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Millions of private financial documents were taken from a law firm in Panama and given to a German newspaper

PANAMA PAPERS

On April 4, governments around the world ordered tax officials to check the information that had been published in many newspapers. This information was a “leak” of 11.5 million confidential, or secret, financial documents, letters and emails. They were taken from a law firm called Mossack Fonseca. This organization is based in Panama

The leak has become known as the Panama Papers. It includes information about more than 210,000 companies. These are not normal businesses. Most are offshore companies. Often, these kinds of companies are set up for tax reasons. Wealthy people, living in many parts of the world, use offshore companies to reduce the amount of tax they pay.

Setting up an offshore company is not illegal. Companies like Mossack Fonseca arrange this for a fee. As part of the set up process, a company bank account

is opened. Offshore companies are registered in places called “tax havens”. These are small countries or territories where companies pay no tax or a very small amount. There are at least 70 tax havens in the world. Panama is one. Other well-known tax havens include the British Virgin Islands (BVI) and Bermuda. In the U.S., the states of Delaware and Nevada are often described as tax havens.

Offshore companies can also be used to conceal, or hide, money made from criminal actions, such as selling illegal drugs. The company can be used to buy legal assets with unlawfully made money. These assets could be large houses, expensive jewelry or works of art. This illegal activity is known as money laundering.

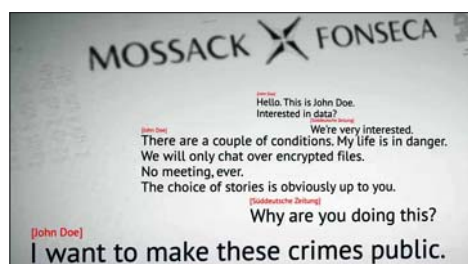
The names of people associated with offshore companies can be kept secret. This means that it is not possible to find out who owns them. However, people

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associated with the offshore companies listed in the Panama Papers are named. Many of these names have now been printed in newspapers. They include 12 people who either lead countries or used to do so. Examples are: the presidents of Argentina and Ukraine, the king of Saudi Arabia and the prime minister of Iceland. Some leaders' close relatives, friends or contacts are listed. The Panama Papers also include the names of politicians, wealthy businessmen, rich entertainers and sports people from many countries.



Chat between person who took the documents from Mossack-Fonseca and German newspaper

At first, it was thought that a whistleblower leaked the Panama Papers. People who take the risk of making secret documents or information public are often called “leakers” or “whistleblowers”. Nowadays, it is not difficult to leak secret information. This is because many thousands of documents can be stored on a single memory stick. Before electronic filing systems, leaking thousands of paper documents was far harder.

Mossack Fonseca insists that it has done nothing wrong. It claims that the information was hacked from its computer systems and not leaked. The Panama Papers were passed to a German newspaper called *Süddeutsche Zeitung* over 12 months ago. The number of documents surprised the newspaper. Its bosses spoke with an organization called ICIJ (International Consortium of Investigative Journalists). The ICIJ has a network of newspaper

journalists in over 60 countries. It agreed to help. Eighty of the organization's journalists took months to check through the millions of documents. The ICIJ says that it will release all the Panama Papers within the next few months.

In most countries people have to pay tax. There are many different types of taxes. People who work for companies usually have tax automatically deducted, or taken, from their wages. Normally, the more a person earns, the larger amount of tax they pay. Other sales taxes may increase the price of things in shops and items such as petrol, alcohol and cigarettes. Governments use this tax money to pay for things the country needs. Examples are, welfare, schools, hospitals, roads, government workers, the police, and the army, navy, and air force.

If a government gets enough tax to pay for everything needed, it has a surplus. If it does not collect enough tax it has a deficit. When a government has a deficit it has to borrow money. Governments usually do this by selling bonds. When a government has a deficit, it will probably reduce the money it spends. So there is less money available for public services such as schools and hospitals.

Many countries have complicated tax rules. Some experts advise wealthier people on how to use these complex rules to pay less tax. This may include setting up an offshore company in a tax haven. Avoiding tax in this way is not unlawful. Yet tax **evasion** is. This is deliberately not paying the tax that you should. Because of complex tax rules, it can be difficult to know the difference between tax avoidance and tax evasion. Some people argue that the way in which some offshore companies operate is tax evasion.

The Panama Papers highlighted that many political leaders and wealthy people do not pay the correct amount of tax. Most ordinary workers have to pay taxes. Yet, if wealthy people avoid paying taxes, there may be less money for public services. Many people were angry when they read about the Panama Papers. They say it's wrong that some richer people and politicians hide their wealth and don't pay the correct amount of tax.

In Iceland, there was a large demonstration in Reykjavik, the country's capital city. The Panama Papers named Sigmundur Gunnlaugsson, the country's prime minister. Because of the protests, Mr. Gunnlaugsson agreed to step aside. A few days later a senior Spanish government minister resigned. This was after he was **implicated** in the Panama Papers.

Several governments have declared that they would investigate the people named in the Panama Papers. Britain, Germany, France, Italy, and Spain announced that they would work together. The leaders of these countries want there to be **transparency** in all tax arrangements. This means that nothing is hidden or kept secret.

Many people are now wondering who passed the Panama Papers to the German newspaper. Whoever it was, they did not ask for any money or reward. The person used the name “John Doe”. This name is often used in the U.S. for someone whose identity is unknown. In the coming weeks and months, the Panama Papers are likely to damage people's reputations in many countries. For this reason, some suspect that the leaker works for a spying operation such as the CIA in America or the Russian FSB. ■

NAGORNO-KARABAKH

On April 1, fighting broke out in an area of Azerbaijan called Nagorno-Karabakh. It lasted for four days. The fighting was the worst since a war ended in this area over 22 years ago. Then, Azerbaijanis and Armenians living in Nagorno-Karabakh fought against each other. Over 25,000 people died in this war. One million were displaced, or forced to leave their towns and villages.

The trouble in this part of the world began over 100 years ago. Azerbaijan and Armenia are home to two separate ethnic groups. They also follow different religions. People in Azerbaijan, or Azeris, are mainly Muslims. Armenians are mostly Christians. In the 1920s both countries were taken over by Russia. They became a part of the Russian-led Soviet Union. The Russians allowed many Armenians to live in an area of Azerbaijan called Nagorno-Karabakh.



Nagorno-Karabakh is a mountainous area. Its name comes from two languages. Nagorno is Russian for “mountain”. Karabakh is an old Persian word that means “black garden”. At the end of the 1980s, a parliament in Nagorno-Karabakh voted to become a part of Armenia. This led to serious fighting. Around this time, the Russian-led Soviet Union began to break up. Both Armenia and Azerbaijan became independent

nations in 1991. Soon afterwards, Nagorno-Karabakh declared that it was a republic, or an independent nation. This made the fighting worse.

Eventually, in 1994, Russia persuaded the two sides to agree to a ceasefire. During the fighting both sides committed atrocities, or war crimes. Each was accused of what’s known as ethnic cleansing. The Azeris in Nagorno-Karabakh were forced to leave. Armenians living in other parts of Azerbaijan were told to vacate their houses. Both groups have not been able to return to their homes since the ceasefire began 22 years ago.

Nagorno-Karabakh is an enclave. This means that it is a territory, or area of land, enclosed within another country. Today, it is home to about 150,000 Armenians. Armenia has never said that Nagorno-Karabakh should be a separate state. Yet it has supported the Armenians who live there. It gives the enclave money and weapons.

Part of Azerbaijan is an exclave. This is the name given to a part of a state that is not connected to the rest of the country. The Azerbaijan exclave is called Nakhchivan. Its population is around 420,000.

During the war the Armenians in Nagorno-Karabakh captured some Azeri territory. So far, they have refused to give it back. This has angered the government of Azerbaijan. Peace talks have been held, but no agreements made. Occasionally, shooting breaks out. The worst was the recent incident, which lasted for four days. The fighting is believed to have started after Azeri troops tried to retake some territory. At least 30 soldiers on each side were killed. Once again Russia helped to arrange a further ceasefire. ■

CORAL BLEACHING

Marine scientists are worried about coral reefs. Now, reefs in many parts of the world are being affected by what’s known as coral bleaching. Scientists say that this is the worst bleaching event ever recorded. Corals can survive these events. However, repeated, or long periods of, bleaching can destroy coral reefs.



Coral reef (NOAA)

Corals are tiny living organisms. Individual corals are called polyps. The polyps are like stomachs with a mouth and tentacles. They create a hard outer covering, or exoskeleton. This is made of calcium. Over hundreds of years the polyps’ exoskeletons build up, one on top of another. This is how coral reefs are formed. Even though polyps are tiny creatures, they are similar to plants. They don’t move and get some of their energy from the Sun.

