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Crowds protesting against Brazil's president, Dilma Rousseff, in Brasilia, Brazil's capital city (Agência Brasil Fotografias)

## CRISIS IN BRAZIL

Brazil is the biggest country in South America. Its name comes from a type of tree called Brazilwood. The country is home to 200 million people. It is the world's fifth largest country by land area and population size. For over 300 years Brazil was controlled by Portugal. Brazilians speak Portuguese. Spanish is spoken in nearly every other South American country.

Brazil became a republic with an elected president 125 years ago. Today, Dilma Rousseff is the country's president. She is a member of the Workers' Party. This is one of the largest political parties in Brazil. Ms. Rousseff is the country's first woman president. She won the presidential election in 2010. Ms. Rousseff was reelected for a second four-year term in 2014.

In Brazil the president is the head of the government and head of state. This

is similar to the U.S. Politicians in Brazil are elected to the country's National Congress (or parliament). Like many other countries, Brazil's Congress has two houses or chambers. The upper house is known as the Senate. The lower house is the Chamber of Deputies.

An important vote was held in the lower house on April 17. It was to decide if Ms. Rousseff should be impeached. Presidents can be impeached, or removed, for misconduct, dishonesty and criminal activity. Ms. Rousseff is accused of altering some of the country's economic figures. She did this before the last election. By making the figures look much better, Ms. Rousseff increased her chances of winning. Ms. Rousseff does not deny changing the figures. She claims that previous presidents have done something similar. Members of the lower house voted to impeach Ms. Rousseff by 367 to 137.

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The impeachment vote has added to Brazil's many problems. Not long ago, the country was one of the world's fastest growing economies. Not any more. Now the opposite is happening. Last year the economy shrank, by 3.8%. The country is now experiencing its worst recession for 25 years. Inflation is going up. This is when prices increase, but the value of a country's currency falls. Unemployment, or the number of people without jobs, is rising.

The problems are not all economic. The Zika virus has spread to many parts of Brazil and there is a huge corruption scandal. Some people believe that as many as two-thirds of the country's politicians have been accepting unlawful payments, or bribes. That's not all. In four months' time the opening ceremony of the 2016 Olympic Games will take place in Rio de Janeiro. This is one of Brazil's biggest cities. The games last for 16 days. Work on some of the games' buildings and facilities is yet to be completed.

A mosquito called *Aedes aegypti* carries the Zika virus. About five months ago the virus seemed to begin to spread very quickly in Brazil. Now, it has reached most countries in South America. Medical experts are sure that the Zika virus and a disease, or disorder, called microcephaly, are connected.

Microcephaly is a birth defect. People most at risk from the virus are expectant mothers. If a woman gets the virus while pregnant, her child may have the disorder. New-born babies with microcephaly have small heads and less developed brains. Some babies with the disorder die at a young age. Others grow up with smaller heads, but seem to be unaffected. However, as they get older, many suffer from

learning troubles, speech difficulties and health problems. There is no cure for microcephaly.

Many people, including pregnant women, who get the Zika virus do not become ill. The symptoms of those who are unwell appear about 12 days after the mosquito bites them. They can include: high temperatures, skin rashes, headaches, joint and muscle pains, as well as a lack of energy. Symptoms are usually mild. They last for between two and seven days. There are no treatments or vaccines for Zika. The best way to stop the spread of the virus is to control the mosquito numbers. In the past, about 200 babies were born with microcephaly in Brazil each year. In recent months over 4,000 have been born with the disease. Women are now advised not to become pregnant.

The corruption scandal began over 12 months ago. It is centered on a large Brazilian oil company called Petrobras. This is a state-run company, so the government controls it. For many years the government has given some of its supporters senior well-paid jobs at Petrobras.

Lawyers and the police have been investigating the scandal. They believe that construction and engineering firms paid government supporters working at Petrobras large sums of money. The total, over the last ten to 15 years, was \$2 billion. The lawyers say that these people kept some of the money. Yet most was given to the Workers' Party. Many people from Petrobras and the Workers' Party have been arrested. Politicians from several other parties have also been accused of accepting some of the money.

The Workers' Party has led the country for 14 years. As president,

Ms. Rousseff took over from Luiz Inacio Lula da Silva (better known as Lula). He was Brazil's president for eight years. When Lula came to the end of his allowed term, he endorsed Ms. Rousseff. She had never been an elected politician before.



Brazil's president, Dilma Rousseff (Agência Brasil)

Lula is also being investigated for dishonesty. Ms. Rousseff worked closely with him. For five years she was his energy minister. Between 2003 and 2010, Ms. Rousseff was in charge of the meetings that senior Petrobras bosses attended. Ms. Rousseff is now a very unpopular leader. Surveys say that 90% of the people want her to resign. They blame her for the country's economic problems. Most Brazilians are angry about the corruption scandal.

In a few weeks the Senate will vote on Ms. Rousseff's impeachment. Then, she will have to step down to face a Senate trial. This will last for six months. Therefore the trial will be held during the Olympics. One of two senior politicians is expected to take over from Ms. Rousseff if the Senate impeaches her. Yet both men are being investigated as part of the corruption scandal.

There is a special ceremony on the first day of the Olympics. Traditionally, the host country's head of state declares that the games are "open" during the ceremony. Many Brazilians are now wondering who is going to do this. ■

## CHERNOBYL ANNIVERSARY

Chernobyl is in Ukraine. On April 26, Petro Poroshenko, the president of Ukraine, led a memorial service in the town. Similar ceremonies took place in Belarus and Russia. On this day in 1986, or exactly 30 years ago, a reactor at the nuclear power station in Chernobyl exploded. There was a large radiation leak. It was the world's worst ever nuclear accident.



*Memorial outside the Chernobyl nuclear plant*

The town of Chernobyl is close to Ukraine's border with Belarus. Thirty years ago, Ukraine and Belarus were within the Russian-led Soviet Union. Soon after the reactor exploded, 350,000 people from the surrounding area were [evacuated](#). Everyone in Pripyat was ordered to leave. Now, this city is a "ghost town". Even though Pripyat's buildings still stand, nobody lives or works there.

Radioactive material continues to be dangerous for a very long time. Today, there is a 19 mile (30-kilometer) exclusion area, or "no-go" zone, around the nuclear power station. Experts say that vegetables grown near the plant will be unsafe to eat for the next 1,000 years. Part of the exclusion area is in Belarus. Wild animals now live in the no-go zone. They include: elk, wild boar, wolves, roe deer, rabbits and many types of birds. It is not known how badly they are affected by the

radiation. The reason why so many animals live there is because there are no humans.

After the accident, helicopters dropped sand and lead onto the damaged nuclear reactor. Then, it was quickly covered or buried in thick concrete. A roof was built over it. The concrete "sarcophagus", or stone coffin, has been decaying for many years. Three years ago, part of the roof collapsed. Radioactivity still leaks from the reactor.

Work began on a new protective cover in 2010. It's called the New Safe [Confinement](#) (NSC). The work is being organized by two French companies. The NSC is an enormous cover, or shield, made from steel. It is 354 feet (108 meters) high and 530 feet (162 meters) long. It is dangerous to work above the old concrete sarcophagus. Therefore the steel cover is being built close by. It is on a set of rails. The work is to be completed next year. The structure will then be moved, on the rails, so that it covers the damaged reactor.



*The Chernobyl New Safe Confinement (NSC)*

The NSC is the biggest movable structure in the world. Large enough to cover the Statue of Liberty, in New York City, or Saint Paul's Cathedral, in London, the shield will be three times as heavy as Paris' Eiffel Tower. The steel cover is expected to stop radiation leaking from the site for 100 years. The cost of the building work is €2.18 billion (\$2.5 billion). Around 28 governments

and international organizations have agreed to help to pay for it. The European Union (EU) is one of the main [contributors](#).

Thirty-one people died during or within a few months of the accident. All were the nuclear plant's staff or emergency workers. In the days and weeks after the disaster, radiation spread to many other parts of Europe. Radiation can cause cancers and other illnesses. There are disagreements about how many people were affected by the accident. Some believe that there were 9,000 radiation-related deaths in the Soviet Union and 93,000 across Europe. Others think that these numbers were much lower.

Mr. Poroshenko spoke at the ceremony in Chernobyl. He said that all who died must be remembered and the people who still suffer from ill health looked after. ■

## CYLON SUPPORTERS DISCOVERED?

Archaeologists are researchers who study human prehistory and history. They do this by investigating the remains of old buildings and digging up, or excavating, human remains and artifacts. Archaeologists in Greece have announced the discovery of two ancient graves. They contain the skeletons of 80 young men.

Unusually, 34 of the skeletons are shackled together with iron chains. The archaeologists found two old vases in the graves. These suggest that the skeletons are about 2,600 years old. Because of the date and the chains, the archaeologists think that the men might have been followers of Cylon. At that time, he was a well-known Greek Olympic athlete.

