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Barack Obama, the president of the USA, and Cuba's president, Raúl Castro, at the baseball game in Havana

HISTORIC VISIT TO CUBA

Barack Obama, the president of the U.S., traveled to Cuba on March 20. His wife, Michelle, and their two daughters, Malia and Sasha, went with him. Their three-day visit was an historic event.

Cuba is the largest island in the Caribbean. The country is home to 11.5 million people. Cuba is only 90 miles (144 kilometers) from the U.S. Yet the last American president to visit the island was Calvin Coolidge. He traveled to Cuba in 1928.

After he arrived in Havana, Cuba's capital city, Mr. Obama joked. He said that Coolidge had traveled by train and a battleship. His journey from Washington DC to Havana took several days. Mr. Obama and his family flew on Air Force One. Their journey took a few hours. Air Force One is a specially designed jumbo jet or passenger plane. Whenever an American president travels to other

countries or across the U.S., he flies on Air Force One.

Many people believe that Christopher Columbus (1451 – 1506) was the first person to sail across the Atlantic Ocean. He landed on Cuba in 1492. Columbus came from the city of Genoa. Today, this city is in Italy. The king and queen of Spain paid for Columbus's expedition. Within a few years, Cuba became a part of the Spanish Empire.

In the late 1800s there were several revolts in Cuba. People who disliked Spanish rule led them. In 1898 a conflict broke out between the U.S. and Spain. Known as the Spanish-American War, it lasted for three months and a few days. By this time the Spanish Empire was very weak. Spain soon offered peace talks. As part of the peace treaty, Spain gave the U.S. temporary control of Cuba. It also agreed to pass its

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ownership of the Philippines, Puerto Rico and Guam (a small island in the Pacific Ocean) to America.

In 1902 the U.S. agreed that Cuba would be an independent country. However, the U.S. kept control of Cuba's finances and its dealings with other countries. What's more, the U.S. kept a naval base on the island. It's called Guantánamo Bay. For the next 50 years many thousands of Americans visited Havana. Most went to gamble at the city's casinos.

In 1956 Fidel Castro started a revolution in Cuba. Then, General Batista ran the country. The American government supported the Cuban leader. Fidel Castro set up a group of fighters, or rebels. Batista was unpopular and many Cubans joined the rebel group. After two years of fighting, Castro's rebel army took control of Havana. Batista fled. He eventually went to live in Portugal. Batista died in 1973.

After taking control, Fidel Castro declared that Cuba was a communist one party state. The government now owned all the houses, businesses and factories. Other political parties were banned. Many American businesses in Cuba were taken over. In 1960, the U.S. imposed a trade [embargo](#) on Cuba. Over 50 years later, this is still in place. Because of the embargo, American companies are not allowed to sell anything to Cuba, or buy goods made in Cuba.

Even though Batista was unpopular, not all Cubans were happy about their country becoming a communist state. Thousands decided to leave. Most went to live in the city of Miami, in Florida. From Cuba, Florida is the nearest part of the U.S.

One year after the embargo started, the American government secretly helped to organize an attack on Cuba. It became known

as the "Bay of Pigs" invasion. Fidel Castro's forces easily defeated the invading force. After this, Fidel Castro decided to work with the then communist Russian-led Soviet Union.

In 1962 Russian leaders arranged to send some nuclear missiles to Cuba by ship. The Americans discovered what was happening. At that time, John F. Kennedy was the U.S.'s president. He warned the Soviet Union's leader, Nikita Khrushchev, that America would attack the Russian ships if they sailed to Cuba. Many people expected a nuclear war to start. However, the missiles did not get to Cuba, as the Russian ships turned back. This incident became known as the "Cuban Missile Crisis".

Russia continued to help Cuba. Yet when the Soviet Union began to break up in 1991, Cuba lost its biggest supporter. In 2008, after running Cuba for 49 years, Fidel Castro decided to step down. Then, he was 81 years old and in poor health. It was agreed that his younger brother, Raúl, would take his place.

Cuba is still a one party state. It is one of the world's few remaining communist countries. Most people in Cuba have little money. On average they earn about \$20 per month. However, the country is known for its good hospitals, schools and universities. Cuba has poor electricity supplies and telephone networks. Few people have access to the internet. Many buildings and roads need repair. Because of the American trade embargo, foreign companies have been unwilling to set up operations in Cuba.

Two years ago Mr. Obama decided that 50 years of the trade embargo was not working. It had not changed Cuba's political system. Secret talks with Cuban leaders were

arranged. Then, at the end of 2014, Mr. Obama made an announcement. At the same time, Cuba's president, Raúl Castro, made a similar declaration. The two men said that the U.S. and Cuba would begin working with each other again. Last year, the American embassy in Havana reopened. A new Cuban embassy, in Washington DC, opened its doors around the same time.



Mr. Obama agreed to visit Cuba. Yet he said that he would only do so if he were allowed to meet some of the country's dissidents. These are people who disagree with the Cuban leadership. During his visit, Mr. Obama made several speeches. He and Raúl Castro watched a specially arranged baseball game. It was between the Cuban team and one of America's best teams. The American team won.

Several American business leaders accompanied Mr. Obama. Most now plan to invest money in Cuba. Not everyone was happy about Mr. Obama's visit. Some Cuban Americans were angry. They say that the U.S. should not work with Cuba as long as it remains a communist country. Nowadays, Fidel Castro is rarely seen in public. He did not meet Mr. Obama. Reports said that the former revolutionary leader was not happy that the American president had come to Cuba. ■

TRACKING SNOWY OWLS

Nowadays, scientists often use small electronic devices to track an animal's movements or its migration. From this information scientists learn about the animal's behavior. They can also find out if animals are affected by changes in their surroundings. Human activity and climate change are examples.

Tracking technology is improving. Researchers in the U.S. have attached a new device, or transmitter, to a snowy owl. The small transmitter sends a signal every 30 minutes. The researchers therefore know exactly where the owl is and at what height it is flying. A snowy owl has not been tracked this accurately before.

Owls are nocturnal birds. They hunt at night and sleep in the day. There are about 200 owl species. Antarctica is the only landmass where they are not found. Most owls live alone. They catch and eat small rodents such as mice and rats. The birds also feed on insects. A few types can catch fish. Owls have flat faces. Unlike most other birds, both eyes look forwards. Therefore, to see in different directions, owls have to move their heads. The birds are well known for being able to turn their heads almost full circle.

Snowy owls are one of the largest owl species. Their wingspan can be 4.9 feet (1.5 meters). This is the distance from the tip of one wing to the tip of the other. Snowy owls live in the Arctic regions of North America, Europe and Asia. Young snowy owls have gray feathers. As they grow, their feathers turn white. Adult females keep some gray feathers. The males are completely white.

Two years ago a male snowy owl was caught in the state of Maryland. Then, it was a young bird. A numbered band, or ring, was fixed to one of its legs. This was so the bird could be recognized in the future. The owl was caught near an airport. The researchers were worried that a plane might hit the bird. They decided to release it some distance away. However, that winter, the owl came back to the same Maryland airport. The researchers nicknamed it Baltimore. This is the name of Maryland's biggest city.



Snowy owl (Diane McAllister / GBBC)

After the owl returned to the airport, the researchers fitted it with an electronic transmitter. More than 40 scientists are studying information received from Baltimore's transmitter. They are working together to try to understand the behavior of snowy owls. These owls nest in the northernmost parts of Canada, Alaska and Eurasia (Europe and Asia). However, during colder winter months they fly south.

Baltimore spent the winter on the coasts of Maryland and New Jersey. Then, the owl traveled through the state of New York to Lake Ontario. This large lake forms part of the border between the U.S. and Canada. Then, for several weeks, Baltimore rode on some floating ice. When spring arrived, the bird flew northwards. After flying more than 1,300 miles (2,100 kilometers) across Canada, the owl reached his

final destination. This was about 300 miles (480 kilometers) south of the Arctic Circle.

Baltimore stayed in Canada's far north for several months. By the end of October, Arctic days are short and cold. Baltimore flew back to an island on the Canadian side of Lake Ontario. Here, the owl fed on ducks and meadow voles. Many people visit this island to photograph the owls. It seems to be a popular place for at least 11 types of owl. In the northern hemisphere spring has now begun. So, as the Arctic gets warmer, Baltimore will probably fly north again.

