Thousands of garments are stored on a conveyor system at the ThredUp sorting facility in Phoenix, Arizona. (AP Photo)
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Removing Tattoos for Good

“Crowing” Pains in France

Passion for Secondhand Fashion

Doctor’s Orders: Dirt!

Eleven Patriotic Brothers

Simulating Spider Silk

Socialism, Baseball, and Venezuela

Helicopters on Mars


It doesn’t have quite the zip—or the sleek lines or comfy seating—of a real Bugatti Chiron. But this full-sized LEGO Technic replica actually runs. It took builders 13,000 hours to click and snap together the car’s one million LEGO Technic pieces. LEGO provides the power too with 339 batteries. The Hungarian auto news site Formula.hu reports that the blue beauty runs on 2,304 LEGO Power Functions motors, 4,032 LEGO Technic gears, and 2,016 LEGO Technic crankshafts. While an actual Bugatti Chiron can achieve a blazing 260 miles per hour, the LEGO version managed 18 mph in a test run.

The life-size Lego Bugatti is on display at the WestEnd City Center in Budapest, Hungary. (AP Photos)
An international team of researchers set off in late September for the central Arctic. Theirs is the biggest and most complex Arctic expedition yet attempted. About 600 scientists from 19 countries will study weather, climate, and reflected light patterns over the course of a year in one of the most inhospitable regions of the planet. Leader Markus Rex of Germany’s Alfred Wegener Institute for Polar and Ocean Research says, “The Arctic is the region of the planet where we understand the climate system least.” (See Job 38:29-30) The team will anchor its ship to a large ice floe. The sea will freeze around the vessel, and ice and ship together should drift toward the North Pole. Crews will set up research stations on the ice and then work mostly in the dark as the days grow shorter and shorter.

California: Voracious Swamp Rodents

A giant, shaggy rodent with webbed feet and orange buck teeth is chomping away plants that keep California’s swamps stable. Nutria are an invasive species from South America. Each 20-pound animal eats about five pounds of plants daily. Nutria multiply rapidly and carry numerous diseases and parasites. Big numbers could threaten California’s water supply, destroy habitat for endangered species, and sicken humans, pets, and livestock. Fur traders brought nutria to the United States in the late 19th century. Efforts to eradicate the voracious vermin were thought successful until one showed up in a beaver trap in the 1970s. More than 700 have been trapped since. California’s wildlife department received $10 million in funding to eliminate nutria. Valerie Cook, manager for the Nutria Eradication Program, says, “We can’t be successful if we can’t find every single animal.” To that end, the agency will launch its “Judas Nutria program” by December. Captured nutria will be released with radio collars. Then they’ll rat out their fellow pests by leading rodent hunters to other nutria.

Scotland: DNA Hints at Nessie’s Identity

A scientist who collected DNA from Scotland’s Loch Ness suggests the lake’s fabled monster might be (drumroll please!) a giant eel. Neil Gemmell from the University of Otago in New Zealand says the project found a surprisingly high amount of eel DNA in the water of the British Isles’ most voluminous lake. He cautioned that it’s not clear whether the eel DNA indicates one gigantic eel or just a lot of little ones. But he says that the idea of a giant eel is at least plausible. The DNA project found no evidence to support the notion that the monster is a long-necked, ancient marine reptile called a plesiosaur.

Arctic Circle: A Year on Ice

An international team of researchers set off in late September for the central Arctic. Theirs is the biggest and most complex Arctic expedition yet attempted. About 600 scientists from 19 countries will study weather, climate, and reflected light patterns over the course of a year in one of the most inhospitable regions of the planet. Leader Markus Rex of Germany’s Alfred Wegener Institute for Polar and Ocean Research says, “The Arctic is the region of the planet where we understand the climate system least.” (See Job 38:29-30) The team will anchor its ship to a large ice floe. The sea will freeze around the vessel, and ice and ship together should drift toward the North Pole. Crews will set up research stations on the ice and then work mostly in the dark as the days grow shorter and shorter.
Orcs, elves, and hobbits are returning to New Zealand. Amazon will film its upcoming television series based on J.R.R. Tolkien’s *The Lord of the Rings* epic in the island nation. New Zealand was also the location chosen by movie director Peter Jackson for his 2001-2003 action-packed Tolkien films. Production of Amazon’s series will begin in the city of Auckland in the next few months. New Zealand’s dramatic landscape drove the final decision, say the show’s executive producers. J.D. Payne and Patrick McKay wrote in a joint statement, “As we searched for the location in which we could bring to life the primordial beauty of the Second Age of Middle-earth, we knew we needed to find somewhere majestic, with pristine coasts, forests, and mountains.” Amazon has yet to reveal how many seasons the show will run or when it will debut.