Coral reefs are important marine environments. Many types of fish and marine plants live on or around coral reefs. Some people say that these reefs are similar to the land’s rainforests. Coral reefs cover about 0.2% of the oceans and seas. Yet they are home to around 25% of all the world’s fish species. The Great Barrier Reef is the largest coral reef. Over 1,250 miles (2,000 kilometers) long, it is off the northeast coast of Australia. Thousands of marine species are found on this reef.

Corals get their bright colors from tiny algae that live inside them. The algae provide the food that corals need. Sometimes the corals expel these algae. When this happens the coral turns white. This is why it is called bleaching. No one is sure what causes coral bleaching. However, most scientists believe that it is caused by changes in the temperature of the seawater. So, bleaching may occur if the seawater gets hotter or colder. Another likely cause is a greater amount of carbon dioxide (CO₂) in the seawater. This CO₂ comes from the air. It makes the seas more acidic.



Bleached coral reef (NOAA)

Scientists say that over half of the Great Barrier Reef has now been affected by bleaching. Coral bleaching has also been reported near Florida, in the U.S., around many Pacific islands, in the seas surrounding Indonesia, across the Indian Ocean, and on the east coast of Africa. This large bleaching event seems to have started over 12 months ago.

Many marine scientists think that warmer waters are causing the bleaching. In 2014 a large underwater “heat wave” formed in the northeastern part of the Pacific Ocean. Over time, it spread along the west coast of North America. Here, the seawater was 4.5°F (2.5°C) warmer than normal. Scientists nicknamed this large mass of warm water “the Blob”. Nobody knows what caused it.

The current El Niño could also explain the widespread coral bleaching. An El Niño is a **phe-nomenon** that, on average, happens once every five years. The sea temperature in the Pacific Ocean off the northeast coast of South America becomes much warmer. Again, no one knows why this happens. An El Niño usually affects the weather on both sides of the Pacific Ocean as well as other parts of the world. During an El Niño there is far more rain in northern parts of South America and less in Australia and Indonesia. This current El Niño began last year. It is thought to be the “strongest” for 100 years.

The Blob has now cooled. Yet the effects of the El Niño are expected to last for the rest of this year. Scientists therefore think the bleaching will continue for another nine months. They will not be able to work out what permanent damage it has caused until it ends. ■

KING SALMAN VISITS EGYPT

King Salman of Saudi Arabia traveled to Cairo, the capital of Egypt, on April 7. This was the start of his five-day visit to the country. Egypt’s president, Abdel Fattah al-Sisi, greeted the king at the airport. Saudi Arabia and Egypt are the biggest Arab countries. Saudi Arabia began to help Egypt three years ago. This was after Mr. Sisi, a former army general, became the country’s president.

In recent years Egypt has had many difficulties. There have been large street protests and disagreement between opposing political and religious groups. For over 30 years Hosni Mubarak led Egypt. He was forced to stand down after

large demonstrations in 2011. The protesters wanted to be able to elect their leaders.

With help from the army, elections for a new parliament and president were organized. A group called the Muslim Brotherhood did well in the parliamentary election. This organization is both a religious and political group. Mohammed Morsi won the presidential election. He is a Muslim Brotherhood member.

After he became president, Mr. Morsi declared that a new constitution would be written. These are the laws by which a country is governed. Most of those who worked on the new laws were Muslim Brotherhood supporters. By this time, General Sisi had become the commander of Egypt’s army.



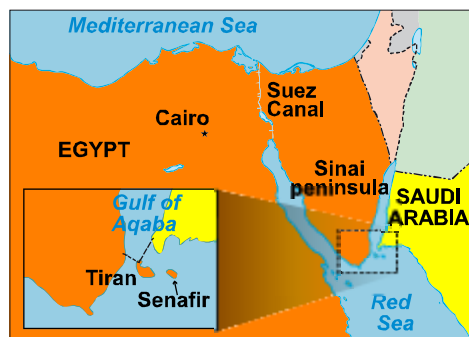
Egypt’s leader, President Sisi with King Salam of Saudi Arabia at the airport in Cairo

Many Egyptians were angry when they realized that the new constitution included some religious laws. People began to criticize Mr. Morsi for not acting for the whole country. They accused him of favoring Muslim Brotherhood supporters. Others complained about the economy. They said that Mr. Morsi and his ministers did nothing to improve it.

One year after Mr. Morsi became president, millions of people took

part in a huge street protest. Then, General Sisi decided to take over. On his orders, Mr. Morsi and other senior Muslim Brotherhood members were arrested. Many Egyptians, especially those who dislike the Muslim Brotherhood, agreed with what General Sisi did. Yet others said that it was wrong for the army to remove a democratically elected president. General Sisi banned the Muslim Brotherhood. The organization's senior members were arrested. They and Mr. Morsi are now in prison.

General Sisi appointed a temporary leader. The constitution was rewritten. Another presidential election was held. General Sisi announced that he would leave the army and stand in this election. He won.



Traditionally, Egypt has made a lot of money from tourists, or foreign visitors. However, because of the troubles, fewer tourists now travel to the country. This has badly affected Egypt's economy. The leaders of Saudi Arabia dislike the Muslim Brotherhood. Since Mr. Sisi took over, Saudi Arabia has supported Egypt.

Saudi Arabia is an absolute monarchy. This means that its king makes all the important decisions. Salman became king after the previous monarch, Abdullah, died at the beginning of 2015. Abdullah was King Salman's half-brother. During his visit to Egypt, King Salman

spoke to the Egyptian parliament. He and President Sisi announced several new projects in which Saudi Arabia would invest money. One is to connect the two countries with a new bridge and [causeway](#). It will cross the Red Sea.

The two leaders did not say where the bridge would be. The mostly likely site is at the entrance to the Gulf of Aqaba. Here, the distance between the two countries is about 8.7 miles (14 kilometers). There are two uninhabited islands in this part of the Red Sea. Called Tiran and Sanafir, they have been controlled by Egypt for many years. The causeway would probably pass through Tiran. During King Salman's visit it was announced that the two islands would become part of Saudi Arabia. Many Egyptians were unhappy about this announcement. ■

WORLD'S LONGEST SNAKE

Construction workers have been building an flyover on Penang. This large island is a part of Malaysia. Recently, one of the workers telephoned the Malaysian Civil Defense Department's emergency number. This organization operates ambulances and fire trucks. The building worker said that a big snake was near the construction site. It was a reticulated python.

Pythons can grow to great lengths. There are over ten python species. The reticulated python is one of them. This snake is found in South East Asian countries as well as India. Its name comes from a Latin word. *Reticulates* means "net-like". The markings, or patterns, on the python's skin look like a net or grid.

Reticulated pythons are found in rainforests, woodlands and grasslands. They normally live close to ponds, lakes or rivers. Pythons are solitary creatures. They only meet with others to mate. Like all other snakes, pythons are carnivores, or meat eaters. Young reticulated pythons feed on small mammals like rats and mice. Fully-grown ones eat larger mammals such as monkeys, deer and wild cats and pigs. These pythons will also prey on domestic animals. These can include: chickens, dogs and cats.



Members of the Malaysian Civil Defense Department holding the reticulated python (JPAM)

Pythons are [ambush](#) hunters. They lie in wait and keep very still. When an animal passes close by, the snakes suddenly attack it. The pythons' skin markings are a type of [camouflage](#). When in trees or lying among dead leaves on the ground, reticulated pythons are difficult to see. These snakes are constrictors. They do not have a poisonous bite. Pythons coil their bodies around their prey. Then, they squeeze until the animal can no longer breathe.

Pythons can dislocate, or unlock, their jaws. This allows them to open their mouths very wide. Their prey is swallowed whole. If a larger animal is eaten, it can take many weeks to digest. Some bigger pythons may eat only four or five times in one year. Pythons are very good swimmers. They can easily swim to islands in lakes or off the coast.

The world's longest snake is believed to be a reticulated python in the U.S. Called Medusa, it can be seen in a visitor attraction in the state of Missouri. This snake eats deer, rabbits and hogs (or pigs). It is fed once every two weeks. Medusa is eight years old. The snake is 25.1 feet (7.67 meters) long and weighs 350 pounds (158.8 kilograms).

It took members of the defense force 30 minutes to catch the snake in Penang. It was put in one of the department's buildings. Unfortunately, the python died a few days later. It is not known why. The snake laid a single egg. Normally, pythons lay many more eggs than this. Some wildlife experts suspect that the snake was injured when captured.

