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Apple's boss, Tim Cook, and James Comey, the Director of the Federal Bureau of Investigation (FBI)

## APPLE AND THE FBI

The American Congress (or parliament) has two elected houses, or chambers: the House of Representatives and the Senate. Some members of the House of Representatives sit on, or are part of, committees. One is called the House Judiciary Committee. It advises on laws and checks that they are fair. On March 1, James Comey, the director of the FBI (Federal Bureau of Investigation), and a lawyer who works for the Apple Company attended a committee meeting.

Members of the committee asked them questions about the dispute between the FBI and Apple. The FBI wants Apple to help it unlock, or break into, one of its iPhones. The FBI's request is part of an investigation into a serious shooting incident, which happened two months ago. Tim Cook, Apple's boss, or chief executive officer (CEO), has said that his company is unable to help.

Each of America's 50 states has its own police department, or police force. The FBI is often described as a security and law enforcement organization. It operates in every state. FBI agents take over investigations that are too big or complex for local police departments. Often these crimes involve people, or criminals, in more than one state. Mass shootings, kidnappings, drug trafficking, and terrorism are examples of crimes that the FBI investigates.

The FBI headquarters is in Washington DC, the country's capital city. The organization was set up over 100 years ago. However, it was not called the FBI until the 1930s. Today, over 35,000 people work for the FBI. Its boss is known as the "Director". The American president appoints this person.

Steve Jobs (1955 - 2011) and a friend founded the Apple Company in 1976.

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At first, Apple was based in Jobs's home. As it grew, the company moved to a nearby city called Cupertino, in California. This is where Apple still has its headquarters.

In 1985 Apple launched its Macintosh computer. This was the first small computer to have a mouse and to use onscreen icons. Thirteen years later the company began selling its iMac computers. Apple produced its first iPhone in 2007.

Jobs died aged 56. He had been ill for over one year. By this time, Apple had become one of the world's most valuable companies. Tim Cook took over as Apple's CEO. Jobs had persuaded him to work for the company in 1998. Before joining Apple, Mr. Cook worked for several large American computer companies.

On December 2, 2015 a married couple carried out a mass shooting in the city of Redlands, in California. The man was a Pakistani-born American. His wife also came from Pakistan. Yet she had spent most of her life in Saudi Arabia. The husband worked for a government-run organization. It helps people with disabilities.

After attending a party at the disability center, the man left and drove back to his house. There, he picked up his wife and several guns. The couple returned to the center. After entering the building, both started shooting. Sixteen people were killed and 24 wounded. The man and his wife then drove off. About four hours after the attack, the husband and wife were killed in a shoot out with police.

The FBI is investigating the incident. The couple seem to have become supporters of several Islamic militant groups. The incident was the worst terrorist attack in the

U.S. since 2001. Then, hijacked passenger planes were deliberately flown into buildings in New York City and Washington DC. These attacks are known as 9/11. This is because they took place on September 11.

After searching the couple's car and home, the FBI found the man's iPhone. It was a work phone. So the disability center owned it. The FBI wants to check what's stored on the iPhone. It believes that it could help with their investigation. For instance, the information may include who the man had been speaking with and to where he had traveled.



Supreme Court building in Washington DC

It was possible to access stored information on older Apple phones. Yet the company's latest iPhone has some new security features. The owner has a pin number. The phone only allows ten incorrect pin entries. After the tenth attempt, the phone automatically erases, or wipes, all its stored data. Therefore, a thief would be unable to use one of these phones if they did not know the pin number.

The FBI wants Apple to turn off the "only ten attempts" security feature on the iPhone they found. The FBI can then set up a computer program. It will keep trying lots of different numbers. Eventually, the program will find the right numbers and unlock the phone. Yet Apple

says that it cannot switch the security feature off easily. The only way to do this is to make a new "special" version of the phone's operating system. Then, after it's loaded onto the phone, the software would disable the security feature.

Mr. Cook does not want to do this. He claims that it would be very risky. If a special version of the phone's software existed, all of Apple's new iPhones could be unlocked. Once written, the software could always be "lost", stolen, sold, or copied. Mr. Cook believes that creating this software for the FBI would set a dangerous [precedent](#). He says that it would threaten the security of all Apple customers. What's more, if it were done once, Apple would probably be asked to do it again in the future.

Other big technology companies agree with Apple. They include: Amazon, eBay, Google, and Twitter. However, many people don't. They say that the FBI must be able to fully investigate serious crimes such as terrorism. These crimes, they argue, could be a danger to the whole country. Surveys seem to show that half of Americans agree with Apple and half agree with the FBI.

Some lawyers think there could be a [compromise](#). If it were not possible to get information from a phone or computer, technology companies would have to help. However, they would only have to do so for very serious crimes. Others believe a compromise is unlikely. This means the dispute may have to be judged by the Supreme Court. This is the U.S.'s most senior court. One of its jobs is to decide who is wrong and who is right when opposing legal arguments are finely balanced. ■

## RATTLESNAKE ISLAND

Wildlife officials in the American state of Massachusetts want to protect a snake. Called a timber rattlesnake, it used to live in all the U.S.'s eastern states. Numbers have declined. Now, in some states like Massachusetts, these rattlesnakes are an endangered species.

The officials want to set up a colony, or group, of timber rattlesnakes on an uninhabited island. This island is in a large [reservoir](#). Most people who live in the area are unhappy. They fear that the snakes will escape and attack their pets or even people. All snakes are able to swim if they have to.

Rattlesnakes are found throughout North, Central and South America. There are 36 known rattlesnake species. All are venomous. Their bite injects poison into their prey. Each year snakes bite about 8,000 people in the U.S. Most are rattlesnake bites, yet only a few are deadly.

Adult timber rattlesnakes are between three and five feet (0.9 and 1.5 meters) long. They feed on small birds and rodents, such as mice and rats. The snake's name comes from a "rattle" at the end of its body. It is made of keratin. (Human hair and nails are made from the same substance.) The snake's rattle is divided into segments, or sections. When the snake's muscles in its lower body contract, or squeeze, the rattle makes a noise. The rattling sound is a warning. It is supposed to scare possible predators. These could be hawks, weasels, other types of snakes, and humans.

There used to be hundreds of thousands of timber rattlesnakes in North America. In the last 30 years their numbers have fallen

dramatically. Humans kill most of them. Many die on roads. There, the snakes are run over by cars and trucks. The wildlife officials believe that there are only about 200 timber rattlesnakes in Massachusetts. They live in five different areas. None have been seen in Maine and Rhode Island, two nearby states, for many years.

The officials plan to move eight snakes to the uninhabited island. The snakes have been bred in a zoo. More will be taken to the island next year. The officials say that the total number on the island should be about 35. No more than ten will be taken there each year.



*Timber rattlesnake*

In the past the wildlife officials have helped other species to survive. Bald eagles are an example. However, many people are not happy about the rattlesnakes. The area around the reservoir is popular with hikers. Some worry that they will no longer be able to walk in these places.

The officials insist that there is nothing to fear. Timber rattlesnakes [hibernate](#) during the winter months. They do this in deep cracks in rocks. The island has good places to hibernate. Yet the area surrounding the reservoir has fewer rocks. The officials say that any snake leaving the island will die in the winter, if it does not go back. The officials plan to track the snakes. They will therefore return any that manage to

leave the island. What's more, no one has died from a rattlesnake bite in Massachusetts for over one hundred years.

Nowadays, many cultures and religions view snakes as bad, dangerous and untrustworthy. This has not always been true. Before Europeans arrived in Central America, it was home to the Aztecs. They worshiped a god who was half bird and half rattlesnake. Aztec sculptures and jewelry often includes rattlesnake images. ■

## "No" VOTE IN BOLIVIA

A referendum, or vote in which all adults can take part, was held in Bolivia on February 21. The vote was to decide if the president, Evo Morales, could stand for a fourth term as the country's leader. Mr. Morales has been Bolivia's president since 2006. He has won three elections. The most recent was in 2014. The next one will take place in 2019.

Bolivia became an independent nation 180 years ago. Until then, it had been ruled by Spain. About 60% of Bolivians are [indigenous](#) people, or native Indians. The others are mixed race. They have both Spanish and native Indian ancestors. These people often call themselves "mestizo".

Traditionally, in Bolivia, mestizo people are wealthier than native Indians. They also have the better jobs as well as important positions in the government. Mr. Morales has worked to change this. He is the first indigenous person to be elected as Bolivia's president. Since becoming the country's leader, Mr. Morales has often tried to do things that help native Indian people.

Mr. Morales is a socialist. He believes that the country's wealth should be more equally divided between mestizos and indigenous people. Bolivia has large amounts of oil and gas. Much of this is sold to other countries. Mr. Morales decided to nationalize these industries. This means that their owners were forced to sell them to the Bolivian government. Then, the world price of oil and natural gas was high. At first, this helped Bolivia's economy. Mr. Morales has also nationalized other industries such as the country's telephones, electricity, railways, and some mines.