Ancient Greece is often called the “birthplace of western civilization”. The term western civilization describes the modern-day culture of Western Europe and North America. The Ancient Greek civilization began around 800 BCE, or roughly 2,800 years ago. In 148 BCE the Romans defeated a large Greek army. Many historians use this date as the “end” of Ancient Greece. However, the Romans copied Greek art and buildings and worshiped Greek gods.

Ancient Greece was not one country. It was made up of many city-states. Athens, Sparta, Olympia, and Corinth are examples. These city-states often fought against each other. They also joined forces to fight common enemies. The Olympic Games began in Ancient Greece in 776 BCE. They took place in Olympia every four years. The games were a religious and athletic festival. Competitors came from different city-states.



Shackled skeletons uncovered in Phaleron near Athens, in Greece (Greek Ministry of Culture)

Many people argue that the ancient city of Athens was the world’s first democracy. This type of rule or government began in Athens around 2,500 years ago. (The Ancient Greek word “demokratia” means “rule by the people”.) Male Athenians who were over 18 years of age could “vote” for their rulers. However, women and the thousands of slaves who lived in the city could not.

Cylon and a group of his supporters tried to seize, or take control of, Athens in 632 BCE. They were not successful. Cylon came from a wealthy family. Then, dictators, or “strongmen” ruled the city. After failing to take the city, Cylon and his supporters took refuge in a temple on the Acropolis.



The Acropolis in Athens

In Ancient Greek the word “acropolis” means “upper city”. Many cities built by the Ancient Greeks and Romans had an acropolis. Often they were fortresses, or **citadels**. The most famous one is in Athens. This large rocky hill is near the center of the city. Its correct name is the Acropolis of Athens. Yet most people call it the Acropolis. Today, it is known for its ancient ruined temples.

The people who ruled Athens made Cylon an offer. They said that if he and his supporters surrendered, they could live. One ancient historian says that Cylon tied a long rope around a statue of Athena, an important Greek goddess. Then, he walked through the city holding the other end of the rope. Cylon hoped that this would give him the goddess’ protection. Yet, the rope snapped. The people of Athens thought this was a sign from the gods. All of Cylon’s followers were killed.

It seems that Cylon and his brother escaped. What happened to them is not known. Plutarch wrote

the story about the statue and the rope. Most historians say that it is unlikely to be true. Plutarch was writing about 600 years later. Herodotus and Thucydides are two other well-known Greek historians. They lived around 200 years after the event. Neither mentions the rope and the statue.

The archaeologists suspect that the skeletons were some of Cylon’s followers. They were found at a place called Phaleron. This is about five miles (eight kilometers) from the center of Athens. Several Ancient Greek historians think that the bones are unlikely to be the remains of Cylon’s supporters. ■

## STOCKHOLM’S BEAVERS

Beavers have returned to Stockholm, Sweden’s capital city. Some officials worry that they may now become a nuisance. The animals gnaw at the base of trees to make them topple, or fall, over. Recently, one beaver bit a man on the leg. He was standing at a bus stop on the outskirts of the city.

There are two beaver species: the American beaver and the Eurasian beaver. As their names imply, American beavers live in North America and Eurasian beavers are found in Europe and Asia. In the past, both species nearly went extinct. Beavers were hunted for their fur, or pelts. Hundreds of years ago some body parts from beavers were used to make medicines and perfumes. Hats and coats made from beaver pelts were popular.

Beavers are the world’s second biggest rodent. There are many types of rodent. These animals include rats and mice. The biggest rodent is the capybara. Found in South

America, it is like a giant guinea pig. A fully-grown beaver is about 3.5 feet (one meter) long. This includes its paddle-shaped tail. The animals are covered in thick, dark brown fur. Beavers are semi-aquatic. They spend a similar amount of time on land and in the water. They live in ponds, lakes, streams, and rivers in wooded areas.

The animals are very good swimmers. Beavers have webbed feet. They can stay under water without breathing for about 15 minutes. Beavers have transparent, or see-through, eyelids. These are like goggles. The animals can therefore see under water with their eyes closed. Beavers eat tree bark, wood and some water plants, such as lilies and pondweed. The animals will slap the water's surface with their flat tails. This makes a loud noise. They do this to alert other beavers to possible dangers.



Eurasia beaver

Beavers are nocturnal. They work and look for food at night. Beavers are well known for making dams and lodges in the middle of ponds. A lodge is the name for a beaver's home. Beavers have two large front teeth. They use them to chew through the trunks of smaller trees. The wood is then used with mud to make dams and lodges. Beavers will dam small rivers or streams. Their dams then create a pond or a site for their lodge. Lodges have underwater entrances.

The animals live in colonies, or large groups. Beavers are monogamous. This means that males and females stay together, or mate for life. Young beavers are called kits. They remain with their parents for about two years. During this time they help to build and repair the dams and lodges.



Beaver dam

In Sweden, beavers had been hunted to extinction by the end of the 1800s. In the 1920s and 1930s they were reintroduced. About 80 beavers were brought from Norway. This re-introduction has been very successful. Today, there are around 130,000 beavers in Sweden.

Stockholm is home to about 910,000 people. The city has many canals and waterways. Some people call it the "Venice of the north". The central part of the city is made up of 14 islands. Now, there are ten lodges around Stockholm. The last time beavers were seen in the city was over 200 years ago. The animals are popular with local residents.

However, because they gnaw through trees, beavers can cause problems. Fallen trees have blocked roads. There is a danger that trees weakened by beavers could fall on people. Several years ago, in another part of Sweden, a beaver caused a serious power outage. It chewed through a large electricity cable. If the beaver population in and around Stockholm gets too big, some may have to be culled, or killed. ■

## CHAD ELECTION

An organization called the electoral commission arranges all the elections in Chad. It is also responsible for counting the votes. On April 21, the head of the commission announced the results of the country's recent presidential election. He declared that Idriss Déby had won. Mr. Déby has run Chad for 26 years. This was his fifth election victory.

Nowadays, presidential elections in Chad are held every five years. People voted on April 10. Chad is a landlocked country. It is not close to any seas or oceans and does not have a coastline. Chad is one of Africa's largest nations. It is home to about 14 million people. The country is sparsely populated. Therefore collecting and counting all the votes takes a long time.

Most people who live in northern Chad follow the Islamic faith. Many in the south are Christians. Others have local African beliefs. Hundreds of years ago, people from the north frequently captured those who lived in the south. These people were then sold as slaves. French soldiers arrived in the south at the start of the 1900s. Local people welcomed them. This was because the French stopped the northerners' slave raids. By 1913 France had taken over the whole area. It became part of what was known as French Equatorial Africa.

Officials from France started growing cotton in the south. During this time, many local people decided to become Christians. France was quickly defeated by Germany at the beginning of the Second World War (1939 – 1945). However, many French soldiers in other parts of the world continued to fight against the Axis powers (Germany, Italy and

Japan). These soldiers were known as Free France, or Free French Forces. At least 15,000 soldiers from Chad fought for Free France.

In 1960 the French government agreed that Chad could become an independent nation. Around this time, French Equatorial Africa became five separate countries: Chad, the Central African Republic (C.A.R.), the Republic of Congo, Gabon, and (most of) Cameroon. After independence warring **factions** frequently fought against each other in Chad. Some leaders were assassinated, or killed. Mr. Déby took control of the country in 1990. He is a Muslim and a former army general.



Chad's president, Idriss Déby

Chad has three main regions. The north is part of the Sahara Desert. The south is mainly savanna, or grassland. In between is part of an area known as the Sahel. The Sahel stretches from the Atlantic Ocean in the west to the Red Sea in the east. It separates the Sahara Desert from the places that have much more rainfall farther south. The Sahel is dry, but there is some rainfall and grassland. Sahel is an Arabic word. It means “coast” or “shore”.

In a local language “chad” means lake. Thousands of years ago a huge lake covered much of this part of Africa. Today, Lake Chad is much

smaller. It is shallow with many mud banks, small islands and marshy areas. Several rivers flow into the lake. It has no outlet to the sea. The lake is in Chad's Southwest. It forms part of the border between Chad, Nigeria, Niger, and Cameroon. About 68 million people get their fresh water from Lake Chad.



Mr. Déby got about 62% of the votes. Twelve others stood in the election. Saleh Kebzabo came second with 13%. He complained that the election was unfair. The African Union (U.N.) sent officials to observe the voting and how the votes were counted. They said that there were some problems, yet the result was correct.

France still has military forces in North Africa. Most are based in Chad. Countries like France and the U.S. are supportive of Mr. Déby and his government. Recently, there have been attacks by Islamic militant groups in nearby countries such as Mali. Soldiers from Chad have worked with French troops to defeat these groups. ■

## PLASTIC-EATING BACTERIA

In today's world many things are made from plastic. It is used for bottles and other containers. Food companies make use of plastic packaging. Many shops give away or sell plastic bags. Discarded plastic is

now a big environmental problem. Unlike organic material such as plants or dead animal bodies, plastic does not decompose easily.

