

Singer Joe Jonas weds actor Sophie Turner
LONDON
Singer Joe Jonas married *Game of Thrones* actor Sophie Turner in a surprise wedding on Wednesday night in Las Vegas. The couple wed just hours after Jonas performed with his siblings Nick and Kevin at the Billboard Music Awards. Their wedding comes just five months after Nick Jonas wed actor Priyanka Chopra. REUTERS



Tarantino's new film makes the cut for Cannes
PARIS
Quentin Tarantino's much-anticipated new film *Once Upon a Time in Hollywood* will premiere at the Cannes film festival, organisers said on Thursday, after doubts over whether it would be finished on time. The movie stars Brad Pitt, Leonardo DiCaprio and Margot Robbie. AFP



First moon landing book could fetch \$9 million
NEW YORK
The manual used by U.S. astronauts Neil Armstrong and Buzz Aldrin (in picture) to land on the moon in 1969 is going up for auction in July and could fetch up to \$9 million, auctioneers Christie's have said. The 44-page, ring-bound Apollo 11 lunar module book offered step-by-step instructions for the Eagle flight. REUTERS

Da Vinci code: 500-year-old sketch offers clues on polymath

Rare portrait of Renaissance artist Leonardo is on show at the Buckingham Palace in London to mark 500 years since his death

AGENCE FRANCE-PRESSE
LONDON

A 500-year-old sketch of a bearded man was on Thursday revealed to be one of only two surviving portraits of Renaissance artist Leonardo da Vinci that were made during his lifetime. The drawing, believed to have been made by an assistant, is part of the Royal Collection of U.K. and will be displayed in an exhibition at Buckingham Palace marking 500 years since Leonardo's death. It was a quick sketch on a double-sided sheet of studies, most of them made by the Florentine master himself of a horse's leg, in anticipation of a monument that was never completed. Martin Clayton, head of prints and drawings at the Royal Collection Trust, compared it with the only other contemporary image of Leonardo by his pupil, Francesco Melzi. Both were produced shortly before the artist's death in 1519, and reveal his well-kept and "luxuriant" beard that was relatively rare at the time, Mr. Clayton said.



In remembrance: (Clockwise from left) Italian President Sergio Mattarella, left, and French President Emmanuel Macron hold busts of Leonardo da Vinci at a ceremony; a painting by the master artist viewed under ultraviolet light; and his portrait. •AFP, AP



the corner of the mouth and the long wavy hair are all exactly as Melzi showed them in his portrait," he said. He added: "Alongside Melzi's portrait, this is the only other contemporary likeness of Leonardo. "In the sketch, he is aged about 65 and appears a little melancholy and world-weary. "However, the presence of the portrait alongside studies for another grand equestrian monument shows that Leonardo's ambitions remained undimmed in later life." Both portraits will be displayed alongside 200 drawings by the artist in "Leonardo da Vinci: A Life in

Drawing", which opens on May 24. It will also see the first public outing for Leonardo's *Studies of hands for the Adoration of the Magi*, which only emerged from what seemed to be a blank piece of paper under ultraviolet light. **Lock of hair** A lock of what some historians think is Leonardo da Vinci's hair went on display on Thursday at a museum in his Tuscan birthplace as they seek to prove it contains his DNA. Art historian Alessandro Vezzosi said a scientific study would be conducted on the lock of hair.

Drake rakes it in



Big haul: Rapper Drake posing in the media room with his awards at the Billboard Music Awards ceremony on Wednesday in Las Vegas. Drake won 12 awards, making his career total 27, and beating the record of singer Taylor Swift, who has 23 wins. •AP

Language could hold the key to encourage healthy eating

Coaxing people rather than coercion helps, say scientists

REUTERS
WASHINGTON

From caramelized zucchini bites to candied crickets, scientists have come up with a foolproof way to encourage healthy eating – don't call it healthy. Behaviour and environmental sciences experts said coaxing rather than coercion helped to get people to eat better – and language was key to change habits along with tax incentives, posting calories and other more subtle approaches. "You can't just yell facts at people and say, 'Here's a graph, here's a chart'," said Kate Marvel, a scientist with the U.S. space agency NASA, where researchers study climate change and nutrition. Words matter, and plant-based food options sell better when described as tasty



Vegetable meals described in exotic terms found more takers during a study.

and indulgent, said Sophie Attwood, senior behavioural scientist with the Better Buying Lab at London's World Resources Institute, a global research organisation. Using different names for the same foods, one study found "slow-roasted caramelized zucchini bites" sold far better than "lighter-choice zucchini", and "twisted citrus-glazed carrots" outsold "carrots with sugar-free citrus dressing."

