PERSEVERING IN THE PANDEMIC

Making a joyful noise despite the isolation

A young man plays his trumpet accompanied by some makeshift percussion— from a balcony in Pamplona, Spain. (AP Photo)
PICK YOUR CLASSES AND YOUR TEACHERS.

Introducing the innovative Classical and Christian educational platform that offers hundreds of live online classes taught by qualified independent educators.

WWW.KEPLER.EDUCATION
This photo really did capture a perfect moment in time. Photographer Francisco Negroni snapped a once-in-a-lifetime shot of Chile’s Calbuco volcano erupting beneath a lightning-filled sky. The image, entitled “The Perfect Fear,” won the inaugural (or first, intended to be annual) Perfect Moment Photo Contest grand prize. The rare phenomenon pictured is commonly called a “dirty thunderstorm.” The eruption caused the lightning by creating electrically charged particles in the atmosphere. Negroni won a prize of cash and equipment, altogether worth $3,800, from the contest sponsor, Our World in Focus.
Last October, Bolivia’s long-seated socialist president Evo Morales resigned following an election fraught with allegations of fraud. A new election was set for May 3, 2020. As virus infections climbed in other South American countries—with Brazil reporting more than 4,200 and Chile over 2,100—Bolivia chose to shut down much of daily life. With only 81 cases of COVID-19 confirmed in Bolivia at the time, leaders instituted a nationwide lockdown. But Bolivia’s elections are mandatory. All able-bodied citizens are required to turn out to cast votes. Rather than risk spreading the disease, Bolivia’s electoral tribunal proposed delaying the presidential election to an as-of-yet undetermined date between June 7 and September 6.

United States Picks Up Puzzles

As Americans prepared for staying safe at home during the novel coronavirus outbreak, they stocked up on hand sanitizer, nonperishable foods, and paper products. But that’s not all. While lots of businesses took a downturn in sales, one in-demand product showed a significant increase in U.S. sales: jigsaw puzzles. Fatigued with electronic screens needed for work- and school-from-home, the old-fashioned family pastime of puzzling together made a comeback.

Bolivia Waits Longer for New President

Workers fumigate a street in Bolivia.

A health worker treats a sick child in Zimbabwe.

Zimbabwe’s flailing economy had already created a nearly impossible scenario for healthcare workers. (See “Zimbabwe’s Healthcare Crisis” at teen.wng.org/node/5923.) But in late March, doctors and nurses again went on strike. They were demanding clothing and gear to protect them from the coronavirus. “We needed to be protected first,” said Tawanda Zvakada of the Zimbabwe Hospital Doctors Association. At the time of the strike, Zimbabwe had three confirmed COVID-19 cases and one death. Three days later, the number of cases had increased to seven.

Zimbabwe Doctors Make Demands
At least 209 of the world’s 241 nations and territories experienced COVID-19 infections. Is there anywhere that would be untouched? One might think an Arctic research vessel and its mission would surely be safe. But even Polarstern, the German science ship intentionally frozen in Arctic sea ice since last October, underwent a sort of lockdown. A team member for the research project tested positive for the novel coronavirus. The news threatens the mission—not because that member was on board. He or she was not yet dispatched to the ship. But that person was training alongside 20 others who were set to join those already aboard. All those in training had to enter a two-week quarantine, delaying their parts in the mission.

**Virus Could Put Arctic Mission on Ice**

In France, the fight against COVID-19 is being waged one baguette at a time. The French are accustomed to buying their fresh torpedo-shaped loaves daily. But that ritual took on moral, civil, and public health considerations when the nation went into lockdown. Though French citizens long for their daily crusty comforts, soft, warm, and chewy, straight from la boulangerie, many see giving it up as a small sacrifice. It’s become a gesture of solidarity with healthcare workers fighting to save lives.

**France Sacrifices Its Daily Baguette**

The virus that causes COVID-19 first appeared in humans in Wuhan, China. Scientists believe that the pandemic occurred as travelers to and from China first carried the disease outside of that nation and began interacting with people in other countries. In order to try to protect their populations, many nations closed their borders to foreign travelers—decisions that were at first questioned by some for being “extreme,” “ethnocentric,” or “racist.” But as the number of China’s infections dwindled, China too began to protect itself from potentially infected outsiders. It temporarily banned all foreign nationals from entry to prevent new infections from reaching its population. Even citizens of other nations that had residence permits (legal permission to live) in China were prevented from returning to the country for a time.

**China Turns the Travel Tables**

For transportation in a nation of 1.3 billion people, India’s train network is its lifeblood. But the rhythm of the rails ground to a halt in March. In an attempt to contain virus spread and disrupt transmission, India stopped all train travel and warned of strict legal action for those who broke the rules. The announcement came even while crowds in stations were waiting to board. The suspension included major long-distance trains as well as public transit in big cities. Only freight trains were exempt.

**India Puts Brakes on Train Network**
Course records, personal bests, a sub-two-hour marathon—what’s happening in running sports these days? The answer lies very near the ground: a new breed of footwear known as “super shoes.” But are the people logging the miles getting lost in the hype over the gear?

Running shoes are big news. Nike’s new Alphafly racing shoe is built to help runners shatter records. It’s made with two air “pods” in the forefoot and extra foam in the heel. That technology helps cushion the foot against shock (and therefore fatigue) and provides bounce.

In addition to the pods and foam, the shoe contains a carbon fiber plate. The plate gives what Nike calls “a snappy sensation with each stride.” Energy from the runner’s leg would normally stop at the ground. The plate redirects that energy back upward, propelling the runner forward with a little boost.

One elite U.S. runner, Jake Riley, compared an early Nike prototype to “running on trampolines,” according to a BBC report. That’s about as close as one might get to “run and not be weary.” (Isaiah 40:31) The shoes are said to give runners as much as a four percent edge.

To some, such advances in the world of shoes are an exciting and popular change. Eliud Kipchoge wore an early Nike Alphafly model when he ran the world’s first sub-two-hour marathon last October. America’s best male marathoner, Galen Rupp, won the U.S. marathon trials in March in a pair of Alphaflys.

Others say marathons have become nothing more than a shoe competition due to the technological advances. Employees of Runner’s World took shoe notes at the marathon trials. Of 565 pairs of shoes counted, 404 were “some version of Nike’s Vaporfly or Alphafly shoes.”

“This has been such a controversial thing for our sport,” says marathoner Jake Riley. “It’s changing the conversation away from the athletes, which is a little bit frustrating.”

World Athletics, track’s governing body, recently outlined strict new shoe rules. In order “to preserve the integrity of elite competition,” WA President Sebastian Coe wants to make sure the shoes worn by the elite runners aren’t giving them “an unfair boost or advantage.”

The new rules control sole thickness and number of plates. They also say that any shoe used in the future Olympics must be available to the public well in advance of the competition dates. That’s so that anyone—not just shoe-sponsored athletes—can get a pair.

Marathoner Tyler Andrews didn’t earn an Olympic spot at the trials. But he didn’t blame the shoes. He says of his competition, “They’d run really fast even if they were wearing Crocs.”
Beneath Belgium’s city streets, something is growing in the dark. Moist, cool cellars have become hip spots for urban mushroom farms. A group of entrepreneurs in the city of Brussels is making a far-fetched fungi idea feasible. They’re learning that another popular trend above ground creates magic down below.

Belgium is known for its ale-making tradition. But brewing beer generates waste from fermented grains. The result is an excess of spent organic material that can be used again—this time, to cultivate exotic mushrooms. Quentin Declerck and his business partners are putting that waste back to work and seeing success from their efforts. They’re producing healthy, sought-after food by harnessing the good stuff in organic brewery waste.