At first, it was thought that this reticulated python was over 26.2 feet (eight meters) in length. If so, it would have been the world's longest known snake. After the python died, it was accurately measured. A Civil Department official confirmed that the snake was 24.6 feet (7.5 meters) long. It was therefore 0.5 inches (17 centimeters) shorter than Medusa.

The largest snake in the world by weight is the anaconda. Like pythons, anacondas are constrictors. These snakes live in warmer, or tropical, areas of South America. ■

VIKINGS IN NORTH AMERICA

The Vikings, or Norsemen, were good sailors, or seafarers. They traveled long distances in sailing boats called longships. The Vikings are well known for their sagas. These are legend-like stories of sea voyages and battles from long ago. Some Viking sagas mention a place called Vinland.

For many years, historians suspected that Vinland was the Atlantic coast of North America. Vikings set up settlements, or small villages, in Greenland. The east coast of Canada was not far away from these settlements. There are no trees in Greenland. The Vikings needed wood to build houses and their longships. The nearest supplies of wood were in North America.

Christopher Columbus (1451 – 1506) is often said to be the first person to sail across the Atlantic Ocean. After setting out from Spain, he landed on the islands that are now known as The Bahamas and Cuba. Yet Columbus never reached the coast of North America.

In 1960 archaeologists discovered the remains of a small Viking settlement at a place called L'Anse aux Meadows. This is at the northern end of a big island called Newfoundland. This island is a part of Canada. The discovery proved that the Vikings had crossed the Atlantic 500 years before Columbus. Now, another possible Viking site has been uncovered. Also on Newfoundland, it is roughly 300 miles (482 kilometers) south of L'Anse aux Meadows.



The Vikings came from Scandinavia, or Denmark, Norway and Sweden. As well as being warriors and raiders, they were explorers and merchants. In Northern Europe, the period between 800 and 1066 is often called the Viking Age.

During this time, Vikings sailed around the western coast of Europe and into the Mediterranean Sea. They often settled in other lands after attacking the local people or forcing them to leave.



Replica of a Viking longship

The Vikings were the first people to reach Iceland. There, they set up villages and farms. From Iceland, Viking ships sailed farther west to Greenland. The Vikings are believed to have sailed mostly along coastlines. To reach Iceland and Greenland, they first traveled to the Shetland Islands. From there, they sailed to the Faroe Islands. Yet between these island groups there were large areas of open sea. The magnetic compass was invented in China about 1,000 years ago. These compasses were not used in Europe until the late 1300s. Therefore historians have often wondered how the Vikings navigated, or knew where they were, when sailing across open seas.

Before compasses, some sailors used Sun charts or tables to work out where they were. These showed where the Sun was in the sky at different times of the year. However, it is often very cloudy in the North Atlantic Ocean. The Sun would not have been visible all the time. Some Viking sagas talk about “a glowing sunstone”. This, the stories say, was

used to navigate. The sunstone may have been a crystal known as Iceland spar. This crystal can be used to find out where the Sun is on very cloudy days.

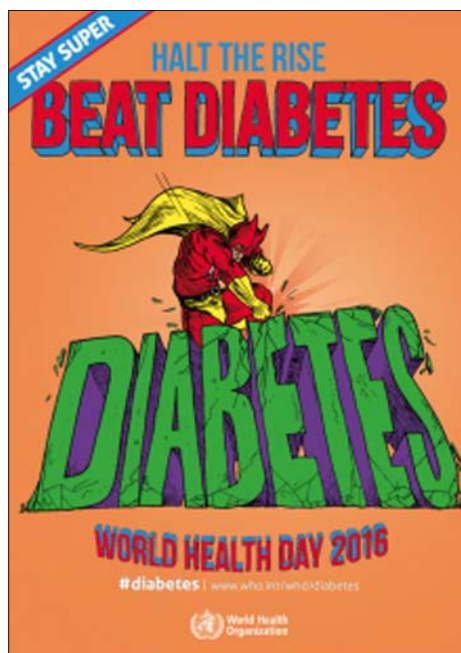
A person who studies satellite images found the new site in Newfoundland. When seen from high above, crops and grass can reveal underground structures. These could be old walls or pathways. Plants growing above the underground remains of an ancient wall will be shorter than plants growing either side. Satellite images or aerial photographs highlight these height differences. If the underground structures include many straight lines, they are likely to be man-made.

The new site is at a place called Point Rosee. Like L'Anse aux Meadows, it is near the sea. Archaeologists dug up part of the field where the possible underground man-made structures were recorded. They found the remains of a stone hearth, or fireplace. The archaeologists suspect that it was used to make iron. The Vikings used iron to make weapons and nails for their wooden ships. Some burned remains were dated. They are about 1,000 years old. The archaeologists say that more work at the site is planned. This, they believe, will confirm that there was a Viking settlement at Point Rosee. ■

WORLD HEALTH DAY

World Health Day was on April 7. It takes place on the same date every year. This event began in 1950. The World Health Organization (WHO) sponsors it. Over the last 20 years, each World Health Day has had a theme. This year it was: "Halt the rise: beat diabetes".

World Health Day marks the anniversary of the founding of the WHO. This organization's headquarters is in Geneva, in Switzerland. The WHO is part of the United Nations (U.N.). The U.N. was founded in 1945, after the end of the Second World War. It was set up to prevent future wars and to get countries to peacefully work together. Today, the WHO advises governments on healthcare. It also arranges projects and studies to improve people's health in many parts of the world.



One of the WHO's "Beat diabetes" posters

As healthcare improves in many countries (especially richer, or more developed, nations) people are living for much longer than their parents and grandparents did. One reason is that treatments for many illnesses and diseases have improved. Scientists are always learning more about diseases and how to treat them.

Another reason for people living longer is a better understanding of the importance of nutritious foods and healthy lifestyles. For instance, today, in many countries, far fewer people smoke than they did 50 years

ago. However, one illness that more and more people seem to be suffering from is diabetes.

The pancreas is one of the body's organs. It produces a hormone called insulin. This controls the amount of sugar (or glucose) in the blood. Diabetes happens when not enough insulin is produced, or when the body doesn't use the insulin it produces effectively. Over time, diabetes can damage different parts of the body. These include: kidneys, nerves, eyes, blood vessels, and heart. Problems from diabetes may lead to an early death.

There are two forms of diabetes. They are called type 1 and type 2. Type 1 is when a person does not produce enough insulin. People with this form of diabetes need to increase the amount of insulin in their bodies. They do this with an injection-like device called an insulin pen. It is not known what causes type 1 diabetes.

Type 2 diabetes is much more common. This is when the body does not use its insulin properly. An unhealthy diet, being too heavy or obese, and a lack of exercise are the main causes of type 2 diabetes.

Symptoms are frequent urination, or passing water, always feeling hungry, blurred vision, and a feeling of fatigue or tiredness. Yet these symptoms do not always occur. Sometimes they suddenly appear several years after a person becomes diabetic.

The WHO has produced a report about diabetes. It was released, or published, the day before World Health Day. The report says that 422 million people in the world have diabetes. Over 90% of them have type 2. This figure is four times higher than it was 35 years ago. Then, the number of people with diabetes worldwide was 108 million.

Today, one person in 11 has diabetes. The WHO calculates that one person, somewhere in the world, dies from the effects of diabetes every six seconds. Developing, or less wealthy, countries are worst affected. In American Samoa, Nauru and Tokelau over 26% of people have diabetes. These are all Pacific island countries. In wealthy countries this figure is between four and six percent.

The WHO says a change in lifestyle is the best way to prevent type 2 diabetes. It recommends that people: eat a healthy diet (and not too much sugar), don't become overweight, do not smoke, and do some regular exercise. The WHO produced several posters for World Health Day. They feature "superheroes" demonstrating how people can "beat" diabetes. ■

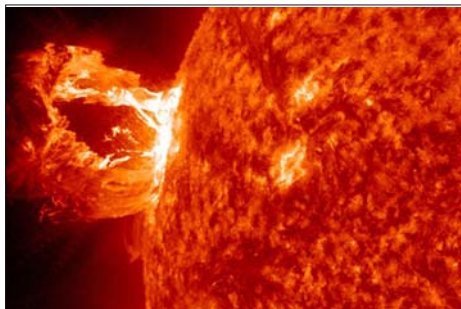
GEOMAGNETIC STORMS

Space scientists in the U.S. have been talking with government officials. The scientists want countries to prepare for the possibility of a disruptive geomagnetic storm. These storms come from the Sun. A large geomagnetic storm could affect communication systems, computers and electricity supplies. This damage, the scientists warn, might take many months to repair.

