

SEVEN DAYS

The news in brief

SPACE

Space tourists

Private spaceflight company SpaceX, of Hawthorne, California, said on 27 February that it plans to send two people into deep space in late 2018, on a trajectory that would take them beyond the Moon and back to Earth. The people, who are private citizens and have not been named, have put down a “significant deposit” for the trip, aboard a Dragon crew capsule on the company’s large Falcon Heavy rocket. The timetable for the mission is ambitious — SpaceX has not yet flown Falcon Heavy in space, much less launched a crewed flight. The announcement comes days after NASA said that it would explore putting astronauts on the first test flight of its own heavy-lift rocket, the Space Launch System, no earlier than 2019.

EVENTS

Seeds to Svalbard

A first batch of 15,420 seed samples was returned to the high Arctic on 22 February by the International Center for Agricultural Research in the Dry Areas (ICARDA). The organization had withdrawn much of its seed collection from Svalbard in 2015, when its headquarters were in Aleppo, Syria. The war there meant that it needed to duplicate parts of the collection so that researchers and breeders would be able to access the seeds. After multiplying stocks in Morocco and Lebanon, ICARDA is now returning the seeds to the Svalbard Global Seed Vault. The collection contains many ancient varieties from the Fertile Crescent, a region stretching from the Nile Valley into

Western Asia that is thought of as the birthplace of modern agriculture.

Nerve-agent attack

Malaysian police said on 24 February that the nerve agent VX was used in the killing of Kim Jong-nam, the half-brother of North Korea’s leader. Authorities identified the chemical in swabs from the eyes and face of the victim. Kim was attacked at Kuala Lumpur airport on 13 February by two people who appeared to rub substances on his face. British chemists developed VX, an organophosphate, during pesticide research in the 1950s; the compound inhibits the creation of an enzyme that allows muscles to relax. VX is

now banned under the United Nations’ Chemical Weapons Convention, the overseeing body of which notes that it can be delivered through ‘binary’ means: two relatively non-toxic components can be kept separate and mixed at the moment of use to create the deadly agent.

HEALTH

Antibiotics risk

Antimicrobial resistance remains an alarming threat to human and animal health, warns a report by the European Food Safety Authority and the European Centre for Disease Prevention and Control. Some 25,000 people in Europe die every year from infections

caused by bacteria resistant to widely used drugs. The report finds that southern and eastern European countries generally have higher resistance levels than countries in northern and western Europe. But multidrug resistance in *Salmonella* bacteria, which cause the common food-borne disease salmonellosis, is high across the entire European Union. The European Commission said on 22 February that it will launch an action plan in the summer to address the problem.

Bacterial hit list

The World Health Organization (WHO) has for the first time published a list of the drug-resistant bacteria



LALO DE ALMEIDA/NT/REDUX/EYEVINE

Summit targets rising tide of sea plastic

The United Nations has launched an effort to deal with worsening plastic pollution in the world’s oceans. Plastic waste that ends up in the seas harms animals ranging from fish larvae to whales. The #CleanSeas campaign,

launched at the fourth World Ocean Summit in Bali on 23 February, calls on governments and businesses to ban microplastics in cosmetics, tax plastic bags and curb the use of other disposable items. Ten countries have already pledged action.

that it says pose the greatest threat to human health, and for which new antibiotics are most desperately needed. The list, released on 27 February, ranks 12 bacteria or bacterial families and is topped by carbapenem-resistant *Acinetobacter baumannii*, which causes a severe infection for which almost no treatments exist. It also includes bacteria that cause pneumonia and gonorrhoea. Antibiotic resistance kills an estimated 700,000 people each year, and the WHO hopes the list will steer funds towards development of the most-needed antibiotics. See page 15 for more.

PEOPLE

Carbon queen dies

US materials scientist Mildred Dresselhaus (**pictured**), a pioneer in the theoretical and experimental study of exotic forms of carbon and of thermoelectric materials, died on 20 February, aged 86. Dresselhaus predicted many of the crucial properties of carbon nanotubes, carbon fullerenes and graphene, while opposing the hype that had built up around nanotechnology. In 1968, she became the first woman to earn a permanent professorship at the Massachusetts Institute of Technology in Cambridge,



and she was a relentless advocate for women in science. She won several major awards, including a US\$1-million Kavli Prize in Nanoscience in 2012.

Economist dies

Kenneth Arrow, an influential US economist whose work informed modern market and social theories, died on 21 February at the age of 95. Arrow, who retired from Stanford University in California in 1991, won the 1972 Nobel Memorial Prize in Economic Sciences. His seminal work focused on welfare economics as well as supply and demand in competitive markets. He was also known for his 'impossibility theorem', which proved that no electoral system can reliably and fairly allocate all voter preferences while producing a clear winner in a field of more than two candidates.

POLICY

UK research reform

Amendments made last week to proposed sweeping reforms of Britain's research-funding system seem to have reassured scientists who had criticized the shake-up. The proposals would bring the separate UK research-funding councils together under a single central agency to create a government body to regulate what UK universities teach. But among other tweaks, science minister Jo Johnson has suggested writing into law a long-held doctrine in UK science funding — termed the Haldane principle — that research-funding decisions should be protected from political interference. The amendments pave the way for the proposals to become law.

FUNDING

UK science hubs

The UK government said on 23 February that it will invest £103 million (US\$129 million) in a new national centre for life sciences and health-care technology. Researchers at the Rosalind Franklin Institute, managed by the Engineering and Physical Sciences Research Council, will develop advanced molecular-imaging and drug-discovery methods. Its hub will be based at Harwell in Oxfordshire, with linked

COMING UP

5–8 MARCH

Scientists discuss neural circuits at a symposium in Santa Fe, New Mexico.

go.nature.com/2ku27bx

5–8 MARCH

A meeting in Boston, Massachusetts, addresses rare and undiagnosed diseases.

go.nature.com/2mktma4

7 MARCH

A Vega rocket launches with Europe's Sentinel-2B Earth observation satellite from the spaceport in Kourou, French Guiana.

partner sites at seven leading UK universities. Business and energy secretary Greg Clark said that the government will also provide £126 million in grants for the Sir Henry Royce Institute, a hub for advanced materials research at the University of Manchester.

BUSINESS

Imaging deal

The Canadian information and communication company MacDonald, Dettwiler and Associates (MDA) announced on 24 February that it will buy DigitalGlobe, a satellite-imagery provider in Westminster, Colorado. The Can\$3.1-billion (US\$2.4-billion) acquisition is the one of the biggest deals yet in the Earth-imaging market, which continues to consolidate. By merging DigitalGlobe's satellites and image-analysis capabilities with its own operational solutions for surveillance and intelligence, MDA will be able to attract more US government customers to its lucrative satellite services.

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TREND WATCH

Life expectancy will continue to increase throughout the developed world, according to projections published in *The Lancet* (V. Kontis *et al.* *Lancet* <http://doi.org/bz77>; 2017). South Korean women are likely to be living longest by 2030: there is a nearly 60% chance that their life expectancy at birth will exceed 90 years by that time. Life expectancy in the United States, which already lags behind that of most other developed nations, is predicted to be among the lowest in these countries by 2030.

AGEING POPULATIONS

By 2030, South Korean women are likely to have dethroned their Japanese counterparts as the world's longest-living population.

