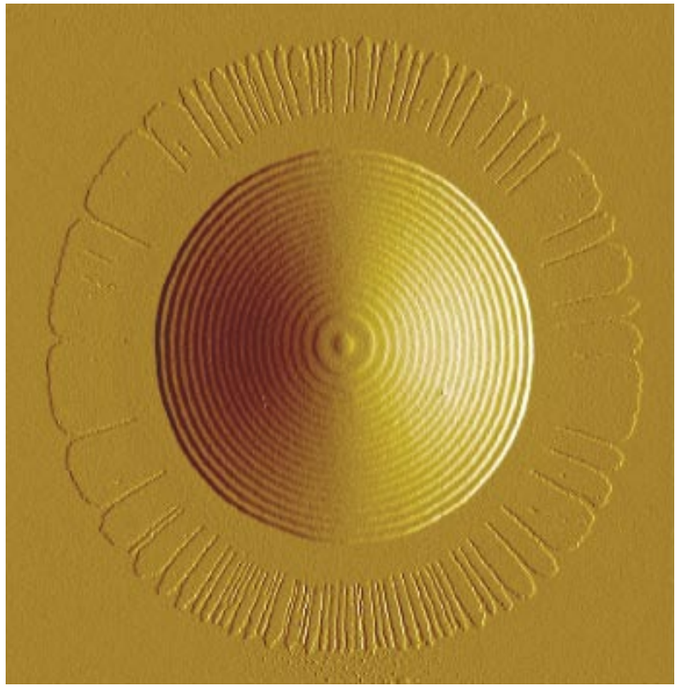
SPLASHDOWN

This is a stream of silicone oil captured as it bounces twice before merging into an oil bath. The liquid jet, lubricated by a thin film of air, managed this leap because the oil bath was moving — in this image from left to right.

BEACH FOAMING

Beaches turned into bubble baths north of Sydney, Australia, this summer, when a perfect confluence of strong currents and myriad marine minutiae created mountains of foam.

B. COUNSELL/ICON IMAGES



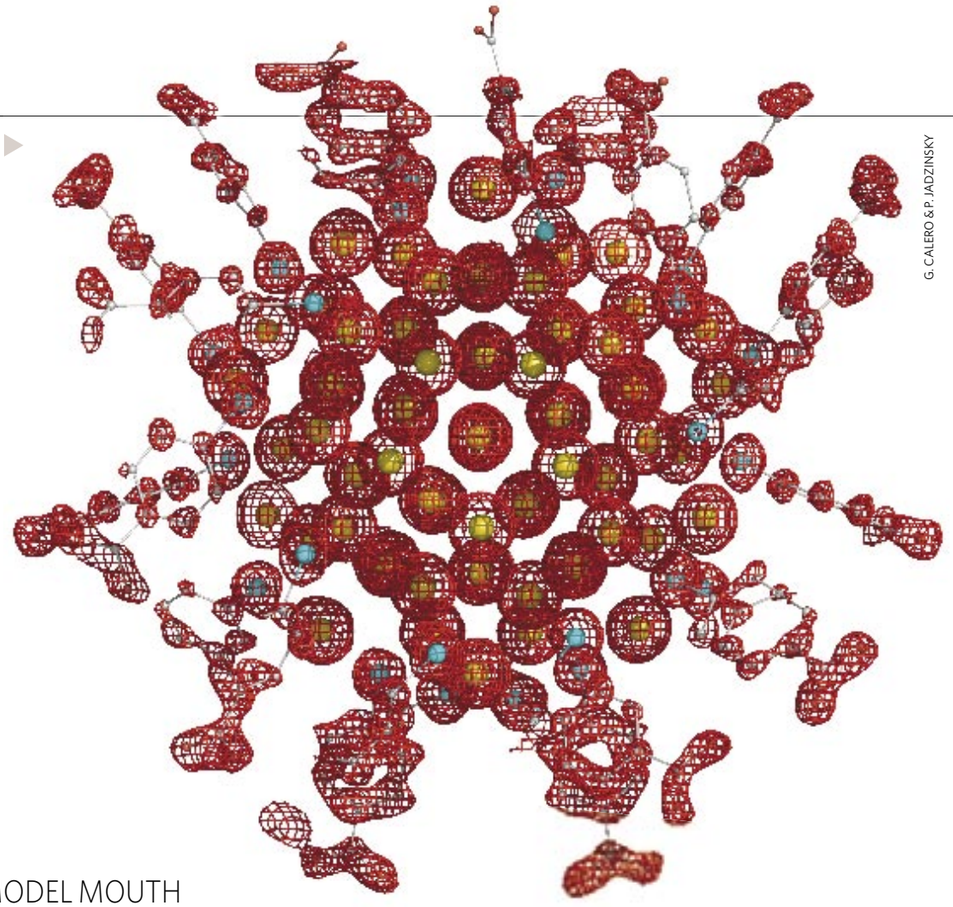
AM. PHYS. SOC.

DAZZLING DROPLET

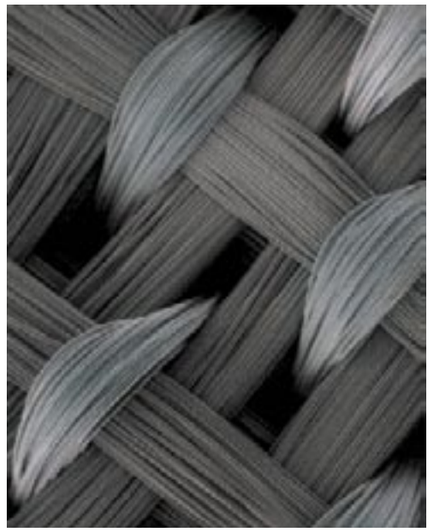
Not all liquids form a dull dome when they sit as a droplet on an impermeable surface. This complex liquid of diblock co-polymers rests on silicon in architectural splendour.

