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Taiwan's new president, Tsai Ing-wen, speaking to her supporters before the election

TAIWAN'S FIRST FEMALE PRESIDENT

Elections for Taiwan's president and the country's parliament were held on January 16. Taiwan's parliament is called the Legislative Yuan. The parliament building is in Taipei, the capital city. The results were confirmed the following day. The Democratic Progressive Party (DPP) won both elections easily.

Tsai Ing-wen was the DPP's presidential candidate. She will officially take over as Taiwan's first female president on May 20. Three candidates took part in the election. The Kuomintang (KMT) is the DPP's main rival. Ms. Tsai got just over 56% of the votes. Eric Chu, the KMT's candidate, was far behind with 31%. The Legislative Yuan has 113 seats. The DPP got 68 and the KMT 35. Now, for the first time in its history, the DPP has a majority, or over half of the parliament's seats.

Elections in Taiwan are often overshadowed by China. The reasons are historical. They date back to the civil war in China. Even though this conflict ended 65 years ago, China's leaders believe that Taiwan is a "renegade" Chinese province. During the war Communists and Nationalists (or Kuomintang) fought against each other. Mao Zedong led the Communists. Chiang Kai-shek was the KMT's leader.

After many years of fighting the Communists controlled most of the country. In 1949 the Nationalists retreated to the island of Taiwan. For many years both groups claimed to be the real government of China. The official names of China and Taiwan are similar. China is the People's Republic of China (PRC) and Taiwan is the Republic of China (ROC). Before its defeat at the end of the Second World War in 1945, Japan

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controlled Taiwan. Then, the island was called Formosa.

After 1949 the KMT ran Taiwan. The island's first fully democratic elections were held in 1996. China is a communist country. As a one party state, it does not democratically elect its leaders. China was angry about the elections in Taiwan. Just before they were held, China fired several test missiles into the sea close to Taiwan. At the time, some people thought that the missiles were the beginning of a Chinese invasion.

In the past both the PRC (China) and the ROC (Taiwan) claimed to be the lawful government of China. This caused problems for the United Nations (U.N.). In 1971 the U.N. decided to recognize the PRC as the official government of China. Taiwan was expelled. Nearly all countries followed the U.N.. This means that very few foreign nations have embassies in Taiwan. Instead, their embassies in China are in Beijing, the capital of the PRC.

In 1992 the leaders of China and the KMT made an agreement. It is known as the "1992 [Consensus](#)". The KMT agreed that China and Taiwan are one country. The 1992 Consensus says that there is only "one China". Yet the DPP thinks that China and Taiwan are different nations. Chinese leaders say that the DPP must obey the 1992 Consensus. Some DPP supporters want Taiwan to declare that it is an independent nation. Many people say that China would invade Taiwan if this were to happen.

In the past other countries controlled the Chinese cities of Hong Kong and Macau for many years. Hong Kong was a British colony. Portugal ran Macau. The British government agreed to hand Hong Kong back to China in 1997. Three

years later, the Portuguese did the same with Macau. Chinese leaders insist that, in the future, like Hong Kong and Macau, Taiwan will be reunited with China.

Presidential elections in Taiwan take place every four years. Before the recent election a DPP candidate had won only twice. Chen Shui-bian was Taiwan's president from 2000 to 2008. Mr. Chen's term as president was not successful. The KMT's Ma Ying-jeou won the 2008 election. Mr. Chen was accused of corruption, or dishonesty. He was found guilty and sent to prison.



Mr. Ma has been president for the past eight years. (He also won the 2012 election.) Like the U.S., presidents in Taiwan can serve for only two successive four-year terms. After this, they must stand down. Mr. Ma worked to improve Taiwan's relationship with China. Over the last eight years several agreements were made. Now, there are direct flights between the two countries. Many Taiwanese companies have set up factories in China. Students from China can study at universities in Taiwan. Chinese tourists are now allowed to visit the country.

Three months ago an unusual meeting took place in Singapore. Mr. Ma met with China's president, Xi Jinping, for talks. This was the first time that the leaders of China and Taiwan had met since 1949.

Many people think that Mr. Ma and Mr. Xi arranged the talks because they were worried that the KMT would lose the election. They hoped that their meeting would persuade more people to vote for the KMT. If this is true, it did not work.

Taiwan is home to 23.5 million people (over 1.2 billion live in China). Many older people support the KMT. Yet most of the younger generation voted for the DPP. They distrust China. Currently, about 25% of the goods that Taiwan exports, or sells to other countries, go to China. KMT voters want this figure to increase. DPP supporters think that it may be too high. If more and more of Taiwan's exports go to China, they argue, Chinese leaders could control Taiwan's economy. The DPP wants Taiwan to increase exports to other countries. This would mean that Taiwan was not so dependent on China.

Females have been elected as presidents and prime ministers in Asian countries before. Yet all of these women (except for those from New Zealand and Australia) have been related to previous leaders. These people are often called "[dynasty](#) politicians". For example, Indira Gandhi (1917 – 1984) was the prime minister of India. Her father was the first Indian prime minister. Megawati Sukarnoputri is a former president of Indonesia. She is the daughter of Indonesia's first president. Currently, Park Geun-hye is the South Korean president. Her father was the country's president between 1962 and 1979.

Ms. Tsai does not come from a family of previous political leaders. She is a "self-made politician". In her younger years, Ms. Tsai studied at universities in the U.S. and Britain. She is 59 years old. Ms. Tsai has never married and has no children. ■

GIANT CROCODILE

Palaeontologists, or researchers who study fossils, have found the bones of an unusual 33 feet (10-meter) long ancient creature. It is the biggest prehistoric crocodile ever discovered. The researchers have named it *Machimosaurus rex*. The huge marine crocodile lived at the same time as the dinosaurs.

The group of researchers were working in a part of the Sahara Desert that's in Tunisia. Here, the rocks close to the surface are 130 million years old. They found the fossilized skull of the giant crocodile very close to the surface. It took two days to dig it up. The fossilized bones of other marine creatures such as turtles and fish were found nearby.

The researchers were excited to discover that the rest of the giant crocodile's bones are also embedded in the rock. However, they are yet to excavate them. Recently, there have been security problems in Tunisia. This meant that the researchers could not stay in the country for as long as they wanted. In the future they hope to return and dig up the remainder of the giant crocodile's skeleton.



Diagram showing a size comparison between a human and *Machimosaurus rex* (Marco Auditore)

This type of crocodile had very powerful jaws. Yet its teeth were rounded and not sharp. The researchers say that they would not have been used for cutting through flesh. Instead, the blunt teeth would have easily cracked open turtle shells and crushed bones. The researchers say that *M. rex* was an apex predator.

This means that it was at the top of the food chain. So no other creature preyed on it. The lion is a modern-day example of an apex predator.



Researchers in the Tunisian desert with the semi-excavated skull of the giant crocodile (Federico Fantini)

The researchers were surprised to discover that these giant crocodiles were alive 130 million years ago. Dinosaurs lived on the Earth between 252 million and 66 million years ago. This long period, or era, is called the Mesozoic. It is also known as the "age of dinosaurs" or "age of reptiles". The Mesozoic is divided into three separate periods. These are: the Triassic (252 to 204 million years ago), the Jurassic (204 to 140 million years ago), and the Cretaceous (140 to 66 million years ago).

It's known that other smaller crocodile-like creatures lived during the Jurassic. Their bones have been discovered in Britain and other parts of Europe. All of these ancient smaller crocodile species died out near the end of the Jurassic, or 150 million years ago. Scientists think that something must have happened at that time. This is because many other creatures disappeared at the same time. One theory, or idea, is that the seas in which all these crocodile species lived disappeared, or dried out.

However, *M. rex* lived well into the Cretaceous. Therefore, it was not affected by the extinction at the end of the Jurassic. Another possi-

bility is that these giant crocodiles evolved after this extinction event.

The researchers believe that these crocodiles survived what happened at the end of the Jurassic. They continued to live in what's now North Africa. Then, large saltwater lagoons covered much of this part of the world. If the giant crocodiles lived in these lagoons, they probably **ambushed** dinosaurs that came too close to the water's edge. The giant crocodiles eventually died out when the lagoons dried up around 130 million years ago. ■

FIRST SPACE FLOWER

Scott Kelly is an American astronaut. Currently he is in charge of the International Space Station (ISS). On January 16, Commander Kelly sent a picture of a plant back to the Earth. Called a zinnia, it had a single orange flower. The zinnia is the first space bloom, or the first plant to flower outside the Earth's gravity.



First plant to flower in space, orange zinnia

The ISS is an international project. It was built by the U.S. and Russia, with help from several other countries. The first part of the ISS was sent into space in 1998. Many other rocket launches were needed to complete it. The space station goes around the Earth nearly 16 times each day. It circles, or orbits,

at a height of roughly 248 miles (400 kilometers).