*Bolivia's president, Evo Morales*

Mr. Morales has reduced the amount of poverty in Bolivia. His critics say he has only been able to do this because of the country's oil and gas. Over 80% of the money Bolivia earns from other countries comes from oil and gas. They say that the country is too **reliant** on this industry. Nowadays, in most parts of the world, nationalizing companies is unusual. Many people claim that government-run companies are inefficient and badly managed. Some argue that nationalising companies increases corruption, or dishonesty.

Mr. Morales has never married. Often a president needs to have a partner at some events or ceremonies.

(A president's wife is usually called the First Lady.) When needed, Mr. Morales's older sister acts as Bolivia's First Lady. Mr. Morales has three children. They all have different mothers. News about the president's relationship with the mother of his third child has damaged his popularity.

Until recently, nobody knew about this woman. Her name is Gabriela Zapata. Mr. Morales admitted that he had a relationship with Ms. Zapata in 2005 when she was 18 years old. He claimed that it lasted for two years and that he had fathered a child. Today, Ms. Zapata is one of the senior bosses of a Chinese company that works in Bolivia. Called CMAC, it is a big engineering firm. The Chinese company has several multi-million dollar contracts with the Bolivian government.

Some people accuse Mr. Morales of corruption. They claim that he asked CMAC to employ his girlfriend. The company was then given several large government contracts. Mr. Morales insists that this is untrue. He has asked government officials to investigate how contracts were agreed with the Chinese company.

In the referendum, 51% of the people who took part voted "no". They do not want Mr. Morales to stand for a fourth term in 2019. Mr. Morales said that the result was disappointing. ■

## MOBILE WORLD CONGRESS 2016

The Mobile World Congress (MWC) is an annual event. It is held in Barcelona, Spain's second largest city. The MWC lasts for four days. Mobile device companies from all around the world take

part. This year's MWC took place between February 22 and 25.

Cell phone companies often introduce and display their new designs, products and services at the MWC. They also make announcements about partnerships and working with other companies. The first MWC in Barcelona was in 2011. Then, the event was described as "the world's largest mobile phone show".



The MWC takes place in a huge exhibition hall. This year there were 2,200 exhibitors from many countries. Exhibitors are companies or organizations that set up stands in the hall. Over 100,000 people visited the hall over the four days. Each year the MWC has a theme, or slogan. This year's was "Mobile is everything".

Many mobile device company bosses attend the show. Several make speeches. Others take part in panel discussions. During these, members of the audience can ask questions. The bosses and senior managers of mobile companies often meet with each other at the event. Business deals, or arrangements between them, are discussed.

At this year's show new smartphones made by Samsung and LG were unveiled. Both of these companies are from South Korea. Chinese mobile manufacturers Huawei and Xiaomi also introduced their new phones. HTC, from Taiwan, and Sony, from Japan, were some of the bigger exhibitors at the event.

In the past, only companies that made cell phones, or devices that worked with them, attended the MWC. This has changed. Last year, for example, many discussions at the show were about smartwatches and what's now called "wearable tech". This year the **emphasis** was on "the internet of things" and virtual reality (VR).

The name "internet of things" (also known as IoT) was first used about 15 years ago. "Things" means many types of separate devices. These can be connected to each other via the internet. One example used to demonstrate what is meant by the internet of things is somebody's home. Here, it would be possible to turn the heating on, off, up, or down from a smartphone. This could be done when the homeowner is at work. Alternatively, the heating could automatically turn off if a smartphone (and therefore its owner) left the building. In a supermarket, a person might use their phone to look inside their refrigerator and kitchen cupboards. They can check what they need to buy. Garbage bins could send messages if they needed to be emptied.



Entrance to Mobile World Congress 2016

Many companies are now spending a lot of money developing VR headsets. Instead of watching the movie of a story on a screen, a person using a VR headset can be "in" it. In future, the data from which a VR headset creates its 360° view will be sent via the internet.

Samsung demonstrated its Gear VR headset at the MWC. Afterwards, Mark Zuckerberg spoke. He is the boss of the Facebook Company. Two years ago Facebook bought a VR technology company called Oculus. Samsung and Oculus have worked together to create the Gear VR headset. Sony and HTC both plan to start selling their new VR headsets within the next few months. ■

## GIANT ARCTIC BIRD

Ellesmere Island is in the far north of Canada. It is close to the northern part of Greenland. About 45 years ago a small bone was found on the island. Researchers from universities in the U.S. and China have recently studied the fossilized bone for the first time. Their **conclusions** are surprising.

The researchers say that the bone belongs to a giant bird. It came from one of the creature's toes. This bird, known as *Gastornis*, could not fly. The toe bone matches one from a *Gastornis* skeleton dug up in the state of Wyoming, in the U.S. Fossilized bones from these large birds have been found in Britain, Belgium, France, and Germany. Bones from a similar giant bird have been uncovered in China. However, Ellesmere Island is much farther north than any of these other places.

The giant bird was about six feet (1.83 meters) tall. It had a large horse-sized head. Some time ago it was thought that *Gastornis* preyed on small mammals. So the bird was a carnivore, or meat-eater. Yet scientists now believe it was a plant-eater, or herbivore. Birds that eat meat have hooked claws, or talons.

*Gastornis* did not have talons. The bird had a big powerful beak. The scientists think it was used to pull nuts, seeds and hard fruits from tree branches and bushes.

Scientists divide the history of the Earth into eons. These are subdivided into shorter time periods called eras. Eras can contain a number of epochs. Our current epoch is the Holocene, which is part of the Cenozoic Era. *Gastornis* lived during the Eocene Epoch. This was between 56 and 34 million years ago. (The dinosaurs died out at the end of the Cretaceous, or 66 million years ago.)



Artist's impression of *Gastornis* (Marlin Peterson)

During the Eocene, the world was much warmer than it is now. Then, Ellesmere Island would have been about 32°F (0°C) in winter and 68°F (20°C) in the summer months. Today, temperatures on Ellesmere Island drop to -36°F (-38°C) in winter. The warmest summer days are about 43°F (6°C). During the Eocene the climate on Ellesmere Island would have been similar to the swamps in Florida, or the Southeast of the U.S., today.

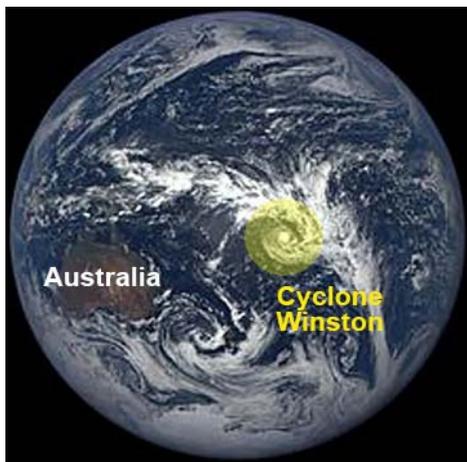
Ellesmere Island is north of the Arctic Circle. In winter, there is hardly any daylight in places north of this imaginary line. Therefore it is dark for most of the time. In summer the opposite happens. The days are very long and there is not much darkness.

Although temperatures were warmer when *Gastornis* lived in this part of the world, the hours of daylight and darkness were the same.

Scientists say that *Gastornis* was not the only creature that lived on Ellesmere Island during the Eocene. They have found the fossilized bones of many others. These include: turtles, alligators, primates, tapirs, as well as two large mammals. These big animals were like hippos and rhinos. ▣

## CYCLONE STRIKES FIJI

A **destructive** cyclone struck Fiji, a Pacific island nation, on February 20. With wind speeds of up to 180 miles (285 kilometers) per hour, the storm wrecked houses, ripped up trees and ruined crops. Weather experts said that it was the most powerful cyclone ever recorded to hit Fiji.



Satellite image of the western Pacific Ocean

Fiji is a group, or archipelago, of around 320 islands. About 110 are inhabited. The country is home to 860,000 people. Nearly 90% live on the two largest islands: Viti Levu and Vanua Levu. Suva, Fiji's capital city is on Viti Levu. The Fijian islands were a British colony for about 100 years. Fiji became an independent nation in 1970. The British brought

people from India to Fiji. There, they worked as laborers in the sugar cane fields. Today, about 40% of the population are Indo-Fijians. They are descended from the people who came from India.

Unlike the land areas of many Pacific nations, Fiji's main islands are not coral atolls. Volcanoes formed the islands millions of years ago. Fiji has many natural resources. These include: gold, copper, undersea (offshore) oil, timber or wood, and fish. The country produces large amounts of sugar. This is made from both sugar cane and sugar beet. Fiji also makes a lot of money from tourism. Its sandy beaches and all-year-round warm weather are popular with visitors from Australia, New Zealand and the U.S.