Hadrien Velge and Sevan Holemans founded “Le Champignon de Bruxelles” in 2014. First, they tried growing varieties of Shiitake, Maitake, and Nameko mushrooms using coffee grounds for the substrate. A substrate is the material that an organism draws its nutrients from. Soil is the most common substrate for most farming projects. Coffee was a good initial substrate idea. But it turns out that mushrooms flourish better on soft, mealy, mushy grains.

“It didn’t work out well with coffee, so we teamed up with the Cantillon brewery down the road,” Declerck says. “In cities, the beer waste would normally be thrown away.”

The underground cellars of the famed Abattoir meat market in Brussels’ Anderlecht neighborhood are an ideal setting for urban farming. The 32,000-square-foot space below the market stays cool, dark, and moist—just the environment that fungi love. In that setting, this urban farm also never drops below 52°F Fahrenheit, so freezing the crop is not a concern. Packets of spore-imbued substrate line row upon row of shelves. The farm is burgeoning with produce—generating about five tons (that’s 10,000 pounds!) of the fungal delicacies every month!

What do locals think about the underground urban mushroom initiative? Benjamin Gaugué is a cook who thinks the farms are ingenious. “They sell good products and promote sustainability,” says Gaugué. He appreciates the ecological wisdom of the waste-to-food project.

And what was once trash keeps paying its potential forward—one more step. After the mushroom harvest, the substrate can be used again in yet another capacity. Local farmers use the mushroom-exhausted material as organic fertilizer. So the cycle continues—used grain becomes substrate for organic mushrooms before heading back into the soil to feed and sprout new grains.

For everything there is a season, and a time for every matter under heaven: a time to be born, and a time to die; a time to plant, and a time to pluck up what is planted.

— Ecclesiastes 3:1-2
Minutes into a lecture, Chu Xinjian’s online class abruptly stopped. It was the first day of an unusual semester. Across China early this year, schools went virtual. Officials curtailed classroom gatherings from grade school to university level. It was part of an effort to contain the spread of the novel coronavirus, or COVID-19. The virus first surfaced in Wuhan, a city in central China.

Chu’s professor was sending voice recordings to the class online. Without warning, the system disbanded the group. The reason given: violating China’s internet rules.

China’s Communist Party regulates social media heavily. Facebook, YouTube, and Twitter are blocked. Citizens—or professors teaching classes—can use homegrown internet outlets such as Weibo and WeChat. But the government-run Cyberspace Administration and the police monitor all communications. They scrub any content deemed offensive.

Monitoring is pervasive. Louis Wang, a middle school history teacher, says, “Every word that is spoken in a video recording must be pre-approved.”

Participants may never know what prompted an interruption. That was the case in Chu’s class. The group was studying bioinformatics, the science of analyzing complex biological data. “I’m not sure exactly what phrases triggered it,” says Chu. “I guess we touched on some sensitive topic.”

History and politics classes are the most vulnerable to censorship. Western students study Chinese events such as the Cultural Revolution or the Tiananmen Square Incident. But not Chinese students. Those subjects are off limits. Western maps that show Taiwan in a color different from mainland China are not allowed because China claims to control that independent island nation. The state permits only props, statements, and views fully aligning with Chinese national unity.

Despite the restrictions, China’s Education Ministry declared business as usual. “Classes have stopped, but learning will not,” an official February notice said. The Ministry established 24,000 free online courses during weeks of curfews and quarantines.

Business meetings and fitness classes even “met” through the internet.

But while activities continued, China’s citizens weren’t living freely. All internet activity is subject to recording or real-time inspection by government agents. One could listen in at any point, without participants’ knowledge.

Teachers must be vigilant. Spontaneous classroom discussions could be recorded, misunderstood, and circulated online. Even non-controversial statements can conflict with the censors.

For Wang, the answer is writing out his entire lecture. Before he reads it to his online class, a school administrator approves every word. Almost all political terminology is censored online. That made teaching a politics class extremely difficult for Wang’s colleague. Wording essential to his lesson, even though consistent with China’s political ideals, was scrubbed from notes he planned to share online with students.

A well-known Chinese comedian predicted removal of his social media post when he said, “The absence of freedom of speech will impact our education, our lives. It’s not so funny now, is it?”

As expected, the comedian’s post is no longer visible on Weibo.
The Singer Laren museum near Amsterdam, the Netherlands, was closed. Like most venues and walk-in businesses, the museum shut its doors to limit transmission of the novel coronavirus. But the closure didn’t stop thieves. Instead, it presented an opportunity. Someone stole a painting by Dutch master Vincent van Gogh in an overnight smash-and-grab raid on the Singer Laren.

The Parsonage Garden at Nuenen in Spring 1884 was taken in the early hours of the anniversary of the painter’s birthday on March 30.

Van Gogh’s most famous paintings use vibrant colors, thickly applied in swirling and expressive strokes and dabs in the Post-Impressionist style. But not this work. Van Gogh created the bleak image at an earlier time in his life, before developing his own unique style. At the time, he was living with his parents. His father was a Dutch Reformed Church pastor, and the parsonage referred to in the painting’s title was home.

Vincent’s father converted the parsonage laundry room into a studio for his artistic son. He used the small, humble indoor space for almost two years, producing about 200 paintings and drawings in that time. Just prior to creating The Parsonage Garden in Spring, van Gogh had finished a series of winter paintings. All used a somber palette of browns and grays. This image introduced touches of green and red, suggesting that winter was finally turning to spring.

Museum General Director Evert van Os said the institution that houses the collection of American couple William and Anna Singer is “angry, shocked, sad” at the theft. The 10-by-22-inch oil-on-paper work was on loan from the Groninger Museum in the Dutch city of Groningen. Its value wasn’t immediately known. Van Gogh’s paintings, which rarely come up for sale, fetch millions at auction. But it would be almost impossible for a thief to sell a known work like this one.

Police were investigating the theft amid speculation by art lovers about the thief’s motivation for taking this particular work on the artist’s birthday. A team of forensics and art theft experts studied video footage and questioned neighbors.

Singer Laren museum director Jan Rudolph says the loss is more than just material. It robs a public “in these difficult times” of a shared experience that the work communicated. As much of the world waited in some form of quarantine or isolation, the overcast view of the garden and its lone figure—with spring promised but not quite in reach yet—spoke of hope, perseverance, and patience to the lonely.
Sometimes in economics, the way up is down first. That’s what Uber is counting on. The company known primarily for its ride-hailing service is losing money. The loss is part of a plan that Uber hopes will pay off in the future. It’s investing more than it’s earning in two areas: food delivery and developing driverless cars.

Around the world, Uber provides rides to customers who can’t or don’t want to drive themselves. Revenue in that area is coming in well. In fact, business nearly tripled in the last three months of 2019 as Uber picked up more passengers worldwide. Total ride income reached $4.1 billion—an increase of 37% in a year.

But even with those gains, the San Francisco-based giant lost $1.1 billion in the 2019 fourth quarter. The loss was due to high costs for growth in the other developments.

Company CEO Dara Khosrowshahi thinks the future is still bright for Uber. At the start of 2020, he said the company was on track to turn those losses into profits. By the end of 2020, Khosrowshahi anticipated, Uber would be profitable overall once again.

Uber Eats is the division that focuses on food delivery. It lost $461 million in the last quarter of 2019. But that’s a much smaller loss than Uber Eats reported for the same period in the year before—despite growing competition in the food delivery business.