Some plastic containers and bags are recycled. Yet many are thrown away. In the ground, plastic will rot, but it takes many years to do so. Recent studies say that around eight million tons of plastic are dumped in the seas and oceans every year.

In the Pacific and Atlantic, circular ocean currents have created huge areas of floating plastic. The biggest is in the northern Pacific Ocean. It is called the “Great Pacific garbage patch”. Plastic in the sea slowly breaks up into smaller and smaller pieces. These tiny bits can harm fish, seabirds, and marine mammals. Thinking that it's food, fish and seabirds eat tiny pieces of plastic. These get stuck in the animals' stomachs. At least one million seabirds are thought to die from eating plastic every year.

Polyethylene terephthalate (P.E.T.) is one of the most commonly used plastics. A team of scientists in Britain invented it in 1941. P.E.T. was produced in the U.S. in large quantities about ten years later. Nowadays, most bottles that contain water and non-alcoholic drinks are made from P.E.T.. It is lightweight, strong, clear and inexpensive to make. The molecules that make up P.E.T. are bonded closely together. This means that they are difficult to separate. It is known that some rare fungi can break down P.E.T..

There are trillions of types of bacteria. These tiny organisms are one of the world's smallest and oldest lifeforms. Bacteria are almost everywhere. They exist in the deepest oceans and at the top of the highest mountains. Many help to break down, or degrade, organic matter.

As it decomposes, this matter is recycled into soil or [sediment](#).

It was thought that no bacteria could degrade, or “eat”, P.E.T. However, recently, a team of scientists in Japan have found one that can. It’s called *Ideonella sakaiensis* 201-F6. The scientists searched hundreds of places where plastic garbage had been dumped. They discovered the bacterium in one of them. There, it was using P.E.T. as a food source.



Plastic waste (Stiv Wilson, 5Gyres Institute)

The bacteria break plastic up into separate parts. These do not damage, or pollute, the environment. In tests, it took the bacteria about six weeks to degrade some P.E.T. plastic. P.E.T. has existed for only 70 years. So the bacteria have evolved, or “learned”, to break it down in a short period. The scientists suspect that this type of bacterium is able to quickly adapt to eat different kinds of food.

The scientists’ tests were done at a temperature of 30°C (86°F). The bacteria “ate” some thinner plastic film within six weeks. Yet they had difficulty with plastic bottles. These are made from a stronger type of P.E.T.. Therefore this bacterium cannot be used to break down plastic on a large scale. However, as a plastic-eating bacterium has been found, it may be possible to develop others with larger “appetites”.

In the future, it may be possible to spray “hungry” plastic-eating bacteria on garbage dumps and floating

garbage islands. Other researchers say that this might cause problems. Some plastics contain toxic, or poisonous, chemicals. If this plastic is broken down, the toxins are released into the ground or seawater. P.E.T. is 100% recyclable. Some people therefore believe that there is a simpler solution. If all P.E.T. in the world was recycled and none thrown away, it would not cause environmental problems. ■

## EARTH DAY SIGNING

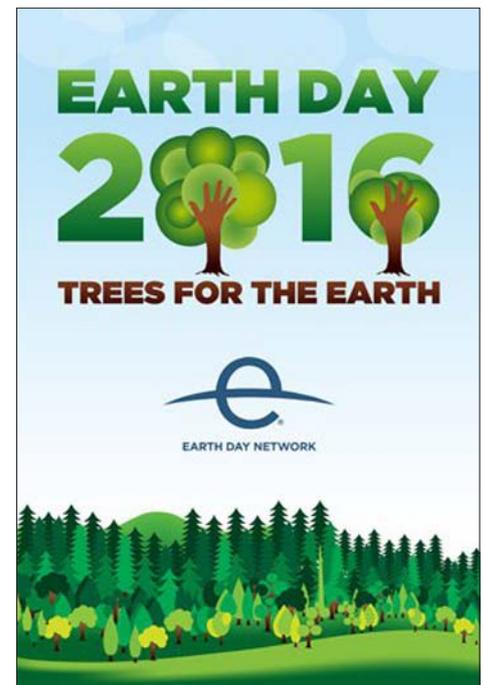
Earth Day is celebrated on April 22. It takes place every year. The first Earth Day was organized by an American politician. It began in the U.S. in 1970. Then, teachers organized activities across the country. The idea was to educate people about the environment. By 1990, Earth Day had become an international event.

Special events on Earth Day are held in over 190 countries. These are meant to make everyone aware of the importance of protecting the environment. The Earth Day Network (EDN) coordinates the events. It claims to have 50,000 partners (people or environmental organizations) around the world. Nowadays, over one billion people take part in Earth Day activities each year.

This year the EDN began a new five-year campaign on Earth Day. It wants people to plant 7.8 billion trees by 2020. This year will mark Earth Day’s 50th anniversary. Trees absorb carbon dioxide (CO<sub>2</sub>) from the atmosphere. Much of this extra CO<sub>2</sub> has come from burning fossil fuels: oil natural gas and coal. Nearly all scientists agree that this additional CO<sub>2</sub> is causing average

world land and sea temperatures to rise and the climate to change.

Trees take in other harmful gases as well as CO<sub>2</sub>. Nitrous oxides and sulfur dioxide are examples. In addition, trees’ leaves and bark trap tiny harmful particles in the air. These come from the exhausts of cars, trucks and buses. Big construction, or building, sites create huge amounts of tiny dust particles. Trees also capture these particles. Some people describe trees as filters. They help to clean the air.



At the end of last year leaders and officials from most countries met in Paris, the capital of France. This two-week “climate change” meeting was organized by the United Nations (U.N.). These meetings take place each year. However, at the end of the Paris meeting an important agreement was signed. Known as the Paris Agreement, it is meant to stop or slow climate change. A total of 196 nations attended the meeting. All agreed to reduce the amount of greenhouse gases that they produce. These gases,

such as CO<sub>2</sub> and methane, trap heat in the upper atmosphere.

Industrialization first began in Britain and several other European countries around 200 years ago. This was the large-scale manufacture of iron and steel. Huge amounts of coal were burned to create the necessary heat. Large factories making many other items were set up. These also used coal. Over time, industrialization spread to many other countries.

In later years, the need for electric power meant that large coal-burning power stations were built. In most places, oil and natural gas are now used to make electricity instead of coal. Scientists believe that average world temperatures have risen by about 1°C since industrialization started. The Paris Agreement is meant to make sure that this rise does not exceed 2°C.



When many countries make an agreement, their governments have to sign it within a certain time. The U.N. chose April 22, (Earth Day) 2016 as the first possible signing date. The last is in 12 months' time, or April 21, 2017. Many nations wanted to sign on Earth Day. The U.N. therefore decided to hold a special Paris Agreement signing ceremony on April 22. It took place at the U.N.'s headquarters in New York City, in the U.S.

Of the 196 countries, 175 signed the agreement on this day. They included the U.S. and China. Together, these two nations produce 38% of all the world's greenhouse gas emissions. ■

## KOH-I-NOOR DIAMOND

For over 60 years India has frequently demanded that Britain return a famous diamond. It is called the Koh-i-Noor. On April 18, a senior official from the Indian government made a surprising announcement. He said that India should stop asking for the diamond to be sent back. The British, the official explained, had not stolen the Koh-i-Noor over 160 years ago.

In Persian, Koh-i-Noor means "mountain of light". Diamonds and other gemstones are measured in units called carats. A carat is 0.007 ounces (0.2 grams). When diamonds are first dug up, they are called "rough" diamonds. Experts study the rough diamond to look for flaws. They also look at the shape of the rough diamond to decide how best to cut and polish it.

The Koh-i-Noor was originally 186 carats. In 1852 it was recut to improve its shape. Now, the diamond is 105.6 carats. It's about the size of a hen's egg. Nobody knows the diamond's value. However, experts believe that it is worth at least \$145 million. The Koh-i-Noor is set into a crown used by Britain's royal family. Traditionally, the queen consort's crown displays the Koh-i-Noor. This person is the king's wife. The last person to wear this crown was Queen Elizabeth the Second's mother. Also called Elizabeth, she was known as the Queen Mother. She died in 2002, aged 101. The Queen Mother was married to Queen Elizabeth's father, King George the Sixth (1895 – 1952).

The early history of the Koh-i-Noor is not known. It is thought to have been dug up in a diamond mine in Southeast India 800 years ago. Yet some people think it is far older.

Between the early 1500s and mid-1800s, Mughal emperors ruled most of the area that is now Pakistan, India and Bangladesh. They originally came from Central Asia. For many years, the diamond belonged to these emperors. In 1739 the shah (or king) of Persia (modern-day Iran) successfully invaded part of the Mughal Empire. He seized the diamond and named it the Koh-i-Noor.