Cyclones are storms that bring powerful winds and heavy rainfall. Similar storms in the Atlantic and eastern Pacific Oceans are called hurricanes. In South East Asian countries, these devastating storms are known as typhoons. Cyclones are those that develop in the Indian Ocean, around the Australian coast and the western Pacific.

Cyclones have an "eye". This is a central area of low pressure. Within the eye, it is very calm. Yet the winds swirling around it are the deadliest part of the storm. The eye of a cyclone usually has a diameter of about 25 miles (40 kilometers). Yet some can be far bigger. In the western Pacific, most cyclones develop between the months of November and April. This time of the year is often called the "cyclone season". When these powerful storms form, they are given a name. The cyclone that hit Fiji was called Cyclone Winston.

As Winston approached, people were told to go to cyclone shelters. These are stronger buildings

or specially constructed shelters. The winds blew down trees and power lines. About 90% of people lost their electricity supply. Houses in Fiji are often made from wood. Sheets of tin, or corrugated iron, are used for their roofs. Many of these houses were wrecked by the winds. Officials say that at least 40 people were killed and many more injured. Tens of thousands of people lost their homes. Frank Bainimarama, Fiji's prime minister, said that the storm was "an **ordeal** of the most grievous kind".



Some of the damaged homes in Fiji

Australia, New Zealand and France have a special agreement in this part of the world. They quickly send aircraft to islands that have been struck by storms or earthquakes. These aircraft are loaded with emergency supplies and communication equipment. Navy ships from Australia and New Zealand arrived in Fiji about one week after the cyclone. They brought more supplies and helicopters. These can be used to visit the more remote islands. China, India and South Korea all agreed to send money to help to pay for rebuilding work. ▣

## LEAP YEAR DAY

This year, 2016, is a leap year. It has 366 days and not 365. Every fourth year is usually a leap year. The extra day is added at the end

of February. In leap years, February has 29 days instead of 28. Some people call this extra day, or February 29, “Leap Day”.

Leap years are necessary because of the time the Earth takes to orbit, or circle, the Sun. One orbit is roughly one year. The Earth does not circle the Sun in an exact number of days. It takes 365.2422 days, or 365 days, five hours, 48 minutes and 46 seconds to complete its journey. Scientists call this “exact year” a tropical, or solar, year. Therefore a solar year has an extra 0.2422 of a day, or approximately six hours.

A solar year is the time it takes the Sun to go from one spring (or vernal) equinox to the next spring equinox. In the international calendar the vernal equinox is on the 20th or March 21. Many people who live in the northern hemisphere judge this day to be the start of spring. Equinox comes from two Latin words. They mean “equal” and “night”. There are two equinoxes in each year. One is in the spring and the other in the fall. Both mark the days on which the hours of darkness and daylight are almost exactly the same.

If every year had 365 days, the calendar would be short by almost six hours. Over time these six-hour periods would add up to days, weeks and then months. After 100 years, the 20th or March 21, would be out of sync with the spring equinox by about 24 days. This is what happened a long time ago. Fortunately, the Romans understood the problem. The “leap year” is over 2,000 years old. It was introduced by one of Rome’s most famous leaders: Julius Caesar (100 – 44 BCE). He changed the calendar so that every fourth year was 366 days and not 365. Each year was therefore 365.25 days long. This

calendar is known as the Julian calendar. It (as well as the month of July) was named after Caesar.

However, even though it was more accurate, the Julian calendar didn’t fully solve the problem. A solar year is about 11 minutes shorter than 365.25 days. Over hundreds of years these 11-minute “differences” added up. The calendar began to “slip” again. For every 400 years it became out of sync by about three days.

February 2016						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	1	2	3	4	5

In 1582, the pope, or leader of the Catholic Church, altered the calendar. It was moved forward by ten days to correct the problem. New rules for leap years were introduced. Now, if a year is divisible by 100, it is not a leap year. Yet if it can be divided by 400, it is a leap year. For example, the year 2000 was a leap year, but 2100 won’t be one. The pope who corrected the Julian calendar was Gregory the Thirteenth. This is why the international calendar (or the one we use today) is also known as the Gregorian calendar.

The Gregorian calendar is very accurate. Yet, like the Julian calendar, it does not exactly match the Earth’s journey around the Sun. It is out by about 27 seconds every year. This is equal to one day every 3,326 years.

Normally, it is a man who asks a woman to marry him. In some countries there is a tradition that a woman can ask the man. Yet she can only propose marriage on 29th

February. Some argue that February 29, should be a holiday. Nowadays, many workers are paid annual salaries. Their salary is the same in a year with 365 or 366 days. Therefore, in a leap year, they work for an extra day without pay. ■

## IRELAND’S INCONCLUSIVE ELECTION

A general election was held in Ireland on February 26. The result was inconclusive. This means that no party was a clear winner. The following day, Enda Kenny, the country’s prime minister, admitted that his government had not been reelected. Mr. Kenny is the leader of a political party called Fine Gael (pronounced “Fina Gale”). In Ireland the prime minister is known as the Taoiseach (pronounced “t-shock”).



Enda Kenny, the prime minister of Ireland

Ireland’s official name is the Republic of Ireland. For many years it was a part of Britain. The country became an independent nation in 1921. Today, the population of Ireland is about 4.5 million. There were several famines in the country in the 1800s. Thousands of people were either forced, or chose, to leave. The ancestors of many Americans, Canadians, Australians, and New Zealanders came from Ireland. About 80 million people, in different parts of the world, are of Irish descent. They are known as the Irish Diaspora.

Ireland's two main political parties are Fianna Fáil and Fine Gael. Fianna Fáil (pronounced "Fina Foil") is often translated as "Soldiers of Destiny". Fine Gael means "Gaelic Nation". Gaelic relates to the language and culture of the ancient Celtic people. Many people now living in Ireland and parts of Britain are descended from the Celts.

Members of Fianna Fáil and Fine Gael have similar political views. Both parties date back to the Irish War of Independence. At that time, Ireland was part of Britain. In 1921 the British government signed an agreement with Irish leaders who were fighting for independence. Called the Anglo-Irish Treaty, it brought an end to the war. Ireland became a free state, or independent country. However, the northeastern part, known as Northern Ireland, decided to remain as part of Britain.

After the treaty was signed, a civil war broke out in Ireland. It was between those who agreed with the treaty and those didn't. The people who disagreed said that any treaty with Britain must include the whole of Ireland. They wanted the north to be a part of Ireland. Those who supported the treaty won. The war ended in 1923. People who supported the treaty formed Fine Gael. Those who were opposed to it created Fianna Fáil. The third-largest political party in Ireland has usually been the Labour Party. It was formed in 1912.

Between 1968 and 1998 militant Protestant and Catholic groups in Northern Ireland fought against each other. This 30-year period is known as "The Troubles". The main militant Catholic group, known as the Irish Republican Army (IRA), wanted Northern Ireland to become part of the Republic of Ireland. The Protestant political and militant

groups insisted that it should remain a part of Britain. In 1998 the British and Irish governments managed to get the opposing groups to accept a peace agreement. Later, elections were held. Now, members of Catholic and Protestant political groups jointly govern Northern Ireland.



Sinn Féin (pronounced "Shin Fain") is a political party that was connected with the IRA in Northern Ireland. Its name means "ourselves". In recent years Sinn Féin has also taken part in elections in the Republic of Ireland.

Elections in Ireland are held at least once every five years. The country's parliament has 157 seats. To have a majority, or be able to out-vote all the others, a party needs at least 79 seats. The last election was in 2011. Then, Fine Gael won with 76 seats. It agreed to form a coalition, or work, with the Labour Party, which got 33 seats. However, this time Fine Gael got 49 seats and the Labour Party just six. Fianna Fáil now has 44 seats. Sinn Féin increased its number of seats to 23. Smaller parties and independent politicians won the remaining seats.

To get close to a majority, Fianna Fáil or Fine Gael would have to work with Sinn Féin. Yet none of the three parties would do this. Sinn Féin would not agree. Its political opinions are very different. Many people think that Fianna Fáil and Fine Gael will have to form a coalition. They have similar beliefs. Yet these two parties have been rivals for nearly 100 years. Until an agreement is made, Mr. Kenny will continue to be the Taoiseach. If a coalition with a majority cannot be formed, another election will have to be held. ■

## MONARCH BUTTERFLY INCREASE

Most of the world's monarch butterflies are found in North America. There are two main populations. One lives to the west of the Rocky Mountains and the other to the east. The eastern population is well known for its migration. Each year these butterflies travel from southern Canada and the U.S. to Mexico and back again.



Monarch caterpillar and butterfly (William Warby)

However, unlike migrating birds, individual butterflies do not complete the journey. Some people describe their migration north as a relay race. Because of their short life cycles, the insects stop and breed on the way. The descendants of the butterflies that start the northward journey

complete it. Some monarch butterflies spend the summer in southern and eastern Canada. When it's time to fly south to Mexico, they have to cover a distance of 3,400 miles (5,500 kilometers).