Astronauts have lived on the ISS since 2000. Nowadays, there are usually six astronauts on the space station. After six months others replace them. So far, people from at least 17 countries have visited the ISS. Yet most of those who have stayed on the space station have been from the U.S. or Russia. While on the ISS, astronauts carry out experiments, or maintain and repair parts of the space station.

Plants have grown in space before. Yet none bloomed. A sunflower was grown on the ISS four years ago, but it did not flower. About 20 years ago an American astronaut grew some wheat on the Mir space station. Before the ISS was built, Russia had its own space station, or space platform, called Mir. (In Russian “mir” means “peace” or “world”.) The space station was abandoned in 1999. It then gradually moved closer and closer to the Earth. This is known as orbital decay. In 2001, Mir broke up when it entered the Earth’s atmosphere. Parts of it then fell into the Pacific Ocean.

Scientists working at NASA (National Aeronautics and Space Administration) are interested in growing plants in space. If astronauts visit Mars, they would have to spend at least three years in space. They will probably have to grow some of their own food. In 2014 a plant growth system, or chamber, was taken to the ISS. Called “Veggie” it was designed for plant growing experiments.

The first plants grown in the chamber were red lettuce. The first plants did not grow. Yet the next crop of lettuce was more successful. The ISS crew even ate some of these lettuce leaves. After the lettuce the next

experiment was to grow zinnias. These well-known flowering plants do not need much water. On the Earth, zinnias are easy to grow. The plants originally come from Mexico and the U.S.’s Southwest. They are named after Johann Gottfried Zinn (1727–1759). He was a German botanist, or scientist who studies plants.



International Space Station (NASA)

Zinnias take longer to grow than lettuce. At first, the plants did not grow very well. Mold appeared on some of their leaves. Commander Kelly began to look after the plants in mid-December. This was after another astronaut had returned to the Earth. He cut off the moldy leaves and dried the chamber out with fans. Two of the plants died. However, the other two improved. It was one of these plants that flowered. The next Veggie experiment is to try to grow tomato plants. ■

BRONZE AGE HOMES

Scientists from a university in Britain have uncovered the remains of two ancient homes. Many items used inside them have been very well preserved. The round wooden houses were probably part of a larger settlement, or village. The scientists think that more similar buildings are likely to be close by. The houses date back to the Bronze Age.

Archaeologists divide the early history of man into three main

periods, or eras. They begin with the Stone Age. Then comes the Bronze Age, which is followed by the Iron Age. These periods are based on what was used to make tools and weapons at the time. Bronze is a hard metal. It is a mixture of copper and tin. These “ages” happened at different times in different parts of the world. In Britain, the Bronze Age was from 2100 to 750 BCE.

The scientists believe that the two houses were built between 1300 and 1000 BCE. Therefore, they are about 3,000 years old. The buildings were found in a part of Britain called the Fens. It is a large area of low-lying land on the eastern side of the country. The Fens were first drained over 200 years ago. Today, the area is mostly farmland. Many vegetables and other food crops are grown there. In the Bronze Age, the Fens were salt- or fresh-water wetlands.



Aerial view of the collapsed timbers from one Bronze Age house (Cambridge Archaeological Unit)

The two houses were found near a place called Must Farm [Quarry](#). Here, there is a large clay pit, or quarry. The clay has been dug up for many years to make bricks. About 15 years ago a local archaeologist made a discovery. He noticed some old pieces of wood, or timber, in the sides of the quarry pit. These timbers were then dated to the Bronze Age. A survey was carried out in 2004. It was then confirmed that the timbers were part of an ancient settlement.

At first, scientists were **reluctant** to uncover the site. This was because the waterlogged soil was preserving the ancient timbers. However, later, the scientists became worried that this part of the Fens was drying out. They therefore decided to start the excavation.

The two circular houses were built over a waterway on wooden platforms. They were surrounded by a wooden palisade, or fence. Both houses were about 30 feet (nine meters) in diameter. The roofs were made from wooden beams covered in turf or cut plants. The scientists think that each house was home to between 25 and 50 people.

The wooden platforms and houses caught fire. They collapsed, or fell, into the waterway below. This put the flames out. The scientists are not sure what caused the fire. It could have been an accident, or the settlement might have been attacked. Over time, mud and silt in the waterway covered the remains of the houses. This permanently wet soil helped to preserve what was in the houses and the timbers.



Complete pots that were inside one of the houses when it collapsed (Cambridge Archaeological Unit)

From items they have dug up, the scientists think that the people who lived in the houses were wealthy. Glass beads, jewelry (this seems to have come from another part of Europe), tools, **ceramics**, metal swords and spears, and parts of textiles, or

clothing, are some of the things that have been found.

Even though the people lived above water, they seemed to have eaten a lot of meat. The bones of cattle, sheep, deer, and wolf-like dogs have been dug up. The spine of a cow was found in one house. This animal must have been kept on dry land about 0.3 miles (0.5 kilometers) away. Amazingly, one clay pot has the remains of the food that was cooked inside it. It also contains a spoon. So far, only one human skull has been found.

The excavation is expected to last for another four months. All the items found in the two homes will be displayed in a local museum. ■

NEW YEAR'S EVE ATTACKS

Many people in Germany have recently taken part in street demonstrations. The protesters are angry about what happened to hundreds of women in Cologne and several other German cities on New Year's Eve.

Six months ago Angela Merkel, Germany's chancellor, or leader, declared that asylum seekers from war zones would be welcome in her country. German officials say that around 1.1 million migrants arrived in Germany last year. Nearly all are Muslims. They traveled from Syria, Afghanistan and other countries in the Middle East and North Africa. About 69% of these migrants are men between the ages of 18 and 35. The others are women and children.

Many of the migrants made a dangerous journey. The majority first traveled to Turkey. There, they paid people smugglers to take them by boat to Greek islands close to the Turkish coast. Greece is a member of the European Union (EU). Once they arrived, the migrants were

registered and allowed to travel to other EU countries. Many said that they wanted to go to Germany. Mrs. Merkel wants to help asylum seekers from Syria. The war in this country began five years ago. Yet it was difficult to know where many of the migrants came from. Large numbers seemed to have bought fake Syrian passports in Turkey.



Cologne Cathedral, in Germany

Politicians in several EU countries became worried about the number of migrants arriving. In recent months the numbers have been restricted. Some say that Germany is right to try to help these people. Others argue that the German chancellor has made the problem worse. They say that, by welcoming them, Mrs. Merkel encouraged many more migrants to make the journey.

In Germany, buildings such as old schools and army bases are being used to house the migrants. New camps have also been set up. Mrs. Merkel and her supporters say that the migrants will be **integrated** into German society. This means that they will need to learn the language and find work with German companies. Yet, because of the high numbers, this will take a long time. The sudden arrival of so many people from other countries has

caused arguments in Germany. However, before the end of 2015, most Germans agreed with what Mrs. Merkel was doing.

About five days after New Year's Eve, stories about Cologne began to appear on social media. People had crowded into the square between the city's cathedral and the railway station to celebrate New Year. Hundreds of younger Muslim men gathered in the same place. Many were drunk. In the evening and the early hours of the following day, groups of these men attacked at least 500 German women. The men surrounded one or two women at a time. Then, they put their hands all over the women's bodies. Many women had their handbags, money and phones stolen. Several assaults, or attacks, were more serious.



Angela Merkel, Germany's chancellor

Not many police were on duty. They did not ask for help or **reinforcements**. On January 1, no police reports were made about what happened in the square. It seemed as if police chiefs and local politicians did not want anyone to know what the Muslim men had done. What's more, no German newspapers reported the incidents. When they eventually discovered what had taken place, many Germans were angry. Most believe that the news was deliberately covered up. Local leaders worried that if people knew what happened there would be large anti-migrant protests.

The events in Cologne and other cities have made many Germans **suspicious**. Support for Mrs. Merkel is decreasing. The popularity of a new political party called Alternative for Germany (AfD) is growing. The AfD opposes immigration. Mrs. Merkel condemned what happened in Cologne. She said that any migrants found guilty of attacks on women should be forced to leave the country.

Many migrants in Germany are embarrassed and saddened by the events in Cologne and other cities. They fear that they will all be blamed. One group organized a **petition**. Those who signed it said that, if possible, they would stop this type of crime from ever happening again. ■

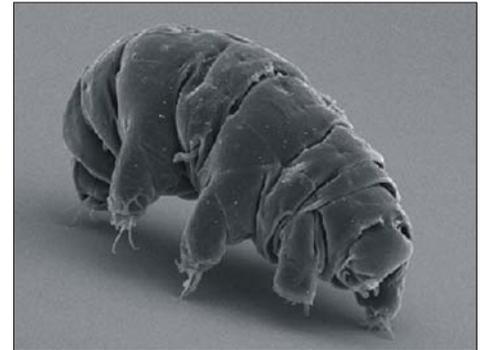
WATER BEAR RECORD

Researchers in Japan have managed to revive, or bring back to life, several tiny organisms. They had been deep frozen for 30 years. The organisms, which are often called "water bears", were collected in Antarctica.