Wolves are more selfless pack mates than dogs, study shows

Scientists say domestication did not make dogs more social

AGENCE FRANCE-PRESSE
WASHINGTON

If you're looking for a word to describe your adorable pet pup, "selfish" might not top the list. But a study published in the journal *PLOS ONE* suggests a dog's reputation for being caring is all a ruse – at least from the viewpoint of a fellow canine. A series of touchscreen experiments carried out by the Wolf Science Center in Vienna, Austria, found that wolves make for more selfless pack mates than dogs who were also raised in groups. The study's authors say the findings suggest domestic dogs inherited their cooperative tendencies from their fierce wolf ancestors, rather than through their contact with human beings, a competing hypothesis. Researchers trained the



Wolves were found to share more food with their pack.

animals to use their snouts to press a "giving" symbol on a screen that delivered food to an adjacent enclosure, where a fellow animal may or may not be present. Over multiple trials, wolves opted to deliver food to members of their own pack, knowing they would not get anything in return – but lost interest if they were shown an unfamiliar wolf. Dogs, on the other hand, showed no particular inclination to feed other dogs

when no personal payoff was involved, regardless of whether they knew them or not. "This study shows that domestication did not necessarily make dogs more pro-social," said lead author Rachel Dale. "Rather, it seems that tolerance and generosity towards group members help to produce high levels of cooperation, as seen in wolves." But don't write off your pooch just yet. The authors cautioned against applying the results of an experiment carried out on pack dogs to pet dogs, who have been found to have pro-social tendencies in past studies. The researchers believe those behaviours could be the result of training or encouragement, and say more research is needed to determine what accounts for the differences.

Pilot prince turns powerful monarch

Thailand's King Maha Vajiralongkorn will be officially crowned on Saturday

REUTERS

Thailand's King Maha Vajiralongkorn Bodindradebayavarangkun will be officially crowned as the 10th king of the Chakri dynasty on May 4, after taking the throne following the death of his father, King Bhumibol Adulyadej, in late 2016. The 66-year-old constitutional monarch had a pre-coronation surprise for his subjects. He married for the fourth time on Wednesday and named his new wife as queen. During 18 months of his reign so far, Vajiralongkorn, also known by the title King Rama X, has moved to consolidate the authority of the monarchy, including taking more direct control of the crown's vast wealth with the help of Thailand's military government. In one of his most visible initiatives he has signed up some 5 million Thais to a new volunteer corps, whose members salute a portrait of



Thailand's King Maha Vajiralongkorn, Queen Suthida, right, and Princess Bajrakitiyabha in Bangkok on Thursday. •REUTERS

the king before going out to work on community service projects such as cleaning public spaces. Devotion to the monarch is an ingrained part of Thai culture that deepened during Bhumibol's 70-year reign. Vajiralongkorn's portrait has replaced or hangs alongside that of his late father in

many streets, public buildings and private businesses. **Strict laws** Public criticism of the king or his family is illegal, with insults to the monarchy punishable by up to 15 years in prison under Thailand's strict lese majeste laws. Vajiralongkorn was born on July 28, 1952, the second

of King Bhumibol and Queen Sirikit's four children and their only son. After completing primary education in Thailand, he was educated at private schools in Britain and Australia, before attending Australia's Royal Military College Duntroon, in Canberra, and earning a bachelor's degree in military studies from the University of New South Wales in Australia. According to the king's official biography, he is a qualified helicopter and fighter pilot and served as a career officer in the Royal Thai Army, where he saw action against communist insurgents in Thailand in the 1970s. As king, he is now commander-in-chief of the armed forces. Since he ascended the throne, Vajiralongkorn has asserted his authority in several ways, according to analysts observing his public actions.