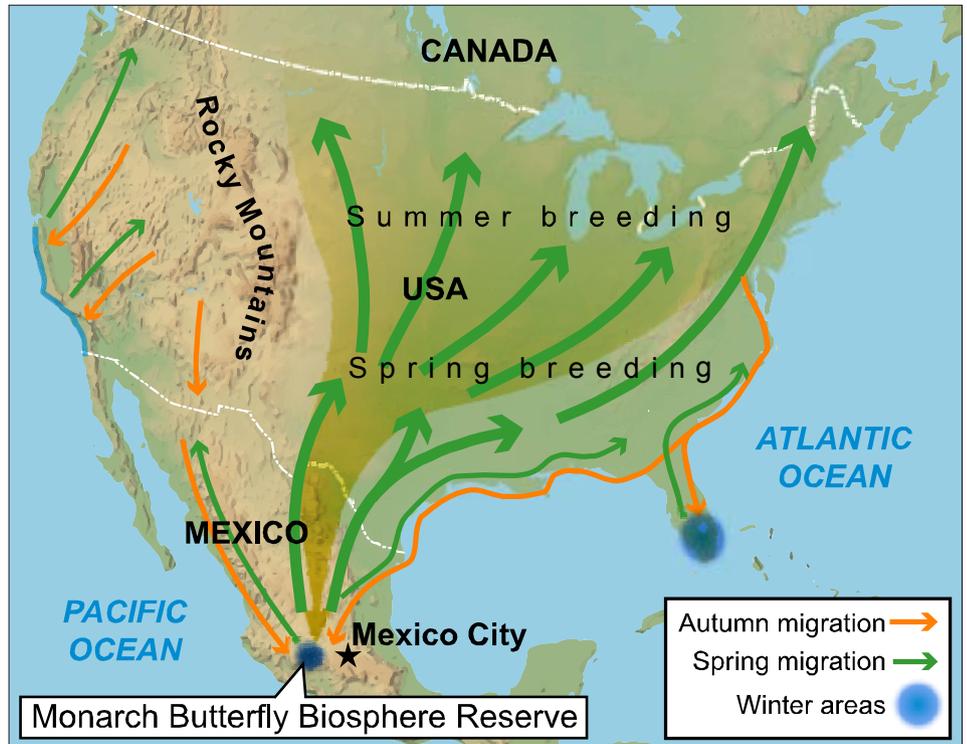
A monarch butterfly's wings are reddish-orange. Each wing has a black border with white spots within it. The wings also have black vein-like markings. Some people say that the monarch butterfly's wings remind them of stained glass windows. When its wings are open, a monarch butterfly is about four inches (ten centimeters) across. Males are slightly bigger than females.

In Mexico, the butterflies gather, or congregate, in one area. It's within a pine forest, which grows in a range of mountains called the Sierra Madre Oriental. This forest is about 62 miles (100 kilometers) from Mexico City, the country's capital. Now, this forest area is protected. It is called the Monarch Butterfly Biosphere Reserve. The butterflies arrive in November and begin to leave the following May.



Monarch butterflies on pine trees in Mexico

The butterflies fly north in spring. During this time their life cycle is short. Each adult lives for two to six weeks. They mate several times. The female lays its eggs on milkweed plants. These take three to 15 days to hatch. The larvae that emerge from the eggs eat the milkweed leaves. Monarch butterflies lay eggs only on milkweed



plants. The larvae quickly grow into caterpillars. After two weeks, they attach themselves to a leaf or twig. There, the caterpillars form chrysalis. They have a hard outer covering. After another period of two weeks, the chrysalis split. Then, the adult butterflies emerge. Their wings quickly harden and they can fly. The adults feed on nectar.

The monarch butterflies that emerge from their chrysalis in the fall behave in a slightly different way. On the return journey to Mexico they do not breed. They also live longer. As these butterflies feed, they build up extra fat in the lower parts of their bodies, or abdomens. They eventually arrive at the mountain forest in Mexico in November. Here, the butterflies almost completely cover many pine trees. In winter the insects are inactive. During this time, they live off the fat stored in their abdomens. In mid-February the butterflies start to move and look for nectar. They mate but die soon afterwards. It is

their offspring that begin the northward journey. Each migration cycle is completed by five or more butterfly generations.

Millions of butterflies arrive at the reserve in November. Officials do not count them. Instead, they work out the area of trees covered by the insects. Twenty years ago the butterflies covered about 0.08 square miles (0.2 square kilometers). This area then got smaller every year. In 2013 it was only 0.003 square miles (0.007 square kilometers). Yet, for the last two years it has been increasing. Officials say that this year the area is 0.015 square miles (0.04 square kilometers). They calculate that this represents about 140 million butterflies.

In recent years, wildlife officials in Mexico, the U.S. and Canada have been working together to increase the butterfly numbers. In Mexico, some of the forest trees were unlawfully cut down. This has been stopped. In the U.S. and Canada, fewer pesticides (chemicals that

kill insects) are being used and more milkweed planted. The officials hope that by 2020 there will be 220 million butterflies in the reserve.

The monarch butterflies that live on the west side of the Rocky Mountains only migrate a short distance. Some near the east coast of the country spend the winter months in southern Florida. ■

## FLYING SCOTSMAN RETURNS

The *Flying Scotsman* is one of the world's best-known trains. Built in 1923, it is a steam locomotive. The train has been [restored](#). The project took ten years. On February 25, the *Flying Scotsman* made an [inaugural](#) journey from London, Britain's capital, to the city of York. Tens of thousands of people lined the railway tracks to see the famous train.



*Flying Scotsman in 1924*

Scotland is the northern part of Britain. Its capital is the city of Edinburgh. The *Flying Scotsman* was designed to travel between London and Edinburgh. The train was named after this passenger service, which is still called the *Flying Scotsman*. A train service between the two cities began in 1862. Steam trains burned coal and needed a lot of water. They had to stop to load more fuel and water. The design of the *Flying Scotsman* meant that it did not have to do this. It traveled from London to Edinburgh non-

stop. The 392 mile (631-kilometer) journey took eight hours.

The *Flying Scotsman* is 70 feet (21 meters) long and weighs 96 tons. In 1934 it became the first train to go 100 miles per hour (160 kilometers per hour). Some people believe that a train called the *City of Truro* traveled at this speed in 1904. It was fully laden and running down a slope. Then, timing devices were not so accurate. Railway historians say that the *Flying Scotsman* is the official 100 miles per hour record holder. The train has appeared in many movies and books. An image of it has also been used on coins.



*Restored Flying Scotsman*

By 1963 most trains in Britain were powered by electricity or diesel. The railway company that operated the *Flying Scotsman* announced that it would be scrapped. The metal from which the train was made would be sold. A businessman offered to buy the engine. In 1969 he shipped the *Flying Scotsman* to the U.S. There, it was used to pull carriages used by tourists. However, the business was not a success. The businessman's company had to close down. Then, another wealthy businessman bought the train and transported it back to Britain.

In 1988 Australia celebrated its bicentennial. This was the 200th anniversary of the start of a British colony called New South Wales, on Australia's east coast. As part of the celebrations, the *Flying Scotsman*

was sent to Australia. During the next 12 months, it traveled 28,000 miles (45,000 kilometers) on Australian railways. There, the train set another record. It ran for 422 miles (679 kilometers) without stopping. This is the longest non-stop journey ever made by a steam locomotive. So far, in total, the *Flying Scotsman* has traveled about 2.5 million miles (four million kilometers).

In 2004 the *Flying Scotsman* was bought by Britain's National Railway Museum, in York. It has spent \$5.9 million on the restoration project. The world famous train can now be seen at the museum. It will also be used for special trips around Britain.

On its recent journey to York, the *Flying Scotsman* was late arriving. On the way it had to stop several times. This was done for safety reasons, as so many people crowded close to the railway tracks to take photographs. ■

## THE EARTH'S FIRST ANIMAL?

It's thought that there are around nine million animal species on the Earth. So far, 1.2 million of them have been recorded, or documented. Nearly all scientists agree with the "Theory of Evolution". If it is correct, all animals have a common ancestor. This form of life lived hundreds of millions of years ago. Scientists often wonder what the first animal was. Now, a group of American researchers believe that they know the answer.

Geologists, or scientists who study rocks, use a time chart. It is based on the age of layers of rock, or rock strata. The Earth is about 4.5 billion years old. Geologists divide the planet's history into periods, eons

and eras. Each lasts for many millions of years.

Nowadays, most people believe that life on the Earth began with tiny organisms. These had a single cell. Scientists try to trace evolution by studying fossils. Fossils can be found in many of the Earth's rocks. Older layers of rock are beneath more recent ones. From fossils in each rock layer it is possible to trace how life-forms slowly changed, or evolved. The progression of fossils, from small microbes to much more complex forms of life, is known as the fossil record.

