

SEVEN DAYS

The news in brief

EVENTS

Emissions scandals

Criminal prosecutors in the United States have charged six senior officials at car maker Volkswagen in connection with the company's emissions-cheating scandal, the US Department of Justice announced on 11 January. The executives are alleged to have authorized the development and installation of technologies that allow diesel cars to manipulate emissions testing. Five of the accused are thought to be in Germany; the sixth was arrested in Florida. Volkswagen has agreed to pay US\$4.3 billion in fines in a US settlement. Separately, on 12 January, the US Environmental Protection Agency accused Fiat Chrysler of failing to disclose that some of its diesel cars had engine software that could reduce emissions levels under test conditions. The company's chief has denied the allegations.

Humboldt online

The complete works of Prussian naturalist and explorer Alexander von Humboldt (1769–1859) are now available online, the Berlin State Library announced on 12 January after

NUMBER CRUNCH

\$500 m

The largest-ever single gift to the University of California, San Francisco, given on 11 January by the Helen Diller Foundation. From the donation, US\$100 million will fund early- and mid-career scientists, and a \$100-million innovation fund will support cutting-edge science.

Source: UCSF



LANCE MURPHEY/THE NEW YORK TIMES/EVERETT

Marijuana review finds three benefits

Marijuana has some identifiable positive effects on health, but evidence for many other claimed benefits is inconclusive, says a huge 12 January report from the US National Academies of Sciences, Engineering, and Medicine. The report considers more than 10,000 studies, finding enough evidence for three therapeutic effects: on chronic pain, chemotherapy-induced nausea and

muscle spasms related to multiple sclerosis. But use of the drug can increase the risk of mental-health conditions such as schizophrenia, says the report. The assessment recommends more research on marijuana, but notes the regulatory barriers to research in the United States, including the drug's classification as a substance with no "accepted medical use".

a three-year digitalization project. The works include Humboldt's diaries from the Americas — 4,000 pages of cramped notes written during his exploration in Latin America between 1799 and 1804. In the multi-volume, illustrated work *Cosmos*, published starting in 1845 after his return to Germany, Humboldt promoted an influential concept of the Universe as a single interacting entity.

MH370 search

The underwater search for a Malaysia Airlines aeroplane that vanished over the Indian Ocean on 8 March 2014 has ended without success. The Chinese, Australian and Malaysian authorities that

had been leading the search for flight MH370, which disappeared en route from Kuala Lumpur to Beijing with 239 people on board, said on 17 January that the last search vessel has left the 120,000-square-kilometre search area. More than 20 pieces of supposed debris from the plane have been found on the coastlines of islands in the Indian Ocean and East Africa. But scientists' attempts to trace their origin using ocean-current models and drift analysis were unsuccessful.

HEALTH

Guinea-worm gains

Guinea-worm disease is left in just three countries, the Carter Center in Atlanta,

Georgia, which is leading eradication efforts, said on 10 January. Chad, Ethiopia and South Sudan reported a total of 25 human cases in 2016, and for the first time, Mali reported none. The infection is contracted by drinking unfiltered water containing microscopic crustaceans that carry Guinea-worm larvae. With no vaccine or treatment against the parasite, eradication efforts have focused on providing clean water.

POLICY

Cancer formulary

The US National Cancer Institute (NCI) has entered into a partnership with 6 pharmaceutical firms to distribute 15 targeted

cancer drugs to researchers leading clinical trials. The arrangement, announced on 11 January, is intended to support the US Cancer Moonshot initiative's goal of speeding up the development of cancer therapies by reducing the time spent negotiating access to drugs for individual trials. Participating companies will still need to approve trials, but the NCI will act as an intermediary between the firms and researchers at the 69 NCI-designated cancer centres.