The surface of the Sun is constantly changing, as nuclear-like reactions take place. Hot material rises, cools and sinks down again. These reactions produce events that are often called "space weather". They include solar flares, coronal mass ejections (CMEs), solar storms, and solar wind.

Solar flares release large amounts of energy. Their force is like thousands of atomic bombs. CMEs

are severe, or very powerful, solar flares. They can send billions of tons of magnetically charged particles, or atoms, far into space. This is a solar storm. A solar flare can occur on any area of the Sun's surface. If this area faces the Earth, the solar storm, created by the flare, will arrive three or four days later.



Coronal mass ejection (CME) (NASA)

The Earth is like a huge magnet. It has its own magnetic field. (This is what makes the needle of a compass point towards the north.) The Earth's North and South Magnetic Poles gradually move over time. They are not in the same place as the "geographical" North and South Poles. Currently, the North Magnetic Pole is in the Canadian Arctic.

When a solar storm's charged particles arrive, they distort, or bend, the Earth's magnetic field. This allows some particles to enter the Earth's atmosphere. They do this at the North and South Magnetic Poles. When this happens, particles that enter the Earth's magnetic field are called a geomagnetic storm. The charged particles can "excite" gases in the atmosphere. This is what creates the Northern Lights, or the *Aurora Borealis*.

The Northern Lights look like "curtains" of colored lights, which shimmer or "dance" in the night sky. These "light curtains" are made up of billions of tiny flashes. The colors can change from green to orange to red. They depend on

the type of gas being excited by the charged solar particles.

Geomagnetic storms can cause problems. For example, they may affect aircraft navigation systems, and satellite and radio communications. Geomagnetic storms can even cause power outages and other electricity problems.

In 2012 the Sun created a huge solar storm. Fortunately, this one missed the Earth. In 1989 a geomagnetic storm caused an electricity power outage in a large area of Canada. The most powerful solar storm ever recorded was the Carrington Event. It happened in 1859. This event is named after a British astronomer called Richard Carrington (1826 – 1875). He recorded the large CME that created the storm. This CME was so powerful that its charged particles reached the Earth within 18 hours.



Northern lights above Greenland (Nick Russell)

In 1859 electricity was not used as it is today. There were no power stations, electricity grids or computers. Yet a recently invented system of communication called the telegraph was in use. The geomagnetic storm caused an electrical power surge. Telegraph wires sparked and operators got electric shocks.

Today, far more electrical equipment is in use. Electronic communications connect all parts of the world. Scientists say that a solar storm like the one in 1859 could cause serious problems.

Communication satellites would be knocked out and power grids might collapse. If so, there would be no internet, no fast communications and no aircraft travel. Food supplies would probably be disrupted and large amounts of stored data lost.

The scientists believe that these problems could be reduced. To do this, electricity companies and makers of communication satellites would need to upgrade their equipment. However, the scientists admit that large geomagnetic storms, such as the Carrington Event, may happen only once every 500 years. ■

NETHERLANDS REFERENDUM

A referendum was held in the Netherlands on April 6. This is a vote in which all adults can take part. The vote was about an agreement between the European Union (EU) and Ukraine. The Netherlands is one of the EU's 28 member countries. Most people who took part in the referendum voted "no".



Mark Rutte, prime minister of the Netherlands

At the end of 2014 the then president of Ukraine decided not to sign an "[association](#)" agreement with the EU. This would have made it easier for EU members and Ukraine to trade with each other. People in Ukraine would also be able to travel to most EU countries without a [visa](#).

For many years Ukraine was a part of the Russian-led Soviet

Union. It became an independent country in 1991. This was after the Soviet Union began to break up. Russia's leaders were unhappy about the agreement between the EU and Ukraine. Some people think that they advised Ukraine's president not to sign it.

Many Ukrainians were angry with their president for not signing the agreement. A street protest and political movement began. It became known as "Euromaidan". Eventually, the president was forced to leave the country. Euromaidan supporters want Ukraine to work more closely with European countries. One day, they hope that their country will become a member of the EU.

A new government and president were elected. This annoyed many Russian-speaking people in eastern Ukraine and an area called Crimea. They claimed that the new elections were unlawful. Russia decided to annex, or seize control of, Crimea. This angered the leaders of the U.S. and many European countries. Fighting broke out in eastern Ukraine. Russia supported the groups fighting against Ukrainian forces. A ceasefire was agreed over 12 months ago. Yet, occasionally, fighting still breaks out in some areas.

Petro Poroshenko was elected as Ukraine's new president. He decided to sign the agreement with the EU. All the EU members' elected leaders said that it should be [implemented](#). They included the prime minister of the Netherlands, Mark Rutte. In the Netherlands there is a rule about certain government decisions. If [petitions](#) are signed by 300,000 people, a referendum has to be held. The government does not have to accept the referendum result. In the Netherlands, a referendum is [valid](#) only if more than 30% of voters take part.

Some people in EU member countries think that the organization is now too large and undemocratic. They believe that the EU has taken away many of their own elected governments' powers. People who dislike the EU and disagree with the way that it works are known as "euroskeptics".



Ukraine's president, Petro Poroshenko

Two euroskeptic groups in the Netherlands organized a campaign. They wanted a referendum on the agreement with Ukraine. Over 400,000 people signed the groups' petition. These people say that an agreement with Ukraine is wrong. They claim that it will cause more problems with Russia. Ukraine, they argue, has too many corrupt, or dishonest, officials. Most people agree that the EU has problems with its euro currency and illegal migration. Euroskeptics say that the EU should not try to get bigger and bigger, as this will create even more problems.

Mr. Rutte and the leaders of most political parties in the Netherlands urged people to vote "yes". Only 32% of voters took part in the referendum. This was therefore just above the 30% minimum. Of those who did vote, 61% opted for "no". Many euroskeptics admitted that the referendum was not about Ukraine.

Instead, it was an opportunity for them to vote against the EU.

A few days after the referendum, EU officials declared that the agreement with Ukraine would go ahead. Euroskeptics said that this was an example of the “undemocratic EU”. A more important referendum will be held at the end of June. Then, people in Britain will vote to either leave or stay in the EU. ■

T. REX'S ARMS

Tyrannosaurus rex (*T. rex*) is often called the “king of the dinosaurs”. It is probably the largest carnivore, or meat-eater, of all time. The name *Tyrannosaurus* comes from two Ancient Greek words. They mean “tyrant” and “lizard”. *Rex* is Latin for “king”. This dinosaur's arms, or forelimbs, were very small. Palaeontologists, or researchers who study ancient fossils, have often wondered why. Now, one American researcher thinks that he may know the answer.



Model of what a *T. rex* may have looked like

T. rex lived between 70 and 66 million years ago. All the dinosaurs disappeared 66 million years ago. *T. rex* was therefore one of the last dinosaurs to walk on the Earth. Scientists are not sure what caused this extinction. Some believe the dinosaurs died out after a large asteroid or comet struck the Earth. Others think that huge volcanic eruptions,

lasting for thousands of years, are the more likely cause. These could have poisoned the air and blocked out the Sun.

T. rex was about 42.6 feet (13 meters) in length. Its sharp teeth, including the roots, were 12 inches (30 centimeters) long. These are the longest known dinosaur teeth. *T. rex* is often compared with an earlier dinosaur called *Allosaurus*. In Ancient Greek *Allosaurus* means “different lizard”. A fully-grown, or adult, *Allosaurus* was about 28 feet (8.5 meters) long. It lived around 150 million years ago, or 80 million years before *T. rex*. *Allosaurus* was a similar shape to *T. rex*, yet its arms were much longer.

Most scientists have always thought that *T. rex* was a fast-moving predator. It chased and caught smaller dinosaurs to eat. Yet, because of its small arms, others suspected that *T. rex* was a scavenger. This means that it ate dinosaurs that had already died or been killed. These scientists thought that *T. rex* could not run fast enough to catch other smaller, quicker dinosaurs. What's more, as its arms were so short, *T. rex* would not have been able to hold onto anything.

About three years ago an important fossil was found. It is part of a tail that belonged to a *hadrosaur*. These creatures were herbivores, or plant-eaters. They were fast runners. Between the tailbones is a broken off *T. rex* tooth. What's more, it looks as if the bones grew around the tooth. So, after its tail was bitten, the *hadrosaur* must have lived for at least several more years. The fossil suggests that the *hadrosaur* was attacked by a *T. rex*, but managed to escape. Some scientists believe that this fossil proves that *T. rex* was a hunter and not a scavenger.