From the fossil record scientists know that something unusual happened around 545 million years ago. It's called the Cambrian explosion. This was a sudden "burst" of evolution. The simple organisms, which had lived on the Earth for many millions of years, began to change. Within a much shorter period they had evolved into life-forms that would eventually become the plants and animals found on the Earth today.



Sea sponge (NOAA)

The Cambrian explosion name is misleading. It was not instant. The burst of evolution took place over a period of between ten and 20 million years. In the history of evolution, this is very fast. Why this happened at this time is a mystery. However, many scientists now think that it might be linked to a sudden increase in the amount of oxygen

in the air. The life-forms that appeared during the Cambrian explosion lived in the sea. Creatures did not appear on the land until much later. In the fossil record, the first rocks that contain impressions of tetrapods, or land animals, are 370 million years old.

It seems unlikely that only single-celled life-forms existed before the Cambrian explosion. Yet the fossil record before 545 million years ago is not clear. Scientists are sure that "Cambrian explosion creatures" evolved from other multi-celled animals.

The American researchers have been studying what are known as molecular fossils. These are tiny molecules found in some rocks. The molecules are all that remain of an animal after it has decayed, or rotted away. The researchers have found molecular fossils in 640 million-year-old rocks. The rocks were discovered in Oman.

Using gene technology, the researchers have compared the molecules with modern day creatures. Only one seems to match: sea sponges. The researchers' work suggests that sea sponges were living in the Earth's seas 640 million years ago. This is much earlier than any other known multi-celled animal. Sea sponges are animals not plants. Therefore it's possible that they were the Earth's first animals.

Today, there are at least 5,000 sea sponge species. They are simple multi-celled creatures. Sea sponges do not move. They do not have muscles, nerves or organs. Nor do they have heads, brains, eyes, ears, arms, and legs. Yet sea sponges filter the water for oxygen and plankton. Plankton are tiny sea organisms. Sea sponges and many other sea creatures feed on them. ■

## MARS RECALL

The Mars Company is one of the world's biggest chocolate makers. On February 23, it announced a product recall. A company official explained the reason for the recall. He said that a person in Germany had found a small piece of plastic inside a Snickers bar. The chocolate bar was made at the company's factory in the Netherlands.



Some of Mars' well-known chocolate products

Product recalls happen when a company finds out that an item, or items, it has made might be dangerous. The company asks everyone who has bought the items and the shops where they are sold to return them. Announcing a recall can be a difficult decision for a company to make. When they happen bosses are worried about their company's reputation. Recalls are very expensive, yet protecting the company's reputation is more important.

Today, Mars is one of the biggest food companies in the world. Its well-known brands include: M&M's, Snickers, Galaxy, Mars, Milky Way, Twix, Wrigley's chewing gum, Uncle Ben's rice, Dolmio pasta sauce, and Pedigree pet food. Mars' headquarters is in the U.S. The company is still owned by the

descendants of its founder. It is one of the U.S.'s biggest privately owned businesses. Last year, Mars' total sales worldwide were about \$33 billion.

In 1911 Franklin Clarence Mars (1883 – 1934) set up a sweet making company in Washington state. It was called the Mars Candy Factory. The factory was not a success. Mars and his wife then moved to the state of Minnesota. In 1920 he built another factory. A few years later it became the Mars Company. At that time, a type of milkshake was very popular. Franklin's son, Forrest Mars (1904 – 1999), had an idea. He decided to make a chocolate bar that was like a milkshake. They named it "Milky Way". It became a best seller. In 1929 Franklin moved the factory to the city of Chicago. The following year he created the Snickers bar.

Forrest and his father had a disagreement. Forest wanted the company to set up in other countries. His father said no. Forrest left and moved to Britain. There, he set up his own chocolate business in 1933. It was called Mars Limited. Forrest "invented" the Mars bar and Maltesers. These were made at the British factory. Later, Forrest returned to the U.S. and started a food company. After his father's death, Forrest merged all the companies into one. When he died, Forrest was one of America's richest people. The ownership of the Mars Company passed to his three children.

The Netherlands factory was opened in 1963. It is in a town called Veghel. With 1,200 workers, it is one of the biggest chocolate factories in the world. The company official said that the piece of plastic found in the Snickers bar came from a cover in the factory. The product recall affects 55 countries. It applies to certain chocolate bars

and sweets. None of them were sent to the U.S. This is the first time that items made at the Veghel factory have needed to be recalled. The recall operation is expected to cost millions of dollars. ■

## YEAR OF THE OTTER

An organization called the International Otter Survival Fund (IOSF) has declared that 2016 is the Year of the Otter. The IOSF works to help all the world's otters. It hopes that the Year of the Otter will make people more aware of the need to protect and look after these semi-aquatic animals.

Otters are found on all the world's continents, except Australia and Antarctica. There are 13 otter species. In recent years, especially in Asia, their numbers have been quickly declining. All types of otter are now endangered. Some species spend most of the time in the water. Others prefer to be on land. These otters often only enter the water to find food. Otters mainly eat fish, but will also feed on frogs and crabs.



Otters are related to the weasel family. They have webbed feet, which help the animals to swim. Most have sharp claws and powerful tails. Unlike other animals that spend a lot of time in the water, otters

do not have a layer of fat, or blubber. This layer keeps animals warm. Instead, when wet, air is trapped in an otter's fur. This air works like a layer of warming **insulation**. Otters can stay under water for between four and eight minutes.



*European otter*

Of all the species, giant otters are the largest. Male giant otters can be 5.6 feet (1.7 meters) in length. The females are slightly smaller. Giant otters live in South America. Giant otters have short fur. They live close to freshwater rivers and streams. These otters dig tunnels in the riverbanks. An otter's home is called a den. Like most of the others, giant otters live in groups. They are very noisy. The animals seem to be constantly communicating with each other.

Sea otters live along the coasts of the Northern Pacific Ocean. They have small round faces. Males are 4.9 feet (1.5 meters) long. Weighing up to 100 pounds (45 kilograms), sea otters are heavier than all the other species. Sea otters spend most of the time in the water. Their main source of food is shellfish. They can be seen using stones, or pieces of wood, to break open shellfish.

The other main otter species are the North American otter and the

European otter. The North American species lives in the U.S. and Canada. They too live near rivers. These otters seem to be able to survive in both warm and cooler water. However, they are very sensitive to water pollution. If a river in the U.S. is polluted, it will not contain any otters. Like other otters, the European otter has brownish fur. Yet it also has some white markings. These are under the face and down towards the animal's stomach, or belly. Each European otter has slightly different white markings. Even though they are called the European otter, this species also lives in Africa and Asia.

In the past all otters were hunted for their fur. This still happens in places like China. Not long ago nearly 800 otter skins, or pelts, were discovered in a part of China called Tibet. In parts of Asia, otters often become caught in fishermen's nets.

People who work with the IOSF have recently traveled to places like Cambodia, Bangladesh and Indonesia. There, they have trained local people to protect otters. ■