In the United States, Uber has focused on getting as many restaurants on board with its delivery service as it can. Today, almost 400,000 restaurants list Uber for delivery orders, so hungry homebodies lift more than the phone to get their favorite foods brought to them.

But growth comes with challenges too. Uber counts on using drivers who provide their own cars and work as independent contractors. The drivers are not company employees. Contractors are in business for themselves. They offer their services (driving in this case) for a rate of pay. But they don’t get employee benefits like paid time off, health insurance, or social security. That saves Uber money.

A new California law makes it harder for companies to use contractors instead of employees. Uber and other businesses have challenged that law. But ongoing labor issues in the huge but demanding California economy only increase the appeal of driverless cars. Perfecting the driverless car could free Uber from paying human drivers. It could also free the company of the restrictions coming down from state governments.

For a driving-driven business like Uber, losing money now for those freedoms later may be worth it in the long run.
This spring, demand at online retailers, food distributors, health supply companies, and delivery services soared. Retail giants Amazon and Walmart hired thousands of new workers. What caused the sudden changes in consumer behavior? The novel coronavirus kept people at home—and gave them plenty of time and reason to shop online.

During the pandemic, home delivery of groceries and prepared meals became important to many Americans. Soon after the COVID-19 outbreak started, Sandie Nierenberg knew it was time to avoid supermarkets. She began ordering her groceries online. Nierenberg says the grocery store “was a madhouse, and it was crowds of people and everybody coughing.” She began ordering all her groceries on Instacart, an online delivery service. She hoped to reduce her family’s possible exposure to the virus—and other people’s exposure to her family.

The more governments called for social distancing, the more consumers turned to online delivery apps. Instacart, Walmart Grocery, and Shipt all saw high demand for their services. In places where they weren’t shut down completely, many restaurants offered take-out and delivery meals. There was also an increase in orders from meal-delivery apps such as GrubHub, DoorDash, and Uber Eats. These allowed people to avoid crowds where they might contract the virus.

During the height of the virus concerns, a surge of orders put Amazon’s sleek systems under pressure. The company had to focus on stocking and delivering essentials such as medical supplies, hand sanitizers, and baby formula. Amazon needed more workers to handle the extra business. Already the second-largest U.S.-based employer behind Walmart, Amazon employed nearly 800,000 workers worldwide. Yet it sought to hire 100,000 additional people. Amazon gave its hourly workers a two-dollar-per-hour pay bump.

The Bible holds that workers deserve fair pay. (Matthew 10:10, Luke 10:7) Amazon officials realized that laborers old and new deserved a good salary—one that reflected the potential health sacrifices they made and their value to the company.

Amazon worked to focus on stocking and delivering essentials such as medical supplies, hand sanitizers, and baby formula. Amazon needed more workers to handle the extra business. Already the second-largest U.S.-based employer behind Walmart, Amazon employed nearly 800,000 workers worldwide. Yet it sought to hire 100,000 additional people. Amazon gave its hourly workers a two-dollar-per-hour pay bump.

Sadly, not all the hiring choices were because of demand. “Some of our hiring is to manage risk,” Sean Vanderelzen, a human resources officer, told The New York Times. Employers “expect that some people will be quarantined or have to leave because of the virus.”
Whoosh, whoosh. Feathered wings sweep through the air. A massive bird seeks a landing. It moves toward its master, claws extended. The bird lands with a jolt on the waiting arm. In the Middle East, falconry is both cultural symbol and treasured tradition.

Falconry is hunting with and training birds of prey. Falconers train birds to locate and capture wild animals—and bring them back to the falconer. In many parts of the world, falconry has existed for centuries—or longer. Stone tablets from the 700s B.C. depict an Assyrian hunter, or falconer, with a large bird perched atop his outstretched arm. For possibly thousands of years, falcons and falconers hunted meat for survival in the harsh desert.

Even today, “falconers have a very special place in the heart of the Emiratis,” says Margit Muller. She is the director of a state-of-the-art falcon hospital in Abu Dhabi, United Arab Emirates. She says, “Here, falcons are not considered birds; they are considered children of the Bedouins.” Historically, the Bedouins were nomads of the region who relied on falconry.

Falconers are highly prized animals, females being the most sought after. “The female is usually one third bigger and more powerful,” says Muller. Some female falcons can cost as much as $108,000. The UAE spends over 27 million dollars yearly protecting and preserving falcons at hospitals in Abu Dhabi and in Dubai. The hospital performs routine checkups, talon trimmings, and even complex surgeries, including leg and wing repairs.

In the waiting room of the Abu Dhabi falcon hospital, two birds perch grandly near owner Eid al-Qobeissy. They’re awaiting a checkup before a hunting trip. The birds wear leather hoods to keep them calm and quiet in the luxe waiting room.

“This has been a hobby of mine since 2007,” says al-Qobeissy, gently stroking one of his birds. The Abu Dhabi facility is the largest falcon hospital in the world. It treats about 11,000 falcons yearly. Falconers from across the region visit the facility. For falconer Salem al-Mansouri from Abu Dhabi, falconry is more than a time-consuming and expensive pastime: It’s a symbol of Emirati culture.

“Falcons were used to hunt, and you can say that it was the only method for hunting for survival . . . hundreds of years ago,” he says.

Sharing a heritage, passing along what’s seen and heard—these are principles found throughout the Bible. The Apostle Paul emphasizes teaching future generations the truths of God’s word. He also instructs Timothy to teach what he’s learned to others. (2 Timothy 2:2)

“We inherited it from our grandfathers and fathers, who taught us,” al-Mansouri says, “and now we teach the next generation.”
In a world gripped by a pandemic, it can be hard to remember that a civil war in Syria is still happening. The conflict began in early 2011. A web of nations, resistance fighters, terrorists, civilian helpers (see “The Most Dangerous Job in the World” at https://teen.wng.org/node/2619), and refugees complicate the situation in a country many of those once called home.

The war gave rise to the terrorist Islamic State group. It also triggered a catastrophic humanitarian crisis. Terrorized citizens tried to escape to safety in other nations. Those countries were not prepared to accept the masses. More than half of Syria’s pre-war population of 23 million people have been driven from their homes. The United Nations says that 80% of the population still there lives beneath the poverty line. Half the country lies in ruins . . . and the war is nowhere near its end game.

Russia, Iran, Turkey, and the United States all have boots on the ground in Syria. The Lebanese Hezbollah group—Islamist militants—and a slew of other Iranian-backed militias are fighting there. Israel bombs inside Syrian borders frequently. The war has so many international players that one Syrian joke says that it’s the remaining Syrian people who need to leave the country. Then they would not disturb those foreign powers fighting on their soil.

Russia aligned its military might behind Syria’s current president, Bashar al-Assad. Assad continues to chip away at Syrian rebel-held territory. The rebel hold has shrunk from more than half the country to a tiny strip in Idlib province near the Turkish border.

Meanwhile, the nation’s economy is deteriorating fast. Its currency is collapsing. Ordinary Syrians struggle to keep up with prices that rise even over the course of a day.

David Beasley, head of the World Food Program, called the situation almost “a perfect storm of devastation.”

Even if Assad were to recapture the remaining rebel-controlled territory, ruling it remains an unresolved issue. His government’s policy of “reconciliation” in areas it has already seized has proven futile. Temporary windows of relative calm crumble into acts of violence almost on a daily basis.

It’s God’s intention for human leaders to reflect His goodness to the people they lead. (See Romans 13.) But humankind outside of the Holy Spirit’s guidance strays to serve itself, often with violence and merciless persistence, and power is used corruptly apart from God’s will.