Calculating the number of snowy owls in the world is difficult. Some time ago, this figure was believed to be 300,000. Now, it may be as low as 30,000. Scientists suspect that this may be because of the changing climate. They hope that studying birds like Baltimore will help them to stop snowy owls from becoming endangered. ■

LAND ANIMAL-LIKE FISH

From the study of fossils, it's known that life on the Earth began in the sea. The first land creatures appeared about 370 million years ago. They are known as tetrapods. Over many millions of years all land animals (including humans) evolved from the early tetrapods. Scientists are sure that they were fish-like creatures. Yet how they moved from the sea to the land is still a mystery.

Recently, a rare cave-dwelling fish has been filmed in Thailand. It can walk up waterfalls. Scientists from Thailand and the U.S. have analyzed the way that the fish moves. They have also studied its bone [structure](#).

The fish's scientific name is *Cryptotora thamicola*. It is also called the cave angel fish, or the waterfall-climbing cave fish. So far, it has been found only deep inside a few caves. These are in a remote part of Thailand. The fish was first discovered, or recorded, in 1983. Like many other cavefish species, the fish is blind. It has no eyes. The fish is about two inches (five centimeters) long. It feeds on microbes and plant-like matter, which grow on the cave walls.



Waterfall-climbing cave fish (NJIT)

Many fish and animals that live on land are vertebrates. They have a backbone, or spine, and an inner bone skeleton. The bone structure of a fish and land animal is different. For example, land animals with legs have a pelvis. This is a large bone structure at the base of the spine. The back, or hind, legs are attached to it. Fish that have backbones do not have a pelvis.

Backbones are made up of many small bones. Called vertebrae, these bones join together. Fish and land vertebrates have different backbones. Water helps to support a fish's weight. Land animals are more affected by gravity. Their vertebrae have a flange. This is like a rim or collar. These flanges gradually evolved after the first tetrapods moved out of the sea. They help the spine "lock together". Land

vertebrates can hold themselves upright even when gravity is pulling them down. This is because they have stiff, straight backbones. Fish do not have interlocking vertebrae. Therefore, as they swim, they can easily bend their bodies.

A few types of small fish can move on the ground. However, they don't move or walk like land animals. Some wriggle from side-to-side. Others drag themselves along using their front fins. In Hawaii there is a small rock-climbing fish. It uses its mouth to climb. The fish's mouth is like a [suction](#) cup.

The scientists were amazed when they studied the cave angel fish's movements and skeleton. It can climb up slippery rocks, as water flows over them. Using its four fins, the fish moves from side to side. This is how a salamander walks. Salamanders are lizard-like amphibians. They have a thin body, four legs and a tail. There are many salamander species. All live in wetlands. Most are small. Yet the Chinese giant salamander can be 6.5 feet (two meters) in length.

The cave angel fish's skeleton is even more surprising. The fish have a pelvic structure, or pelvis. What's more, they have an interlocking spine with flanges. The scientists now believe that the 370-million-year-old tetrapods were like cave angel fish. These first land creatures probably had similar skeletons and moved in the same way. ■

PLAIN OF JARS

A team of Australian and local archaeologists working in Laos have made an important discovery. The team has found graves, or buried human remains. They hope that

their discovery will help to solve the Plain of Jars mystery.

The Plain of Jars covers hundreds of square miles. Its name is misleading. The plain is not a flat area. It has hills and valleys. Scattered over the plain are groups of large stone jars. Most are on higher areas of land. Some jars are in large groups of 100 or more. Others stand alone. The jars grouped together are not laid out in any pattern.

The jars were carved from blocks of stone. There are several [quarries](#) where these stones were probably cut. In some places the quarries are far away from the jars. Many of the heavy stone jars must have been dragged long distances. The biggest ones are 9.8 feet (three meters) tall. They weigh as much as ten tons.



Part of the Plain of Jars (PTD Phonsavan)

Nobody really knows when the jars were made. Some believe that they were carved between 500 BCE and 500 CE. Then, the local people traveled around in tribes. Farming and agriculture were yet to begin in this part of the world. How the stones were cut and hollowed out is not known. The people who made them must have had some bronze or even iron tools. Yet none of these have been found.

There is a local legend about the jars. It says that a giant made them. He used the jars for making a type of alcoholic drink. Most archaeologists think that the jars had something to

do with funerals. Dead bodies may have been placed inside them and then burned, or cremated. Alternatively, dead bodies could have been left in the jars. Then, sometime later, after the bodies had dried out, they were cremated.

Some circular stones, or discs, have been found amongst the jars. These might have been lids. Yet there are many more jars than lids. Some people think that most jars were covered with things that have rotted away. Lids made from wood or animal skins are possibilities.



*The biggest jar in all of the Plain of Jars sites
(Christopher Voitus)*

The archaeologists discovered a burial ground. So far, they have found the bones of 11 people. The burial ground is in an area where there are more than 300 stone jars. The bodies seem to have been buried in different ways. Interestingly, none were cremated. Some are the bones of whole bodies. Others are bones from several bodies grouped together. Some bones were found inside containers made from pottery.

The archaeologists will be able to work out how old the bones are. This may help to date the stone jars. Yet it will not solve the mystery of how the jars were made.

Laos shares a border with Vietnam. In the 1960s and 1970s, the U.S. fought a war in Vietnam. By this time Vietnam had split. North

Vietnam was a communist state. It planned to take over South Vietnam. The U.S. sent tens of thousands of troops to South Vietnam. There, they helped the South Vietnamese army in its fight against the North. The U.S. eventually withdrew its troops from South Vietnam in 1973. Two years later, the North successfully invaded the South.

At that time, American leaders were worried about the spread of communism in South East Asia. During the Vietnam War, American planes secretly bombed large areas of Laos. Many bombs landed on the Plain of Jars. Some jars were damaged or destroyed. However, some bombs failed to explode. Today, large parts of the Plain of Jars cannot be visited. This is because of the danger of the unexploded American bombs. ■

KARADZIC VERDICT

Radovan Karadžić (pronounced Kara-ditch) is a former leader of the Bosnian Serbs. On March 24, an international court declared that he was guilty of genocide, war crimes and crimes against humanity. The court sentenced him to 40 years in prison.



Radovan Karadžić (ICTY)

Mr. Karadžić's trial began in 2009. It took place at The Hague, a city in the Netherlands. In 1993 the United Nations (U.N.) set up an organization called the International

Criminal **Tribunal** for the former Yugoslavia (ICTY). Its job is to bring **alleged** war criminals to trial. These people come from places that used to be part of a country called Yugoslavia. Their trials take place at the court in The Hague.

In 1991 Yugoslavia began to break up. Eventually, it split into seven separate countries: Croatia, Slovenia, Bosnia (or Bosnia and Herzegovina), Serbia, Macedonia, Montenegro, and Kosovo. The break-up led to several wars. Certain groups within Yugoslavia were never really united. Often there was great **hostility** among different areas and between Muslims and Christians who lived there.

People living in what is now Serbia are known as Serbs. Yet Serbs also live in other countries that were once Yugoslavia. Mr. Karadžić was the political leader of the Serbs who live in Bosnia. Most people who live in Serbia, and the Bosnian Serbs, are Christians.

Mr. Karadžić and his army commander, Ratko Mladić (pronounced Ma-lad-ic), began a war against the Muslims in Bosnia. The Bosnian Serb army, with help from members of the Serbian army, captured several Muslim towns. Some were destroyed. People living there were forced to leave.

Sarajevo, Bosnia's capital city, was attacked. From hills around the city, Bosnian Serb soldiers fired large guns and mortars at Sarajevo. Known as the siege of Sarajevo, this **bombardment** lasted nearly four years. Over 12,000 people were killed and 50,000 wounded. Most were civilians.

The Bosnian Serb army took over a Muslim area called Srebrenica. There, soldiers separated the men and women. Later, around 8,000

Muslim men and boys were shot. This is now called the Srebrenica massacre. It was the worst mass-murder in Europe since the Second World War (1939 – 1945).

The U.S. and several European countries became worried about what was happening in Bosnia. In 1995, the then president of the U.S., Bill Clinton, decided to do something. He got European Union (EU) member countries to agree to help attack the Bosnian Serb army. They used planes to make air strikes. At a vote in the U.N., China and Russia refused to agree to this action. However, the air strikes helped to stop the Bosnian Serb attacks on Bosnian Muslims.

The U.S. arranged peace talks, which ended the war. The peace deal was named the Dayton Agreement, after a town in the U.S. where it was signed. After the end of the war, Mr. Karadžić and Mr. Mladić were accused of war crimes. Both disappeared. In 2008 Mr. Karadžić was found and arrested. Mr. Mladić was not captured until 2011.