T. rex had the strongest jaws of any known creature. The American researcher suspects that “the shorter the arms the stronger the bite”. The dinosaur's neck and arm muscles were both fixed to the bones of its chest. Only a certain amount of muscle could be attached to these bones. Over time, *T. rex* evolved to have short arms and small arm muscles. This meant that the dinosaur had more neck muscles and a far more powerful bite.



Allosaurus skeleton (Mark Jaquith)

The researcher thinks that the *Allosaurus*' arms would not have been helpful. Even though they were longer, this dinosaur's arms could not reach its mouth. If it were attacking another dinosaur, it would not be able to use its mouth and arms at the same time. The researcher suggests that *Allosaurus*' longer arms may have been used to help the dinosaur stand up after it lay down. ■

VANILLA PRICE

Vanilla is sold as a thick liquid (or extract), a paste, a powder, or in pods. Recently, the price of vanilla has been increasing. This is because of a bad harvest in Madagascar last year. Madagascar and Indonesia are the world's two biggest producers of vanilla.

Vanilla is a spice. This is something that is added to foods to improve either their taste or color or both. Vanilla is probably best known

as an ice cream flavor. It is used in other types of food and drinks, as well as for some medicines and perfumes.

The vanilla plant is like a vine. It is a member of the orchid family. The plant, which produces seed-pods, is native to Central America. Long ago, the Aztecs controlled this part of the world. Spanish explorers and soldiers arrived in Central America 500 years ago. They took vanilla pods back to Europe. The Aztecs also drank a type of liquid chocolate. This drink was made from the seeds (known as cocoa beans) from a tree that grows in the area. The Spanish also took cocoa beans back to Europe. Therefore both vanilla and chocolate originally came from the Aztecs.



Vanilla plants

Vanilla is expensive. This is because it is a very labor-intensive product. The vanilla plant will grow up trees. To harvest vanilla more easily, farmers grow the plant on wooden sticks or frames. In Mexico, a certain type of bee **pollinates** vanilla plants. This bee does not exist elsewhere. In places like Madagascar and Indonesia, the vanilla plant's flowers are pollinated

by hand. Flowers appear only after the plant has been growing for between 18 months and three years. The flowers bloom and die within a few hours. So the people who do the pollinating must work quickly.



Vanilla plant flower (H. Zell)

The seed-pods (known as beans) have to stay on the plant for nine months. They are then picked by hand. After harvesting, the beans are sun-dried, or cured. The seed-pods eventually turn black. Then, they are known as black vanilla. This drying process takes several months.

Vanilla is a “commodity”. Commodities are goods that have the same “worldwide” price. It does not matter who produces them or where they come from. Other examples of commodities are corn, wheat, oil, gold, silver, tin, copper, and sugar. Commodities are bought and sold by traders. Often traders pay money for commodities that don't exist today, but will be grown or produced in the future. These deals, or trades, are known as “futures”, or “options”.

Nowadays, vanilla is grown in several countries as well as Madagascar and Indonesia. They include: Mexico, Papua New Guinea (PNG) and China. Because of the poor harvest in Madagascar, some traders have been buying more vanilla from other countries than they normally do. This is why the price has risen. At the beginning of this year the

cost of vanilla extract was \$40 per liter. Now it is over \$85. This higher price means that vanilla ice cream is likely to cost more. ■

EARLY HOMININS

In 2003 researchers found some ancient human-like bones on an island called Flores. This island is part of Indonesia. The bones were dug up in a cave. This discovery was reported all around the world. Experts were surprised by the size of the bones and their age.

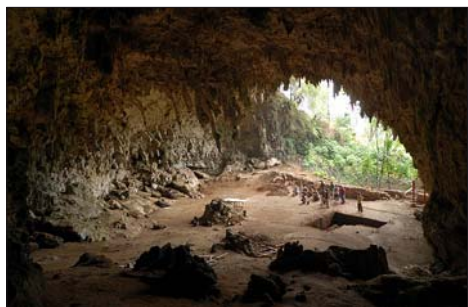
The bones belonged to a new hominin species. Hominin is the name used for humans and all species related to humans. No complete skeletons were found. Yet the researchers managed to identify the bones of nine individuals. Surprisingly, they were only 3.5 feet (1.1 meters) tall. The new hominins were given the scientific name *Homo floresiensis*. However, they were soon nicknamed Flores Man or “hobbits”. The hobbit bones were dated to 12,000 years ago. They were found under a layer of dirt and rock that was 19.7 feet (six meters) deep. The bones' age was worked out from some pieces of nearby charcoal. Many experts were surprised at the date. Modern humans, or *Homo sapiens*, arrived in this part of the world about 50,000 years ago. If the 12,000-year date was correct, Flores Man and modern humans lived close to each other for 40,000 years.

Recently, scientists returned to the cave on Flores. Using more advanced equipment, they did further tests on the rock layers. They confirmed that the 12,000-year date was an error. The bones, the scientists say, are between 100,000 and 60,000 years old. Since 2003 other

researchers have found stone tools used by the hobbits on Flores. None are older than 50,000 years. This suggests that the hobbits died out around this time. Some experts are now wondering if there is a connection between the arrival of modern humans and the end of the hobbits.

In the natural world there are often different species of the same type of animal. For example, there are different elephant, rhino and zebra species. Yet there is only one human (or *Homo*) species. This was not always so.

Homo erectus (also known as Java Man and Peking Man) lived in many parts of the world. This hominin appeared 1.8 million years ago. It died out between 200,000 and 150,000 years ago. *Homo erectus* survived for about 1.6 million years. This is far longer than any other hominin.



Flores Island cave where the bones of Flores Man were found (Rosino)

Another group of hominins are thought to have left Africa around 400,000 years ago. They moved into the Middle East. These early humans may have split into two different species 100,000 years later. They are known as Neanderthals and Denisovans. The places where their bones have been found suggest that they moved in different directions. The Neanderthals moved west into Europe and the Denisovans went east.

Homo sapiens, or modern humans, evolved in Africa around

200,000 years ago. Groups of these humans seemed to have begun moving into the Middle East and other parts of the world between 70,000 and 60,000 years ago.



Cast of Flores Man skull

Neanderthals died out about 40,000 years ago. Denisovans may have disappeared around the same time. In Europe, it's now known that Neanderthals and modern humans lived close to each other for 5,000 years. During this time, Neanderthal numbers probably declined while the human population increased.

It is not known why all these early hominins died out and modern humans survived. One recent idea is diseases. Some people suspect that early hominins, such as Neanderthals, Denisovans and hobbits had different immune systems. Modern humans may have brought spreadable, or contagious, diseases. If so, these could have killed off the other hominins. ■

GOLDFISH DANGER

Goldfish are popular pets. Many people keep them in tanks, or aquariums, in their homes. However, if goldfish are “set free” in the wild, they can cause serious problems.

Alberta is a province in western Canada. Wildlife officials in the province have recently started a campaign. It's called “Don't Let it Loose”. The officials want people to understand the dangers of releasing pet goldfish into local ponds and rivers.

Domestic goldfish are a type of carp. This is a freshwater fish. There are records of people keeping goldfish in China thousands of years ago. Inside a small tank, a goldfish will remain small. Yet, in large areas of water (if there is plenty of food) goldfish grow much bigger.

Sometimes, people no longer want their pet goldfish. If the fish cannot be given away, owners are often reluctant to kill them. Some decide to empty fish tanks into ponds and lakes. They think that releasing the fish into the wild is better than killing them. Others may flush their goldfish down the toilet.

Goldfish are very hardy. They can survive the cold. The fish are also able to live in dirty water that has little oxygen. In the wild, goldfish can grow bigger and bigger. Native fish struggle to survive alongside them. The goldfish eat all the food including the eggs of other fish. What's more, goldfish (and water from their aquariums) can introduce tiny parasites into ponds and lakes. The waste, or feces, that goldfish produce can also cause problems. It includes nutrients that encourage certain types of algae to grow. Some algae can cover the surface of a pond and poison the water.

In Alberta, “wild” goldfish are now an invasive species. When animals or plants are introduced to a place, but are not native to it, they are called an alien species. If they have no, or only a few, predators (or animals that feed on them), their numbers keep increasing. When

this happens they are known as an invasive species.

Many of Alberta's ponds now contain goldfish. These ponds often collect storm water. When there is heavy rain, the ponds become connected with other areas of water. So the goldfish can spread. Officials found 40 goldfish in one pond. Several were the size of dinner plates. Some places in the U.S. have similar "goldfish" problems. A few years ago, a fisherman in the state of Michigan caught a wild goldfish. It was 15 inches (38 centimeters) long and weighed 3.1 pounds (1.4 kilograms).