The scientific name for water bears is tardigrades. The name comes from two Latin words that mean "slow stepper". Scientists believe that tardigrades are one of the Earth's toughest, or most resilient, species. They can be found almost everywhere. This includes on top of the highest mountains and at the bottom of the deepest oceans. When fully grown, these tiny creatures are between 0.002 and 0.05 inches (0.05 and 1.2 millimeters) long. They lay eggs, which hatch after about 14 days.

Water bears have eight legs. Their bodies look like they are divided into pieces, or segments. Each segment has one pair of legs. On the end of each leg are between four

and eight claws. The tiny creatures feed on fluids. These can come from plant and animal cells or bacteria. Other small organisms, such as amoebas and nematodes, feed, or prey, on tardigrades.



Water bear as seen through a microscope

Most tardigrade species live in fresh water or where it is wet. The easiest place to find them is in the film, or thin layer, of water on algae, lichens and mosses. For this reason water bears are sometimes called "moss piglets". They can also be found in moisture in the soil and on old wet leaves. Without water, tardigrades are not able to do anything such as moving or eating.

Where there is a lot of moisture (so they never dry up) water bears live for only a few months. They can survive in other extreme conditions. These include: temperatures as low as -200°C (-328°F) and as high as 151°C (304°F); where there is no oxygen; under pressures that are five times greater than in the deepest oceans; in high levels of radiation (that would kill humans); and in a vacuum, or where there is no air.

Nine years ago the European Space Agency (ESA) sent 3,000 tardigrades into space for 12 days. They were in a container on the outside of the space capsule. After it returned, the scientists checked the water bears in the container. Nearly 70% were still alive.

Even though they need water, tardigrades can be found in some of the driest places on the Earth. Those that live on land are able to survive long periods of drought. They do this by drying, or shriveling, up. The tardigrades lose nearly all the water in their bodies. Their metabolism slows down and very nearly stops. Metabolism is the different chemical processes in living things that control growth, energy production, and getting rid of waste.

In 1983 the Japanese researchers collected some moss samples from Antarctica. They discovered that there were two water bears and an egg in the samples. In Japan, the moss and water bears were kept frozen at a temperature of -4°F (-20°C). After the samples thawed out, one water bear and the egg “came back to life”. This happened slowly. It was two weeks before the water bear was walking and eating normally. Surprisingly, this water bear then laid 19 eggs. Fourteen hatched. All the new-born water bears survived.

In the past, tardigrades have been brought back to life after nine years. The 30 years and six months period is a record for tardigrades. Some scientists suspect that they could be frozen for 100 years or even longer. Other organisms have been revived from a frozen state after longer periods. A tiny nematode, or worm-like creature, was brought back to life after being frozen for 39 years. ■

FESTIVAL OF ILLUMINATIONS

In Spain, Saint Anthony is the patron saint of animals. In the Christian calendar, this saint’s feast day is January 17. On the evening

before, or eve of Saint Anthony’s Day, a festival is held at a small Spanish town called San Bartolomé de Pinares.

Saint Anthony is also known as Anthony the Great. He was a monk who lived in Egypt about 1,700 years ago. Saint Anthony’s Day is one of many feast days. This type of feast is not a large meal. A feast day is one that is **dedicated** to a saint. It is usually the day on which they died. In the Christian faith a patron saint represents something. This could be a country, a city, a group, an activity (such as mining or traveling) or even an illness.



Fire-jumping at the Festival of Luminarias in San Bartolomé de Pinares, in Spain (Alberto Bernado)

San Bartolomé de Pinares is about 60 miles (100 kilometers) from Madrid, Spain’s capital city. On the day before Saint Anthony’s Day people set up piles of wood in some of the town’s streets. In the evening the piles are set alight. Then, one by one, about 100 people ride horses towards the fires. The horses and riders jump over the flames and through the smoke. This annual event is known as the festival of Luminarias (or **illuminations**).

No one knows when the festival was first held. People in San Bartolomé de Pinares think that it

is at least 500 years old. They say that around that time a disease, or epidemic, quickly spread through the town. It killed all the horses. Every year since then the town’s horses have been ridden through fires. The smoke and flames are meant to purify the horses, keep evil spirits away and prevent another epidemic.

Before the festival takes place the horses’ manes and tails are tied up, or braided. This is to stop them catching fire. Water is sprinkled over the flames to make a lot of smoke. The riders say that some horses seem scared. Yet they do not have to jump through the fires. If the horses try to go around the flames, the riders do not stop them.

In recent years there have been complaints about the festival. People who campaign for animal welfare claim that it is cruel. They believe that the festival should be stopped. Those who live in the town disagree. They say that the flames have never hurt any of the horses. The only accidents to occur are when horses slip on the town’s old cobblestone streets.

The horse riding is normally over by midnight. Music and a big party follows. Often the celebrations do not end until the Sun rises on Saint Anthony’s Day. Some fires are used to cook locally made sausages and other popular foods.

Several other ceremonies that involve animals take place in Spain on Saint Anthony’s Day. For example, people take their pets to some of the country’s many churches on January 17. Outside the church, a priest blesses each animal with holy water. Most of the pets are dogs and cats. Yet it is not unusual for more unfamiliar animals, such as tortoises and iguanas, to receive a blessing. ■

STATE OF THE UNION SPEECH

Barack Obama, the president of the U.S., gave his State of the Union address on January 12. This address, or speech, is usually an annual event. It normally takes place between the middle of January and mid-February. “The Union” means the whole of the U.S., or all of its 50 states. The president’s address is made to the American Congress (or parliament).

Congress includes all members of the U.S.’s two elected houses, or chambers: the House of Representatives and the Senate. The House of Representatives (often just called “the House”) has 435 members, or representatives. These people are elected by each state. The number depends on the state’s population. With 54, California has the most representatives. Seven of the 50 states have only one representative in the House. These are: Alaska, Delaware, Montana, North Dakota, South Dakota, Vermont, and Wyoming.



Barack Obama, the president of the U.S., delivering his final State of the Union address

The Senate has 100 members. They are called senators. Each of the 50 states elects two senators. Members of both houses meet in the Capitol building in Washington DC, the country’s capital city. This large white building is very **distinctive**.

It is also known as the United States Capitol, or Capitol Hill. Many Americans call the Capitol building “the Hill”.

Traditionally, the president uses the address to report on what has happened during the last year. He also announces his plans for the next 12 months. This includes what America is doing or trying to do in other countries. Even though the president is speaking to members of Congress, the speech is used as a way of talking to everyone in the country.

In the U.S. presidential elections are held every four years. A president can serve for two successive four-year terms. This year is an election year. The election will take place on November 8. This is Mr. Obama’s last year of his second four-year term. The person who wins the election is expected to take over from him on January 20, 2017. It is very unusual for presidents to give a State of the Union speech just before they hand over. Therefore, this was probably Mr. Obama’s last State of the Union address.

The address usually lasts for about one hour. There is frequent loud clapping, or applause. There are two main political parties in the U.S., the Democrats and the Republicans. Mr. Obama is a member of the Democratic Party. So most of the applause came from the elected members of Congress who are Democrats.

Mr. Obama talked about the improvement in the U.S.’s economy. He also welcomed the nuclear agreement that has recently been signed with Iran. As this was his last State of the Union address, Mr. Obama listed some questions that he believes that the U.S. needs to answer in the future. These were how to make society more equal; how new technologies are used; how to keep the U.S. safe,

but not become involved in wars in other countries; and how to improve the political mood, or atmosphere, in the country.



The United States Capitol (Martin Falbisoner)

During his speech Mr. Obama also announced a “moonshot”. A moonshot is a plan that will cost a large amount of money, yet might not be successful. However, if it does work the outcome will be very significant, or important. Mr. Obama’s moonshot was to find a cure for cancer. Joe Biden, the U.S.’s vice-president, will lead the project. His eldest son died from brain cancer last year aged 46. ■

WORLD’S LONGEST CANYON?

A group of international scientists has been working in East Antarctica. The scientists say that they have discovered a new canyon system. It is under a layer of ice that, in places, is over two miles (3.2 kilometers) thick. The scientists believe that the canyon is 685 miles (1,100 kilometers) long. If true, it is three times the length of the Grand Canyon.

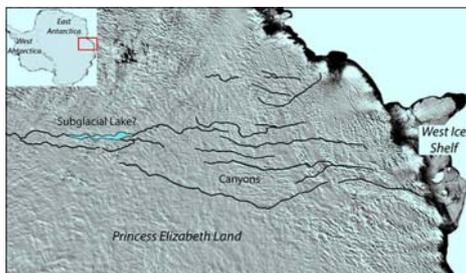
Antarctica is one of the Earth’s seven continents. It is almost twice as big as Australia. About 98% of Antarctica is covered in a thick ice sheet. It is often divided into East Antarctica and West Antarctica. These two parts are separated by a mountain range called the Transantarctic Mountains. Not much is

known about what's buried under the ice sheet. It is said to be the most "unknown" part of the Earth.