Mr. Karadžić has always insisted that he did not commit any crimes. Some people from Bosnia traveled to The Hague. They wanted to hear the court's verdict. Most survived Bosnian Serb **atrocities** or are relatives of those who died. All were angry. They expected Mr.

Karadžić to get a life sentence. The former Bosnian Serb leader is now 70 years old. Therefore it's likely that he will spend the rest of his life in prison.

Mr. Mladić's trial is yet to be completed. It began five years ago. So far, the court has tried 161 people. Most were found guilty of war crimes. Their punishments range from two years in prison to a life sentence. ■

MANTA RAYS AND MIRRORS

Manta rays live in warmer waters of the Atlantic, Pacific and Indian Oceans. Of all fish, they have the biggest brains. There are two manta ray species. One is called the giant manta ray. Researchers in the U.S. recently set up an experiment. They placed a large mirror inside a tank, or aquarium, which contained giant manta rays. The researchers wanted to find out if the rays passed what's known as "the mirror test".

Giant manta rays have large flat bodies with enlarged wing-like fins. Some can be 23 feet (seven meters) wide. Like other fish, manta rays have gills. These extract oxygen from the seawater. Manta rays are filter feeders. When feeding, they swim with their large mouths open. The rays filter out any zooplankton in the water. This is then swallowed. Zooplankton is the name used for many tiny marine organisms. It includes krill, small shrimp-like creatures, and tiny crabs. Manta rays are known to swim up to 43.5 miles (70 kilometers) a day.

Manta rays are ovoviviparous. This means that fertilized eggs grow inside the mother. Females give birth to live offspring. Baby rays are called pups. A female

usually gives birth to a single pup. It is not known how frequently pups are born. Yet some studies suggest it may be once every two to five years. This is a slow reproduction, or birth, rate. Nowadays, many manta rays are caught in fishing nets. Because of their low birth rate, they may become an endangered species.



Manta ray in an aquarium

Some years ago a scientist came up with what's now known as the mirror test. It is done to find out if an animal is "aware of itself", or has self-awareness. The majority of animals think that their reflection in a mirror is another animal. Most scientists believe that if an animal recognizes itself in a mirror, it has self-awareness. It **indicates** a certain level of intelligence. So far, only seven species have passed the mirror test. These are: apes, elephants, dolphins, orcas (or killer whales), magpies (the only bird), macaques (a type of monkey), and ants.

The American researchers filmed giant manta rays inside a large aquarium. First, a large mirror was put inside the tank. Then, it was replaced with a similar-sized white board. When in front of the mirror, the manta rays acted strangely. They circled, flapped their wings and blew bubbles. The researchers say that they do not behave like this when meeting other manta rays. It is not known what these actions mean. Giant manta rays have markings on their backs. Normally, these

change when they meet another manta ray. Yet, when the rays saw themselves in a mirror, their markings did not alter.

Some other scientists are skeptical about the experiment. This means that they are not sure if the rays' actions are a demonstration of self-awareness. The researchers say that more work is needed to prove that manta rays are able to recognize themselves. If they can, giant manta rays will be the first fish to pass the mirror test. ■

EASTER DAY

Easter is an important time in the Christian calendar. The date of Easter Sunday changes each year. It can be anytime between March 22, and April 25.

Christianity has three main traditions or churches. These are: Roman Catholic, Protestant and Orthodox. Easter is what's known as a movable feast. However, the three churches do not celebrate Easter Day on the same date. This year, Roman Catholics and Protestants marked Easter Day on March 27. Followers of the Orthodox Church will celebrate Easter on May 1, or about one month later.

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. In the Christian tradition, the day on which Jesus was crucified is known as Good Friday. He then ascended into heaven on Easter Day, or the following Sunday.

Jesus was a Jew. The Bible, or holy book of the Christian faith, says that Jesus's crucifixion happened after the Passover. The Passover is a Jewish feast. It celebrates the story told in the Book of Exodus. This tells how the Jewish people were freed from slavery in Ancient Egypt thousands of years ago. Early Christians therefore celebrated Easter after the Passover. The Book of Exodus is in the Hebrew Torah and the Christian Bible.



Pope Francis speaking to the crowds in Saint Peter's Square, in the Vatican, on Easter Sunday

The Passover is a date in the Jewish, or Hebrew, calendar. This is a lunar calendar. These calendars are based on the cycles of the Moon. As the Moon circles, or orbits, the Earth, its appearance changes. One cycle is complete after the Moon has passed through all its phases. These are: new Moon, first quarter, full Moon, and third quarter (then back to New moon). The lunar year has 12 months. Each is roughly 29.5 days long. A lunar year has 354 days. So it is roughly 11 days shorter than a calendar year. This is the time it takes the Earth to complete one orbit of the Sun.

The Protestant Church split from the Roman Catholic Church about 500 years ago. It celebrates Easter on the same day as the Catholic Church. The lunar calendar is used to calculate the date of Easter.

Easter Day is the Sunday that follows the first full Moon after the spring (or vernal) equinox (in the northern hemisphere). This is either the 20th or March 21. Many people who live in the northern hemisphere judge the vernal equinox to be the start of spring. It marks the day, after winter, on which the hours of darkness and daylight are almost exactly the same. After this date, days become longer and the nights shorter.

Julius Caesar (100 – 44 BCE) was a famous Roman leader. He introduced the Julian calendar about 2,000 years ago. In 1582, the calendar was altered to make it more accurate. Gregory the Thirteenth made the change. He was the pope, or leader of the Catholic Church. This is why the international calendar (which is used today) is also called the Gregorian calendar. The Roman Catholic and Orthodox Churches split about 1,000 years ago. The Roman Catholic Church uses the Gregorian calendar to work out the date of Easter. The Orthodox Church still uses the Julian calendar.



Chocolate Easter eggs

The Vatican is the headquarters of the Roman Catholic Church. It is where the pope lives. Even though it is in Rome, Italy's capital, the Vatican is a separate city-state. Traditionally, thousands of people gather in Saint Peter's Square in Vatican City on Easter Sunday.

There, the pope talks to the large crowd. His address, or speech, is known as the Easter message. It is meant to be a message to “the whole world”. This year, Pope Francis talked about the need to help migrants from countries such as Syria and Afghanistan.

In the past Christians decorated shells of chickens’ eggs at Easter time. Some still do. Jesus’s body was placed in a rock-cut tomb. After he went to heaven, the tomb was empty. The eggshells are symbols of his empty tomb. Nowadays, many Christians mark Easter Sunday by giving each other eggs made from chocolate. ■

BENIN’S NEW PRESIDENT

A presidential election was held in Benin on March 20. The result surprised many people. They expected Lionel Zinsou, the country’s prime minister, to be the new president. Yet, Patrice Talon was declared to be the winner. Mr. Talon is a wealthy businessman and not a politician.

Benin is one of Africa’s smallest countries. Today, it is home to about 11 million people. Porto-Novo is Benin’s capital city. However, with a population of 900,000, Cotonou is the country’s largest city. Both cities are on the coast not far from each other. Benin’s official language is French.

Benin used to be a kingdom called Dahomey. Europeans first began sailing to this part of Africa over 300 years ago. People from Portugal, the Netherlands and France set up [settlements](#) on the coast. There, they traded weapons for slaves. The slave trade ended in the 1840s. Later, France fought a war against Dahomey’s king. By 1892, the kingdom had become a part of what was

called French West Africa. Then, it was called French Dahomey. In 1960 France granted independence. The country’s name changed to the Republic of Dahomey.

After independence there were several military coups (pronounced “coos”). This is when military commanders use the army to seize control of a country. In the 1970s one of these commanders renamed the country the People’s Republic of Benin. He announced that it was a Marxist state.



Patrice Talon, Benin’s new president

Marxism is named after Karl Marx (1818 – 1883). He was born in Prussia, but spent much of his life in London, the capital of Britain. Prussia was a former German kingdom. Marx believed in a “classless society”. He wrote several books about it. The most famous is *Das Kapital*. This is on what communist [ideology](#) is based. In a communist country the state, or government, owns all property. No rival political parties are allowed and there are no meaningful elections.

The People’s Republic of Benin was run as a dictatorship. However, the communist system did not work. The country ran out of money, many

educated people left. Eventually, France persuaded Benin’s leader to allow political parties and elections. The first elections were held in 1990. Afterwards the country became the Republic of Benin. It was one of the first African countries to successfully change from dictatorship to democracy. In 2006 Thomas Boni Yayi was elected as Benin’s president. He was reelected in 2011 for another five-year term.