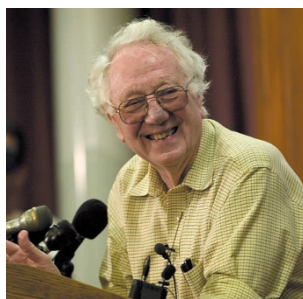
PEOPLE

Moonwalker dies

NASA astronaut and US Navy captain Eugene Cernan, the last person to walk on the Moon, died on 16 January. On 14 December 1972, as the *Apollo 17* mission neared its end, Cernan stepped off the lunar surface and vowed that humans would return. Decades later, he told Congress that he still hoped that would happen, even as he fretted about what he saw as the United States losing its position as the leading spacefaring nation. Cernan was also the third human to walk in space, on *Gemini 9* in June 1966.

Knockout pioneer

Oliver Smithies, a biochemist whose research paved the way for making genetically modified mice, died on



10 January, aged 91. Smithies (pictured) found a way to make precise genetic changes to mammalian cells. Applying this method to embryonic stem cells, which can form any of an organisms' cells, allowed researchers to disable specific genes to create 'knockout' mice. These animals are now widely used to study gene function. Smithies, a professor at the University of North Carolina at Chapel Hill, shared the 2007 Nobel Prize in Physiology or Medicine with Mario Capecchi and Martin Evans.

Scientist resigns

A leading scientist has resigned from the Smithsonian Institution's National Museum of Natural History (NMNH) in Washington DC, reportedly after a dispute with the museum over his conduct during a 2015 expedition. Mammalogist Kristofer Helgen told colleagues on 9 January that he was leaving the NMNH to take a position at the University of Adelaide,

Australia. According to news reports, he had faced what he viewed as a politically motivated investigation into alleged misconduct relating to the collection and export of samples during a research expedition to Kenya. Helgen kept his NMNH job but was suspended without pay for two weeks.

FACILITIES

Antarctic pull-out

The British Antarctic Survey (BAS) will pull its winter staff out of the Halley VI Research Station and shut it down completely between March and November. The base is designed to be movable, and is being relocated 23 kilometres away from its current site owing to a growing crack in the ice shelf it rests on. But another crack that appeared in October 2016 means that, for safety reasons, the BAS does not want staff there when the station is isolated by the Antarctic winter. The survey said on 16 January that it is working to ensure that the removal of all 16 people who were set to overwinter at the base will not interrupt planned data collection.

SESAME opens

A beam of electrons circulated for the first time at the Synchrotron-light for Experimental Science and Applications in the Middle East

(SESAME) on 11 January. The facility, near Amman, Jordan, is the region's first light-source facility and an unprecedented collaboration between several countries in the Middle East, including Iran and Israel, as well as the Palestinian Authority, Pakistan and Cyprus. Engineers will now calibrate the electron beam and increase its energy, before channelling the light it emits into 'beamlines' that scientists can use to probe the structure of materials and biological samples. SESAME is set to begin research in mid-2017.

China laser source

China has built a free-electron laser facility that can produce the brightest extreme-ultraviolet light of any such laser in the world, the Chinese Academy of Sciences announced on 15 January. Costing roughly US\$20 million, the Dalian Coherent Light Source, in Liaoning Province, will produce bright, rapid pulses of light that allow scientists to observe physical, chemical and biological reactions. Operating at lower energies than X-ray free-electron laser facilities, the source will be ideal for studying atoms and molecules in gases, including the formation and growth of smog, say researchers. The facility will be open to users in mid-2017.

Core collection

The world's biggest collection of Antarctic marine-sediment cores will move to Oregon State University in Corvallis. The cores, some of which date back half a century to the start of US scientific research off Antarctica, had long been housed at Florida State University in Tallahassee. But with a grant from the US National Science Foundation, the more than 30 kilometres of core will move to a new geological repository, where the collection will remain available for researchers.

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TREND WATCH

US president-elect Donald Trump sent biotechnology stocks tumbling last week when he spoke about the soaring cost of some drugs. "They're getting away with murder," Trump said of drug firms at an 11 January press conference. He vowed to create new bidding procedures to lower drug prices. The NASDAQ Biotech Index fell 3% within half an hour of the comments (see chart). Pharmaceutical stocks rose after Trump's election last November, but the industry had struggled to gauge his stance on drug prices.

STOCKS SLIDE AS TRUMP TALKS PHARMA

Biotech investors reacted quickly after Donald Trump criticized the pharmaceutical industry at a press conference on 11 January.