The scientists made their discovery in an area of East Antarctica called Princess Elizabeth's Land. A team led by Douglas Mawson (1882 – 1958) first explored this part of Antarctica in 1931. Mawson, who was from Australia, named the area after Princess Elizabeth of the United Kingdom (UK). Now, she is Queen Elizabeth the Second.

A canyon is a deep valley, or gorge. It has very steep sides. Canyons are usually made, over hundreds of millions of years, by a river or ice slowly eroding the rocks. Canyons made by rivers are shaped like a "V". Those carved by ice are "U" shaped. Canyons or gorges covered by ice are often called subglacial valleys.

Arizona's Grand Canyon, in the U.S., is the world's most famous canyon. It is about 227 miles (446 kilometers) long. In places the Grand Canyon is one mile (1.6 kilometers) deep. The Colorado River flows through it. Geologists, or scientists who study rocks, believe that it has taken the river nearly two billion years to create the canyon.



Newly discovered canyon system under the East Antarctica ice sheet (MODIS / Newcastle University)

The group of scientists discovered the canyon system in Antarctica from satellite data and radar. These radar devices are carried in small planes. The aircraft fly back and forth across the ice. As they do so,

radar signals are directed at the ice below. These signals can go through the thick ice. They bounce back after hitting the solid rock beneath it. The time taken for radar signals to return to the plane is recorded. Using this information, scientists are able to work out the shape of the land deep below the ice.



Satellite picture of Antarctica

Two years ago another group of scientists found a canyon under the ice in East Antarctica. This one is about 186 miles (300 kilometers) in length. Parts of this subglacial valley are deeper than the Grand Canyon. The East Antarctica canyon also contains a large "under ice" lake. Called Lake Ellsworth, it was discovered in 1996. However, then, it was not known that the lake was part of a long subglacial valley. Bodies of water deep under the ice are called subglacial lakes. It's thought that there are over 300 of these lakes in Antarctica. Geothermal heat, which comes up from the center of the Earth, stops them from freezing.

A long time ago, all the Earth's continents used to be one large landmass. This landmass is known as Pangaea. Over millions of years Antarctica broke away from what was to eventually become Australia, India, Africa, and South America. This happened around 80 million

years ago. Antarctica then gradually moved, or drifted, towards the South Pole. This meant that it slowly got colder and colder.

The international group of scientists believes that the newly discovered canyon system contains a large subglacial lake. It also seems to be V-shaped. If it was carved by running water, the canyon was probably created before Antarctica became covered by ice. ■

DRUG TRIAL INVESTIGATION

On January 15, officials in France announced that a test for a new drug, or medicine, would be investigated. Five days earlier a man was taken to the hospital in the French city of Rennes. He was seriously ill. The man had agreed to test a new type of medicine. He died on January 17. As part of the test, five other men were given the same medicine. Four became very sick.

The Biotrial Company organized the drug test. This company is based in France. It operates in many parts of the world. Biotrial is what's known as a contract research organization. It works for big pharmaceutical firms, or drug companies. Biotrial organizes human tests for new drugs. These tests are called clinical trials. Biotrial has completed thousands of successful clinical trials since it was set up over 25 years ago.

Large pharmaceutical companies take many years to research and develop new drugs. Each new drug has to be tested before it can be given to patients. At first, animals are used for these tests. If these tests do not cause problems or side-effects, trials are set up with volunteers. These people receive payments for

agreeing to take part in the trials. When the trial starts companies like Biotrial give people very small doses, or amounts, of the drug. The company then checks that the drug does not cause any harm. Thousands of people take part in clinical trials every year.



Bial is a Portuguese pharmaceutical company. Its medicines are sold in many countries. Bial has been developing a new type of drug. It is meant to lessen pain and reduce [anxiety](#). This drug has already been successfully tested on animals. Last year the Portuguese company asked Biotrial to organize some clinical tests. French officials approved the trial. These clinical trials do not include people who are suffering from the illness that the drug is meant to cure. The drug is given to healthy people to check that there are no side-effects.

The trial for Bial's new drug began six months ago. About 128 people from Rennes agreed to take part in the trial's first stage. They were both men and women. All were between the ages of 18 and 55. This stage of the trial lasted for two weeks. Each person was paid about €2,000 (\$2,160). They had to stay at one of Biotrial's treatment centers. There, 90 volunteers were given the drug for ten days. The others received a [placebo](#). The medicine was swallowed, or taken orally. During the two-week period, each person was carefully checked for any side-effects. No medical problems were

reported. Therefore this stage of the trial seemed to be successful.

The next stage began on January 7. Six men were given larger doses of the medicine. It was one of these men who died ten days later. The higher dose of the drug seemed to damage the brains of those who became ill. Doctors said that the man who died was "brain-dead" soon after he arrived at the hospital.

The trial was immediately stopped after the man was taken to the hospital. Problems with these types of medical trials are very rare. A similar thing happened in Britain several years ago. Then, nobody died. Yet some men who tested the drug still suffer from the medical problems it caused. ■

DAVID BOWIE

On January 11, television and radio news channels in many parts of the world broadcast a similar report. They announced that David Bowie had died. He was a British singer, songwriter, performer, record producer, actor, and painter. Bowie died on January 10, in New York City, in the U.S.. Aged 69, he had liver cancer.

Bowie was [diagnosed](#) with cancer about 18 months ago. However, only his family and close friends knew about his illness. His latest album, or collection of songs, was released three days before his death. One song is called *Lazarus*. The song's video shows an ill-looking Bowie in bed wearing a blindfold. He sings the words "Look up here I am in heaven". There is a story about a person called Lazarus in the Christian Bible. In the story Lazarus dies. Yet, four days later, Jesus brings him back to life.

Bowie's real name was David Robert Jones. He was born in London, the capital of Britain, in 1947. Bowie did not do well at school, but he was interested in music. He taught himself to play the guitar, piano and saxophone. Around this time, Bowie had a fight with another boy. He was hit in the left eye. Several operations to save the sight in this eye followed. The injury left Bowie with one permanently dilated, or more open, pupil. This made it look like his eyes were two different colors.

Bowie wrote and sang his first popular song in 1969. Called *Space Oddity*, it is about an astronaut named "Major Tom". After taking off from the Earth, something goes wrong with his spaceship. Major Tom then floats off into space. The song was released a few days before NASA's Apollo 11 space mission began. This was the first spaceflight to land a "man on the Moon". In 1971, Bowie produced a song called *Life on Mars*. This is frequently voted to be "the best pop song of all time". Major Tom reappears in a number of Bowie's later songs.

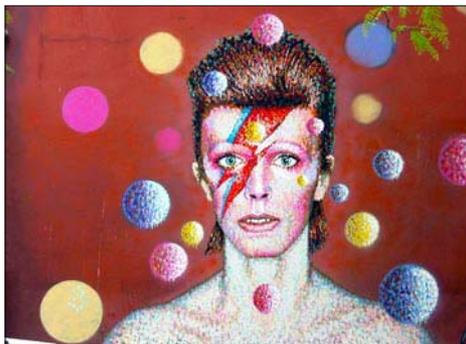


David Bowie in 2002 (Adam Bielawski)

Some people describe Bowie as the "Picasso of pop". Pablo Picasso (1881 – 1973) was a painter and sculptor. He was born in Spain but spent most of his adult life in France. Picasso is probably the 20th century's most famous painter. Bowie invented different characters, which he acted out on stage.

These included: Ziggy Stardust, the Thin White Duke and Aladdin Sane. Some say that he was like a chameleon. Chameleons are lizard-like creatures. They are best known for being able to change color very quickly.

In the late 1970s Bowie stayed in Berlin, now the capital of Germany. At that time, the Berlin Wall divided the city into East and West Berlin. The Wall became a symbol of the Cold War. This was the period between 1947 and 1991. Then, the Russian-led Soviet Union and the U.S. (together with its allies in Western Europe) were enemies. In Berlin, Bowie wrote one of his best-known songs. It's called "Heroes". The song tells the story of two people meeting at the Berlin Wall.



The David Bowie mural in London

In 1987 Bowie played a live open-air concert in West Berlin next to the Wall. Thousands of people gathered on the other side in East Berlin. They could not see the stage, but could hear the music. After the concert there were protests in East Berlin. Some people say that these protests, which inspired other demonstrations, led to the fall of the Berlin Wall in 1989. The day after Bowie died government officials in Germany posted a message on the internet. It said "Good-bye, David Bowie. You are now among Heroes. Thank you for helping to bring down the Wall".

Several years ago an artist created a mural, or wall painting, of David Bowie. It is near to where he was born in London. The painting is of Bowie as Aladdin Sane. When they heard the news of Bowie's death, hundreds of people placed messages and flowers next to the mural. One of the hand-written notes said "Good luck on Mars". ■

VULTURE ALERTS

Lima is the capital of Peru. The city is home to ten million people. Like many other big cities, Lima has a garbage problem. The city has four official garbage dumps, or landfill sites. This is where all garbage collected in the city should be taken.