The constitution, or rules by which Benin is governed, say that presidents can serve two five-year terms. Recently, several African leaders have altered their countries’ constitutions. Now they can continue as president for many years. Mr. Boni is a popular leader. Yet, he agreed to stand down after his two five-year terms.

In Benin a person can only win a presidential election if they get more than 50% of the votes. If this does not happen a second, or run-off, election is held. The two candidates who got the most votes in the first round then contest the run-off. This is what happened in the recent election. The first round took place on March 6. Then, there were more than ten candidates. Mr. Zinsou got 28% of the votes. Mr. Talon came second with 25%.

As he had the most votes in the first election, Mr. Zinsou was expected to win. However, in the second round, 65% of those who took part voted for Mr. Talon. He will now take over from Mr. Boni on April 6.

Mr. Talon made most of his money from cotton. After winning the election, he declared that he wanted to change the way the country is run. Currently, there are 28 government ministers. Mr. Talon plans to reduce the number to 16. He also wants presidents to serve only one five-year term. ■

SHAKESPEARE'S SKULL

William Shakespeare (1564 – 1616) was an actor, poet and playwright. He was born in England in 1564. Shakespeare's plays are still performed all around the world. Many people believe that he was one of the greatest ever writers of the English language. Shakespeare is thought to have written 38 plays. Some of the best-known are: *Hamlet*, *Twelfth Night*, *Macbeth*, and *Romeo and Juliet*.

This year is the 400th anniversary of Shakespeare's death. A British television company has made a program about the famous writer's grave. In the program archaeologists working for the company say that a tale about Shakespeare's skull may be true. Shakespeare was buried under the floor of a church. The tale says that the famous playwright's skull was taken from his grave over 200 years ago.



Picture believed to be of William Shakespeare

Even though Shakespeare is one of the world's most famous writers, little is known about him. There are not many records of what he looked like or how he worked. Shakespeare was born in the town of Stratford-upon-Avon, in England. Local

records show that he had a wife and three young children by the time he was 20. Shakespeare seems to have left his family in Stratford and moved elsewhere.



Shakespeare's grave at Holy Trinity church in Stratford-upon-Avon (David Jones)

What Shakespeare did next is not known. Then, at the age of 27, he began working as an actor in London, England's capital city. He also started to write. In 1594 Shakespeare helped to set up a new theater company. Five years later he and some friends built their own theater in London. It was called the Globe.

The Globe theater was destroyed by fire in 1613. A replacement building was closed down about 30 years later. A modern copy, or replica, of the Globe was built in 1997. It is close to where the original theater used to be. The "new" Globe is now used for performances of Shakespeare's plays.

Eventually, Shakespeare returned to Stratford-upon-Avon where he died. He was buried in one of the town's churches called Holy Trinity. Shakespeare's family was quite wealthy. They gave a lot of money to the church. This meant that the family graves were put in an important part of the church, near the altar. Over 100,000 tourists from all over the world visit this church every year.

Carved on Shakespeare's gravestone is a warning. Some people believe that Shakespeare wrote it. The

warning puts "a **curse** on anyone who moves the playwright's bones that are buried under the stone".

In 1879 an article was published in a magazine. It told a surprising story. It said that a well-known art historian had made a bet with a friend in 1794. The art historian said that if the man dug up Shakespeare's skull he would pay him £300. (Today, this amount is worth around \$430,000 (£300,000).) Most modern-day historians think that this story is unlikely to be true.

The archaeologists used ground-penetrating radar. This can record shapes under the ground. It will also detect areas where soil has been disturbed, or moved. The radar shows an unusual disturbance under Shakespeare's gravestone. What's more, it is at the head end of the grave. The archaeologists say that the results suggest that Shakespeare's grave was dug up in the past. Therefore the skull may have been taken.

The village of Beoley is about 15 miles (24 kilometers) from Stratford-upon-Avon. An old skull has been kept in the village church for hundreds of years. A local legend says that it is Shakespeare's. As part of the television program, experts studied this skull. They say that it belonged to a 70-year-old woman. If Shakespeare's skull was stolen, what happened to it is still a mystery. ■

FLAG REFERENDUM

The result of New Zealand's second flag referendum was announced on March 24. A referendum is a yes/no vote in which all adults can take part. Of those who voted 56.6% chose to keep the country's

current flag. It was first used over 100 years ago. Then, New Zealand was a British colony and part of the British Empire.

New Zealand has been an independent country for many years. Now, like several other former British colonies, New Zealand is what's known as a Commonwealth realm. The country is run by an elected prime minister and his or her government. However, as a Commonwealth realm, the king or queen of Britain, or the United Kingdom (UK), is New Zealand's head of state. Other Commonwealth realms include: Australia, Canada, Jamaica, and Papua New Guinea (PNG).

Britain's national flag is called the Union flag. Known as the Union Jack, it has been used for over 200 years. Its design combines three older flags from England, Scotland and Ireland.



Flag rejected by most New Zealand voters

New Zealand's flag has a Union Jack at the top left corner. It has a blue background and four red stars with white outlines. They represent the brightest stars of the Southern Cross. In the night sky, this group of stars is in the Crux constellation. These stars can be seen in the southern hemisphere on any night of the year.

John Key is New Zealand's prime minister. In the past he said that he would like to change his country's flag. He believes its design suggests

that New Zealand is still dominated by Britain. Some New Zealanders think that their flag is too similar to Australia's. The Australian flag also has a blue background and Union Jack. There is a large white star under the Union Jack. The flag also displays the Southern Cross. Yet, on this flag, five (and not four) stars represent the constellation.



New Zealand flag (Tākuta/Edward Hyde)

Before the last election, Mr. Key said that, if he won, he would arrange a flag referendum. Other countries have changed flags that had Union Jacks. South Africa and Canada are examples. Canada introduced a new flag 50 years ago. It is red and white with a large red maple leaf in the center. Canada is famous for its maple syrup. This is made from the sap from maple trees.

In 2015, Mr. Key invited people to suggest new flag designs. More than 10,000 designs were submitted. A panel of 12 judges chose four. A fifth was added, as it was the popular choice of social media users. Then, at the end of last year, the first of a two-stage referendum was held. People were asked to vote for the best of the five.

The winner was black and blue with the four (red) stars of the Southern Cross. It also had a large white stylized fern. This type of fern, called ponga, grows only in New Zealand. It has special importance for the Maori. The Maori are

the native people of New Zealand. They lived in this part of the world long before Europeans arrived. New Zealand has a world-famous rugby team, which is often called the "All Blacks". The team wears black shirts, shorts and socks. The black shirts have a silver fern on the left breast. Over the last 100 years many Maoris have played for the All Blacks.

Mr. Key admitted that he was disappointed with the referendum result. Yet, he said that all New Zealanders should be proud of their flag. Some said that they would be happy to change the flag, but disliked the new design. Others criticized the NZ\$26 million (\$17.9 million) cost of the two referendums.

Tuvalu and Fiji are other countries that have Union Jacks on their flags. Both are Pacific island nations. ■

TWIN COMETS

There was an unusual fly-by on March 21 and 22. Two comets came close to the Earth. Astronomers, or scientists who study the stars and planets, believe that they used to be part of a single comet. This is because their orbits are similar. If true, long ago, a larger single comet broke into two or more pieces.

Asteroids are lumps of space rock. Comets are different. They are mostly made of ice, bits of rock and dust. Comets are often described as big "dirty snowballs". Like all planets in the Solar System, comets orbit the Sun. Yet they take far longer to do so. Comets with an orbit of less than 200 years are known as periodic, or short-period, comets. Those with orbits longer than 200 years are called long-period comets.

Short-period comets are thought to come from a part of the Solar System called the Kuiper belt. This is beyond the orbit of Neptune and the dwarf planet Pluto. Long-period comets are believed to originate from a place about 1,000 times farther away. This region is known as the Oort cloud.



Diagram of the twin comet fly-by (NASA)

When far out in space, comets are completely frozen. As they get nearer the Sun, comets start to warm up. They start to release dust and gases. These create what's known as a coma. This is a cloudy atmosphere around the comet. Comets seem to light up as their comas absorb heat from the Sun. Then, a long "tail" can be seen trailing behind them.

Astronomers use a space measurement called a lunar distance (LD). Asteroids and comets fly past at a certain number of LDs. The Moon's orbit or path around the Earth is shaped like an ellipse. Therefore, the distance between the Earth and the Moon is not always the same. One LD is 238,857 miles (384,403 kilometers). This is the average distance from the center of the Earth to the center of the Moon.