GOLD BLOSSOM

A nanoscale particle made up of 102 gold atoms is reconstructed here from crystal data. Many of the gold atoms collect in a central dodecahedron, but those arranged in the outer layers of the particle show some 'unanticipated geometries'.

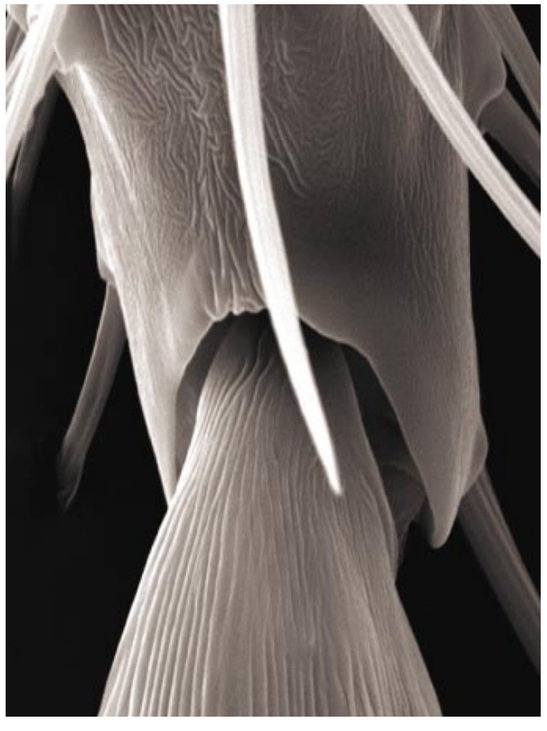


G. CALERO & P. JADZINSKY



TINY LOOM

This small piece of three-dimensional weaving demonstrates a technique for making scaffolds that move and act like cartilage to help tissues to recover after trauma. The resulting fabric is about 1 millimetre thick and is woven from a yarn of polyglycolic acid.



CARVED LEG

This picture of a fruitfly's leg joint was taken as part of a project to determine how the fly sculpts its limbs. The chasm inside the joint is carved out by apoptosis associated with a chemical gradient of a molecule called decapentaplegic.

MODEL MOUTH

The stickleback fish, often used as a model in evolutionary work, has never looked so fierce. This image was taken as part of research into patterns of wear on teeth, which can reveal both what this fish has eaten and the dining habits of its fossilized ancestors.

M. PURNELL, UNIV. LEICESTER

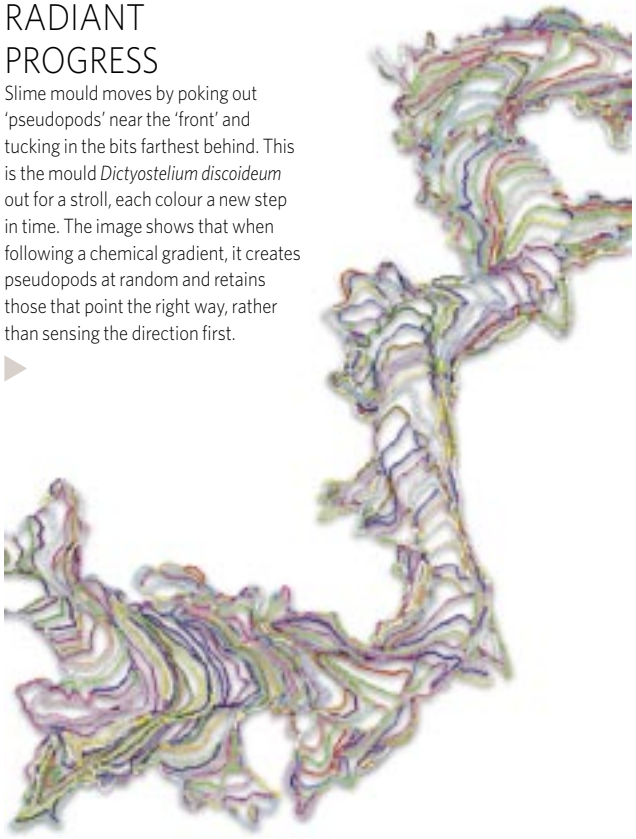
A. TKACHEV/ITAR-TASS

ANCIENT OFFSPRING

This 4-month-old woolly mammoth dates back some 10,000 years and was found in the melting Siberian permafrost. It was named Lyuba after the wife of the reindeer breeder who discovered her.

RADIANT PROGRESS

Slime mould moves by poking out 'pseudopods' near the 'front' and tucking in the bits farthest behind. This is the mould *Dictyostelium discoideum* out for a stroll, each colour a new step in time. The image shows that when following a chemical gradient, it creates pseudopods at random and retains those that point the right way, rather than sensing the direction first.



NEURONS IN GLAD RAGS

These motor neurons are sporting this season's colours, thanks to a labelling technique that lets chance mix up each cell's expression of four different fluorescent proteins (although only three proteins were used for this image).

NEOLITHIC EMBRACE

These roughly 5,000-year-old remains of a young man and woman were exposed in Valdaro, Italy, in early February, during an archaeological dig to pave way for the construction of a factory.

AP

SCIENTIFIC CURIOSITY KNOWS NO BOUNDS

A southern elephant seal (*Mirounga leonina*) retains its dignity, despite having the latest in multi-parameter recording sensors stuck to its head.

M. BIUW