However, in recent years, some people have been dumping garbage at illegal sites close to the city. This is often called flytipping. Recently, city waste officials have started a new project to try to stop flytipping. It's called Gallinazo Avisá (Vulture Alerts).

Vultures are [scavengers](#). The birds feed on dead animal bodies, or carcasses. Vultures play an important part in the natural world. They can eat rotting meat without getting ill. If dead animals are left to rot they can cause diseases. Dead animals can pollute or spoil water in rivers and streams. In some countries people rely on vultures to clean away rotting carcasses. Vultures rarely attack healthy animals. However, they may kill them if they are sick or badly wounded.

There are two groups of vultures. They are known as New World vultures and Old World vultures. New World vultures live in North and South America. Old World vultures are found in Europe, Africa and Asia.

So Australia and Antarctica are the only continents in the world where there are no vultures. There are around 20 vulture species. The ones that live in North and South America are not endangered. However, the numbers of vultures living in Europe, Africa and Asia are decreasing.



In Lima, large black vultures (also known as black-headed vultures) are a common sight. Flocks of the birds look for food at the city's landfill sites and many illegal dumps. Many people think that the vultures are pests. Yet, city officials claim that the birds do a useful job. By eating animal carcasses and rotting food at the dumps, the birds stop the spread of harmful bacteria. People in Lima produce around 2.1 million tons of garbage every year. About 20% is dumped illegally. People do this to avoid having to pay to get their garbage collected. The unlawful dumps pollute rivers and the nearby coastline.

The officials caught and trained ten vultures. Each bird has been fitted with a tracker device (GPS) and a mini video camera. The vultures have been named after people or creatures from ancient myths. For example, one is called Captain [Phoenix](#) and another Captain Aella. The birds fly around Lima every

day. They have been trained to return to their keepers in the evening.

Operators track the vultures' movements. Videos filmed by the birds are live streamed on the internet. The vultures help the officials record where food garbage and dead animals are being dumped illegally. New unlawful dumps are now easily found, or located, and monitored.



Black vultures at one of Lima's garbage dumps

The officials hope that their Vulture Alerts website will make people more aware of the city's garbage problem. They believe that it will encourage them to throw less garbage away and report fly-tipping. ■

GARGANTUAN STICK INSECT

Researchers in Australia have successfully bred some unusual insects for the first time. The creatures are a type of stick insect called *Ctenomorpha gargantuan*. Eggs produced by four of these insects recently hatched. One of the females that laid them is 22 inches (56.5 centimeters) long. This is the longest insect ever recorded in Australia.

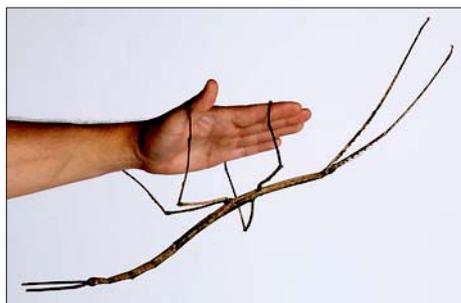
Stick insects are found in many parts of the world. They are also known as stick-bugs or walking sticks. Scientists group living things so that they are easy to study. They are listed, or put, in a large group called a phylum. For example, the phylum Arthropoda includes insects,

spiders, and [crustaceans](#). A phylum is split into classes, which are then subdivided into orders.

The name of the order that includes all stick insects is Phasmatodea. This name comes from the Ancient Greek word "phasma". It means phantom or ghost. Stick insects are like "phantoms" because they are so difficult to see. When they do not move, the insects look exactly like small sticks or twigs. Some stick insect species have evolved to look more leaf-like.

In 2014 one of the Australian researchers found a type of stick insect called *Ctenomorpha gargantuan*. (Gargantuan is another word for huge, or enormous.) Only three of these stick insects had been seen before. Not much was known about them. The insects were only given their scientific name in 2006.

The researcher nicknamed the 19.7 inch (50-centimeter) long insect Lady Gaga-ntuan, or Lady Gaga for short. He found it about 20 feet (six meters) above the ground in a tree. Normally, these insects would live much higher up in the leaf [canopy](#). The researcher thinks that the wind had probably blown Lady Gaga down to a lower level.



Ctenomorpha gargantuan (Museum Victoria)

Unfortunately, when caught, the stick insect was nearing the end of its life. Yet just before she died, Lady Gaga laid 12 eggs. The researcher kept the eggs to see if they would hatch. He placed them

on a layer of sand mixed with soil. He then sprayed the eggs with water once or twice each week. Six months later, four females and three males hatched. Tiny newly hatched stick insects are called nymphs.

As these stick insects had never been studied before, the researchers were not sure how to look after the nymphs. The forest where Lady Gaga was found was hot and humid. They therefore set up a container with a similar environment. At first, the stick insects were fed only eucalyptus tree leaves. However, after three months they became lethargic, or lacking in energy. The researchers gave them some pieces of apple. This seemed to work.

The seven nymphs all grew into adults. The females then laid around 40 eggs. It is these eggs that have recently hatched. Therefore these new nymphs are Lady Gaga's "grandchildren". All the stick insects are now kept in a museum. Visitors are therefore able to see them.

The researchers plan to keep breeding the insects. They are hoping to capture some more in the wild. This should mean that future offspring are healthier. Male stick insects are easier to find than females. As they have wings, the males don't just stay in the tops of the trees.

The world's longest insect was found on the island of Borneo. This large island is in South East Asia. Most of it is either a part of Malaysia or Indonesia. The small country of Brunei is also on the island. This insect is another type of stick insect. Yet only one large specimen has been found. It is 22.5 inches (56.7 centimeters) long. The researchers in Australia are hopeful that one of their recently hatched nymphs will grow to be even longer. ■

OLDEST TEA

Tea is one of the most ancient drinks. It's known that tea drinking began in China. Nowadays, after water, tea is the world's most popular beverage.



Tea plant, *Camellia sinensis*

In the 1990s a royal tomb was found in the Chinese city of Xi'an. The tomb is thought to belong to an emperor called Jing Di. He died in 141 BCE, or more than 2,100 years ago. Many items were found in the emperor's tomb. These were things

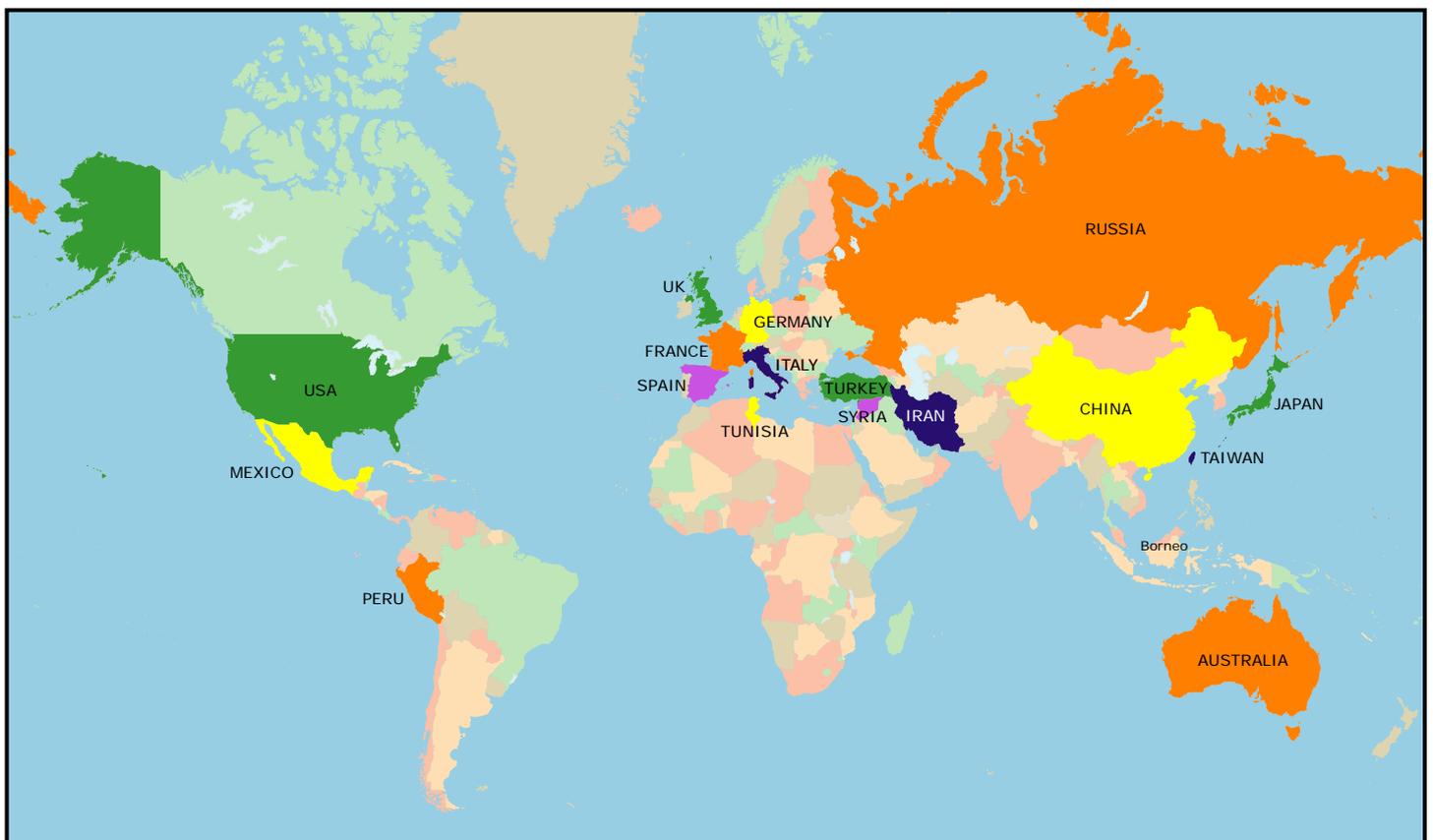
that he was expected to use in the afterlife. One item was a wooden box. The contents of this box have recently been investigated. After completing special tests, Chinese scientists are now sure that it contained tealeaves. This is the oldest tea ever found.