### JAT PROTESTS

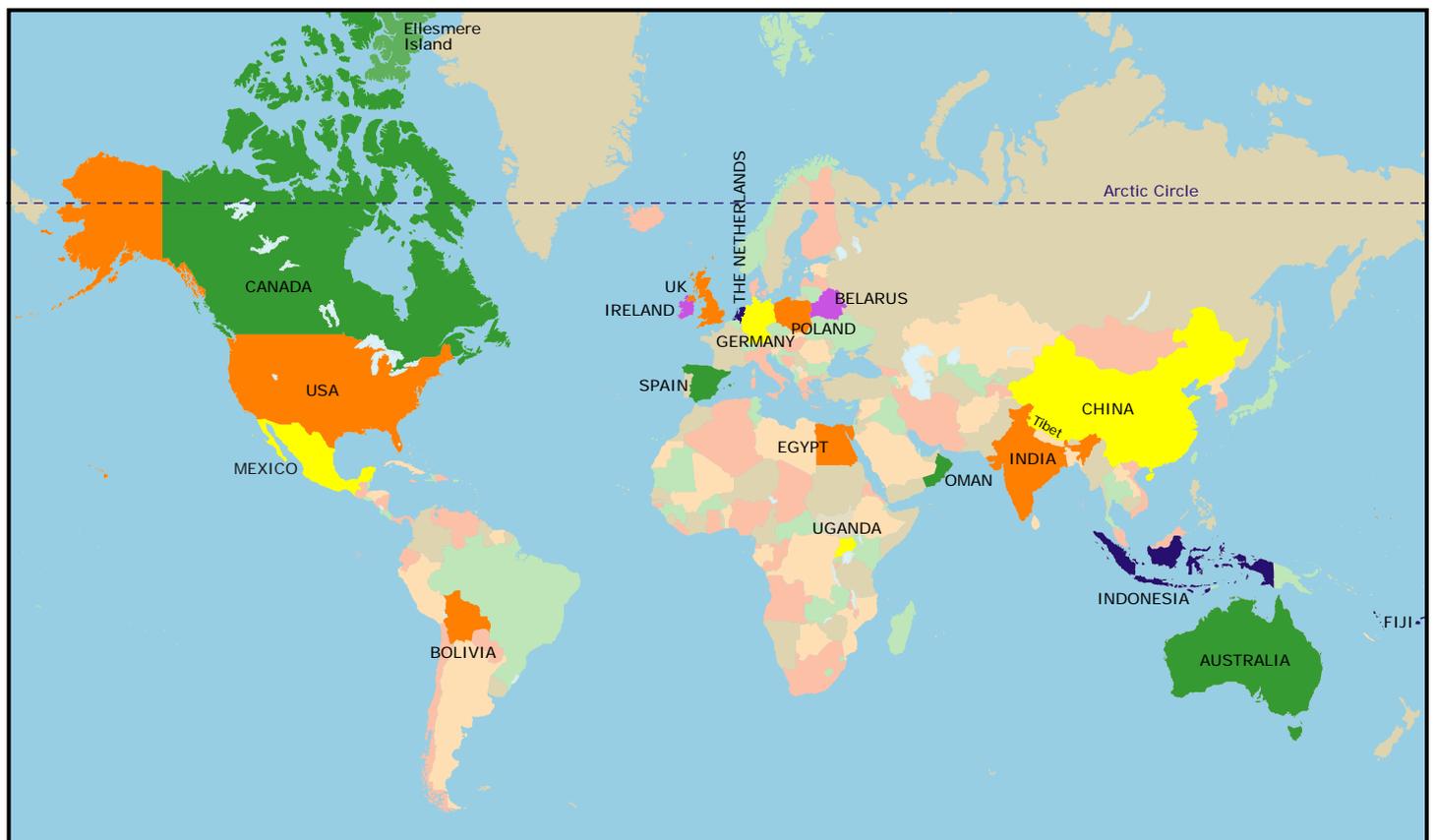
New Delhi is the capital of India. The area around the city is home to 16 million people. On February 20, a group of Jat protesters deliberately damaged the Munak Canal. This canal provides much of Delhi's water supply. It brings water from rivers in the north of India.

The attack on the canal took place in the state of Haryana about 86 miles (138 kilometers) from Delhi. It stopped water flowing through the waterway. The damage to the canal meant that nearly ten million in Delhi were without water.

The canal "protest" was part of ongoing demonstrations by a group of people called the Jats. The demonstrations began many months ago. They have been centered on Haryana. This is where many Jat people live. There are many different ethnic groups in India. The Jats are one of them. There are about 80 million Jats in India.

Traditionally, India had a social order known as the caste system. Families from different castes did not mix. Middle ranking castes, such as the Jats, were farmers and owners of small areas of land. Lower castes did most of the dirty and unpleasant work. Higher castes were richer. They owned most of the land. There were hundreds of different castes.

India became an independent country in 1947. Three years later its new government banned the caste



This map shows countries to which news stories refer in this issue. Visit [www.newsademic.com](http://www.newsademic.com) for more detailed world maps.

system. Nowadays, it is unlawful to discriminate against people because of their caste. In the cities the caste system no longer exists. Yet many people say that it is often still used in the countryside.

The government tries to make sure that all Indians have the same opportunities. It divides groups from the traditional lower castes into three [categories](#). Each of these three groups is then allocated a set number of government jobs and university places. The lowest group is the Scheduled Castes (SC), the next is Scheduled Tribes (ST) and the highest is Other Backward Classes (OBC). Of these groups, SCs are given the most jobs and university places, and OBCs the fewest.



*Munak canal*

The Jats were placed above the OBC. In recent years, it has become harder to find good jobs in some parts of India. Like several other middle ranking castes, the Jats in Haryana want to be “downgraded” to the OBC. If this happens the Jats will have access to more university places and government job [quotas](#). Jat demonstrations about being included in the OBC have been going on for several years. The attack on the Munak Canal was the most far-reaching, or serious.

The disruption to Delhi’s water supply lasted for several days. All

schools had to be closed. As the taps ran dry, water tankers were sent to many parts of the city. When the tankers arrived, people formed long lines to fill containers with water.

The army were ordered to take control of the Munak Canal in Haryana. Army engineers then began to repair the damaged part of the waterway. After three days, the water supply to Delhi was restored. However, Jat protests in Haryana continued. In three days of riots over 15 people were killed and hundreds injured. Several reports said that the army had fired shots at some of the demonstrators. ■

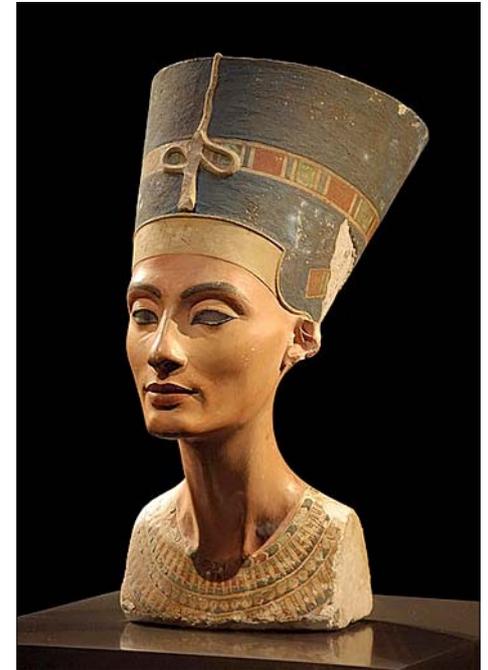
## NEFERTITI IMAGE STOLEN

Just over 100 years ago a team of German archaeologists made an amazing discovery. Working in Egypt, they dug up what’s now known as the Nefertiti Bust. This 3,350-year-old [effigy](#) is one of the most famous works of art ever found in Egypt.

Today, the Nefertiti Bust is displayed in the Neues Museum, in Berlin, Germany’s capital city. It is 19 inches (47 centimeters) high. The famous effigy is closely guarded. Museum visitors are not allowed to take photographs of it. In recent years, officials from Egypt’s government have asked Germany to return the bust. However, most people think that this is unlikely to happen.

Two artists in Germany have secretly created an accurate 3D (three-dimensional) scan of the Nefertiti Bust. Over a period of two months, they visited the museum several times. The artists hid scanners under their jackets and scarves. By walking around the

glass display case, their scanners recorded the bust’s exact shape. It took the artists two months to finalize all the information they recorded. They have posted a file of the scan on the internet. Now, anybody can download it. The file has been used with a 3D printer to make a perfect copy.



*Nefertiti Bust (Philip Pikart)*

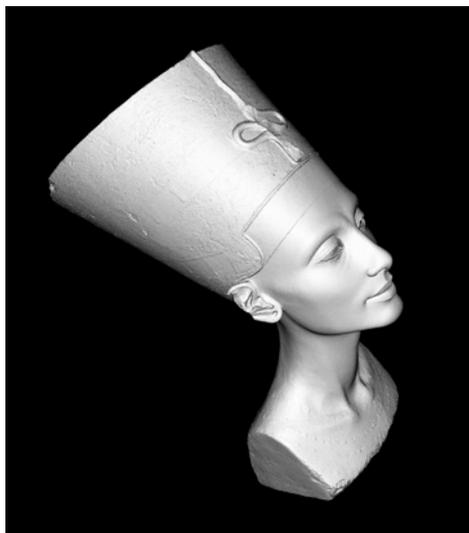
The archaeologists uncovered the Nefertiti Bust at a place called Amarna. This site is about 185 miles (300 kilometers) south of Cairo, Egypt’s capital city. The painted bust, which is missing one eye, was made from plaster and limestone.

Queen Nefertiti was married to the Egyptian pharaoh Akhenaten. He ruled Ancient Egypt between 1353 and 1336 BCE. During his reign, Akhenaten stopped Egyptians from praying to many different gods. He insisted that only one god should be worshiped. This is known as monotheism. Akhenaten’s god was Aten, or the Sun. Some people think today’s monotheist religions, such as Judaism, Christianity, and Islam, have links with the

monotheism started by Akhenaten. However, many experts disagree.

Akhenaten built Amarna as a new capital city. Yet after his death everyone abandoned the new capital. It is not known why. Within a few years Egyptians began to worship their old gods again. Statues and carvings of Akhenaten were deliberately destroyed. This suggests that later Ancient Egyptian leaders wanted to delete, or erase, him from history.