It is an abomination to kings to do evil, for the throne is established by righteousness. — Proverbs 16:12

Children play on the rubble of houses destroyed by airstrikes in Idlib, Syria.

Syrian children live inside a cave after being displaced by war.

Syrian army soldiers fire during a battle with rebel fighters.
In His compassion, God invites, “He who has no money, come, buy and eat!” (Isaiah 55:1) Those words would bless the ears of many struggling to survive in Venezuela.

For Yeri Guerra, getting by means sometimes skipping meals so her boys, ages four and 11, can eat before school. Other days, when things are even more desperate, none of them eats.

“Sometimes, I don’t send them to school because I don’t have anything to give them for breakfast,” the 39-year-old mother laments.

Guerra isn’t alone. According to a survey by the U.N. World Food Program, one of every three Venezuelans faces food insecurity. That is the inability to get enough food to meet basic dietary needs.

The South American nation was once wealthy due to its vast oil reserves. But decades of socialist rule and corruption set Venezuela on a downward spiral into social and economic crisis.

Basic needs such as medicine and food go unmet for average citizens in Caracas, the capital. People surveyed said food is now available, but it’s still unattainable. Many Venezuelans have lost their jobs in the crisis. The little money a laborer can scrape together is almost worthless due to hyperinflation.

Caracas has the nation’s highest concentration of wealth, but it’s still common to see children, the elderly, and others looking for food scraps in garbage piles outside homes and behind restaurants. They throw rocks and sticks into trees hoping to knock loose fresh fruit for a meal.

Wilfredo Corniel is a priest. “One day we saw a dog fighting with a man over a bone,” Corniel says. “A bone that had nothing on it.” Compassion moved him to act.

In a slum dismally called The Cemetery, Corniel organizes free meals. Guerra’s family depends on that sort of generosity to save her boys from malnourishment. A soup kitchen in her neighborhood provides free lunches most days—and the widow and her children take part. Occasionally, she can afford a chicken drumstick, which they share, bought from her earnings selling cookies or candy on the street. In a good week, she earns about $5. Remarkably, that’s a higher-than-average income.

Since September, Guerra has been the sole provider for her family. Her husband went to work one day selling snacks. He was later found beaten to death and robbed. Most of her family has fled Venezuela for better conditions in neighboring Colombia, Ecuador, and Peru.

Despite the devastating decline, Socialist President Nicolás Maduro has managed to stay in power. His government hasn’t commented on the hunger study.
“Where to find it?” “Whatever you want.” “What do you need?” These aren’t text message snippets. They’re internet social media groups. They help thousands in the island nation of Cuba to locate basic goods. But the services could make things worse for average citizens.

Grocery shopping in socialist Cuba can be difficult. Cooking oil vanishes from shelves. When it’s restocked, there’s no flour. One day there’s no butter, the next no cheese. People can spend hours vainly searching for common household goods.

Foraging for physical food in Cuba is difficult and constant. But God’s spiritual blessings don’t have to be earned day after day. Jesus said, “I am the Bread of life; whoever comes to me shall not hunger, and whoever believes in me shall never thirst.” (John 6:35)

Cubans have struggled to obtain basic supplies since the collapse of their supporters, the Soviet Union, decades ago. Last year, the situation worsened when U.S. President Donald Trump toughened sanctions (penalties to alter a nation’s behavior) against the island. Problems in Venezuela, a key provider of oil to Cuba, have also hurt the country. (See page 14.)

As a result, Cubans often face product rationing and long lines at shops. Therefore, many turned to a fairly new technology—social media—to find what they need. (See “Cuba Internet Gives Citizens Power” at https://teen.wng.org/node/5264.)

Today, with chat groups like WhatsApp, Instagram, and Facebook, Cubans grapple in near real time with constant supply challenges. Savvy shoppers share tips about where to find dish detergent, chicken, fuel, and other scarce essentials.

Without these social media groups, people would “spend all day going around the city” looking for things they need, says graphic designer Claudia Santander.

For example, someone can ask about a certain product—toilet paper or milk powder or soap. Within minutes, another person on the chat might reply to say which store in Havana, the Cuban capital, is stocking it.

“I’ve been able to sort out” diaper and other purchases since joining several social media groups aimed at locating items, says Laura Vela, who has a young child.

Some of the groups have waiting lists for people who want to become members. WhatsApp limits group chat sizes to 256 people. Other platforms accept thousands.

Shopping through social media is easing life for some in Cuba. But for others, social media may actually make life harder. That’s because there’s another hurdle folks there must face: Internet service is costly—$5-$20 per month. And with average monthly salaries just $20-$50, many Cubans can’t afford to buy data or even a decent phone. But without phone access, one might find only empty shelves.
Genette Hofmann is very much alive. But in January, she donated her brain to science—a piece of it, anyway. She did it in hopes of helping others who do or will suffer from the same condition she has long lived with.

For 30 years, Hofmann has suffered with epilepsy. The disease disrupts the brain’s electrical activity. Epilepsy produces seizures that involve strange behaviors, emotions, and sometimes loss of consciousness. Most people with epilepsy don’t need surgery: They control seizures with medicine. But when surgery is required, researchers sometimes ask for a chance to conduct other brain studies.

Dr. Andrew Ko, Hofmann’s surgeon, located the tissue triggering her seizures. He wanted to operate. But to access the problem area, Ko needed to remove a lima-bean-sized plug of healthy brain tissue. Would Hofmann allow researchers to examine that piece while it was still “alive”?

With Hofmann’s blessing, hospital workers rushed those brain cells to the Allen Institute, a center for brain research. The tissue traveled in a cooler rigged with artificial brain fluid and oxygen. At the lab, researcher Herman Tung readied the brain tissue for a series of experiments by slicing it into thin sheets.

Researcher Katherine Baker found a single brain cell and recorded its electrical activity. She injected dye to reveal the shape of the cell’s neurons. She also removed the cell’s nucleus to discover which genes were turned off and which were turned on.

Hofmann joins a long line of epilepsy patients who’ve helped scientists reveal some secrets of the brain, including memory, emotion, and everything we call “the self,” says Christof Koch. He is chief scientist at the Allen Institute. “Seizures have taught us more about brain and the mind and the relationship between the two than any other disease,” Koch says.

Two weeks after Hofmann’s surgery, she reports: “No seizures.” Part of her brain is gone, but she doesn’t feel anything’s missing. In fact, happy memories have surfaced, “things I haven’t thought of since I was a girl.”

About three quarters of all brain donations at the Allen Institute come from epilepsy patients. The rest are from cancer surgeries. With the help of generous donors like Hofmann, the institute hopes to help tackle Alzheimer’s disease, autism, and other disorders.

For Hofmann, the decision to contribute to the study went beyond her own epilepsy. She spent years caring for a grandmother with dementia. She saw her brain tissue donation as “my chance to make a difference,” calling it “the easiest decision I’ve ever made.”
Upscale Americana music fills the room as violinists dance across the stage. The strings are virtuosic. The vocals are electric. These classically trained musicians transform the art of musical presentation. Original compositions showcase the Annie Moses Band’s talent as it blends jazz, progressive folk, and classical music into its own style.

The Annie Moses Band loves to perform, but even these avid performers took an extended fermata. In musical terms, a fermata is an unexpected interval of silence. The band paused concerts due to the coronavirus outbreak. It decided to halt large-gathering public appearances until it was safe to perform again.