One legend says that a Chinese emperor invented tea drinking 5,000 years ago. In the story the emperor is traveling around the countryside. As the water he is given tastes so bad, the emperor asks a servant to boil it. A slight breeze caused several leaves to fall off a nearby bush. They fell into the cup of hot water. The emperor was curious. He left the leaves in the cup. When he sipped the water, the emperor was surprised by its pleasant taste.

The bush was an evergreen shrub, or small tree. Evergreen shrubs and trees do not lose, or drop, their

leaves in the winter. Today, the bush is known as the "tea plant" or "tea tree". Its scientific name is *Camellia sinensis*. There are four main types of tea: white, green, oolong, and black. All are made from the same tea plant. Treating the leaves in different ways produces each type of tea. If it is not cut, *Camellia sinensis* can grow to a height of over 30 feet (nine meters).

As all tea originally comes from China, this is also where its name comes from. In Chinese tea is "cha". In the late 1500s sailors from the Netherlands were some of the first Europeans to trade with China. It was Dutch ships that brought the first big shipments of tea to Europe. The Dutch bought their tea from the port city of Amoy, in Fujian province. People from this part of China speak in a dialect, or different type of Chinese. They called the dried



This map shows countries to which news stories refer in this issue. Visit www.newsademic.com for more detailed world maps.

leaves “tay”. The Dutch pronounced it “thee”. Other Europeans began to use this word. The Germans also called it “thee”. In France it is “thé”. The British used the word “tea”. It is “te” in Spain, Italy, Denmark, Norway, and Hungary.

By the late 1700s Britain had become the world’s most powerful trading nation. Tea was very popular in the country. Britain had taken control of much of the Indian sub-continent (or modern-day India, Pakistan and Bangladesh). The British government approved a plan to smuggle tea plant seeds out of China and take them to India.

At first, the Chinese plants in India were not a success. However, the British found a variety of *Camellia sinensis* growing in a part of India called Assam. Eventually, this plant was cross-bred with Chinese plants. The soils and climate of Assam and Darjeeling were perfect for large tea plantations. These parts of India are still best known for the tea that they produce.



Tea plantation (Will Ellis)

The British also controlled the island of Ceylon (now called Sri Lanka). There, plantation owners grew coffee. In the 1870s a deadly fungus killed most of the island’s coffee plants. Many plantation owners in Ceylon stopped producing coffee and grew tea plants instead. Today, the world’s largest producers of tea are China and India. Sri Lanka is third.

Tea bags were invented in the U.S. in the early 1800s. Now, of all the cups of tea served in the world, 96% are made with tea bags. ■

VENICE’S GHETTO ANNIVERSARY

This year marks the 500th anniversary of the set up of the Venetian ghetto. For nearly 300 years Jewish people in Venice had to live in this part of the city.

Venice is one of the most famous cities in the world. It is in a saltwater lagoon at the northern end of the Adriatic Sea. The city was built on 117 islands. Most of Venice’s buildings are very old and **intricately** decorated. Many were built on large pieces of wood that were sunk into the lagoon. Venice has few streets and no cars. Instead the “roads” are canals. Most transport is done by boat. There are at least 400 bridges in the city.

Venice is now a part of Italy, but between the year 700 and the late 1700s it was an independent “city-state”. For much of this time Venice was one of the richest cities in the world. The city’s wealthy families selected Venice’s leader. He was called the doge (pronounced “dohj”). Venice was a very powerful trading nation. Nowadays, the city is one of the world’s most popular tourist destinations. Around 20 million people visit Venice each year.

In 1516 about 700 Jews in Venice were forced to move to a certain area of the city. It was the site of an old foundry, or metal works, which was no longer used. The foundry, which used to make cannons, had been abandoned. The authorities did not make the Jews live in this place as a punishment. It was more to please the Roman Catholic Church. Around

this time, the Catholic Church was forcing Jewish people to leave many parts of Western Europe.

In English the word “ghetto” comes from Venetian, or the language spoken in Venice. In this language “gheto” means a metal foundry. The area in Venice where the Jews had to live became known as the Venetian Ghetto. In English, the word ghetto is used to describe a slum, or poor area of a city. Often it is where a separate group of people live. For example, over 60 years ago many American cities had “black ghettos”. During the Second World War (1939 – 1940) the Nazis set up Jewish ghettos in cities in Eastern Europe.



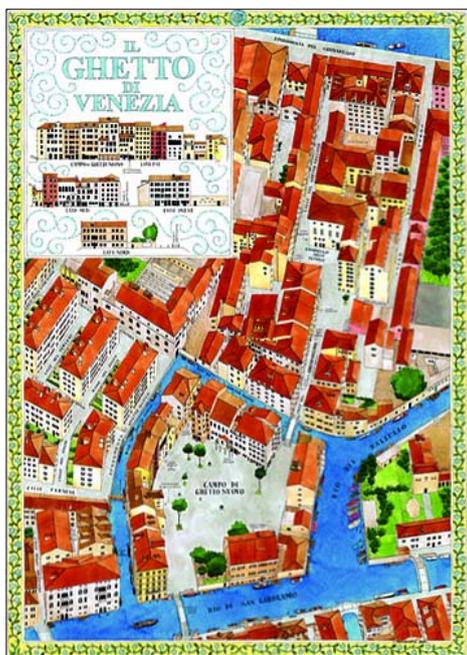
Buildings in the Jewish ghetto in Venice

Like most of Venice’s islands, the Venetian ghetto was surrounded by water. There were only two entry points. Gates were built at these places. Christian guards manned the gates during the night. The Jews had to pay for the guards. Inside the ghetto, the Jews were both **segregated** and protected. Within 100 years about 5,000 people were living in the Venetian ghetto. There was not much space, so more floors were added to the buildings. Many had seven or eight stories. This was long before the invention of elevators.

Napoleon Bonaparte (1769 – 1821) captured the city in 1797. Then, he was the emperor of France. This marked the end of the

Republic of Venice. It had lasted for over 1,100 years. Napoleon ordered city officials to remove the gates at the entrances to the Venetian ghetto. From this time on the Jews could live anywhere in the city. However, most chose to stay in the ghetto.

In recent years the population of Venice has shrunk. Now about 60,000 people live in the old city. Around 500 of them are Jewish. This year, to celebrate its anniversary, exhibitions and concerts will be held in the Venetian ghetto.



Map of the Jewish Ghetto in Venice

For the first time, William Shakespeare's play *The Merchant of Venice* is to be performed in one of the ghetto's open areas. William Shakespeare (1564 – 1616) was an English playwright and actor. Many of his plays, including *The Merchant of Venice*, are world famous. One of this play's main characters is called Shylock. He is a moneylender. In Venice, Jewish people joke that Shylock is an unpleasant man, but he is the city's best-known Jew. ■

IRAN SANCTIONS LIFTED

Hassan Rouhani is Iran's president. On January 17, he spoke to the country's parliament. The previous day, the sanctions imposed on Iran ten years ago were lifted, or removed. Mr. Rouhani declared that it was a "turning point" and a "golden page" in the country's history.

The United Nations (U.N.), the U.S. and the European Union (EU) imposed the sanctions. This was done as a type of punishment. The leaders of the U.S. and several EU countries accused Iran of enriching large amounts of uranium. They claimed that Iran was doing this to make nuclear weapons. The sanctions affected the country's economy. They meant that it was difficult for Iran to trade with other countries and sell its oil.

In the past Iran refused to allow an organization called the International Atomic Energy Agency (IAEA) to inspect all of its nuclear facilities. This was one reason why the U.S. and the EU thought that Iran was making nuclear weapons. Iran had also set up some secret nuclear facilities. The IAEA is a part of the U.N.. Its job is to inspect countries that make electricity from nuclear power. It therefore checks that they are obeying international rules and not making nuclear weapons.