The officials in Alberta have been trying to kill the wild goldfish. They drained one pond and hoped the remaining water would freeze. Yet the weather did not get cold enough to kill the fish. Trying to catch the goldfish in nets and electrocuting

them has not worked. They breed faster than the native fish. In the U.S., birds such as pelicans and herons eat wild goldfish. Unfortunately, these fish-eating birds are not found in Alberta.



Large goldfish caught in a pond in Alberta, in Canada
(Rebecca Baldwin/Alberta Environment and Parks)

Officials now plan to block off ponds where goldfish have been found. This is to make sure that they do not get into the rivers. Warning signs have been put up. These explain the problems that goldfish cause. In Canada it is illegal to release fish into the wild or move them from one body of water to another. ■

TESLA MODEL 3

Tesla Motors is an American company that designs, makes and sells electric cars. Elon Musk cofounded the company. He is a well-known American entrepreneur. At the end of March, Tesla announced that it would be making a new electric car called the Model 3.

As part of its announcement the company said that people could pre-order the car. Yet the first Model 3 cars will not be ready until late 2017. People in other countries such as New Zealand, China, India, Brazil, and Britain will also be able to buy them. To pre-order, or reserve, a five-seater Model 3, people were invited to pay a deposit of \$1,000. To the company's and Mr. Musk's surprise, hundreds of people lined up to pay their deposit. Within a few days the number of pre-orders had reached 325,000.



Mr. Musk says that the company plans to make about 500,000 Model 3s each year. On a full electric charge, these cars should be able to travel about 215 miles (346 kilometers). The cost of the car is expected to be between \$35,000 and \$40,000. If everyone who has pre-ordered the car buys one, the company already has sales orders of \$13 billion. It is very unusual for a car company to receive so many pre-orders, especially for an electric vehicle.

Currently, only one percent of vehicles sold in the U.S. are electric cars. Some people say that the success of the Model 3 could mean that many more electric cars will be sold in the U.S. Nowadays, most big car manufacturers make electric cars. However, none have generated as much interest as Tesla.



Elon Musk (SpaceX)

Over the last 12 months Tesla Motors sold about 60,000 electric cars. Yet the company has yet to make any money. Last year it lost \$889 million. The main reason for this was the large amounts of money that Tesla used for research and development (R&D).

In the past some people have wondered if Tesla will ever be a successful car company. Yet others say that Tesla is unlikely to fail because of Mr. Musk's reputation. He was born in South Africa. Mr. Musk, who is now 44 years old, went to universities in Canada and the U.S. Now, he is an American

citizen. Mr. Musk was a co-founder of the PayPal Company. When it was sold to eBay in 2002, he made a large amount of money.



Tesla electric car

Since the sale of PayPal, Mr. Musk has set up or cofounded several other companies. The best known are SolarCity and SpaceX. SolarCity has 13,000 workers. It makes and installs solar power systems. These generate electricity from the Sun. SpaceX designs, makes and launches space rockets and space capsules. The company has a contract with NASA to send supplies to the International Space Station (ISS).

Mr. Musk says that he wants to reduce global warming. This, he believes, could be done by a greater use of solar power. Mr. Musk also plans to set up a human colony on Mars. Some car industry experts claim that many people who pre-ordered the Tesla Model 3 are technology workers. These people, the experts claim, are great admirers of Mr. Musk. This means that they would be unlikely to buy an electric car from one of the bigger well-known car companies. ■

MIGRANTS RETURNED

The island of Lesbos is part of Greece. It is close to the coast of Turkey. On April 4, several Greek boats sailed from Lesbos to the Turkish port of Dikil. They took

hundreds of migrants back to Turkey. The migrants were mainly from Pakistan. Most had recently traveled from Turkey to Greece illegally. This operation was the start of a recently agreed deal between the European Union (EU) and Turkey.

The European migrant crisis began several years ago. At first, people began traveling to North Africa. They came from many countries. Some were from countries such as Syria and Afghanistan. They wanted to get away from wars and fighting in their homelands. Others came from African countries, Pakistan and Bangladesh. These people wanted to get to a European country to find a job, earn some money and improve their lives.

In Libya, the migrants paid people smugglers for a place on a small boat. After setting sail, many overcrowded migrant boats had difficulties. Italian navy ships rescued thousands of the migrants. Some boats sank and many people drowned. The rescued migrants were taken to camps in Italy. Around 12 months ago there was a change. Most migrants trying to get to European countries went to Turkey and not Libya. There, they paid Turkish people smugglers to take them to Greek islands. This sea voyage was far shorter and less dangerous. Greece is a member of the EU. Once the migrants arrived in Greece, it was not difficult to get to other EU countries such as Germany, the Netherlands and Sweden.

Last summer, tens of thousands of people made the journey from Turkey to Greece. Many were from Syria. They wanted to get away from the war in their country. Eventually, the leaders of several EU countries decided to block the migrant routes. Some put up fences along their borders. To try to control the number of

migrants coming to Europe, the EU made an agreement with Turkey. Hundreds of thousands of Syrians have been in Turkey for several years. Most live in large refugee camps.

Turkey agreed to patrol its coastal waters. This would stop the boats of the people smugglers. The EU is now able to send people who illegally arrived in Greece back to Turkey. Syrians are taken to the refugee camps in Turkey. For every Syrian sent back to Turkey, the EU now accepts one Syrian from the refugee camps. This arrangement was designed to stop people making the sea crossing. Non-Syrians returned to Turkey, such as Bangladeshis and Pakistanis, are to be sent back to their own countries. In addition, the EU agreed to pay Turkey €3 billion (\$3.4 billion). Part of the new deal means that Turkish people can visit most EU countries without applying for a visa or special permission.



Some organization such as the United Nations (U.N.) have criticized the EU-Turkey deal. Others say that it will be difficult to persuade tens of thousands of Syrians now in Greece to go back to the refugee camps in Turkey. However, after the first few days the deal seems to be working.

However, it looks as if the migrant problem from North Africa is about to restart. On April 12, Italian

ships had to rescue 2,000 migrants. They had set off from the coast of Libya in small unseaworthy boats. These migrants were all from African countries. Donald Tusk is the EU's president. He recently warned that several million Africans were planning to illegally cross the Mediterranean Sea.

Italy and Austria share a border. It is a mountainous area. The main crossing point between the two countries is called the Brenner Pass. Workers in Austria have built stronger checkpoints at the Brenner Pass. Austrian officials are worried about what may happen in the summer. They fear that tens of thousands of African migrants will arrive in Italy. Therefore the officials want to be able to close their border with Italy if necessary. ■

TIGER POPULATION

After more than 100 years, the number of tigers in the world has risen for the first time. The Worldwide Fund for Nature (WWF) made this announcement on April 10. The WWF is an international conservation organization. It said that there were now 3,890 tigers in the wild. In 2010 this figure was 3,200.

The WWF made its announcement two days before an important meeting about tigers. This three-day conference took place in New Delhi, India's capital city. It was organized by the WWF, the Global Tiger Initiative (GTI) and the Global Tiger Forum (GTF). The GTI and GTF both work to protect tigers and their habitats.

One hundred years ago there were at least 100,000 tigers in the world. Today, less than 4,000 are living in the wild. Three types, or subspe-

cies, of tiger have already died out. The Bali tiger became extinct in the 1940s and the Caspian and Javan tigers died out in the 1970s. Another subspecies, the South China tiger, has not been seen for many years. Some people fear that it too may now be extinct.



Bengal tiger

If the South China tiger is included, six types of tiger still exist. The largest and most common is the Bengal tiger. These animals live in India, Nepal, Bhutan, and Bangladesh. Others include the Siberian and Malaysian tigers. Siberian (or Amur) tigers are only found in the far eastern part of Russia.

The thirteen nations where tigers are known to live in the wild are called the Tiger Range Countries. These are: Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar (also known as Burma), Nepal, Russia, Thailand, and Vietnam. With 2,225, India has the greatest number of wild tigers. In some of the 13 countries there are less than 50. Laos only has two and Vietnam five. Recently, wildlife officials declared that no tigers had been seen in Cambodia for nine years. The officials now plan to reintroduce eight tigers to a protected forest in the country.

Poaching and loss of natural habitats are the greatest threats to wild tigers. Poaching is the unlawful killing of animals for

their skins or body parts. In some countries, forests where tigers live have been cut down. The land has then been used for building or growing crops. For example, many trees have been cleared in Indonesia. There, less than 400 Sumatran tigers remain.