But the rest won’t stop the band’s mission, which is to reclaim the arts for the glory of God. The band members’ heritage is unique. Music is in their blood.

Coming together as a musical group fulfills a family legacy. Annie, Alex, Benjamin, Camille, Gretchen, and Jeremiah are the six Wolaver siblings that make up the band. Their father is a composer, and their mother is a lyricist. The band bears the name of their great-grandmother Annie Moses. Though she had few resources as a poor sharecropper, Annie Moses invested in the musical talents of her daughter. That sacrificial investment continues to grow generations later.

Collectively, the Wolaver siblings have mastered cello, guitar, harp, keyboard, mandolin, voice, viola, and violin. Several trained at New York City’s esteemed Juilliard School for the performing arts. The band’s résumé is impressive, as is their mission to raise up a new generation of skilled artists who are committed to God’s truth.

The arts and entertainment industry is powerful in shaping people’s perspectives. The Annie Moses Band longs to fill the arts world with excellence and moral integrity. “Music is something that’s built into the DNA and the biology of people. When we hear a major chord, it sounds happy. A minor chord sounds sad. When we hear stories in songs, they mean something more deeply to us,” says band member Annie Wolaver Dupre.

The Annie Moses Foundation is the band’s non-profit organization. It pours resources into aspiring artists. The foundation’s mission is clear: “Create a space in our society where Truth can flourish.” The foundation offers a two-week summer performing arts intensive workshop for artists. It also promotes the Annie Moses Conservatory, a nine-month music school. To offer protection from the coronavirus, the organization moved conservatory classes online.

“Conservatory” comes from the Latin word “conservare,” meaning “to preserve.” The Annie Moses Band is preserving the fine arts for the glory of God.

Sing to Him a new song; play skillfully on the strings, with loud shouts. — Psalm 33:3
Humankind has explored less than 10% of the world’s oceans. Now a team of scientific explorers plans to dive deep into the Indian Ocean—into a realm known as the “Midnight Zone.” Light doesn’t reach this far beneath the surface, but life there still thrives.

The British-led Nekton Mission is working in cooperation with the Seychelles and Maldives governments. Team members plan to spend five weeks surveying wildlife around seamounts. Those are vast underwater mountains that rise a mile or more above the ocean floor.

To explore such inhospitable depths, Nekton scientists will board one of the world’s most advanced submersibles, called Limiting Factor. The deepest point mapped by Limiting Factor is in the Pacific Ocean’s Mariana Trench. It’s the lowest spot on Earth at almost 36,000 feet down. That’s farther down than Mount Everest rises up.

As divers descend, pressure increases. There are limits to what a human body can sustain without an adequately pressurized vessel. Limiting Factor provides that protection for two people in its compartment with a 3.5-inch titanium cocoon wrapping the submersible.

But God made deep-sea-dwelling fish, squid, sponges, and the other innumerable creatures, great and small, that teem there. (Psalm 104:25) He equipped them to not only bear the pressure but also thrive under it. You won’t find Midnight Zone marine life in aquariums above the surface. Marine biologists say it’s too difficult to recreate the habitat of the cold, dark, deep, high-pressure Midnight Zone. Those animals would not survive in even the best modern aquariums.

Many of the creatures that call the Midnight Zone home are blind. Others have poor eyesight. Because most creatures there don’t operate by sight, few Midnight Zone animals need camouflage to hide or bright colors to attract mates. But even in that murky darkness, God gave some life-forms light.

“What we do know is that beneath 1,000 meters (3,280 feet), there’s no light down there, but a lot of animals . . . are bioluminescent. It’s life that glows,” says Nekton mission director Oliver Steeds.

One example is the deep-sea anglerfish. This craggy-looking, bony fish sports a long, thin filament from its forehead. From that dangles a fleshy blob, glowing with bioluminescence. Bacteria living in the fish emit the soft light. The carnivorous anglerfish glides along with its natural lure bobbing gently before it. Other nearly blind creatures approach the curious glow, at which point they are scooped into the giant maw of the predatory angler. The deep-sea angler can expand its jaw and stomach to take in creatures.
more than twice its size. That’s a handy trick for a carnivore that meets up with a meal only every few days.

Fascinating as the anglerfish might be, scientists believe there are countless likewise fascinating species yet to discover.

“It’s one of the most bio-diverse parts of the world’s oceans. So what we’re going to find there is unknown,” Steeds said in Barcelona, Spain, before trials for the submersible began.

On each dive, Limiting Factor’s occupants will have only 96 hours to complete their tasks and collect data. That’s how long the oxygen for two adults will last. While below, the scientists will collect water samples and use sensors and mapping technology. They expect to identify new species, define seafloor topography, and evaluate pollution conditions.

What wonders await them in the deep! Because Limiting Factor is the only submersible passenger vehicle in the world that can reach the bottom half of the ocean, expedition leader Rob McCallum says, “Everything we do is new. Everything we see is virtually a new discovery.”

Do you find the idea of descending so far beneath the ocean’s surface frightening? In Bible times, people were terrified of the depths. “The deep” or “the abyss” often referred not just to the water itself. Those terms symbolized chaos and the great unknown.

The Psalmist used darkness and the “uttermost parts of the sea” as examples of the farthest reaches of existence. But the good—news that the Psalmist arrived at is true for us all:

Where shall I go from your Spirit? Or where shall I flee from your presence? If I ascend to heaven, you are there! If I make my bed in Sheol, you are there! If I take the wings of the morning and dwell in the uttermost parts of the sea, even there your hand shall lead me, and your right hand shall hold me. If I say, “Surely the darkness shall cover me, and the light about me be night,” even the darkness is not dark to you; the night is bright as the day, for darkness is as light with you.

— Psalm 139:7-12

There is neither “height nor depth, nor anything else in all creation, [that] will be able to separate us from the love of God in Christ Jesus.” (Romans 8:38-39)

The scientists on the Nekton Mission will combine their observations with those made last year during the Seychelles Indian Ocean mission (see “Charting the Indian Ocean” at https://teen.wng.org/node/5118). They plan to present their findings in 2022.
Sniff, sniff. The dog nose knows. Scientists have long understood that canine snouts are among the world’s best. God made dogs able to smell everything from bedbugs and DVD plastic to diabetes and emotions. New research suggests doggie scent detectives could help save fruit trees too.

Scientists at the U.S. Department of Agriculture are training dogs to sniff out a crop disease called “citrus greening.” Tiny insects feed on the leaves and stems of citrus trees and spread the citrus greening bacteria. The blight has hit orange, lemon, and grapefruit groves in Florida, California, Louisiana, and Texas. Citrus greening has also affected Central and South America and Asia.

There’s only one way to stop the spread of citrus greening: Growers must remove infected trees before the disease spreads. Catching the bacteria that cause citrus greening is key, since the disease can spread before trees ever show symptoms.

Finding something that isn’t visible is difficult for humans. But trained dogs can detect the fruit disease weeks—or even years—before it shows up on tree leaves and roots.

“This technology is thousands of years old—the dog’s nose,” says Timothy Gottwald, a researcher with the USDA and a co-author of the study. “We’ve just trained dogs to hunt new prey: the bacteria that [cause] a very damaging crop disease.”

A study for the National Academy of Sciences showed that dog sleuths are faster, cheaper, and more correct than humans. After all, humans must collect hundreds of specimens and analyze them one at a time.

“The earlier you detect a disease, the better chance you have at stopping an epidemic” by removing infected trees, explains Gottwald.

In one test, trained dogs in a Texas grapefruit orchard had a 95% success rate. The canine sniffers could tell the difference between newly infected trees and healthy ones. In another study, the dogs were over 99% accurate!