Iran's leaders have always insisted that their nuclear program was set up for peaceful purposes. This, they say, includes generating electricity from nuclear power and using enriched uranium in some medical equipment. Yet, because the IAEA was not allowed to visit all of Iran's enrichment facilities, many people did not believe them.

Over two years ago, Iran's leaders agreed to talks with six world

powers. They wanted to make an agreement to get the sanctions lifted. The six world powers are the U.S., Britain, France, Germany, Russia, and China. These countries became known as the "P5+1". Except for Germany, all are permanent members of the U.N. Security Council. (The P in P5+1 stands for permanent.) A senior official from the EU coordinated the talks. John Kerry, the American secretary of state, led the world powers. Mohammad Javad Zarif was in charge of the Iranian team. Mr. Zarif is one of Iran's senior government ministers.



Iran's president, Hassan Rouhani

For a long time the talks were unsuccessful. Many deadlines were missed. However, to many people's surprise, the two sides came to an agreement six months ago. The world powers agreed to lift the sanctions. In return Iran would not be able to make a nuclear weapon for at least ten years (even though Iran insists that it has no plans to make these weapons). As part of the agreement much of Iran's enriched uranium would be sent to Russia. In addition, some of the country's important nuclear facilities would be disabled.

On January 16, the IAEA said that Iran had sent the uranium

to Russia. It also confirmed that some nuclear facilities had been put out of action. This meant that the sanctions had to be lifted. On the same day there was a prisoner swap. Four American-Iranians were released. They had been accused of spying over 12 months ago and put in prison. The U.S. released seven Iranians.



John Kerry and Mohammad Javad Zarif

Many Iranians celebrated the lifting of the international sanctions. Life in the country will now change. For example, before it was difficult for Iranians to send or receive money from people in other countries. Younger people could not travel abroad to study or work. Many things made in other countries, such as certain clothes and computer equipment, could not be bought in Iran.

Barack Obama, the president of the U.S., said that the lifting of the sanctions was a “good day”. However, people in countries that do not trust Iran, like Israel and Saudi Arabia, were not pleased to hear the news. ■

DESERT FIREBALL NETWORK

Planetary geologists in Australia have managed to dig up a meteorite. The space rock recently landed in the center of the country. Australians call this part of the country the “outback”. Few people live there. Planetary geologists are scientists. They study how other planets, moons, asteroids, comets, and meteorites are formed.

Locating where the meteorite landed was the first success of a project called the Desert Fireball Network (DFN). This project began four years ago. Currently the DFN is made up of 32 digital cameras. They have been set up in different parts of the outback. All look up to the sky. The cameras are powered by solar panels. People working on the project have to check them about once every 12 months.

The cameras are positioned so that they can record the night sky. They automatically take pictures of any “fireballs”. A meteor that enters the Earth’s atmosphere can be seen because of the speed at which it travels. As it falls, a meteor pushes through the air at speeds up to 12.4 miles (20 kilometers) per second. The meteor gets so hot that it glows. From the Earth it looks like a fireball in the night sky.

Meteors are often known as “shooting stars”. Often, as they fall, meteors get so hot that they completely burn up. Occasionally a larger meteor will hit the ground or break up into many smaller pieces. Any piece of a meteor that reaches the ground before it burns up is called a meteorite.

DFN cameras photographed a fireball on November 27, last year. It lit up the night sky over an unusual lake in the outback. This large lake

is in a desert in Central Australia. At most times of the year there is no water in the lake. However, it fills up if there are heavy rains. Many people call it Lake Eyre. This name comes from Edward John Eyre (1815 – 1901). He was a British explorer. In 1840, Eyre was the first non-native, or non-indigenous, person to see the lake. Nowadays, the lake is officially called Kati Thanda-Lake Eyre. Kati Thanda is the name used by Indigenous Australians.

Many of the DFN cameras recorded the fireball. By using their different locations, it was possible to work out where the meteorite landed. This process is known as triangulation. What’s more, the scientists can calculate where in the Solar System the meteorite traveled from.



Digging up the meteorite from the lakebed in Australia (Fireballs in the sky)

Most meteorites come from the asteroid belt. This is between Mars and Jupiter. In this part of space there are many bits of rock, or rubble. These were “leftover” when the planets in our Solar System formed about 4.5 billion years ago. This ring, or belt, of bits of rock stretches all the way around the Sun. Pieces of rock in the asteroid belt range from a few miles across to ones that are the same size as a piece of dust.

The triangulation calculation showed that the meteorite landed in the middle of Kati Thanda-Lake Eyre. This calculation took a long

time. Some cameras are not online. This meant that someone had to visit them to collect their recordings. At the end of December, several scientists and two local guides set off to look for the fall site. The lake was dry. However, heavy rains were forecast, so it was likely to fill up within a few days. The scientists had ground vehicles and a small plane. Eventually, the plane's pilot spotted a possible impact mark in the mud of the lakebed.



The meteorite found at Kati Thanda-Lake Eyre in Australia (Fireballs in the sky)

The scientists found the meteorite deep in the mud. It's about 3.5 pounds (1.6 kilograms) in weight. The scientists think that when it entered the Earth's atmosphere, the meteor weighed at least 176 pounds (80 kilograms). The scientists will now study the space rock. They believe that it came from the asteroid belt and is at least four billion years old.

More cameras are to be added to the DFN. When complete, the network will cover the night sky above one-third of Australia. ■

NEW "OLD" LIGHT BULBS

The Massachusetts Institute of Technology (MIT) is a famous university in the U.S.. Researchers at the university say that they have made a new type of "old" light bulb. In recent years many governments have banned these old light bulbs

(their correct name is incandescent light bulbs). People are now encouraged to replace the bulbs with Light Emitting Diodes (LEDs) and fluorescent lamps. Yet, these newer lamps are not popular.

Joseph Swan (1828 – 1914) was a British scientist. He invented the incandescent light bulb. Swan first demonstrated his new bulb in 1878. Before the invention of the electric light bulb, most people used candles to light their homes. Thomas Edison (1847 – 1931) was an inventor from the U.S.. He was the first person to mass-produce large numbers of long lasting incandescent light bulbs.

Old incandescent bulbs produce a lot of light. They do this by heating a thin piece of wire to a very high temperature. Called a filament, this wire is usually made from a type of metal called tungsten. However, these light bulbs waste a large amount of energy. Only five percent of the electric power used by the bulbs creates visible light. The other 95% is lost, or wasted, as heat.

Nowadays, most governments are trying to find ways of using less energy, or electric power. One popular idea has been to ban or reduce the number of "old" light bulbs. The new lamps do not use as much energy. They are therefore less expensive to run. In many countries such as Colombia, Brazil, Mexico, and Australia incandescent bulbs can no longer be used in the home. The U.S., Canada and China are also trying to replace incandescent bulbs with other types of light. The European Union (EU) has 28 member countries. It has told its members to phase out and then ban incandescent bulbs.

Most people in these countries understand the importance of sav-

ing energy. However, many dislike the newer low-energy lamps. Incandescent bulbs create a more natural "warmer light". They also reach their full brightness very quickly. The new lamps are dim when first switched on. They take time to reach their full glow. Many say that the light they create is "cold" and "unnatural". What's more, fluorescent lamps contain mercury, which is a toxic, or poisonous, substance.

The MIT researchers have found a way to make old light bulbs more efficient. They have worked out how to reflect some of the energy that is normally wasted. Using nanotechnology, they have placed extra layers around the filament. These recycle the reflected energy. Nanotechnology is the science of working with things at the level of their atoms and molecules.



Tungsten light bulb

So far, the researchers have managed to increase the efficiency of the old style light bulbs to 6.6%. They claim that, in time, they should be able to expand this figure to 40%. The efficiency of LED and fluorescent lamps is around 14%. Therefore, if the researchers are successful, their nanotechnology "old bulbs" will be far more efficient than the new lamps. ■

ANCIENT FAIRY TALES

Two scholars, one from Britain and the other from Portugal, have recently completed a study on fairy tales. One is an anthropologist. Anthropology is the study of humans and human behavior. The other is a folklorist. She is an expert on traditional human beliefs, customs, and stories passed by word of mouth from one generation to the next. The scholars' study surprised many people. It claims that many well-known European fairy tales are much older than they are thought to be.

Most of the world's different cultures have their own traditional stories. These are known as myths, legends, folklore, and fairy tales. These stories often involve magic, witches, demons, fairies, elves, trolls, and dragons. The tales and the characters differ depending on which part of the world they come from. For instance, many northern European fairy tales have wolves and dark forests. These things were part of most people's everyday lives in northern Europe hundreds of years ago.

Grimm's Fairy Tales is probably the best-known book of fairy tales. It was written in 1812, or over 200 years ago. The authors were two brothers: Jacob (1785 – 1863) and Wilhelm Grimm (1786 – 1859). They lived in a town called Hanau, in central Germany. The brothers did not invent the fairy tales. They collected traditional stories and wrote them down. Eventually, their book contained over 200 short stories.