*Queen consort's crown, the Koh-i-Noor is in the centre of the cross at the front of the crown*

Sometime later, the shah was assassinated. The diamond was taken by one of the shah's generals. Later, this man became Afghanistan's ruler. The diamond was passed down to his successors. By the early 1800s, the British had taken control of large areas of the Indian subcontinent (modern-day Pakistan, India, Bangladesh, and Sri Lanka). These areas were run by a British organization called the East India Company. It had a large army. Most of the organization's soldiers were local Hindus and Muslims. They were known as sepoys.

In 1809 the ruler of Afghanistan was overthrown. Taking the diamond, he managed to escape. He went to the Indian city of Lahore, which is now in Pakistan. From

there, a maharaja, or prince, called Ranjit Singh ruled the Sikh Empire. The deposed Afghan ruler agreed to give the diamond to the Sikh ruler in gratitude for his [hospitality](#).

Several years later, the East India Company fought three wars against the Sikh Empire. When Ranjit Singh died his five-year-old son became the new ruler. In 1849 a treaty was signed with the British. It was agreed that the East Indian Company would take over much of the Sikh Empire. In addition, the diamond was to be sent back to Britain. There, it would be given to Queen Victoria (1819 – 1901). After its arrival, Prince Albert, the queen's husband, had the diamond recut to improve its "sparkle".

The governments of India, Pakistan, Iran, and Afghanistan all claim to be the Koh-i-Noor's rightful owner. Each wants the diamond to be returned to their country. Many Indians were unhappy about the announcement by the senior government official. They insist that the diamond was stolen and that it belongs to India. ■

## VENEZUELA'S ELECTRICITY SHORTAGE

On April 28, Venezuela's vice-president declared that civil servants would now work only on Mondays and Tuesdays. Civil servants are government workers. In Venezuela 2.8 million people work for the government. All have been given three days off to save electricity.

Hugo Chávez died of cancer three years ago. He had been Venezuela's president for 14 years. Chávez was a [controversial](#) leader. He often described the way in which he ran the country as a "socialist revolution". Chávez arranged for the

government to take control of the oil and electricity companies and several large food businesses. He said that most of the money these organizations make must be used to help the country's poorer people.

Before his death Chávez declared that he wanted Nicolas Maduro to succeed him. One month after the former president died, an election was held. Mr. Maduro won. After he became president, Mr. Maduro announced that he would run the country in the same way that Chávez did. Mr. Maduro is now very unpopular. Venezuela has serious economic problems. These caused difficulties when Chávez led the country. Yet in recent times they have become far worse.

Venezuela is very dependent on oil. It has the largest proven, or known, oil supplies in the world. Of Venezuela's total economy around 95% of the money it makes comes from oil. About 12 months ago the price of oil began to fall. This was because, worldwide, more oil was being produced than needed. The current low oil price means that Venezuela makes far less money.



Nicolas Maduro, Venezuela's president

Inflation in Venezuela is now well over 300%. This is probably the highest inflation rate in the world. Inflation is when a currency loses value and the cost of things increase. Governments that keep printing more and more banknotes usually cause it. The more

banknotes there are in a country the less they are worth.

The high inflation makes it difficult for business leaders to buy American dollars. They need dollars to buy the things that are imported into Venezuela. There are shortages of many items in the shops. These include: flour, milk, butter, sugar, and even toilet paper. Recently, the country's biggest beer maker announced that it would stop making the drink. This is because it cannot buy the barley it needs from other countries. Barley is a cereal crop. It is mainly used for brewing and as a feed for farm animals.



Guri hydroelectric dam in Venezuela

Another problem is government price fixing. Normally there is a "market price" for goods. Yet if the price is fixed below this price it causes shortages. At first, more people buy the goods because they are inexpensive. Yet companies stop making them, as they will lose money. The goods soon run out and there are no more. This is what has happened to toilet paper in Venezuela.

Nearly all Venezuela's electricity comes from hydroelectric power plants. To make this power several large dams have been built on rivers. The dams create huge lakes. Water flowing through parts of the dam rotates large turbines. This movement generates electricity. Unfortunately, there is a very bad drought in this part of South America. The Guri

Dam is the third largest hydroelectric dam in the world. Normally, it makes about two-thirds of all Venezuela's electricity. Yet now the lake behind the dam is almost dry.

The government has announced several electricity-saving orders. Shopping malls have been told to close early. All clocks have been moved forward by 30 minutes. This means that there is an extra half an hour of daylight in the evenings. Parts of Venezuela have power outages for at least four hours every day.

Venezuela's next presidential election is not until 2019. Opposition groups are trying to collect voters' signatures. They want what's known as a recall referendum. If successful, these groups plan to remove President Maduro after three years of his six-year term. ■

## SAHARAN SILVER ANTS

Saharan silver ants are unusual creatures. Scientists from a university in Belgium have been studying them. These ants are found in parts of the Sahara Desert. They live in some of the world's hottest places. The scientists have discovered how the ants survive in daytime temperatures as high as 128°F (53°C).

So far, more than 12,000 ant species have been recorded. Ants are very strong. Many lift things that are 20 times heavier than their own bodies. (If a person was able to do this, they could pick up a big car.) Ants are social insects. They live in large groups called colonies. Some colonies have millions of ants. These insects don't have ears. Their feet "listen" by sensing [vibrations](#) in the ground. Ants have no lungs. They take in oxygen via tiny holes in their bodies. Carbon

dioxide is expelled through the same openings.

There are different kinds of ant: queens, males or drones, and soldiers and workers. Each colony has at least one queen. Males mate with the queen. Usually, they die soon afterwards. A queen can lay millions of eggs. Some ant species have one queen in the colony. Others have many. Workers and soldiers are [sterile](#) females. Soldiers defend the queen and the colony. They also search for food. Workers look after the eggs and build and repair the nest.



*Saharan silver ants (P. Landmann / Willot)*

Saharan silver ants make their nests under the ground. Here, it is much cooler. Lizards eat the ants. Yet these lizards hide away during the heat of the day. This is when the ants are most active. They have longer legs than other ant species. So their bodies are farther away from the very hot sand. What's more, outside the nest, the ants do everything at top speed. Moving fast helps them stay cool. All ants have six legs. Saharan silver ants run around on four. The insects hold their two front legs up off the ground. This protects them from the burning sand.

The ants feed on the bodies of other animals or insects that have died. These bodies, or bits of them, are dragged back to the nest. Many types of ants leave a chemical trail behind them. The insects then follow it back to their nest. Saharan silver ants don't do this. They

navigate by the Sun. Every so often, the ants stop and spin round. They do this to record the position of the Sun in the sky. From these "recordings", the ants can work out the most direct route back to the nest.

Saharan silver ants are covered in tiny "glittery" hairs. The scientists studied these under high-powered microscopes. They discovered that the hairs are like long thin prisms. Thus a cross-section is a triangular shape and not circular. In addition, the hairs have long grooves on their three sides. When sunlight hits the hairs, most light is reflected away. The hairs therefore help to lower the ants' body temperature.

As an experiment, using tiny [scalpel](#) blades, the scientists managed to shave several ants. Then, they recorded the ants' temperature under bright sunlight. Because of the shape of the hairs and grooves, light bounces off the "base" of the triangle. This is why the hairs are silver, or mirror-like. The "hairy" ants were several degrees cooler than the shaved ones. The scientists' discovery of how the hairs work could be [replicated](#). When designs found in nature, or the natural world, are copied, it is known as "biomimicry", or "bioinspiration".

## MONKEY MYSTERY

The Panama Canal connects the Atlantic and Pacific Oceans. This man-made waterway crosses the [isthmus](#) that connects North and South America. The canal opened about 100 years ago. Currently, it is being widened. This is so more and wider ships can pass through it. Recently, workers dug up, or uncovered, seven teeth from an ancient monkey. The teeth are at least 21

million years old. This date has surprised many scientists.

Monkeys are primates. These are mammals that have hands, hand-like feet, and forward facing eyes. As well as monkeys they include: lemurs, bush babies, tarsiers, marmosets, apes, and even humans. There are about 190 primate species. Nearly all live in trees.

Orang-utans, gorillas and chimpanzees are apes. Apes and monkeys are different. Apes don't have tails and are usually bigger than monkeys. However, there are few monkey species that don't have tails. Apes use their hands and arms to swing through the trees. A few types of monkeys do this. Yet most run along tree branches. Monkeys are very social. They live in groups called "troops".



Central American spider monkey (John Hopkins)

Monkeys are divided into two types. These are Old World Monkeys and New World Monkeys. Old World Monkeys live in Asia and Africa. New World Monkeys are found in South and Central America. There are no apes in these places. There are about 95 Old World monkey species and 80 New World species. New World monkeys tend to be smaller than Old World ones.