What was thought to be the larger of the two comets has been given the name 252P/LINEAR. Using a powerful telescope, astronomers discovered it 16 years ago. This comet is about 820 feet (250 meters) wide. It passed the Earth at a distance of

13.9 LD. This is 3.3 million miles (5.2 million kilometers).

The second comet was spotted for the first time only two months ago. It is now known as P/2016 BA14 (Pan-STARRS). Pan-STARRS is the name of a telescope in Hawaii. Astronomers using this telescope discovered P/2016 BA14. Hawaii is a group of islands in the middle of the Pacific Ocean. The islands are part of the U.S. This comet passed the Earth at a distance of 2.2 million miles (3.5 million kilometers) or 9.2 LD. This was the third closest comet fly-by ever recorded.

When it was first discovered, P/2016 BA14 was estimated to be about half the size of 252P/LINEAR. This was wrong. During its fly-by, NASA scientists managed to accurately measure the comet. It's about 0.6 miles (one kilometer) wide. Therefore it is bigger than the other one.

Scientists say that the second comet is a reminder of the dangers of comets and asteroids hitting the Earth. This is because it was discovered only a few months before it passed by. Scientists from several countries are now working on an early-warning system. It will detect and track all asteroids and comets that are likely to come close to the Earth. □

BOMBING IN LAHORE

Lahore is the second largest city in Pakistan. The country is divided into four regions. Lahore is the main city in the Punjab region. Pakistan's population is 180 million. Over half of its people live in the Punjab region. Most people in Pakistan are Muslims. About 2.9 million Pakistanis follow the Christian faith. Another 3.7 million are Hindus.

On March 27, a suicide bomber walked into a large park in Lahore. He exploded a bomb close to a children's play area. Then, there were many people in the park. Many were Christians celebrating Easter Day. This is an important date in the Christian calendar. Over 70 people died. Twenty-nine were young children. At least 340 others were injured, or wounded.

Soon after the explosion, an Islamic militant group said that it had organized the attack. This group is called Jamaat-ul-Ahrar. Its name means "Assembly of the Free". The leader of the group said that the Christians were deliberately targeted. However, many Muslims also died in the explosion. In the recent past, this group has attacked two churches in Pakistan. One was in Peshawar and the other in Lahore. The attack on the Lahore church took place 12 months ago.



Jamaat-ul-Ahrar is a **faction** of a bigger organization called Tehrik-i-Taliban Pakistan (TTP). This organization's name means "Taliban Movement of Pakistan". It is also known as the Pakistani Taliban. The TTP is based in North Waziristan. This is a mountainous area next to Pakistan's border with Afghanistan.

The TTP was formed in 2007. Even though the Taliban in Afghanistan and the TTP have similar ideas, they are separate organizations. The TTP's leaders say that they want to set up an Islamic state in Pakistan. Everyone living within the country would have to obey very strict religious laws. Several years ago the government of Pakistan and leaders of the TTP tried to arrange peace talks. Some TTP members were unhappy about this. They broke away and formed Jamaat-ul-Ahrar. The peace talks did not succeed.

In recent years the TTP has carried out bombings and shootings in different parts of Pakistan. These include Islamabad, the country's capital, Karachi and Peshawar. The international airport in Karachi was attacked. Karachi is Pakistan's biggest city. At the end of 2014, the TTP attacked a school in Peshawar. Many of the children's fathers are in the Pakistani army. Over 130 students and teachers died in this attack.



Pakistan's prime minister, Nawaz Sharif (PML-N)

After the attack on Karachi airport, the country's air force began bombing TTP bases in North Waziristan. The army launched a ground **assault**. However, many of the militants escaped by crossing the border into Afghanistan.

Nawaz Sharif is the prime minister of Pakistan. Lahore is his home city. Many people in the Punjab region support Mr. Sharif and his political party. Until now, most serious militant attacks in Pakistan have been in other regions. Soon after the explosion in the park, Mr. Sharif spoke. His address was broadcast on live television. He insisted that the militants would not win. The prime minister said that the fight against terrorism would continue until it no longer existed in Pakistan. ■

FESTIVAL OF COLORS

On March 24, millions of Hindus in India and Nepal took part in a colorful festival known as Holi. The Holi festival is often called the "Festival of Colors". Traditionally, it is a celebration to welcome the passing of winter and the arrival of spring.

The date on which Holi is celebrated is set by the Hindu lunar calendar. Therefore, each year, the festival is on a different day in the international, or Gregorian, calendar. Next year, Holi will be on March 13. The festival takes place on the last day of the full Moon in the Hindu month of Phalguna. In the international calendar Phalguna is between February and March.

Holi is a joyful festival. People are supposed to have fun and forget their arguments and disagreements. Those taking part play music, dance and eat sweets. As it is a religious festival, people visit shrines during the celebrations. At the beginning of Holi, a large pole decorated with colorful fabrics, called a chir, is put up.

Holi is a symbol of the story of a very **devoted** Hindu called Prahlad and a demon called Holika. It celebrates the victory of love over hatred and good over bad. In the story, Prahlad escaped from Holika when the demon dragged Prahlad into a fire to try to kill him. Yet, as Prahlad was so devoted, he was not burned. On the evening before the day of Holi, bonfires called Holika Dahan are lit. In some places, people make an effigy of the demon, and burn it on their bonfires.



Holi celebration in India

On the day of the festival people throw brightly colored powders at each other. This is why Holi is called the Festival of Colors. Nowadays, some people use plastic water guns to squirt colored water. Others throw water-filled balloons. People can be seen walking around cities and towns with their skin and clothes covered in the brightly colored powders.

It's thought that the colored powders were once used for a special reason. The warm weather after the winter was believed to cause illnesses. In the past the colored dyes were made from herbs and flowers, which had been soaked in water. Then, these were used to make types of medicine. So throwing the colored dyes at each other was supposed to prevent fevers and colds.

Today, many of the colored dyes are synthetic, or man-made. In recent years some people have become worried about the chemicals

used to make them. Several dyes have caused skin rashes and eye problems. Therefore, even though they are more expensive, natural dyes are more and more popular.

The majority of people living in India are Hindus. Therefore, the largest Holi celebrations take place in Indian cities. The Festival of Colors is also celebrated in Sri Lanka, Nepal, Indonesia, and many other countries with large Hindu populations. These include: Malaysia, Singapore and Britain. ■

METRO DOGS

In the world's bigger cities many people travel on underground trains. This type of transport is known as the subway, underground or metro. Moscow is Russia's capital. The city's metro has some passengers

that never buy tickets: dogs. Surprisingly these stray dogs seem to know where they are going.