In all countries where tigers live, killing them is against the law. Yet some people, especially in China and Vietnam, pay large sums of money for tiger parts. Tigers' teeth, claws, whiskers, and other body parts are used to make traditional medicines. In China and Vietnam many people believe that these medicines cure certain illnesses and improve health. Tiger skins can be sold for as much as \$28,300.

Narendra Modi, India's prime minister, opened the tiger meeting in New Delhi. Around 700 people took part. They included officials from the Tiger Range Countries as well as tiger experts and habitat conservation managers.

Nowadays, there is less poaching and better habitat protection. This explains why tiger numbers have gone up. However, only four Tiger Range Countries increased their tiger numbers. These were: India, Russia, Nepal, and Bhutan. The biggest fall may have been in Bangladesh. In 2010 local officials said that there were 440 tigers in the country. Now, the number is just over 100. However, the WWF said it's likely that Bangladesh's 2010 count was inaccurate.

In 2010 the Tiger Range Countries all agreed to a project called Tx2. Its aim, or goal, is to double the number of tigers by 2022. In the Chinese calendar 2010 was the Year of the Tiger. This calendar has a 12-year cycle. Therefore 2022 is the next Year of the Tiger. ■

BROWN SKUAS AND HUMANS

King George Island is a remote place. Few people live there. South of Cape Horn, the island is about 75 miles (120 kilometers) off the coast of Antarctica. Ornithologists from South Korea have been working on the island. These scientists study birds. They seem to have made a surprising discovery. Seabirds called brown skuas can recognize individual humans.



Brown skua (Liam Quinn)

Brown skuas live around the coast of Antarctica and on islands in the surrounding seas. They are the same size as large seagulls. Adults are about two feet (60 centimeters) long. The bird's name comes from the color of its feathers. Brown skuas breed in the Antarctic. Sometimes they fly farther north. The skuas eat fish, other birds' eggs and chicks, and small animals. The birds are known to steal. They take other birds' food and even drink milk from nursing elephant seals. If birds steal things, it can be a sign of intelligence.

Antarctica is not owned or controlled by any countries. An agreement, or treaty, was made 50 years ago. It says that all countries can

explore Antarctica. The treaty also states that no military action is allowed on the continent. Today, around 30 countries have research stations in Antarctica. Many were set up after the end of the Second World War (1939 – 1945). This means that brown skuas have only “experienced” humans for 70 years. The South Korean scientists stay at a research station on King George Island. Normally, it is home to about 70 people.

The scientists went to the island to study brown skuas. These birds make their nests on the ground. As part of their work, the scientists checked some skua nests every week. They wanted to record the skuas' breeding habits and measure any newly hatched chicks. The scientists noticed some unusual behavior. If a person visited a nest several times, the skuas that “owned” it attacked them. Yet the birds ignored the person on their first few visits.

The scientists decided to set up several experiments. First, they sent people to the nest who had never been before. The birds did not attack them. Then, two people approached the nest. One had been to it several times. They were nicknamed the “in-truder”. The other person had never been before. After reaching the nest, the two people walked away in different directions. The skuas chased and attacked the intruder. Flying high in the air, they swooped down and hit the intruder's head with their feet. As they attacked, the birds made loud “yelling” noises. The skuas ignored the other person. The scientists repeated the experiment with the intruder wearing different colored clothes and hats. Yet, the birds still attacked the intruder. No other birds on the island behaved in the same way.

The experiments suggest that brown skuas can recognize a person's face. Another possibility is that the birds are able to identify a person by the way they walk. Smell is unlikely. This is because this part of the world is very windy.

Amongst birds, the ability to recognize people is thought to be rare. Crows, magpies and ravens can do it. However, these birds have lived alongside humans for thousands of years. Many animals that live in the Antarctic region, including brown skuas, have not been studied closely before. The scientists now plan to discover if any others can match the skuas' intelligence. ■

HANNIBAL'S ALPINE CROSSING

Hannibal was a famous military commander. He fought a war against the Romans. Around 2,200 years ago, Hannibal led an army into what's now northern Italy. His army included 50,000 soldiers, 12,000 horses and mules, and 37 elephants. To get to Italy, Hannibal's army had to cross the Alps, the highest mountain range in Europe.

Scholars have argued about where Hannibal crossed the Alps for many years. A group of researchers from Britain have been trying to find out which route he took. The researchers now claim to have discovered the answer. They did it in an unusual way. The researchers found the evidence in a large amount of very old animal dung.

Hannibal was born in 247 BCE. He was a Carthaginian. The city of Carthage was on the coast of North Africa, in modern-day Tunisia. The Carthaginian Empire included: coastal areas of North Africa, parts of Sicily and south-

ern Hispania (modern-day Spain). Over a long period of time, the Romans and Carthaginians fought three wars. These conflicts are known as the Punic Wars. (Punics was the Roman, or Latin, word for Carthaginians.)



Hannibal became the leader of Carthage in 221 BCE. Soon afterwards, he decided to attack Rome. First he captured a city called Saguntum in Hispania. This attack marked the beginning of the Second Punic War. Hannibal then marched his army northward into southern Gaul (or France). Hannibal's soldiers were a mixture of separate tribes and people from different parts of the Mediterranean. They all spoke different languages.

At that time, no one thought that a large army could cross the Alps. When Hannibal arrived in northern Italy, he surprised the Romans. Two great battles were fought. These were at Lake Trasimene and Cannae. Hannibal won both. Cannae is a famous battle. Some historians describe it as one of the greatest ever military victories. Hannibal's army destroyed a Roman force that was almost double its size. Hannibal and his army stayed in southern Italy for 15 years. Yet he never captured the city of Rome.

In 204 BCE, a Roman army arrived in North Africa. Hannibal decided to leave southern Italy and

return home. In 203 BCE, Hannibal's force met the Roman army at the Battle of Zama. This battle was close to the city of Carthage. The Romans won. Their victory finally ended the Second Punic War. It had lasted for 17 years.

Hannibal survived the battle. He stayed in Carthage for the next seven years. Then, the Romans insisted that he leave and go into exile. Hannibal traveled to several places in the eastern Mediterranean. He is believed to have died in what's now Turkey around 181 BCE.



Picture of Hannibal's army crossing the Alps

The researchers decided to dig in a swampy area near a high pass in the Alps called the Col de la Traversette. A stream flows through this area. If Hannibal had used this route, the animals would have been led to this stream to drink. About 16 inches (40 centimeters) below the ground, the researchers found a different layer of soil-like muck. They took samples back to their laboratory.

Later, the researchers confirmed that the muck was ancient horse dung. They found some [parasite](#) eggs within it. These parasites live inside horses. The muck contained

organic matter. Carbon dating tests showed that it was around 2,200 years old. This was when Hannibal crossed the Alps. Unfortunately, the researchers are yet to find the remains of any elephant dung.

If the muck did come from Hannibal's horses, the Col de la Traversette must have been his route over the Alps. Today, a rough gravel track goes over this pass. Some people describe it as one of the world's most dangerous roads. ■

HITLER'S BIRTHPLACE

Adolf Hitler was the leader of Nazi Germany. He was born in 1889 in a small town in Austria called Braunau am Inn. This town is on Austria's border with Germany. For many years there has been a legal argument about the building in which Hitler was born. Now, officials are planning to change the law. Then, the building's owner would have to sell it to the Austrian government.

Hitler lived in the house in Braunau am Inn for only a few weeks. His parents moved to a different address. Three years later the family left the town. At the age of 16, Hitler moved to Vienna, the Austrian capital. There, he hoped to become a painter. The First World War began in 1914. Hitler joined the German army. He fought in the trenches against the British and French on the Western Front. During the war, Hitler was awarded an Iron Cross. This was a medal for bravery.

When the war ended in 1918, Hitler was in the hospital. He had been temporarily blinded in a gas attack. After he recovered, Hitler moved to the city of Munich in Bavaria, in southern Germany. At that time, there were many problems in

Germany. Most people did not have jobs and there was not much food. Hitler became interested in politics. He helped to form a new political group called the National Socialist German Workers' Party, or NSDAP. It became known as the Nazi Party. Hitler was the NSDAP's best speaker and soon became its leader.



The building where Adolf Hitler was born in Braunau am Inn, in Austria

In 1933, Hitler was appointed as the chancellor, or head of the German government. The Nazi Party had got 37% of the votes in an election the previous year. Soon after becoming chancellor Hitler banned all other political parties and began to rule Germany as a dictator.

Hitler started to make demands on several other countries. He took control of Austria and parts of Czechoslovakia. The Second World War began in 1939 after the German army invaded Poland. Britain and France reluctantly declared war on Germany. About nine months later, Germany attacked France. The French army was quickly defeated. By this time, Germany had taken control of several other European countries such as Luxembourg, the Netherlands, Belgium, and Norway.