Airline breakfast ad gets backlash

INDO-ASIAN NEWS SERVICE
ISLAMABAD

Pakistan's national carrier learnt a lesson just how seriously airline meals are taken, following a backlash after an advertisement, bearing a photo of an omelette, sausages and beans, promised that the airline's breakfast would "serve you a taste of home". The Pakistan International Airlines promotion said: "Just when you start missing it, we serve you a taste of home! A dash of salt and little bit of pepper, we tantalise your taste buds with our delicious meal to welcome the glorious morning!" The backlash was immediate on social media. "You guys really need to sort yourselves out... Come on, when did sausages and beans sound like a traditional Pakistani breakfast. Obviously you guys need some cultural training," one Twitter user said.

Elderly couple receive meth in delivery mix-up

The shipment was worth ₹48 crore

AGENCE FRANCE-PRESSE
MELBOURNE

An elderly couple in Australia were the surprise recipients of an illegal drug shipment after signing for a wrongly delivered parcel containing millions of dollars' worth of methamphetamine, police said on Thursday. The Melbourne couple immediately called police when they discovered bags containing the white powder in the parcel on Wednesday, a police spokesman said. The package contained what police said were 20

kg of methamphetamine with an estimated street value of AU\$10 million (₹48 crore). Police subsequently searched a house in another part of Melbourne where they found another 20 kg of the drug and arrested a 30-year-old man. He was charged on Thursday with importing a marketable quantity of a controlled drug and was due to appear in court later in the day, police said. Police asked that the unwitting couple who helped catch the man not be identified by the media out of concern for their safety.

Microbots are on their way to practical applications

The devices, about the size of a cell, promise to be useful in fields as diverse as neurobiology and phone communications

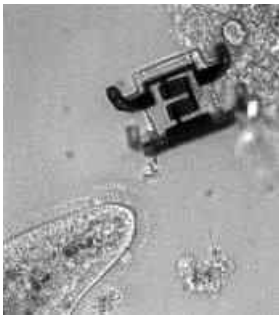
KENNETH CHANG

Like Frankenstein, Marc Miskin's robots initially lie motionless. Then their limbs jerk to life. But these robots are the size of a speck of dust. Thousands fit side by side on a single silicon wafer similar to those used for computer chips, and, like Frankenstein coming to life, they pull themselves free and start crawling. "We can take your favorite piece of silicon electronics, put legs on it and then build a million of them," said Mr. Miskin, a professor of electrical and systems engineering at the University of Pennsylvania. "That's the vision." He imagines a wealth of

uses for these microbots, which are about the size of a cell. They could crawl into cellphone batteries and clean and rejuvenate them. They might be a boon to neural scientists, burrowing into the brain to measure nerve signals. Millions of them in a petri dish could be used to test ideas in networking and communications.

Silicon technology

The new robots take advantage of the same basic technology as computer chips. "What we're doing is stealing from 60 years of silicon," said Paul McEuen, a physicist at Cornell University. "It's no big deal to make a silicon chip 100 microns on a side.



A microbot alongside a paramecium, a single-celled organism. •NYT/MARC MISKIN

What didn't exist is basically the exoskeleton for the robot arms, the actuators." While working in Mr. McEuen's laboratory, Mr. Miskin developed a technique to put layers of plati-

num and titanium on a silicon wafer. When an electrical voltage is applied, the platinum contracts while the titanium remains rigid, and the flat surface bends. The bending became the motor that moves the limbs of the robots, each about 100 atoms thick. The idea is not new. Researchers like Kris Pister of the University of California, Berkeley, have for decades talked of "smart dust," minuscule sensors that could report on conditions in the environment. But in developing practical versions, the smart dust became larger in order to fit in batteries.

Mr. Miskin worked around the power conundrum by leaving out the batteries. Instead, he powers the robots by shining lasers on tiny solar panels on their backs. "I think it's really cool," Mr. Pister said of the work by Mr. Miskin, Mr. McEuen and their collaborators. "They made a super-small robot you can control by shining light on it, and that could have all sorts of interesting applications." Mr. Miskin said his electrical engineering colleagues are often incredulous when they find out that the robots run on a fraction of a volt and consume only 10 billionths of a watt. Challenges remain. For ro-

bots injected into the brain, lasers would not work as the power source. Mr. Miskin said magnetic fields might be an alternative. He wants to make other robots swim rather than crawl. For tiny machines, swimming can be arduous as water becomes viscous, like honey. Still, Mr. Miskin expects that he can demonstrate practical microbots within a few years. "It really boils down to how much innovation do you have to do?" he said. "And what I love about this project is for a lot of the functional things, the answer is none. You take the parts that exist, and you put them together." NY TIMES