Researchers took steps to be sure the dogs were smelling the citrus greening bacteria and not another bacterium or infection. Amazingly, no matter how scientists mixed things up—roots only, non-citrus plants, different kinds of diseases, multiple diseases—the dogs identified the citrus greening disease every time.

“You’ve seen dogs working in airports, detecting drugs and explosives,” says Gottwald. “Maybe soon you will see them working on more farms.” How does “Farmer Fido” sound?
Lobster are a much beloved seafood. Decadent and scrumptious alone, lobster meat also enhances rolls, pizza, fritters, pot pie, or mac and cheese. It’s hard to visit Maine without tasting the large-clawed, eight-legged, antennaed shellfish somewhere, somehow. Now one company thinks lobsters could do more than add enjoyment to life. It suggests that lobsters could save lives.

Marine crustaceans have aided human health before. Protein from horseshoe crabs detects impurities in medical products. Crushed lobster and shrimp shells coat bandages and clot blood.

Lobster Unlimited of Orono (Maine) thinks lobster blood has potential to go even further. The U.S. Patent and Trademark office granted the company a patent on its work last fall. The company plans to use compounds derived from hemolymph, or lobster blood, to improve human health and possibly other mammals’ health too.

Interest in developing non-food products from lobsters has grown in recent years. That’s because Maine’s crustacean crop has grown by millions of pounds. Lobster leftovers become everything from Christmas decorations to gardening soil. But using them as medicine is entering a new frontier.

Biologist Diane Cowan says lobster blood isn’t red. It’s a kind of bluish-gray. Still, she says, the “idea that you can take something from one animal and use it for another is not outrageous.” She adds, “The circulatory fluid that runs through all bodies of all living animals is very similar.” It’s not surprising, since the same Creator-God made both lobster and human according to Genesis.

Lobster Unlimited scientists have found that a protein in hemolymph boosts immune systems. Experiments show the substance can also reduce the quantity of some viruses in human cells. Lobster Unlimited head Robert Bayer says there’s “no question [lobster blood] has antiviral and anticancer properties.”

Obtaining lobster blood couldn’t be easier. After all, it’s a byproduct of Maine’s 40-million-pounds-per-year lobster industry. “Right now, this blood is literally thrown out on the floor and goes down the drain,” says Bayer. “We can collect millions of pounds of it, which makes it a viable product worth pursuing.”

Lobster Unlimited doesn’t plan to manufacture or sell drugs—just extract the blood. The company would need to find researchers to develop and test new drugs.

Maine lobsterman Steve Train was surprised about the idea of using lobster blood as medicine. “I hope it’s true,” he says, adding, “These scientists know more than I do.”
Reckless conduct. Gross carelessness. Felony lying. Manslaughter. These charges aren’t facing a hardened criminal or a mafia boss. They relate to an oil spill. Finally, after decades of cleanup, a slick-splattered Louisiana island has been reborn.

Picture Louisiana’s outline as a stocking-clad foot. Upon inspection, the sock appears tattered. Those “tatters” are numerous small islands: Isle Grand Terre, Beauregard, and many others. Queen Bess Island is there too, barely a blip in the Gulf of Mexico, about 45 miles south of New Orleans. Queen Bess is one of Louisiana’s largest breeding colonies for brown pelicans. In 1956, the marshy island was 45 acres. By 2010, it had shrunk to about 15 acres. Flooding and rising ocean levels gulped up the land. Yet every summer, about 6,500 brown pelicans—plus 3,000 smaller seabirds—crammed their nests onto that itty-bitty plot of land.

The situation was bleak for the birds. Then tragedy struck.

Deepwater Horizon was a floating oil-drilling rig owned by energy giant BP (formerly British Petroleum). In April 2010, gas from an underwater well exploded. Fire sank the rig. Eleven people died. The well spewed more than 100 million gallons of oil into the gulf over the next 87 days. The oil spread . . . for miles.

When the slick reached Queen Bess Island, more than 1,000 birds perished. Brown pelicans struggled, their wings weighed down by black muck. Fish, dolphins, birds, and sea plants died. The incident became one of the largest environmental disasters in U.S. history.

BP has been paying for environmental damage from the spill. With the money, Louisiana officials restored Queen Bess as a pelican habitat. Contractors for Louisiana’s Coastal Protection and Restoration Authority added over 30 acres back using sand from the Mississippi River. They’ve planted about 24,000 woody plants for species to use for building nests—and built a line of offshore seawalls. These will slow erosion and provide calm water for young birds.

God promises to renew His creation—including you and me. God tells us that He “will Himself restore, confirm, strengthen, and establish you.” (1 Peter 5:10)

Before restoration on Queen Bess, crowding had made the shrubs look like apartment houses, nest above nest: a gull on the ground, an egret in middle branches, and a brown pelican at the top. Biologist Todd Baker supervises the island’s restoration. He says, “It was cool to look at but not necessarily good for those birds.”

Today, there’s plenty of room for pelicans, skimmers, terns, and other birds to spread their wings.

Queen Bess is back

A brown pelican flies over Queen Bess Island in Louisiana.

A pelican’s drips oil-sludge on Queen Bess in 2010.

explain-IT!
eteen.wng.org/worldteen-explainit
In Istanbul, Turkey, stands one of the architectural wonders of the world, glorious but silent.

It is the Hagia Sophia. This cathedral built in 537 boasts an enormous dome, representing the vault of heaven. Within, beams of light pour through many windows into a vast space. A beautiful sight—but this grand structure is not just for looks. The space was designed to reverberate with sound. For nearly a thousand years, Christians worshipped in the Hagia Sophia, like in other churches. But when they sang, the sound was truly unique.

Sadly, true Christian worship in the Hagia Sophia was silenced long ago. In 1453, the Ottoman Empire conquered the city of Constantinople. The Ottomans were Muslims. They changed the city name to Istanbul and converted the Orthodox Christian cathedral into a mosque. Now it is a museum, and music is banned.

So what did music in the Hagia Sophia actually sound like? With the help of a choir, advanced recording technology, and a balloon, we can hear for ourselves.

Two Stanford University researchers from seemingly unrelated fields came together to produce the forgotten sounds. Art historian Bissera Pentcheva met Jonathan Abel from the computer music department. In discussing the missing music, Abel realized he could recreate the acoustics of the Hagia Sophia digitally.

First, the pair made a digital impression of the cathedral’s acoustics... by popping a balloon. The POP! from a balloon varies depending on the room as sound waves hit and bounce off surfaces. Abel says in an NPR interview, “The space interacts with the sound, bringing back... information” about the room. Pentcheva went to the Hagia Sophia with a balloon and a few microphones. After museum hours, she popped the balloon. The explosion of sound echoed nearly 10 seconds in the cavernous cathedral.

Using the balloon recording, Abel constructed a digital filter that can make any recording sound like it is inside the Hagia Sophia. The Portland, Oregon, choir Cappella Romana recorded an album with this filter, using music once sung in the cathedral. For the first time in hundreds of years, we can hear the glorious music meant to fill the Hagia Sophia.

“It’s actually something that is beyond humanity that the sound is trying to communicate,” says Pentcheva. She is right. Hagia Sophia means “holy wisdom.” The cathedral, with its great dimensions and rich acoustics, points to the wisdom of God. As awe-inspiring as it is, though, the sights and sounds of this man-made stone cathedral are only a pale representation of what is to come. Imagine the sounds of worship in the presence of the infinite living God!
Rat-a-tat-tat. A bird jams its beak into a tree trunk 20 times per second. Seems like a formula for neck and brain injuries—or at least a whopper of a headache. Yet woodpeckers can do this all day, no problem. Could woodpeckers’ skulls yield insights for human protective gear?