Akhenaten was Tutankhamun's father. Nefertiti may have been his mother. Yet many Egyptologists think this unlikely. They believe that Tutankhamun's mother was one of his father's sisters. Tutankhamun married one of Akhenaten and Nefertiti's many daughters. Therefore his wife was either his sister or half-sister. In Ancient Egypt it was not unusual for pharaohs to marry or have children with close relatives. The tombs of Akhenaten and Tutankhamun have been found. Nefertiti's grave is yet to be discovered.



3D printed version of Nefertiti Bust

Nowadays, when archaeologists are working in other countries they are not allowed to take anything away with them. All they can do is take pictures and samples. Any artifacts discovered belong to the

country in which they were found. However, many years ago it was different. For example, when the German archaeologists were working at Amarna in 1912 they had an agreement with Egyptian officials. Half of what they found belonged to Egypt and they kept the other half.

The two artists said they "stole" the image of Nefertiti as a protest. Many ancient artifacts from places like Egypt and Greece are displayed in museums in other countries. Most were taken from the countries in which they were found over 100 years ago. The artists believe that these artifacts, including the bust of Nefertiti, should all be returned. ■

## MUSEVENI WINS AGAIN

A presidential election was held in Uganda on February 18. The result was announced a few days later. Yoweri Museveni was reelected as the country's leader. In Uganda, the president is the head of the government and the head of state. The president appoints a prime minister to help him run the country.

Mr. Museveni is one of Africa's longest serving leaders. He has been president of Uganda for 30 years. This was his fifth election victory. The president's supporters celebrated when the result was announced. However, many people claim that the vote was not fair. Kizza Besigye was the president's main rival. He was arrested three times in the two weeks before the vote. Eight people took part in the election. Mr. Museveni won 60.6% of the votes. Mr. Besigye came second with 35.6%. This was the fourth time that Mr. Besigye has lost to Mr. Museveni.

The British controlled Uganda for many years. The country became

an independent nation in 1962. In the early 1970s, Uganda was taken over by an army general. Called Idi Amin, he ruled the country as a dictator for eight years. Killings were frequent and many people lived in fear. The dictatorship was overthrown in 1979. Then, several other leaders took over. In 1985, a rebel, or guerrilla, army led by Mr. Museveni deposed the last leader. Mr. Besigye was in the same army. Mr. Museveni was declared to be the country's president. He did not allow elections to be held until the mid-1990s.



Yoweri Museveni, president of Uganda

Mr. Museveni arranged for a new constitution to be written. These are the rules by which a country is governed. The constitution stated a president could be elected for only two successive five-year terms. Yet after his second election victory, Mr. Museveni managed to get this rule changed. Now, there is no limit to how many times a president can be reelected. Mr. Museveni is now 71 years of age. He may even decide to stand for another five-years when the next election is held in 2021.

Several organizations sent observers to report on the fairness of the election. One was the European Union (EU). The EU observers in Uganda criticized the way in which the election was organized. They said radio broadcasters that did not support Mr. Museveni were closed down. On the day of the

vote, the police had **intimidated** many people. The EU officials also reported that the electoral commission was not independent, or neutral. The commission's job is to organize elections and how votes are counted.

Mr. Besigye appealed to other countries such as the U.S. He said that they should challenge the election result. Mr. Besigye claimed that if they didn't do this, these countries no longer cared about human rights or democracy in Africa.

Even though there were complaints about the election, many people, especially in the countryside, support Mr. Museveni. They say that he has managed to keep the peace in the country. Many of these people can remember the terrible things that happened in Uganda in the 1970s and early 1980s. Also, Mr. Museveni is not like several other long serving African leaders. The Ugandan president has not amassed a large fortune for himself and his family. ■

## COPYING NATURE

When scientists copy designs found in nature, or the natural world, it is often called "biomimicry", or "bioinspiration". Researchers in the U.S. have used biomimicry to create a new material. It collects and transports water quickly. The researchers copied the "know-how" from three living things and then added them together.

The air contains large amounts of water vapor. This is a type of gas. Condensation occurs when water vapor gets cooler and turns into a liquid. The researchers wanted to find a way of taking out, or harvesting, large amounts of water from the air. They also wanted to do it quickly.



*Namib Desert beetle*



*Cactus spines*



*Pitcher plant*

The first organism that the researchers copied was the Namib Desert beetle. This small insect is also called the fogstand, or fog-basking, beetle. The beetle lives in a desert in Namibia. This is one of the world's most arid, or dry, places. Yet in part of the desert, near the Atlantic Ocean, there are frequent early morning fogs. Fog occurs when droplets of water vapor form in the air.

When the desert fog appears, the beetle stands up on its front legs. It does this to "catch" the water vapor. The beetle's shell is hydrophilic. This means that it attracts water vapor. The shell has bumps, or ridges. These act as channels for the water droplets, which form on the shell. When big enough, the droplets run down towards the beetle's mouth. The water-collecting abilities of this beetle have been known for some time. However, the researchers realized the importance of the bumps on the beetles' shell. The bumps are only a few millimetres across. By copying the shape of the bumps, the researchers made condensing drops of water grow six times faster than normal.

Cactus plants have sharp spines instead of leaves. The spines help to protect the plant from hungry animals. They also create shade. The spines have another **function**. Their V-shape helps to guide water droplets to the plant's body.

Pitcher plants are carnivores, or meat eaters. Most are climbers.

Like vines, they use trees as a support. Many species of pitcher plant grow on the islands of Borneo and Sumatra, in Indonesia. Some types of pitcher plant are very big. Most trap insects. Yet a few of the larger ones can catch small lizards or mice. Pitcher plants have a bowl and open lid. The plants attract insects by using bright colors or the scent of sweet, sugary nectar. Their bowl's inner sides are smooth and waxy. Therefore, insects falling into them are unable to climb out. The inner surface of a pitcher plant's bowl is almost friction-free. Anything that falls onto them (including water droplets) quickly falls, or runs, off.

By copying the beetles' bumps, the cacti spines and the pitcher plant's waxy surface, the researchers created a new material. It can collect a large amount of water from the air much faster than any other material.

The researchers believe that their new material could have many uses. It would make water harvesting in arid parts of the world much easier. The material could also be used in thermal power stations. In a thermal power station, heat is used to create electric power. The heat comes from burning coal, oil or gas. Water, in a large boiler, is turned into steam by the heat. The steam then turns, or drives, turbines. This rotating movement creates the electricity. The steam then needs to be quickly turned back into water. The new material could speed up this process. ■

## TRUMP V CLINTON?

This year, 2016, is an American presidential election year. In the U.S. these elections take place every four years. The day when Americans can vote for their next president is November 8. Before this, the two main political parties, the Republicans and the Democrats, have to choose their candidates. These people are known as the parties' nominees.

Selecting the nominees takes a long time. Republican and Democrat Party members arrange elections in each of the country's 50 states. Depending on how the votes are counted, these elections are called "caucuses" or "primaries". These elections do not happen on the same day. The states can hold their "caucuses" or "primaries" on different days.



Donald Trump

Each state has a certain number of delegates. The number depends on the state's population. The more votes a candidate wins, the greater their number of delegates. After the last states vote in June, the person with the highest number of delegates becomes their party's nominee. Then, in July, the two parties formally announce their nominees at large four-day meetings. These meetings are known as conventions.

This year, March 1, was called "Super Tuesday". This was because 11 states held their Republican and Democrat "caucuses" or "primaries" on this day. Four states held their votes before "Super Tuesday". Two people are hoping to become the Democratic nominee. There is more competition on the Republican side. When the state of Iowa held the first vote last month, 12 Republicans took part.



Hillary Clinton

After Super Tuesday, Donald Trump (for the Republicans) and Hillary Clinton (for the Democrats) have the most delegates. Now, many think that they will eventually become the two parties' nominees. If true, Mr. Trump and Mrs. Clinton will contest the presidential election on November 8.

Many people in the U.S. and other countries have been surprised by Mr. Trump's success. He is an unusual candidate. Mr. Trump has never been a politician before. He is a wealthy businessman. Mr. Trump makes most of his money from real estate. His company owns large office blocks and big hotels. Mr. Trump is outspoken. He has said things that have shocked or upset many people. Yet his supporters admire him for saying what he thinks. They claim that most politicians are too afraid to do this.

Many senior people in the Republican Party seem to dislike Mr. Trump. They believe that if the election is between him and Mrs. Clinton, she will win easily. These Republican Party members say that Mr. Trump lacks the experience to be an American president. Others agree. Yet Mr. Trump claims that the U.S. has been badly led for many years. He says that, as a successful businessman, he would be a far better president than anyone else. Mr. Trump's campaign slogan is "Make America great again".