The Earth's crust is like a huge jigsaw. It is made up of huge pieces called plates. These plates float on the very hot liquid rock deep be-

low the surface. They move slowly at a speed of about 0.8 inches (two centimeters) each year. Africa and South America used to be joined together. They began to drift apart 650 million years ago. Even today, the shapes of South America's east coast and the west coast of Africa look as if they "fit together".



Isthmus of Panama (Google maps)

What's called the Isthmus of Panama rose from the sea around 3.5 million years ago. It finally joined North America and South America. Before this a number of unconnected volcanic islands probably separated North and South America. The new isthmus or land bridge meant that animals (and plants) from the north moved south and those from the south traveled north. This is known as the Great American Interchange. Over many thousands of years, animals like deer, horses and saber-toothed cats moved south. Creatures such as armadillos and ground sloths went north.

Scientists believe that monkeys arrived in South America from Africa between 40 and 30 million years ago. This date comes from monkey fossils found in South America. By this time, South America and Africa had "drifted" apart. Scientists think that some monkeys (accidentally) crossed the ocean on rafts formed from floating vegetation. This is how plants are known to reach isolated islands. Within ten million years, monkeys had spread to all parts of South America.

Today, certain types of monkey are found in Central America. The Central American spider monkey is an example. The 21 million-year-old monkey teeth found in Panama were a surprise. They show that monkeys from South America reached what's now Central America long before the Isthmus of Panama existed. At that time, the sea separating North and South America was about 100 miles (160 kilometers) wide. Therefore, like crossing the Atlantic, the monkeys may have floated on some type of vegetation.

No wild monkeys live in North America. There are thick forests, or jungles, in Central America. Yet northern parts of Mexico and the southern U.S. are dry, tree-less and desert-like. This probably explains why monkeys that were part of the Great American Interchange never moved north of Mexico. ■

## FUEL ECONOMY TESTS

Tetsuro Aikawa is the president of the Japanese car-making company, Mitsubishi Motors. On April 22, he declared that some company workers had incorrectly recorded fuel economy tests. These show how much fuel cars use to travel a certain distance. The president admitted that this dishonest activity first started 25 years ago.

A car's fuel efficiency is important. When people buy a car, most want to know what its fuel efficiency is. By not recording this information correctly, Mitsubishi Motors' customers were given wrong information. Hundreds of thousands of Mitsubishi cars have been sold in Japan in recent years. Many of their owners might now demand compensation from the company.

Another problem is government tax. In Japan, car owners pay less tax if their cars use less fuel. Mitsubishi's false recordings mean that many owners should have been paying more tax to the government. This means that the government may ask for compensation as well.



*Mitsubishi Motors headquarters in Japan*

The Mitsubishi group of companies is well known in Japan and other parts of the world. Mitsubishi was founded in 1870. It soon became involved in many industries. These types of big companies are known as conglomerates. Before, and during, the Second World War (1939 – 1945) Mitsubishi made military equipment such as planes, tanks and ships. After Japan surrendered, American forces occupied the country. American leaders decided to break up the big Japanese conglomerates. As well as Mitsubishi these included Sumitomo and Mitsui.

Today, there are many Mitsubishi companies based in Japan. They share the name, but work independently. Each has its own bosses. Some have informal arrangements with each other. For example, one Mitsubishi Company may agree to lend another money. Some own shares in each other. Now, the three biggest Mitsubishi companies are: the Bank of Tokyo-Mitsubishi, Mitsubishi Corporation and Mitsubishi Heavy Industries. The Bank of Tokyo-Mitsubishi is the largest bank in Japan.

Mitsubishi Motors was formed in 1970. It is Japan's sixth biggest car making company. Another Mitsubishi company makes trucks and buses. Daimler now owns this company. Daimler is a large German automaker. In recent years Mitsubishi Motors has made small cars for another auto company called Nissan. It was workers at Nissan who realized that the fuel use recordings were wrong.

Government officials in Japan have told the Mitsubishi Motors bosses to investigate what happened. The company's president insists that he knew nothing about the false fuel economy tests.

Last year it was discovered that Germany's Volkswagen Company was making false claims about its cars. Volkswagen was falsifying emissions tests. These show how much air pollution a car creates. Volkswagen installed special software in some of its cars. This made it look as if their engines were producing less pollution. Many of these Volkswagen cars were sold in the U.S. Recently, the company has agreed to buy back all of these cars. This will cost billions of dollars.

One Japanese government official has suggested that Mitsubishi may have to do the same as Volkswagen. Yet, Mitsubishi Motors is a far smaller company with less money. Some people worry that the fuel economy [scandal](#) may force Mitsubishi Motors to close down. ■

## VOLCANO AND MAYA

The Maya civilization was in Central America. Some historians believe it began over 4,000 years ago. The Maya seem to have been at their most powerful around 500 CE, or

1,500 years ago. Afterwards their civilization declined.

Nobody knows what happened to the Maya. Some ideas are wars, drought or disease. A [combination](#) of all three is possible. Researchers from the Netherlands have recently suggested another idea. They believe that the Maya decline was caused by a big volcanic eruption in Central America.

The Maya lived in areas that are now southern Mexico, Guatemala, Belize, and parts of Honduras and El Salvador. The Spanish took over these areas in the 1500s. By this time the old Maya cities were lost in the jungles. Yet the Maya never disappeared completely. Many people who live in these countries are their descendants. Some still speak Mayan languages and follow Maya customs.



*El Chichón volcano in Mexico*

The Maya constructed impressive stone buildings. These included: temples, palaces, observatories, and pyramids. All were built without the use of metal tools. The Maya were good at farming. They had to clear thick rainforest, or jungle, to grow their crops. In this part of the world there is little ground water, or rivers. The Maya dug underground tanks, or reservoirs. These were designed to store rainwater.

The Maya had an impressive knowledge of the planets, the stars and how the Sun seems to move across the sky. They used a

complicated calendar. It marked time in cycles, called baktuns. Each baktun was roughly 394 years long. The Maya created a system of writing that used symbols called glyphs. By the time of the Spanish, the knowledge of this writing had died out. Today, many ancient glyphs have been deciphered, or decoded. Therefore experts are able to understand what most of them mean.



Maya temple, Chichen Itza (Keith Pomakis)

There was no one all-powerful Maya king. Cities had their own rulers. They were similar to the

city-states in Ancient Greece. Surrounding towns, villages and farms supported each Maya city. The Maya made beautiful fabrics, or clothes, pottery and musical instruments. Some of the biggest cities were called Palenque, Tikal, and Chichen Itza. After the Maya declined, their cities were abandoned. They became covered in trees and jungle vegetation.

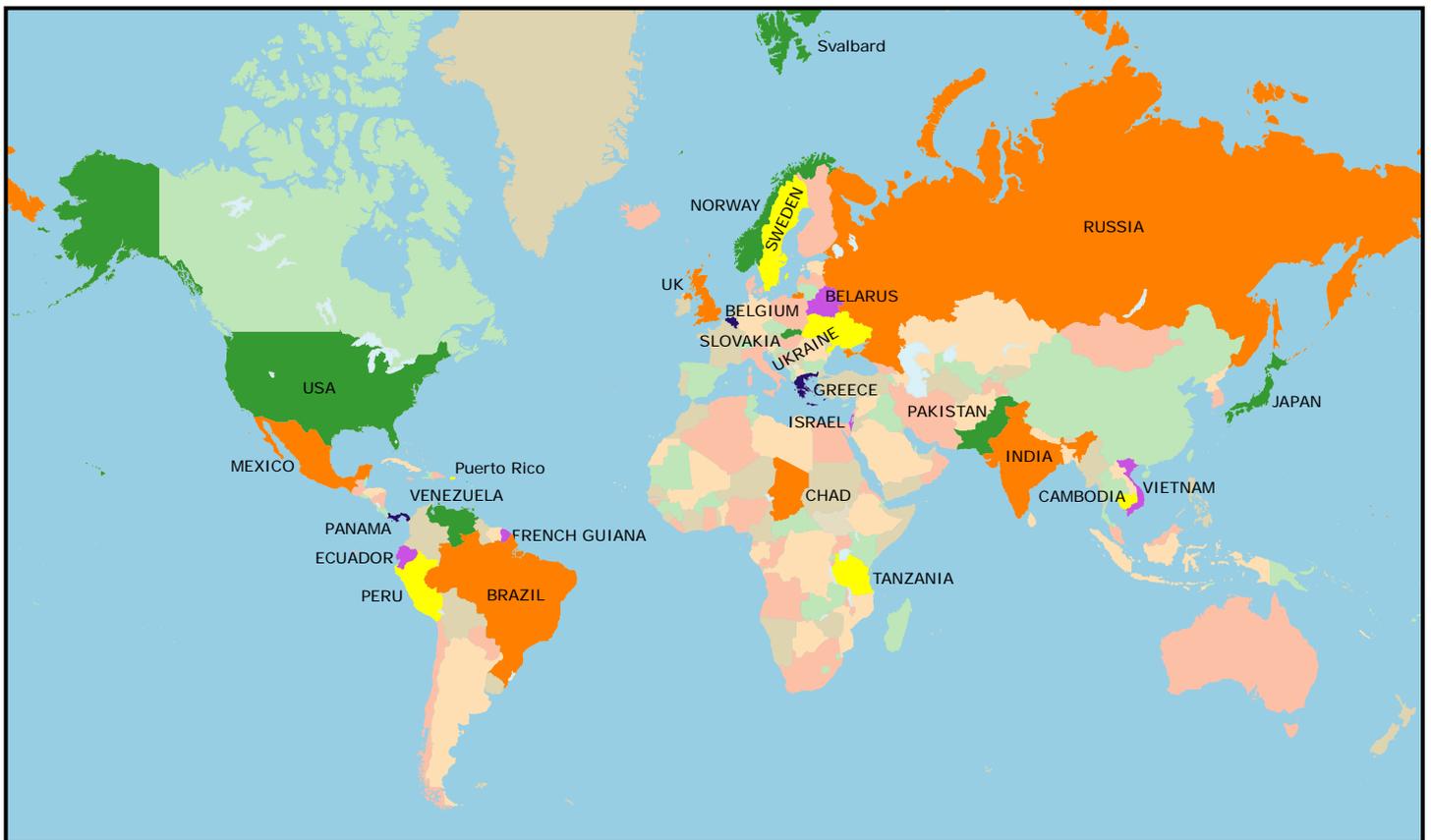
Ice cores from Greenland and Antarctica show that there was a huge volcanic eruption somewhere in the world around 540 CE. Ice cores can be used to date ancient events such as volcanic eruptions. To get an ice core, scientists drill long hollow pipes into thick ice. When pulled up, the pipes contain long tube-shaped pieces of ice.