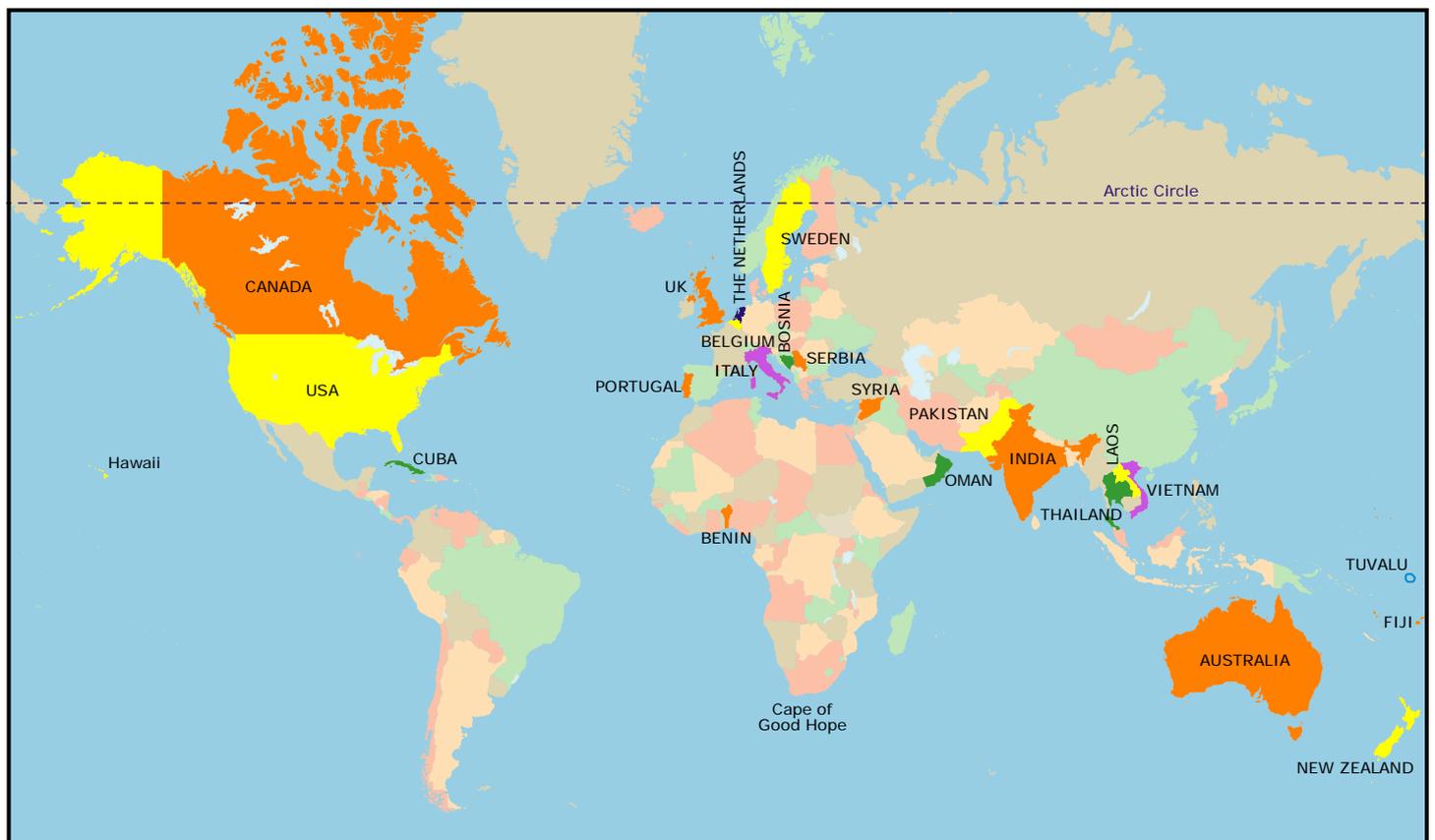
City officials believe that there are 35,000 stray dogs in Moscow. These dogs do not have owners. The Moscow Metro has 200 stations. These are home to about 500 strays. Russia is very cold in winter. Temperatures in Moscow are often around 14°F (-10°C). Many Metro dogs stay in the subway stations to keep warm. Yet about 20 frequently get on and off trains. These dogs do not travel randomly. For example, they may get on the same train every day and get off at the same station. Some passengers are kind to the dogs and give them food.

All dogs are descended from wolves. It's thought that they became separate animals around 40,000 years ago. This may have been at the time that wolf-like dogs

began to live with humans. Early humans probably trained dogs to help them hunt wild animals. Dogs and humans have therefore been living together for tens of thousands of years. This explains why dogs understand human behavior better than any other animal. They seem to know when people are happy or sad.

Scientists have been observing the Metro dogs. They divide them into three different groups. One group live in stations, but don't get on trains. Others travel short distances on trains. The third group spend all day traveling. They change, or get on and off, trains. The scientists wanted to find out how and why these dogs behaved in this way.

Many pet dogs are trained. This is often done by a method called "positive reinforcement". Good behavior is rewarded. If a dog sits when told to, it is given a treat, or



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

something nice to eat. The scientists suspect that using the metro is a type of positive reinforcement. The trains are warm and some passengers may feed them. By traveling on the trains, the dogs are rewarded with warmth and food.



One of Moscow's Metro dogs (Adam Baker)

When different species develop similar characteristics, it is known as **convergent** evolution. This can happen when unrelated animals live in the same surroundings. For instance, sharks and dolphins look similar. Yet one is a fish and the other a mammal. They have evolved to be a similar shape. This is because it is best for swimming. In the Moscow Metro humans and stray dogs “live” in the same surroundings. The dogs have adapted to their surroundings to find food and keep warm.

However, this does not explain how the dogs know when to get on and off trains. They have a good sense of smell. Dogs might choose the right station because of its smell. They may recognize lighting, passenger movements or the presence of certain people, such as station guards. Station names are announced over a loudspeaker. Dogs have good hearing. They may respond to station names like they do to human commands.

Metro trains run on a timetable. The regular arrival of trains and the passengers' daily routine probably comfort the dogs. Each day there is

a rush hour and nightly shutdown. If dogs associate these regular events with food and safety, it's like a form of positive reinforcement.

By studying the Metro's unusual passengers, the scientists hope to learn more about the relationship between dogs and humans. ■

BRUSSELS ATTACKS

Early in the morning on March 22, two bombs exploded at Brussels Airport. Then, about one hour later another bomb blew up in the Belgian capital city. This explosion was on an underground, or metro, train. Soon afterwards a militant organization called the Islamic State (IS) said that it had organized the bombings.

Suicide bombers detonated the three devices. The bombs at the airport were hidden inside suitcases. After the explosions, the police discovered a suitcase that contained another bomb. It had failed to go off. The police are still searching for the person who took this suitcase to the airport. Thirty-two people died in the two attacks (not including the three suicide bombers). Over 300 were wounded. Doctors say that at least 60 of them are seriously injured. The people who died in the bombings came from more than ten countries.

The suicide bombings were the worst terrorist attacks ever to happen in Belgium. Brussels is often thought to be Europe's capital city. This is because it is the headquarters of the European Union (EU). The bomb on the metro train exploded at a station close to the EU's main building. Twenty-eight European countries are members of the EU. Belgium's capital city is also the headquarters of NATO (North Atlantic Treaty Organization).

This is a military **alliance**. NATO also has 28 members. Twenty-five are European countries. The three non-European NATO members are: the U.S., Canada and Turkey.

Supporters of the IS do not believe in democracy. They claim that they will eventually take over the Middle East and even parts of Europe. They have already declared a caliphate. A long time ago, a caliphate was a large Muslim area ruled by one person. During the last three years, hundreds of young Muslim men left their homes and families in European countries. They traveled to Syria to join the IS. Some of these men came from Molenbeek. This is a poor area, or district, of Brussels. It is home to many Muslims.



Street memorial to 2016 Brussels attacks (Romaine)

Five months ago IS gunmen and suicide bombers carried out attacks in the center of Paris, France's capital city. Over 100 people died in these attacks. Most of the attackers killed themselves or were shot by police marksmen. However, one man managed to escape to Belgium. French police investigating the attacks discovered that they were organized in Belgium.

Two days before the Brussels bombings, Belgian police broke into a house in Molenbeek. They captured the “missing” Paris attacker. He was found living not far from his mother's house. Many people criticized the Belgian police. They

did not understand why it took them so long to find the man. It's now known that he was working with the people who carried out the attacks on the airport and metro station. His arrest seems to have made them decide to act quickly.

After the Brussels attacks, many people placed flowers and candles in one of the city's central squares. To show support, other cities lit up their famous [landmarks](#) in black, yellow and red. These are the colors of the Belgian flag. The landmarks included the Eiffel Tower, in Paris, and the Brandenburg Gate in Berlin, Germany's capital city.

Belgium's king, Philippe, spoke on live television after the attacks. The following day a minute's silence was held for all those who had died. ■

PORTUGUESE SHIPWRECK

A wooden shipwreck was discovered 18 years ago. It is close to a remote island in the Arabian Sea. This island is now a part of Oman. A team of divers have been working at the wreck site for the last two years. Historians are now sure that it is the wreck of a Portuguese ship called the *Esmerelda*. It sank in 1503.

The wreck is important. This is because it was one of Vasco da Gama's ships. He was a famous sea captain and explorer from Portugal. Da Gama's date of birth is not known. He was probably born during the 1460s. Da Gama died in 1524. He was the first European to sail to India.

Then, it was known that India existed. It was also known that India produced many types of spices. These, such as pepper, cinnamon and cloves were rare in Europe.

They were therefore worth a lot of money. Spices from India were transported to the Mediterranean and northern Europe overland. This route crossed Arabia, or today's Middle East. To the Portuguese, this overland journey was far too dangerous. Da Gama wanted to find a safe and quicker passage to India.



Divers working on the ancient shipwreck in Oman (Blue Water Recoveries)

At that time, Portugal made some of the world's best wooden sailing ships. They were called *naus*. In other parts of Europe these three- or four-masted ships were known as carracks. In 1597 da Gama set out to sail to India. He had four ships and 170 men. The ships carried several cannons. Da Gama sailed around the Cape of Good Hope, or the southern tip of the African continent. Because of [monsoon](#) winds, the four ships crossed the Indian Ocean in only 23 days.