Mrs. Clinton is a professional politician. Her husband, Bill Clinton, is a former American president. Mr. Clinton won two presidential elections. He handed over to George W. Bush at the beginning of 2001. During President Obama's first four-year term, Mrs. Clinton was the American secretary of state. The secretary of state is one of the U.S.'s most important politicians. He or she frequently travels all over the world. They speak and negotiate with leaders and governments of other countries. If Mrs. Clinton wins, she would be America's first female president. ■

## ANCIENT FOREST DISAGREEMENT

The European Plain is a large area of flattish land. It stretches from the western coast of France all the way to Russia's Ural Mountains. Before humans started farming thousands of years ago, woodlands covered the European Plain. One of the few places where this ancient woodland still exists is called the Białowieża Forest.

The forest covers an area of 580 square miles (1,600 square kilometers). The border between Poland

and Belarus runs through it. The forest has not changed for at least 8,000 years. These ancient woodlands are known as primeval forests. Some people in Poland are now worried about the forest. They fear that a hungry beetle could badly damage, or even destroy, it.

The beetles have caused disagreements. The arguments are between: those who are allowed to cut down some of the forest's trees; government ministers; officials from the European Union (EU); [environmentalists](#); and UNESCO (United Nations Educational, Scientific and Cultural Organization).

Over 11,500 animal species and 5,500 types of plants live or grow in the forest. The animals include: European bison, wolves, lynxes, beavers, boars, woodpeckers, songbirds, and owls. Long ago, kings of Poland and Russia hunted in the woodlands. The forest's bison are the heaviest wild land animals in Europe. By the 1920s the bison had been hunted to extinction. The only ones that remained were kept in zoos. A program to breed the animals was set up after the end of the Second World War (1939 – 1945). Now, Białowieża Forest is home to thousands of wild European bison.



*Białowieża Forest, in Poland*

The scientific name for the troublesome beetles is *Ips typographus*. They are also known as the European spruce bark beetle. The insects are about 0.2 inches (five

millimeters) long. They are black or brown. Many of the forest's trees are spruce. The beetles eat the bark of these trees. If there is an [infestation](#), or large number of beetles, the trees die. Eventually, they fall over.



*European spruce bark beetle*

The most recent beetle infestation began in 2012. It's thought that over 500,000 spruce trees in the forest are now infected with the insects. There have been similar beetle infestations in the past. These have gradually waned, or died away. Some people think that the infestations are good for the forest. By killing the spruce trees, other trees can grow. The dead spruce trees provide food and shelter for many other insect species. However, the most recent infestation seems to be far more widespread than previous ones.

About one-sixth of the forest has been [designated](#) as a national park. In this part no trees can be cut down, or felled. The remainder is looked after by an organization owned by the Polish government. It has over 100 workers, or foresters. They are allowed to fell a certain number of trees each year. The wood is then sold. The foresters say that they should be allowed to cut down all trees infested with the bark beetles. Yet this would greatly exceed the number of trees they are allowed to fell. The foresters claim that the

forest is dying. They are worried about their livelihoods.

Environmentalists say that nothing should be done. They believe that once many spruce trees have died, the number of beetles will decline. The environmentalists argue that the beetles are a natural way of controlling the number of spruce trees in the forest. Poland is a member of the EU. The EU has special nature protection rules, or laws. Felling thousands of extra trees in the forest would break these laws.

The Białowieża Forest is a World Heritage Site. UNESCO selects these sites. They are places that UNESCO believes need special protection. There are many World Heritage Sites in the world. Most are ancient buildings. Yet some, like the Białowieża Forest, are important landscapes. Countries must promise not to do anything that harms a World Heritage Site. In return, UNESCO provides money. This must be used to safeguard and protect the site. UNESCO has said it may remove the forest's World Heritage status if too many trees are cut down. ■

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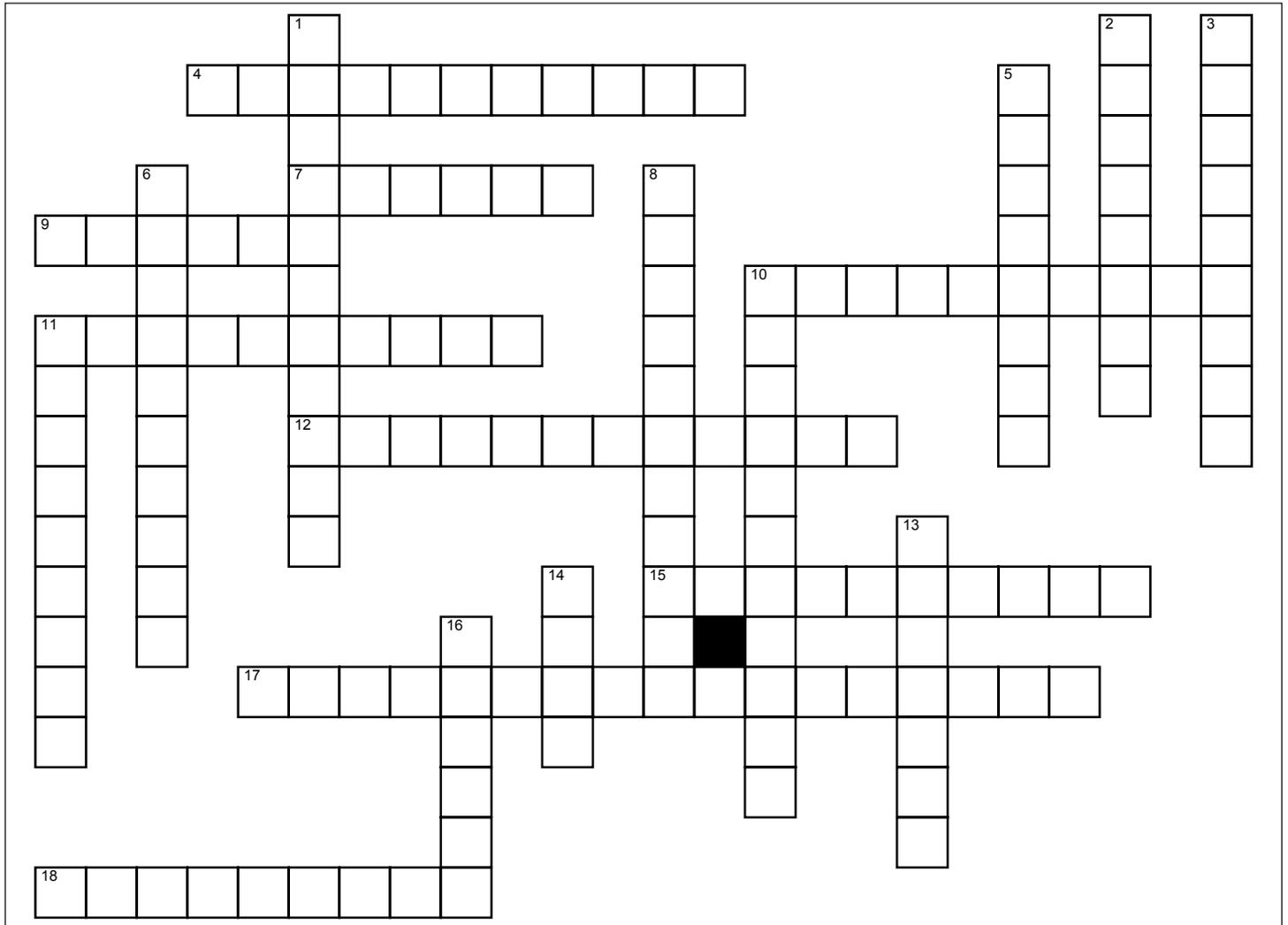
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# ISSUE 270

## 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**

- 4 *Noun Plural* Opinions that have been reached after thinking about different possibilities or arguments
- 7 *Noun* A model or sculpture of a person
- 9 *Noun Plural* Numbers or quantities of something that are officially allowed
- 10 *Noun* Something, usually a covering, used to stop heat from escaping
- 11 *Noun* The opinion that people have about something or someone
- 12 *Adjective* Describes something that has no certain final result or outcome
- 15 *Adjective* Originating in or native to a particular country
- 17 *Noun Plural* People concerned with problems, such as pollution of the natural environment
- 18 *Adjective* Marking the beginning of something, especially a journey, activity or speech

**Down**

- 1 *Noun* A large number of insects or rats, usually one that causes damage or disease
- 2 *Noun* The purpose of something; the action it is designed to carry out
- 3 *Verb* To spend the winter sleeping
- 5 *Noun* Special importance
- 6 *Noun* Something that is accepted even though it is not what was originally wanted, as a way of settling disagreements
- 8 *Adjective* Describes something that causes much damage
- 10 *Verb* Frightened or threatened into submission
- 11 *Noun* Man-made lake used for storing water before it is supplied to people
- 13 *Adjective* Depending on someone or something for support
- 14 *Adjective* Describes things working together or matching (especially in or out of)
- 16 *Noun* A difficult or very bad experience

# ISSUE 270

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

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MISSING WORD ANSWER =

ISSUE 269 ANSWERS

S A N C T U A R Y