Researchers at the University of California study the skull and tongue bone structures of woodpeckers. (Yep, tongue bone!) They say a woodpecker’s head moves toward a tree trunk at 23 feet per second. Every time its beak strikes bark, the head stops. Scientists say each impact happens at 1,200 times the force of gravity (g).

Think of it this way: If a woodpecker fell from a tree (don’t worry, God designed self-balancing tailfeathers and strong claws), it would fall at the rate of 1 g. Yet a bird’s schnozz hits the tree 1,200 times harder than that . . . over and over with no concussions or brain damage.

Sports fans hear plenty about concussions. (See “Concussions: What’s Happening Behind the Eyes” at https://teen.wng.org/node/4338.) A concussion is a form of serious brain injury caused by a blow to the head. Concussions
Inside a nuclear power plant, toxic water flows from damaged reactors. Workers in hazmat suits monitor radioactive waste. Nine years after a major disaster, this Japanese plant is still a cause for concern.

On March 11, 2011, a magnitude 9.0 earthquake and the resulting tsunami struck Fukushima, Japan. The city’s Fukushima Daiichi nuclear plant took a hit. Radioactive water spilled from reactors and destroyed key cooling functions at the plant. Three reactors melted. They released massive amounts of radiation and forced 160,000 nearby residents to evacuate.

Today, radioactive water still leaks from the melted reactors. It mixes with groundwater in and around the plant. Workers must pump the toxic water—to keep it from flowing into the sea and elsewhere.

Radiation involves the discharge of high-energy particles. These particles can harm human cells. Medium levels of radiation make people sick; high levels damage internal organs—and can cause death.

At the abandoned Fukushima facility, three lines of equipment connected to pipes snake around the sprawling plant. The lines process 750 tons of contaminated water each day. They carry water to about 1,000 temporary storage tanks on the plant’s grounds.

After that, a complex decontamination (cleaning) process takes place. A high-tech filter system removes all but one radioactive contaminant. Titanium can’t be removed. But it’s almost harmless when consumed in small amounts—at least that’s what Japan’s industry ministry and nuclear officials say.

Despite such statements, people are debating what to do with nearly 1.2 million tons of still-radioactive water.

Radiology expert Katsumi Shozugawa has been analyzing groundwater near the plant. He says the long-term effects of low-dose exposure in food haven’t been fully studied.

A government panel narrowed water disposal options. One remaining option is diluting the treated water to allowable levels and then releasing it into the sea. Another is allowing the water to evaporate. That process would take years.

Tokyo Electric Power Company (TEPCO) official Akira Ono says the water must go somewhere. The plant needs to use the tank area for clearing tons of melted reactor debris.

Japan’s government will allow TEPCO to release the water into the ocean. But local residents, especially fishermen, oppose that plan. They believe the water will harm their already struggling fisheries. People still worry about eating fish possibly affected by contaminated water—despite the government’s repeated promises.

God is not man, that He should lie. . . . Has He said, and will He not do it? Or has He spoken, and will He not fulfill it? — Numbers 23:19

happen frequently in contact sports like football or soccer. The National Football League says concussions in football players occur at 80 g. So how do woodpeckers survive repeated 1,200 g impacts without brain damage?

Researchers examined the secrets of the woodpecker’s ability to take a licking and keep on pecking. They found that woodpecker skulls have unique impact-absorbing features. This includes specialized skull bones, beaks, and tongue bones.

For example, woodpecker bones have more minerals than, say, chicken bones. That makes them stiffer and stronger. The woodpecker skull is harder and tougher at the same time.

Apparently, that hard-tough combo lessens the amount of impact on the brain during pecking. There’s also less fluid between a woodpecker’s brain and skull than in other animals. Having less fluid around the brain helps limit the motion of the brain too—like how a hard-boiled egg yolk doesn’t get damaged by shaking but an uncooked yolk breaks.

Then there’s the woodpecker’s tongue bone. It helps the bird extract insects from trees. The unusual tongue wraps around the back of the skull and anchors at the front between the eyes. This design lets the tongue and its bone act as a spring and dampen the effect of the pounding.

Scientists hope to discover other features of the bones, tissues, or cells in woodpeckers. Perhaps someday secrets from a bird brain will help protect and heal human injuries.
Half sea creature, half robot—a motorized jellyfish may seem like a fanciful storybook being or a bizarre sci-fi accident. Yet researchers in California have battery-boosted a real-life marine animal. They hope someday to remote control it—all in the name of collecting (really) deep ocean data.

“We’re trying to take the best of what biology does naturally and combine it with the best of what we can do as engineers,” says John Dabiri. He is a professor of Aeronautics and Bioengineering at the California Institute of Technology.

Jellyfish are free-swimming invertebrates. Besides having no backbones, they also lack brains, lungs, and central nervous systems. “These animals are 95% water,” says Dabiri. He adds, “It’s kind of like poking your finger in Jell-O.” So the sea creatures didn’t feel a thing during the poking that turned them into robo-jellies.

First, researchers created a device similar to a pacemaker. (A heart pacemaker is the size of a small cookie implanted under the skin. Wire leads carry tiny electric pulses to trigger heartbeats.) The penny-sized jellyfish gadget is even smaller. It holds a microchip and a battery. The scientists attached the device to the bellies of common jellyfishes. Then they ran fine wires to electrodes elsewhere on the animals.

As the device pulses, these “biohybrid robots” receive electrical jolts. The shocks make the jellies swim faster. Scientists measured how much oxygen the animals consumed during their speed swims. Results revealed that the juiced jellies used only two times more energy than normal—while tripling their speed.

“This reveals that jellyfish possess an untapped ability for faster, more efficient swimming,” graduate student Nicole Xu says. “They just don’t usually have a reason to do so.”

Scientists now want to engineer devices to steer the jellyfish so that they can collect data with them. These adapted jellies could be used to easily and inexpensively explore the ocean depths.

Researchers have placed tracking equipment on large ocean animals like sea turtles and great white sharks for decades. But blending electronics and living flesh to change how an animal moves is new.

Kakani Katija is principal engineer at the Monterey Bay Aquarium Research Institute. She values ocean exploration. But she also sees a difference between sticking a sensor on an animal’s side and changing its basic behavior. Katija calls the difference an “ethical tightrope.”

Tackling questions of morality and ethics is important. It’s worth trying to determine what God wants. (Romans 12:2)

Hank Greely is an ethics expert. He says, “There is something [disturbing] about mechanically changing animals for our [use].” He continues, “Is it wrong; is it right? I don’t know, but I am confident we will face these kinds of questions more and more often.”

What do you think God’s thoughts are about “biohybrid robots”?
The axolotl is a critically endangered salamander with a charming smile and a fascinating developmental trait. Even at full maturity, the amphibian keeps some characteristics of its juvenile (“tadpole”) stage. This is called “neoteny.” One of the most intriguing neotenic traits is this salamander’s ability to produce new tissues as if from its embryonic stage. For example, if the axolotl (pronounced ACK-suhl-LAH-tuhl) loses a limb in an injury, it will actually regrow another—just like the first!

Scientists closely studying the axolotl believe that it holds in its DNA the secret to limb regeneration, not just for amphibians but one day for larger creatures as well. These scientists even say that human limb regeneration is no longer a question of “What if…?” but “When…?”