After loading his ships with spices, da Gama set sail for Portugal. The return journey was far more difficult. This time it took over 100 days to cross the Indian Ocean. The winds were blowing in the opposite direction. Over half of the men died from sickness. There were not enough crew for the four ships. Off the coast of Africa, da Gama decided to sink two of the ships. The remaining two eventually reached Lisbon. They arrived two years

after they left. Da Gama was given a hero's welcome. The spices brought back by his ships were sold for a huge profit.

Da Gama set out for a second voyage to India in 1502. This time he had a fleet of 20 armed ships. After arriving off the Indian coast, da Gama attacked several towns. Trading ships from Arabia were sunk. After loading many of his ships with spices, da Gama returned to Portugal. However, five ships commanded by Vicente Sodré were ordered to stay behind. Sodré was one of da Gama's uncles. His job was to protect some new Portuguese trading posts that da Gama set up on the Indian coast.

Sodré disobeyed his orders. He sailed north to the Arabian Gulf. There, he was able to attack more Arab ships and steal their cargoes. Sodré landed on a remote island to repair one of his ships. A powerful storm arrived. Two of his ships were blown onto rocks and wrecked. One was the *Esmerelda*.



Model of a nau, or carrack

Historically the wreck of the *Esmerelda* is very special. It is the oldest European shipwreck in this part of the world. Its cargo is an example of the first ever contact between Europeans and India. The divers have found many artifacts. These include the ship's bell, which is made of bronze, and gold coins made in Lisbon between 1495 and 1501. ■

PALMYRA RECAPTURED

Palmyra is in Syria. It is a famous ruined city. Many of the ancient city's buildings are over 2,000 years old. Palmyra is also known as Tadmur. This is the name of the modern-day town not far from the ruins. Ten months ago, fighters, or gunmen, captured Tadmur and Palmyra. They belong to a militant organization called the Islamic State (IS). This organization is also known as ISIS and ISIL.

On March 27, after a battle lasting several days, the Syrian army recaptured Tadmur and Palmyra. The Syrian soldiers were helped by Russian warplanes. Bashar al-Assad is the president of Syria. He said that recapturing Palmyra was an important victory.



Palmyra is a United Nations (U.N.) World Heritage site. These are places that the U.N. believes need special protection. They are important for historical, cultural or natural reasons. Palmyra means "city of palm trees". The city was built next to an oasis, or place in the desert where there is water. The city is halfway between the Mediterranean Sea and the Euphrates River. In ancient times, the trade route that connected countries in the east with the Roman world passed through Palmyra.

The IS currently occupies large areas of northern Syria and north-west Iraq. The organization was



Part of the ancient ruins of Palmyra (Bernard Gagnon)

set up about four years ago. Its headquarters is in the Syrian city of Raqqa. Most IS supporters are Sunni Muslims. They believe that everyone should follow very strict religious rules. Many people say that IS fighters are fanatics who are prepared to commit genocide, or mass murder. They wear black clothing and treat Shia Muslims, Christians and people of other religions very harshly.

Followers of the IS say that ancient statues of god-like figures and temples should be destroyed. They believe that there is only one God. Therefore statues of other gods in ancient ruined cities are signs of idol worship. Before the IS captured Palmyra, it deliberately damaged the ruins of several well-known ancient cities in Iraq. Nineveh is one example.

Many people were worried about Palmyra when it was occupied by the IS. Soon afterwards the stone walls of two of Palmyra's best known temples were blown up. Both buildings were about 2,000 years old. The U.N. declared that the destruction of these temples was a war crime.

The day after the Syrian army recaptured Palmyra, experts from Damascus, Syria's capital city, arrived. They wanted to find out what damage had been done to the ruins. The experts said that the destruction was less than they expected. About 80% of the ruins were not harmed. The Lion of Al-lāt is one of Palmyra's famous statues. It is 9.8 feet (three meters) high. It was thought that the IS had destroyed this statue. Yet, the experts say that it was damaged but still standing.

The experts think that all the damage to Palmyra's ruins could be repaired within five years. Russia has been supporting Mr. al-Assad and his government. Vladimir Putin, the Russian president, congratulated Mr. al-Assad on the recapture of Palmyra and Tadmur. Mr. Putin said that Russia would send a team of specialists to help to repair the ruins.

The Syrian army is now advancing from Palmyra towards the city of Deir ez-Zor. It has been surrounded by IS gunmen for the last 12 months. ■

ORCA BREEDING TO END

The SeaWorld Company is based in the U.S. It operates several theme parks in the country. These have rollercoasters and other rides and visitor attractions. SeaWorld also has large aquariums, known as oceanariums. About 11 million people visit SeaWorld parks every year.



SeaWorld killer whale with trainer (David R. Tribble)

The parks arrange shows. These feature sea lions and dolphins. However, the best-known SeaWorld shows involve killer whales. These large black and white marine mammals are also known as orcas. A long time ago, some of the park's killer whales were caught in the ocean. Yet for over 30 years, SeaWorld's orcas have all been born in the parks. They have therefore never lived in the ocean. Recently, bosses at the company made an announcement. They said that they had decided to stop SeaWorld's orca breeding program.

Even though they seem to prefer colder water, orcas can be found in all the world's oceans. They are the largest members of the dolphin family. Adult males can be as long as 32 feet (9.5 meters) and weigh four tons. Females are slightly smaller. Orcas live in large family groups. These are known as pods. Killer whales are known to be very intelligent. They are able to "talk" or

communicate with each other. They do this by making clicking and whistling sounds. Baby orcas are called calves. When calves are born the whole pod helps to look after them.

Killer whales eat fish. Yet they also feed on seals, sea lions, sea birds, turtles, octopuses, and squid. Orcas will also attack whales that are far bigger than they are. Killer whales hunt in pods. First, they surround their prey. Then, they force it into a smaller and smaller area of water. This behavior is similar to packs of wolves. If the orcas are attacking a larger marine creature, they take turns to bite it.

Orcas have been filmed jumping out of the water onto ice floes and swimming up onto beaches. They may do this if there are lots of seals on the ice or beach. Killer whales are an example of an apex predator. This means that no other animal preys on them. Lions are another type of apex predator.

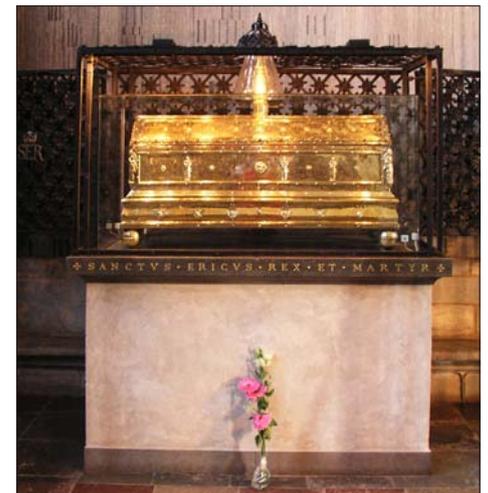
The SeaWorld killer whale shows are very popular. The whales are trained to perform tricks to entertain the large audiences. However, there have been a few accidents. In 2010 a trainer, or handler, was killed by an orca at the SeaWorld park in Florida. The trainer was experienced. She had worked at SeaWorld for 16 years. The trainer was standing by a water tank after a show. One of the orcas grabbed her ponytail in its mouth. It then dived and pulled her under the water.

After the accident six years ago, some people said that keeping killer whales in captivity was cruel. They claimed that it was wrong to get these marine creatures to perform in shows. They argued that killer whales did not do this in the wild, so it was unnatural.

SeaWorld has 29 orcas. Some people have argued that they should all be released into the ocean. Yet company bosses say that this would be wrong. As the killer whales had been born in captivity, they could not survive in the wild. The bosses said that all killer whale shows would now be phased out. The orcas would "retire". All would be well looked after at the parks until they died. ■

ANCIENT SWEDISH KING

Erik the Ninth was a king of Sweden. He is also known as Erik Jedwards-son, Saint Erik and Erik the Holy. He is one of Sweden's most famous historical figures. Yet no historical records about Erik or what he did exist. It's known that he died in 1160. The details of his life and actions all come from legends. These may have been **exaggerated** to persuade the church to make him a saint.



Saint Erik's reliquary in Uppsala Cathedral, in Sweden (Håkan Svensson)

Legend says that Erik ruled for ten years. He is described as a fair and popular ruler. As king, Erik helped to spread Christianity throughout his country. He also led a successful crusade to Finland. This was carried out to convert the Finnish people

to Christianity. Erik also drew up a list of rules for his kingdom. These became known as King Erik's Law. He built a church at a place called Uppsala. Erik was killed in a fight or battle. It was against a leader from Denmark who claimed that he was the rightful king of Sweden.