Big eruptions throw large amounts of volcanic ash high into the atmosphere. This can spread all around the world. Eventually, the

ash and dust falls to the ground. In Greenland and Antarctica, it creates a thin layer on top of the snow. This is buried by more snow. The ash layers show up in ice cores. Scientists can work out the date of the layer from how deep it is in the ice.

The Dutch researchers found volcanic ash under the ground where the Maya lived. It seems to have fallen around 1,500 years ago. The researchers believe it came from a volcano that is now in Mexico. It's called El Chichón. This volcano last erupted in 1982. This was a surprise. Many people thought that the volcano was dormant, or inactive. This was because it had not erupted for over 600 years. The 1982 eruption killed 2,000 people. Today, the volcano's 985 feet (300-meter) deep crater contains a green acidic lake.

The researchers believe that the eruption 1,500 years ago was far



bigger than the one in 1982. They say that more work is needed to prove that the older eruption had a [devastating](#) effect on the Maya. ■

## SATELLITE CONSTELLATION

On April 25, the ESA (European Space Agency) launched a satellite called Sentinel-1B. The satellite was sent into space on top of a Russian-made Soyuz rocket. The rocket lifted off from the ESA's spaceport in French Guiana.



Artist's impression of Sentinel-1B (ESA)

There are a number of Sentinel satellites. (A sentinel is a soldier or guard. Their job is to stand and watch.) Some have already been launched. Others will be sent into space in the future. The satellites are part of a system for monitoring the Earth known as the Copernicus program. It's named after a well-known astronomer called Copernicus (1473 – 1543). In his lifetime people believed that the Sun went around the Earth. They also thought that the Earth was at the center of the Universe. Copernicus was the first person to publish a book saying that the planets, including the Earth, went around the Sun.

The Copernicus program collects data about the Earth in several ways. One is from satellite images and recordings. Sensors on the ground, in the air and on the sea collect other

valuable information. Many organizations are able to use this data. For example, it can help with mapping and managing: urban areas; agriculture; forestry; fisheries; transport; tourism; health; security; climate change; sea ice; fresh water supplies; natural disasters; and humanitarian problems.



Sentinel picture of fields in France, sunflower crops in orange and maize (or corn) in yellow (ESA)

Sentinel-1A launched in 2014. The two satellites are designed to work together. They are now orbiting the Earth 180 degrees apart. The satellites create a complete map of the Earth's surface every six days. They can do this in light or dark and even if large areas are covered in clouds.

During the last two years, Sentinel-1A has helped experts record the Earth's melting ice sheets and ice caps. The satellite has monitored icebergs. Sentinel-1A has even recorded movements in the land after earthquakes and erupting volcanoes. It has counted fish cages in the Mediterranean Sea, tracked ships sailing across the oceans and detected oil spills, or slicks. Images taken by Sentinel-1A show that less rice is being produced in the Mekong River Delta this year. This is probably because of drier weather. The Mekong River Delta is in Vietnam. It is one of the largest rice-growing areas in the world.

Two hours after its radar was switched on, Sentinel-1B recorded its first image. It was of the Barents

Sea. The image included the Svalbard archipelago, or group of islands. These islands are a part of Norway.

Four Sentinel satellites are in orbit: 1A, 2A, 3A, and now 1B. Eventually, each of the "As" will have a twin or partner. These are the "Bs". Two or more satellites working together are known as a constellation. Therefore, Sentinel-1A and Sentinel-1B are the Copernicus program's first satellite constellation. ■

## FAMOUS CHURCH RENOVATION

The Church of the Holy Sepulcher is in the old city of Jerusalem, in Israel. Parts of the building are 1,700 years old. Over time, the church was enlarged. It is now a maze of different chapels, shrines and altars. The building needs repairs. These should have been done many years ago.

The way in which the church is run means that there are frequent disagreements. After years of talks, it was recently announced that repair work would start in the middle of May.

In the Christian religion, Jesus Christ is the Son of God. He probably lived in what are now Israel and the West Bank about 2,000 years ago. Christians believe that Jesus was crucified or killed for his beliefs. Their teachings say that three days later he was [resurrected](#) and went to heaven.

The Church of the Holy Sepulcher is also called the Church of the Resurrection. A sepulcher is a small room cut into the rock or built of stone. It is where a body is placed or buried. Christians believe that the church is built on the site where Jesus was crucified, buried and resurrected. Therefore the ancient

building is one of the most important religious sites for followers of the Christian faith. Thousands of Christian pilgrims visit the Church of the Holy Sepulcher every year.

Six different Christian groups look after the church. They are: Roman Catholic, Greek Orthodox, Armenian Orthodox, Syrian Orthodox, Egyptian Coptic, and Ethiopian Orthodox. What's more, traditionally, a local Muslim family keeps the keys to the building.

The different religious groups were given permission to look after the church a long time ago. What's now Israel was a part of the Ottoman Empire for hundreds of years. This empire was centered on Turkey. The never-ending arguments between the groups that looked after the church annoyed the Ottomans. In 1853 they drew up a special arrangement. It's known as the "status quo" agreement. Status quo is a Latin phrase. It means the "current state of affairs". To keep the status quo means to keep things the way they are.



Church of the Holy Sepulcher in Jerusalem

Under the status quo agreement the church was divided between the religious groups. Altars, shrines and even steps, flagstones and tiles were listed as the responsibility of one group or another.

The status quo has not stopped all the arguments. One example is a workman's wooden ladder on a window ledge above the main door. It's been there for over 100 years.

This is because one set of monks is responsible for the window and another for the ledge. Neither group will allow the other to take the ladder down. Nowadays, it's known as the Immovable Ladder.

Sometimes the monks fight against each other. In one incident Coptic monks and Ethiopians began hitting each other with their fists. It was a hot day. One Coptic monk moved his chair, so it would be in the shade. This angered the Ethiopians. The chair was just inside their area. After the fight, 11 monks needed hospital treatment.

The renovation work will take eight months and cost \$3.4 million. The three main religious groups, Roman Catholic, Greek Orthodox, and Armenian Orthodox, will share the cost. Each has chosen their own building experts to help with the renovations. The church will be open to visitors while the work is carried out. ■

## POLIO VACCINE SWITCH

Polio is an infectious disease. The virus that causes it can spread from person to person. Many years ago polio was common, especially in poor countries. In recent years, the World Health Organization (WHO) has organized mass vaccination programs. Nowadays, very few people get the disease.

There are three types, or strains, of polio. Medical experts call them type 1, type 2 and type 3. A single vaccine is given for all three. However, nobody has had type 2 polio for 17 years. Doctors are sure that this strain no longer exists. Now, a new vaccine has been made, which prevents just type 1 and 3. Medical experts say that it is safer and more effective.