In 1941 Hitler's armies invaded Russia. Later that year, the U.S. joined the war on Britain's side. At first, the German army was

successful in Russia. Yet by 1943 it had begun to retreat. The following year soldiers from the U.S., Britain, Canada, and Poland, landed in northern France. Germany was now being attacked from the east and west. In 1945, the Russian army captured Berlin, the capital of Germany. Hitler killed himself and Germany surrendered.

About 30 million people died in Europe during the Second World War. This figure includes at least six million Jews. Many of these people were murdered in concentration camps. Nowadays, it is not unusual for people to use the word "evil" when describing Hitler and the Nazi [regime](#).

After the end of the war, the building where Hitler was born was given back to its original owner. The Austrian government has rented it since 1972. For a time, it was used for people with disabilities. Yet, the owner has refused to allow it to be modernized. People in the town disagree with what should happen to the building. Some say that it should be turned into a museum. Others think it should be destroyed. Yet it is one of the oldest buildings in the town.

Local officials are worried that the building might become a type of shrine for modern-day Nazi supporters. This is why they want to force the owner to sell it to the Austrian government. ■

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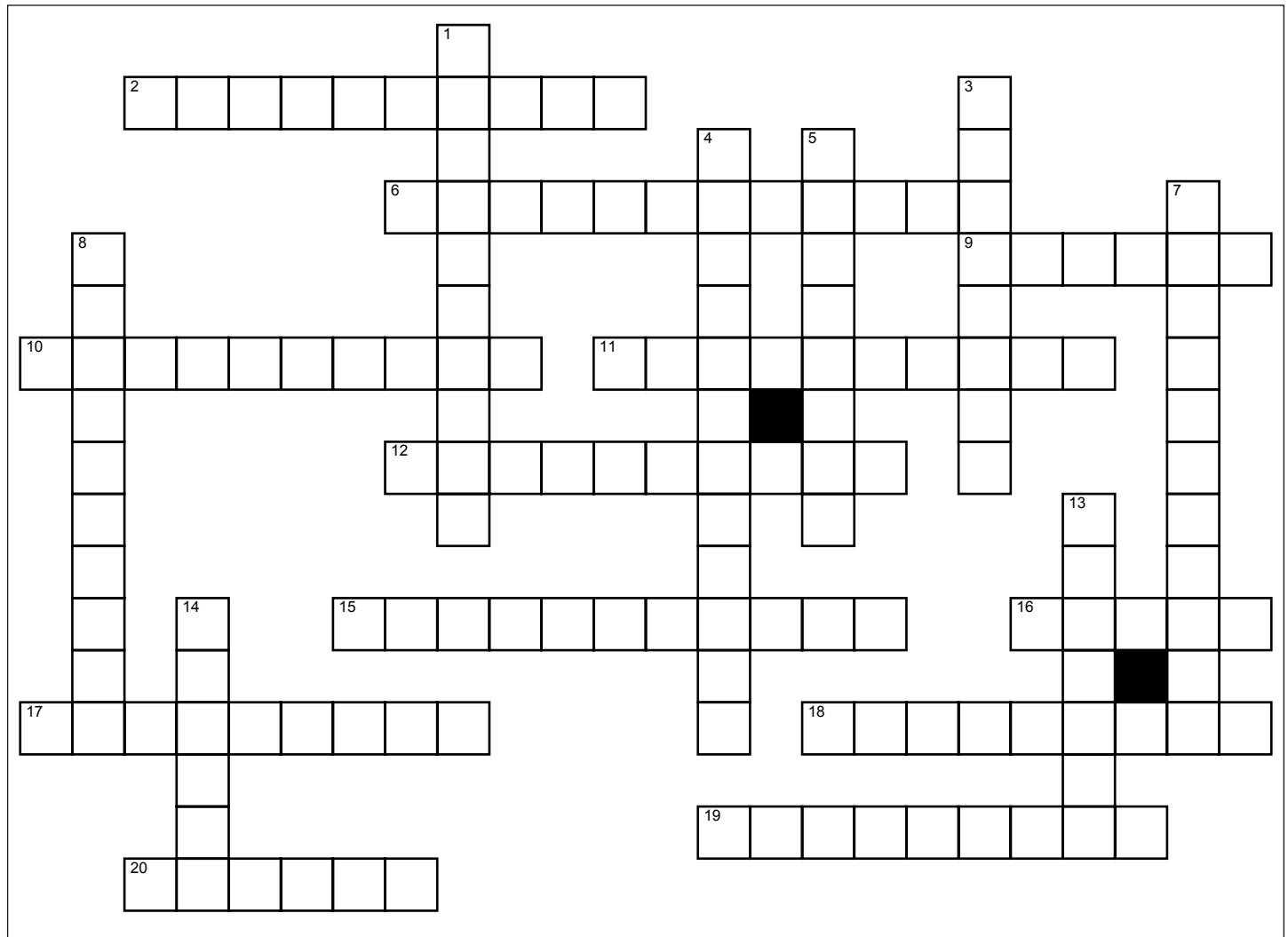
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ISSUE 273

GLOSSARY PUZZLE

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



ACROSS

- 2 Noun** The mixture of gases that surrounds some planets, such as the air around the Earth
- 6 Noun** Person who starts his or her own business
- 9 Verb** To attack suddenly from a place of hiding
- 10 Verb** Connected or involved in something
- 11 Adjective** Causing disorder, problems, unrest or difficulties
- 12 Verb** Fertilizes a plant with pollen
- 15 Verb** Carried out or put into action
- 16 Adjective** Legally acceptable
- 17 Noun Plural** People who buy and sell items or types of food or drink
- 18 Noun Plural** Formal written requests signed by many people
- 19 Adjective** Unwilling or not keen
- 20 Noun** A system or method of government

DOWN

- 1 Noun** An unusual or remarkable event or occurrence
- 3 Noun** An animal, plant or microorganism living in, or on, another from which it gets its nourishment
- 4 Noun** Not hidden or disguised
- 5 Noun** A person who enters a place without permission in order to commit a crime
- 7 Noun** A connection between a group of people, or organisations, which have common a purpose or interest
- 8 Noun** Coloured patterns, on skin, fur or clothes, that make an animal, plant or person difficult to see because they blend into the surroundings
- 13 Noun** The act of avoiding something that you should do
- 14 Verb** Leave or move out of

Issue 273

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.

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

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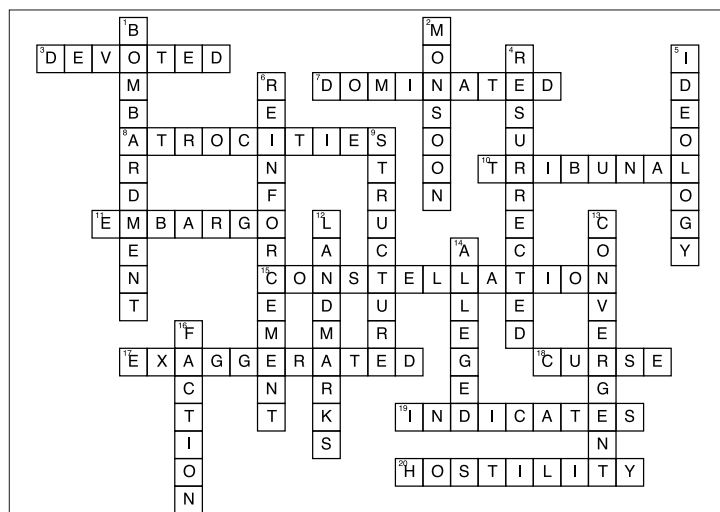


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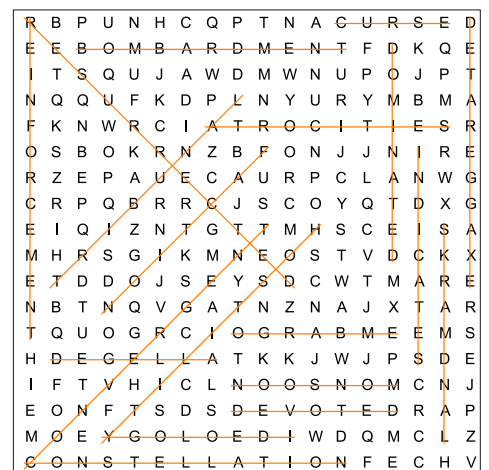
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MISSING WORD ANSWER =



ISSUE 272 ANSWERS



S T R U C T U R E