Joshua Currie is a biologist at the Lunenfeld-Tanenbaum Research Institute in Toronto. He says the axolotl’s “regenerative powers are just incredible.” He has researched amphibian regeneration since 2011. A January 2020 Smithsonian Magazine article reported on Currie’s findings. The axolotl can perfectly regenerate not just legs but also internal organs such as lungs—and even brain and spinal cord tissues.

In the salamander, the replacement parts repeatedly regrow to just the correct size and placement. After several weeks, there won’t even be a scar or seam to show where the injury initially existed. The repair is astonishingly perfect and complete.

Scientists have identified the materials that the axolotl produces to rebuild itself. One is called epithelium. It is a type of skin tissue. The other is the versatile blastema, which is present from the earliest stages of embryos. Blastema can develop into any type of body tissue—muscle, skin, organ, bone. God programs into each creature through DNA how the blastema will mature. As scientists study DNA, they search for the unique markers that God put there to direct these mysterious developments. They hope one day to direct human DNA to similarly kick blastema into action when needed.

Even the most optimistic experts say the reality of human limb or organ regeneration is still many decades away. But better wound or incision healing could be quite close—easily in our lifetimes—from the same processes, just on a smaller scale.

Repairing such catastrophic injuries seems too great to grasp in our minds. How much greater is the work of repairing catastrophically damaged souls? But nothing is too difficult for God. He is making all things new. (Revelation 21:5) When we realize our need for Jesus as Savior, we don’t just receive a new part. We become new creations. (2 Corinthians 5:17)
Small Mark, Big Error

An accent mark on the official seal of the capital city of the United States’ most Hispanic state is in the wrong spot. The seal appears at the top of the city of Santa Fe, New Mexico's website. It uses the very long official name of the city with the likewise long history: La Villa Real de la Santa Fé de San Francisco de Asís. Most everyone calls it “Santa Fe” for short. The seal puts the accent mark over the first “s” in Asís instead of over the “i.” Even Mayor Alan Webber, who is originally from St. Louis, knows the placement is no bueno. “It is always over a vowel, it is never over a consonant,” Webber says. Does such a small mark matter? It probably does to those of Hispanic descent living in Santa Fe. And accuracy matters to God in His communication too. Jesus promised that nothing would change in God’s word, no matter how long the world lasts. “For truly, I say to you, until heaven and earth pass away, not an iota, not a dot, will pass from the Law until all is accomplished.” (Matthew 5:18)
Homing Egypt’s Street Dogs

The streets of Cairo, Egypt, practically teem with “baladi,” a once-reviled breed of stray dog. The dogs roam most neighborhoods in the metropolis, scavenging through trash to survive. The government estimates there are about 15 million strays, causing some 200,000 bites per year. According to the World Health Organization, baladi spread rabies, a lethal disease. But after centuries of negative stigma about the mongrels, attitudes are changing. A grassroots support group is providing medical care and spaying or neutering, and seeking homes for the dogs. Veterinarian Karim Hegazi once treated only foreign pooches. Despite common Islamic belief that dogs keep “angels” from entering a home, Hegazi says even pious Muslim residents are softening toward the creatures. They aren’t yet lap dogs. But many are finding new homes in grassy yards or on rooftops in Egyptian neighborhoods.

More Mice, Please!

Laboratories across the world scrambled to develop vaccines against the novel coronavirus. They had the funding. They had the talent. What did they need? Mice. Lots of them. Researchers use animals as test subjects before giving new medicines to people. God made mice able to reproduce and mature quickly. That makes them plentiful for testing. But COVID-19 doesn’t sicken mice. Humans must genetically engineer the mice, making them susceptible to the virus. One mouse model engineered in 2007 was created for testing Severe Acute Respiratory Syndrome, or SARS, an illness from another type of coronavirus. With no time to lose, Cat Lutz of Jackson Laboratory Mouse Repository in Bar Harbor, Maine, tracked down that genetic material at the University of Iowa’s medical school. The first batch of COVID-19-susceptible mice were born March 2. Lutz said that in just a few months, she would have thousands of mice available for vaccine tests.

Shoo, Peacocks!

An ostentatious pride of peacocks wore out its welcome in a Miami neighborhood. The city finally voted to relocate the plumed offenders. The Miami Herald reported that residents of the Coconut Grove neighborhood were peeved by the peafowl. The fearless birds travel in groups of 20 to 40. Their squawking wakes people at night. They leave poop piles wherever they please. And mistaking their own reflections for rival birds, they attack cars, pecking and scratching up paint jobs. Andrews Candela told city commissioners that the birds have ruined the quality of life he and his wife once enjoyed. “I don’t want to remain forgotten in a filthy, dirty peacock land as hostage to a group of birds,” he said. The commissioners unanimously agreed. They amended the city’s charter to trap and oust the excess peacocks. No details for the plan were specified, but a city representative said the birds would be humanely relocated.

Bytes

Stray dogs rest in front of the Pyramids of Giza.
1. What caused problems on Queen Bess Island, Louisiana?
   a) Pirates in the Gulf of Mexico ransacked the island, killing plants and animals.
   b) Floods and rising sea levels took much of the island, and an oil spill harmed the wildlife.

2. How could a study of woodpecker skulls help humans?
   a) Scientists hope to find ways that the birds’ bones, tissues, or cells help prevent brain injury caused by repeated pecking.
   b) Scientists are looking for the reason woodpeckers keep pecking even though the action is harming them.

3. In 1453, the Hagia Sophia came under the control of _______.
   a) Constantinople
   b) the Ottoman Empire

4. What plan has Japan’s government approved for the release of radioactive water?
   a) The government is endorsing a plan to pump the water secretly into China.
   b) Japan will allow the power company to release diluted toxic water into the ocean.

Quiz My Reading

1. bleak
   a) bright
   b) grim
   c) unpleasant

2. vault
   a) vast expanse
   b) locking safe box
   c) powerful leap

3. reverberate
   a) recoil
   b) silence
   c) resound

4. cavernous
   a) large and spacious
   b) creating echoes
   c) riddled with tunnels

5. dampen
   a) moisten
   b) lessen
   c) mute

6. sprawling
   a) compact
   b) inconsistent
   c) rambling

Words To Bank

1. bleak
   a) bright
   b) grim
   c) unpleasant

2. vault
   a) vast expanse
   b) locking safe box
   c) powerful leap

3. reverberate
   a) recoil
   b) silence
   c) resound

4. cavernous
   a) large and spacious
   b) creating echoes
   c) riddled with tunnels

5. dampen
   a) moisten
   b) lessen
   c) mute

6. sprawling
   a) compact
   b) inconsistent
   c) rambling

Viz-Quiz

Which of these birds is a woodpecker?
(For extra credit: Identify the other six birds.)

Mind Stir

1. Do you think Japan’s idea to dilute the radioactive water and release it into the ocean is wise, under the circumstances? Why or why not?

2. Now that the Hagia Sophia operates as a museum instead of a cathedral, do you think music should be allowed inside it or not? Explain your reasons.
LIFE-CHANGING EXPERIENCES
that help students live out their faith with CONFIDENCE.

Impact 360 Institute offers students and young professionals from all walks of life transformative worldview and leadership experiences like Impact 360 Fellows gap year, Impact 360 Immersion and Propel summer experiences for High School students, and Impact 360 Masters for graduate students.
THE FREEDOM OF HOMESCHOOLING
WITH THE SUPPORT OF A PRIVATE SCHOOL
AT A PRICE YOU WON’T BELIEVE

CALL 800.682.7396