The switch from the "old" vaccine to the "new" has just begun. It is happening in 155 countries. The plan is to complete the changeover within 14 days. This is a complicated process. The new vaccines must be **distributed** and old ones destroyed. The operation is being monitored, or checked, by thousands of health workers. High temperatures are needed to destroy the old vaccines. If any of them enter the water supply, they could spread the disease. Some old vaccines will be kept, just in case type 2 reappears in the future.



Young children being given a polio vaccine in southern Pakistan (UNICEF)

Edward Jenner (1749 – 1823) was the first person to realize that vaccinations could prevent certain disease. He was a British scientist. Then, a disease called smallpox was common. Most people who got this disease recovered. Around 30% died. In those days, women often worked with cows. They were known as milkmaids. Jenner noticed that milkmaids did not get smallpox. However, they did get a disease called cowpox, which was much less dangerous. Jenner didn't know about the body's immune system. Yet he suspected that a body that had "learned" how to overcome cowpox could fight off smallpox. Jenner deliberately infected some people with cowpox. This seemed to stop them catching smallpox.

In the past, people got polio when they were children. In many cases, the virus does little harm. However, if it gets into the nervous system, it can cause paralysis in the legs. Victims may never be able to walk again. Adults can get polio. Franklin D. Roosevelt was the president of the U.S. between 1933 and 1945. (Most people called him FDR.) Roosevelt got polio when he was 39 years old. It affected his legs. For the rest of his life, FDR was unable to stand or walk. He often used a wheelchair.

The first polio vaccine was developed in 1950. In the 1980s the disease was still paralyzing hundreds of thousands of children. Since then, new vaccinations have been created. Today, most young children are vaccinated against polio. A few drops of liquid, which include the vaccine, are put on their tongues.

By 1988, no one got polio in over 120 countries. Six years later the WHO declared that the Americas were “polio free”. The WHO is a part of the United Nations (U.N.). It carries out medical studies and advises governments about health care. In 2000 the WHO announced that polio no longer existed in the Western Pacific. Europe followed two years later and South East Asia in 2014. The polio vaccination program has been very successful.

Nigeria was the last country in Africa to become polio free. In 2015, 74 cases of polio were recorded. All were in Pakistan and Afghanistan. So far, this year, only ten people in these two countries have caught polio. Unfortunately, there is fighting in Pakistan and Afghanistan. This is between government forces and militant Islamic groups. A few years ago, eight people giving polio vaccines in Pakistan were deliberately

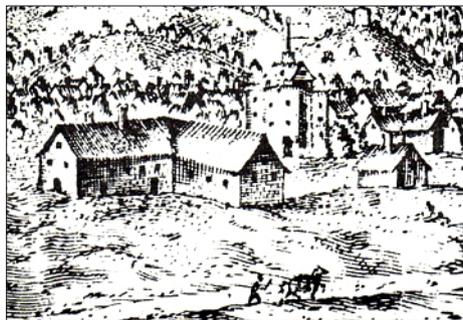
shot and killed. Now, armed guards accompany the health workers.

By 1980, smallpox was eradicated from the world. The WHO hopes that the new polio vaccine will wipe out type 1 and type 3 within the next few years. ■

## SHAKESPEARE THEATER

William Shakespeare was born in 1564. He died on April 23, 1616. Therefore, this year’s April 23, was the 400th anniversary of the famous playwright’s death. People in many countries arranged special events on this day to commemorate the anniversary.

Many people have heard of, or visited, the Globe Theater in London, the capital of Britain. This theater opened in 1997. It is almost an exact replica of one London theater in which Shakespeare’s plays were performed. The original Globe burned down in 1613. The “new Globe” was built near to where the “old one” once stood.



Four-hundred-year-old drawing of Curtain Theater (centre building with flagpole)

Two days after the 400th anniversary of Shakespeare’s death an important Shakespearean project started. Archaeologists started to excavate the remains of another theater. Called the Curtain Theater, it opened in 1577. This theater was built far from the Globe in a different part of London. The Curtain was just outside the city walls. Its

name probably came from a “curtain wall”. This is a wall between two fortifications, or bastions. The Curtain Theater closed in 1624.

Many of Shakespeare’s plays were performed at the Curtain Theater. At that time, there were a number of theaters in London. A part of the Curtain Theater was discovered in 2012. Archaeologists were excited. This was because they realized that the floor and some of the lower walls still existed. All are buried underground. More modern buildings covered part of the site. This meant that the archaeologists could not do a full investigation.



Replica of the Globe Theater, in London

Recently, a building company bought the buildings on top of the theater. It decided to knock them down and construct a large complex of shops, offices and apartments. As the buildings have gone, the archaeologists can do a full excavation. The archaeologists believe that they will find many artifacts that were used in the theater. What they discover is to become part of the new building complex. Visitors will be able to see the remains of the old theater through specially made glass walls and floors.

Many people believe that Shakespeare was one of the greatest ever writers in the English language. He is thought to have written 38 plays. Some of the best-known are: *Hamlet*, *Twelfth Night*, *Macbeth*, and *Romeo and Juliet*. Even though

Shakespeare is one of the world's most famous playwrights, not much is known about him. He was born in the town of Stratford-upon-Avon. Local records show that Shakespeare had a wife and three young children by the time he was 20. He seems to have left his family in Stratford and moved elsewhere.

What Shakespeare did next is not known. Then, at the age of 27, he is thought to have started working as an actor in London. He also began to write. In 1594 Shakespeare helped to set up a new theater company. Five years later he and some friends built the Globe Theater. Eventually, Shakespeare returned to Stratford-upon-Avon where he died. He was buried in one of the town's churches.

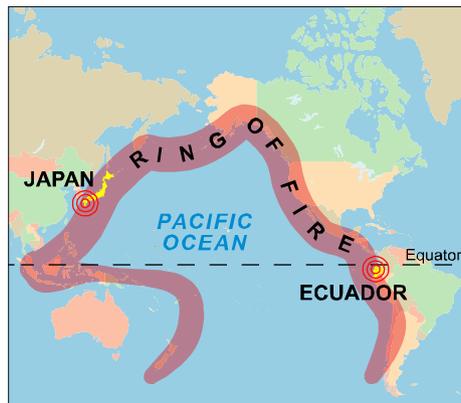
Some people find it hard to believe that the man from Stratford wrote the plays. They argue that he had little education. What's more, many of the plays are set in other countries. In those days only wealthy people traveled to these places. Many words in the plays are used in law, medicine and science. How did the man from Stratford learn about these subjects?

One theory is that a man called Edward de Vere wrote the plays. He was the 17th Earl of Oxford. De Vere was well educated. He also traveled to different parts of Europe. De Vere was a member of the royal court. Then, Queen Elizabeth the First was England's monarch. In those days people like de Vere could not publish plays or books using their own name. He may have chosen the name Shakespeare to disguise his own.

Most Shakespeare historians say that the "Earl of Oxford" theory is very unlikely. They insist that the person who wrote the plays came from Stratford-upon-Avon. ■

## RING OF FIRE EARTHQUAKES

Two earthquakes struck southern Japan on April 14 and 16. On the day of the second one, another powerful quake hit Ecuador. This South American country is on the opposite side of the Pacific Ocean. Experts said that these earthquakes were not directly connected. However, all three occurred on what's known as the Ring of Fire.



Japan is made up of four main islands: Kyushu, Shikoku, Honshu, and Hokkaido. The country has frequent earth tremors. The two recent earthquakes struck the island of Kyushu. Their epicentres were beneath the city of Kumamoto. The second was the larger of the two. It had a magnitude of 7.0.

The two earthquakes damaged houses, roads and bridges. More than 40,000 people were evacuated from their homes. The violent shaking caused several large landslides. Some of these buried houses and villages. The water supply for Kumamoto was cut. Shinzō Abe, Japan's prime minister, sent 15,000 soldiers to the area. There, many helped to search for people buried by landslides. A few days after the second earthquake, local officials said that at least 50 people were killed. Some are still missing. Over 3,000 were injured. Nearly 100

buildings were destroyed and 1,000 badly damaged.

The Earth's crust is made up of huge pieces called tectonic plates, or plates. Deep below the crust is a layer of very hot liquid rock. This is called the mantle. The plates float on the mantle. The edge of one plate can slide over or under another. These edges can also move apart or push into each other. Any sudden movements can cause earthquakes.

Japan is on what scientists call the "Ring of Fire". This is a horseshoe-shaped line, or boundary. It runs around the edge of the Pacific Ocean. The Ring of Fire marks a number of plate boundaries. Here, tectonic plates meet and bump into each other. Earthquakes and erupting volcanoes are not uncommon in countries that are on, or close to, this boundary.



*Earthquake damaged home in Ecuador  
(Agencia de Noticias ANDES)*

The most powerful earthquake ever recorded took place in Chile in 1960. Its magnitude was 9.2. Chile is also on the Ring of Fire. Ecuador's earthquake was a magnitude 7.8. Its epicenter was close to the coastal town of Muisne. This town is home to about 6,000 people. It is a popular destination for both local and foreign tourists. Muisne is approximately 110 miles (170 kilometers) from Quito, the country's capital city. Many buildings in the

capital shook when the earthquake struck.