Many fairy tales told around the world are based on the stories in the Grimms' book. These include "Rapunzel", "Hansel and Gretel", and "Sleeping Beauty" (called "The

Glass Coffin" and "Little Briar Rose" in the brothers' book). Over the years, as different people told these tales, the stories changed. Today's versions are often quite different from how the Brothers Grimm wrote them down. Wilhelm Grimm believed that these stories were thousands of years old. The two scholars agree.



Beauty and the Beast by Anne Anderson

Languages in Europe developed from languages originally spoken in south and Southwest Asia. Today, this region includes countries like Iran, India and Pakistan. Europeans first visited these parts of the world hundreds of years ago. Many noticed that some of the local words and the words they used were similar. They suspected that the languages in Europe and in south and Southwest Asia had a "common ancestor". Nowadays, all together, these languages are called Indo-European.

The scholars chose 76 fairy tales. Then, they tried to trace them back to some of the oldest Indo-European languages. The scholars say that most fairy tales have similar themes. They are usually about the family, [betrayal](#), survival, and violence. The scholars believe that the "Beauty

and the Beast" and "Rumpelstiltskin" stories are around 4,000 years old. They say that "Jack and the Beanstalk" is based on another tale called "the Boy who stole Ogre's Treasure". The scholars believe that this tale was first told at least 5,000 ago. This means that it is older than most European languages.

The oldest folk tale is probably a story called "the Smith and the Devil". It may go back 6,000 years. In the story a blacksmith makes an agreement with the Devil. The smith agrees to give his soul to the Devil in return for supernatural powers. The famous German legend of Faust is based on this tale. Faust also makes a pact with the Devil. He exchanges his soul for unlimited knowledge and magic powers. The agreement is to last for 24 years. After Faust has enjoyed himself for this period, the Devil appears and takes him to hell.

Nowadays, people talk about a "Faustian pact" or "Faustian bargain". This is when somebody is willing to stop being an honest and good person to gain power and wealth. ■

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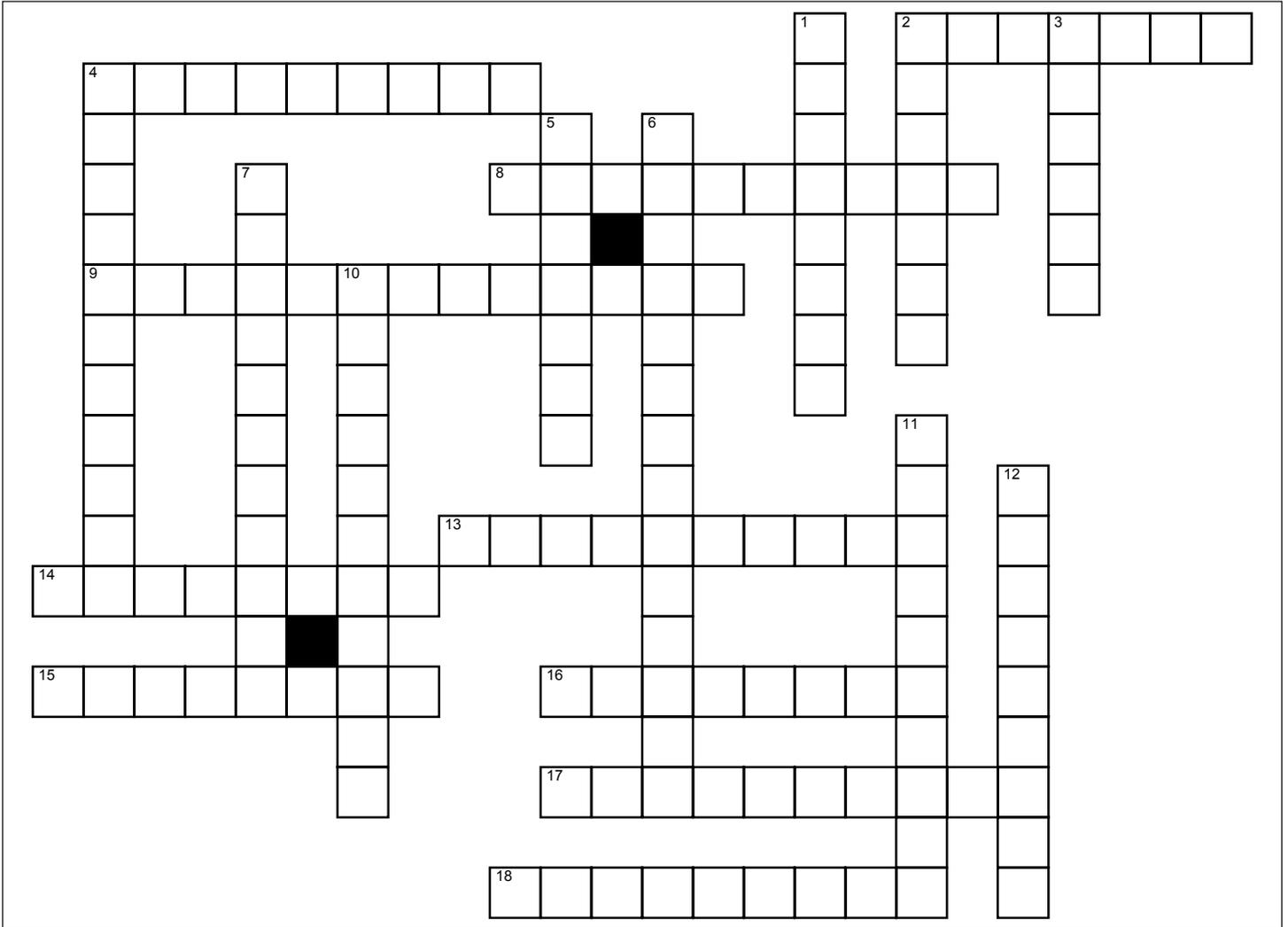
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GLOSSARY PUZZLE

INSTRUCTIONS: ① Complete the crossword. The answers are highlighted in orange in the news stories. There are 25 words highlighted and you need 20 of them to complete the crossword. ② Once you have solved the crossword go to the word search on the next page ➡



Across

- 2 *Noun* A harmless pill or medicine, given to a person as part of a trial or given to a patient for their physiological benefit
- 4 *Verb* Named, or honored a building, place, memorial, or event in the name of a person, religious figure, or something that happened in history
- 8 *Verb* Arranged for people from a racial or religious group to live among people from a different background or an existing community
- 9 *Noun plural* Lights or things that have been lit up
- 13 *Verb* Forced people to be separated because of their race or religion
- 14 *Noun* A disloyal act or one that helps an enemy or rival
- 15 *Verb* Attacked suddenly from a position of hiding
- 16 *Noun* A disloyal person who rebels and becomes an enemy
- 17 *Adjective* Distrustful or suspect that something is wrong
- 18 *Noun* A general sense of agreement among all members of a group

Down

- 1 *Noun Plural* Pottery objects, often bowls, tiles or figures
- 2 *Noun* Mythical bird that burns to death and is then reborn from its own ashes
- 3 *Noun* The branches and leaves of trees that spread out and form a type of roof
- 4 *Adjective* Describes something that is easy to recognize because it is different from other things
- 5 *Noun* Medical problem when someone always feels worried and frightened
- 6 *Noun Plural* Police officers or security workers sent to make an existing force, or group, stronger
- 7 *Noun Plural* Animals that live in water and have a hard outer shell and jointed limbs
- 10 *Adverb* Describes making something using a lot of small parts or details arranged in a complicated way
- 11 *Adjective* Originating in or native to a particular country
- 12 *Verb* Identified the cause of an illness after making an examination

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GLOSSARY PUZZLE *CONTINUED*

INSTRUCTIONS: ③ Find 19 of the 20 crossword answers in the word search. Words can go vertically, horizontally, diagonally and back to front. ④ After finding the 19 words write down the 20th (or missing) word under the puzzle.

S N O I T A N I M U L L I S A U Z D
 T N L M E D Q A D S D E U E Q K H I
 N P A V H E S E B I C O U L Z N Q S
 E P H E B M H T A E N I U M Q J S T
 M F H M C S L G M E B L M T L U C I
 E E R E U A N L G O X Z Y A S M O N
 C P J B D O T I S H B P Y P R A W C
 R B M A S A D S S P I E I O W E E T
 O A Z E H N G Y U N M C C Z E P C I
 F G D G I E G E T R I H T A L D X V
 N B Q O T Q K R N O C E Q V L K X E
 I Q L R M V I P U E W D Q R L P O X
 E O E X Z C W S E G R E G A T E D U
 R D E T A C I D E D U Q J Q H C Z T
 Y J G T R O D O R Q C A N O P Y X M
 B A E N D I N T E G R A T E D J I U
 F L P H O E N I X S W V V Y X C Q T
 Y T E I X N A K C O N S E N S U S Z

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MISSING WORD ANSWER =

ISSUE 266 ANSWERS

S U S P I C I O U S