Uppsala Cathedral, in Sweden (Håkan Svensson)

Erik's bones and crown were placed in a reliquary. This is a type of casket in which important or holy relics are kept. The reliquary can be seen in Uppsala Cathedral. The casket is about 450 years old. It was made to replace an older one. Building work on Uppsala Cathedral began in the early 1270s, or about 110 years after Erik's death. Today, Uppsala is Sweden's fourth largest city. It is about 44 miles (71 kilometers) from Stockholm, the country's capital city. Erik is the patron saint of Stockholm.

Erik's reliquary was opened in 1946. Then, it was confirmed that

the casket contained a crown and the bones of a man. Two years ago a decision was made to open the casket again. This was because it is now possible to carry out an in depth scientific study. Several scientists have been doing tests on the bones for the last 12 months. The results and what they mean have recently been made available.

When he died Erik was between 35 and 40 years old. He was a fit, strong man who ate plenty of healthy food. The king seems to have eaten a lot of freshwater fish. This may show that he was a very religious man. In those days, saintly people often fasted, or ate little or even no food. During these times, fish could be eaten but not meat. The king seems to have spent the last few years of his life in an area to the south of Uppsala.

In his final battle, legends say that Erik was attacked by a "swarm" of enemy soldiers. After he was killed, the king's head was cut off. This may be true. There are many cut marks on the bones of the lower legs. Yet there are no wounds to the arms or ribs.

In those days kings and noblemen wore a type of armor called a hauberk. This was a long shirt-like garment. It was made of hundreds of small interlocking metal rings. The type of armor is also known as chain mail. The armor would have protected Erik's body, but not his lower legs. Erik was beheaded. The scientists were able to show that this happened soon after he was killed.

The scientists also managed to find and extract some DNA from the bones. They hope to be able to use this to find out where Erik came from and who his descendants are. ■

CLEANING SUNSHINE

Scientists in Australia have developed a new and unusual way of cleaning textiles and fabrics. It does not use soap and water. Instead all that's needed is sunshine.

Using nanotechnology, the scientists have created a new type of nanostructure. Nanotechnology is the science of working with things at the level of their atoms and molecules. These nanostructures, or nano-scale materials, can only be seen with high-powered microscopes. Less than one billionth of a meter in size, they are grown in the laboratory.

The nano-scale materials can be used with different types of textiles. These could be clothes, carpets, curtains, sheets, or the textiles used to cover furniture. After being grown in the laboratory, the tiny structures could be added to material before it is made into clothes or other items.

When light is shone on the nanostructures they degrade, or break down, organic matter. This light could be from the Sun or a light bulb. Dirt, spilt food, wine, tea or coffee, as well as sweat are all organic matter. So the nanostructures can break these things down. Once this happens, the stains or dirt disappears. ■

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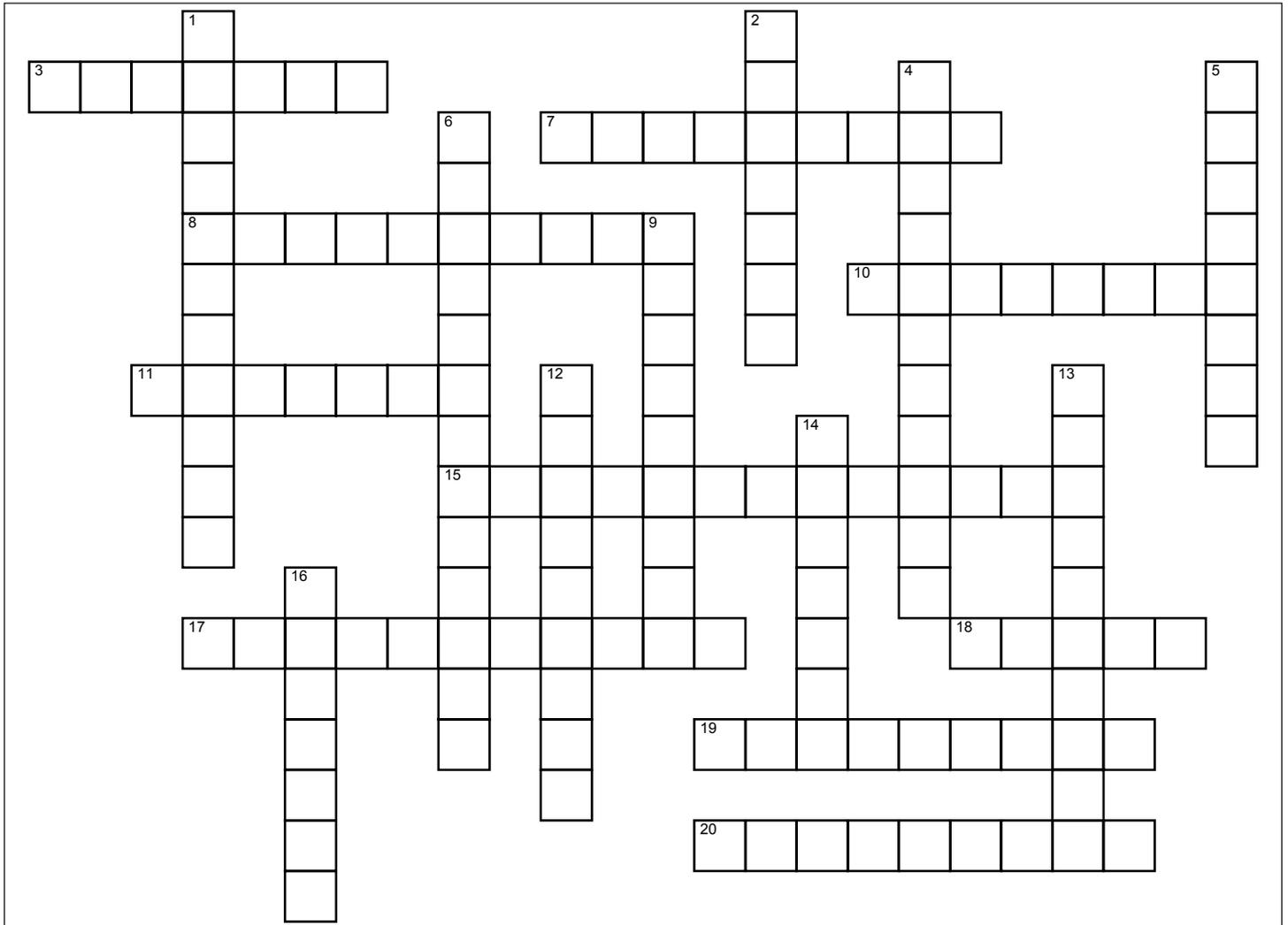
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GLOSSARY PUZZLE

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



Across

- 3 *Adjective* Very loving or loyal
- 7 *Verb* To be in control of or more powerful than others
- 8 *Noun Plural* Terrible crimes
- 10 *Noun* A committee appointed to hear evidence and give punishments when there is a dispute
- 11 *Noun* An order to temporarily stop something, especially trading with another country
- 15 *Noun* A group of stars in the night sky that appears to form a pattern and has been given a name
- 17 *Verb* To magnify the importance of something to make it seem more significant, or better or worse than it really is
- 18 *Noun* Words used for causing bad luck or wishing something awful to happen to someone
- 19 *Verb* Points out or shows where something is
- 20 *Noun* A feeling of not being friendly to another person or country

Down

- 1 *Noun* An attack using large guns or missiles
- 2 *Noun* A strong wind that brings heavy rain in summer near the Indian Ocean
- 4 *Verb* Brought back to life
- 5 *Noun* The ideas and beliefs that determine the actions of a group of people, political party, or country
- 6 *Noun* A system of encouraging a belief or type of behavior, especially by giving a reward
- 9 *Noun* Something that has been made or built, especially a large building
- 12 *Noun Plural* Buildings or places that are well-known, especially ones you can use to work out where you are
- 13 *Adjective* Coming closer together
- 14 *Adjective* Describes something that is claimed to be true, even though it has not been proved
- 16 *Noun* A group of individuals that has different ideas or opinions from the larger group of which it is a part

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GLOSSARY PUZZLE *CONTINUED*

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

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

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If you wish to earn additional Demics please email the missing word answer to: subscriptions@newsademic.com Puzzle entries need to be submitted by 10pm on April 13, 2016 (GMT/UTC).*

MISSING WORD ANSWER =

ISSUE 271 ANSWERS

E X C L U S I V E