Rafael Correa, Ecuador's president, was in Italy when the earthquake hit. He cut short his visit and flew back to his country. Soon after arriving, the president declared a state of emergency. He sent 10,000 soldiers and 3,500 police officers to the worst affected areas. Many people were trapped in collapsed buildings. Several other countries sent rescue workers to help.

The earthquake killed at least 650 people. Nearly 30,000 were injured. Thousands of buildings were destroyed or very badly damaged. The disaster was the worst to hit Ecuador since a similar size quake struck in 1949. Mr. Correa said that the damage would cost billions of dollars to repair. ■

## ENVIRONMENTAL AWARDS

A special prize giving ceremony was held in the U.S. on April 18. It took place in San Francisco, in California. The six winners of this year's Goldman Environmental Prize were presented with their awards.

Goldman Environmental Prizes are awarded every year. Nobel Prizes are given for Chemistry, Literature, Physics, Medicine, and Peace. These prizes are prestigious awards. Some people call the Goldman Environmental Prizes the "Green Nobels".

The Goldman Prizes are awarded to one person from six different geographical areas. These are: Africa, Asia, Europe, North America, South and Central America, and Islands and Island Nations. Each of the six winners receives a prize of \$170,000. They can decide how to spend the money.

The awards are usually given to individuals who have taken a personal risk to protect the environment in which they live. The organization that awards the prizes describes them as "environmental heroes".



2016 Goldman Environmental Prize winners

The awards were first made in 1990. Since then they have become an annual event. Richard Goldman and his wife Rhoda set up the awards. Mr. Goldman was a successful businessman. He and his wife decided to become philanthropists. These people use their money to help others and fund good causes. Mrs. Goldman died in 1996. Mr. Goldman passed away six years ago. Nowadays, an international jury, or panel, selects the prize-winners. Environmental organizations from around the world send their recommendations to the panel.

Edward Loure from Tanzania won the African prize. He led a campaign to make sure that local communities, or groups of native people, were given land ownership. This means that their land cannot be sold to individuals. Instead, it will pass to future generations.

Leng Ouch won the Asian prize. He is from Cambodia. Mr. Ouch took a job as a laborer in his country's forests. There, large areas of trees are being cut down, or felled, unlawfully. Mr. Ouch gathered information on these illegal activities as well as government corruption, or dishonesty.

He then passed all the information to the authorities. Mr. Ouch says that he will use his prize money to help to protect Cambodia's forests.

Zuzana Caputová from Slovakia was awarded the European prize. She is a lawyer. Ms. Caputová managed to get a large waste dump closed down. It was close to where she lives. The dump was badly managed. It was poisoning the local air, land and water.

The prize for North America was given to Destiny Watford from the U.S. She inspired local people to stop a large garbage-burning incinerator from being built close to her old high school.

Máxima Acuña from Peru won the Central and South American award. She is a farmer from Peru's highlands. Ms. Acuña refused to give up her land. If she had, it would have been used by one of the world's largest mining companies. The company wanted to mine for gold and copper. It would have drained four nearby lakes and turned one into a place to dump waste.

The Islands and Island Nations prize was awarded to Luis Jorge Rivera Herrera of Puerto Rico. He managed to set up a nature reserve on the country's coast. It took 16 years. The reserve is one of the few places where leatherback sea turtles come ashore to lay their eggs. ■

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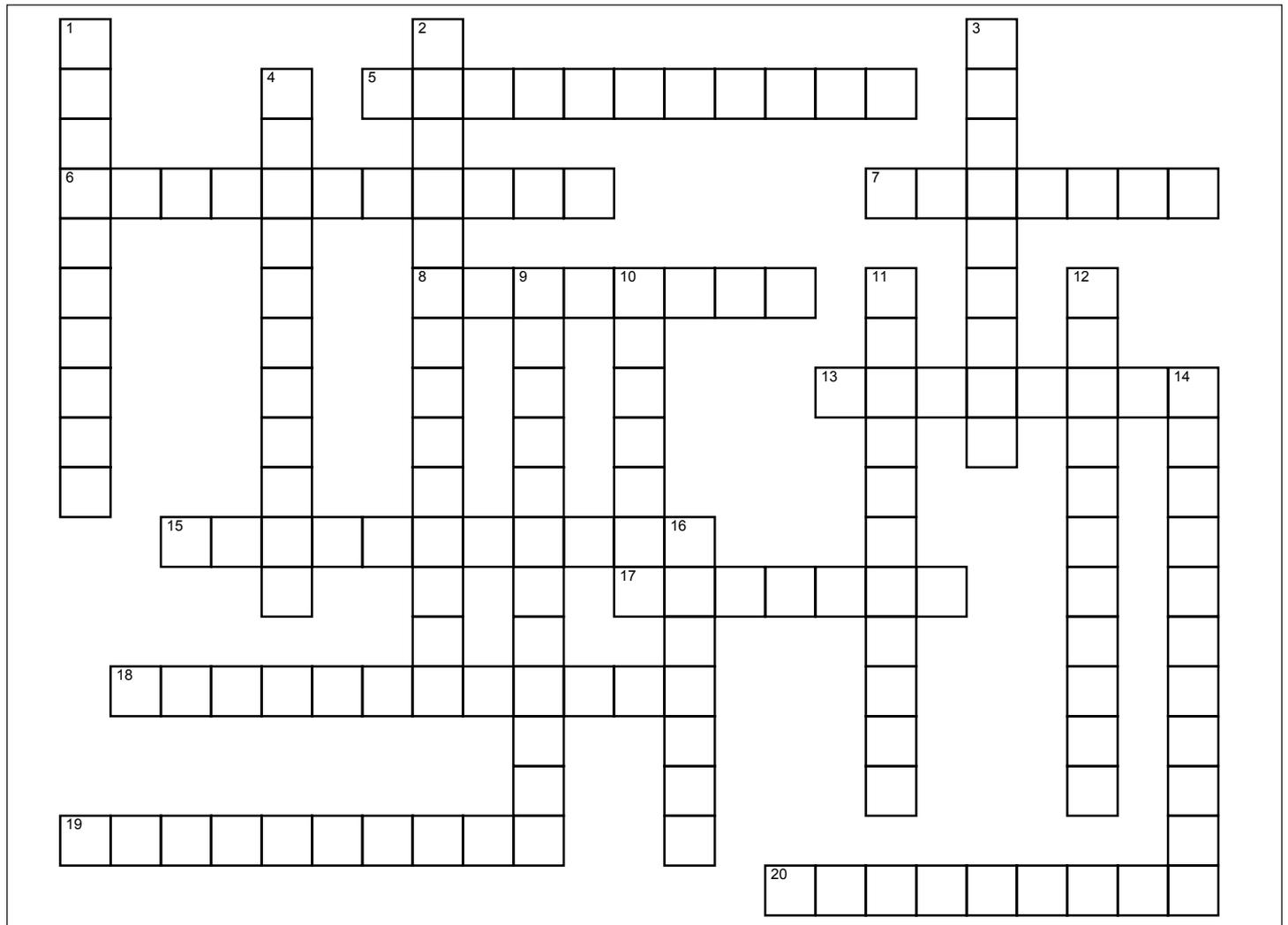
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# ISSUE 274

## 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**

- 5 *Noun* Two or more things joining or mixing together, or happening at the same time
- 6 *Adjective* Causing a lot of harm or damage
- 7 *Adjective* Unable to breed
- 8 *Noun Plural* Groups, with different ideas, within a larger group
- 13 *Verb* Approved of, or recommended someone or something
- 15 *Adjective* Describes something that is admired and respected
- 17 *Noun* A type of knife with a sharp blade used by doctors
- 18 *Noun* Something, usually money, given to make up for loss, suffering, or injury
- 19 *Noun Plural* Shaking movements
- 20 *Verb* Moved people away from a dangerous place

**Down**

- 1 *Verb* Got rid of
- 2 *Noun Plural* Walls and towers built to stop a place being attacked or captured
- 3 *Noun* A reduction in a countrys trade or prosperity
- 4 *Verb* Brought back to life
- 9 *Noun Plural* People or organizations that promise to pay or donate a sum of money
- 10 *Noun* Narrow strip of land (with sea or water on either side) that connects two larger areas of land
- 11 *Noun* Keeping a person or something from escaping or moving away
- 12 *Noun* Welcoming strangers or guests and looking after them well
- 14 *Verb* Shared or supplied
- 16 *Noun* Disgraceful and shocking event

# ISSUE 274

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

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**MISSING WORD ANSWER =**

**ISSUE 273 ANSWERS**

**I N T R U D E R**