### England: Gold Toilet Theft

A different kind of “throne” was stolen from Blenheim Palace—birthplace of British wartime leader Winston Churchill—in September. This one was a solid gold toilet seated in the lavish home west of London as part of an art exhibit. The work of Italian artist Maurizio Cattelan, the toilet is valued at about $1.25 million. The artwork was intended to be a satire about excessive wealth. Cattelan had said, “Whatever you eat, whether a $200 lunch or a $2 hot dog, the results are the same, toilet-wise.” Investigators privy to the case say the thieves took only the toilet from the exhibit. But they left behind “significant damage and flooding” when they disconnected it from the plumbing. Blenheim Palace officials say they are saddened by the theft, but “relieved no one was hurt.”

### Indonesia: Sinking Jakarta

Indonesia’s president, Joko Widodo, says he wants the speedy construction of a giant sea wall around Jakarta, the nation’s capital. That’s to prevent the low-lying area from sinking under the sea. Experts say that with rising sea levels, about 1/3 of Jakarta could be submerged by 2050. But though he wants to save the city from a watery grave, Widodo wants to sink the crowded, polluted metropolis as the capital. He prefers to build a new capital outside Indonesia’s main island of Java. About 57% of the country’s nearly 270 million people are concentrated on Java. The sea wall project calls for $42 billion, including efforts to strengthen dams and create artificial islands.

### New Zealand: Welcome to Orcland

Orcs, elves, and hobbits are returning to New Zealand. Amazon will film its upcoming television series based on J.R.R. Tolkien’s *The Lord of the Rings* epic in the island nation. New Zealand was also the location chosen by movie director Peter Jackson for his 2001-2003 action-packed Tolkien films. Production of Amazon’s series will begin in the city of Auckland in the next few months. New Zealand’s dramatic landscape drove the final decision, say the show’s executive producers. J.D. Payne and Patrick McKay wrote in a joint statement, “As we searched for the location in which we could bring to life the primordial beauty of the Second Age of Middle-earth, we knew we needed to find somewhere majestic, with pristine coasts, forests, and mountains.” Amazon has yet to reveal how many seasons the show will run or when it will debut.
Tristan Harris wants to undo technology—the harmful parts, that is. The former Google employee believes companies make products addictive on purpose. Finally, after years of pushing for change, Harris sees progress . . . and hope.

Harris’ gripe with technology isn’t addiction or even time wasting—though they are real problems. (Americans spend an average of 11 hours a day staring at screens!) Rather, he’s fighting a process he calls “human downgrading.”

Human downgrading is the idea that technology harms humanity. Some experts say downgrading from technology has shortened attention spans, pushed people toward extreme views, and made them angrier and more self-focused. Trends like constant selfie snapping, cyberbullying, and fake news—all outgrowths of technology—alarm Harris. He wants to help.

The human desire to solve problems reflects God’s character. God sent His Son to solve two of the world’s biggest ills: sin and death. (John 3:16) But with or without technology, humans will still make wrong choices. Martin Luther wrote, “Did we in our own strength confide, our striving would be losing.” Christians must lean on a loving, almighty God, for “He must win the battle.”

After leaving Google, Harris founded a group called Time Well Spent. He pressured companies to build screen time usage tools into their devices. Today, these tools allow users to schedule screen downtime, set app time limits, and block sites. But they must be willing to do so.

Harris wants to do more. He believes people should be aware that tech designers purposefully make devices addictive. He calls these tactics a race “to scoop attention out of your brain.” Harris’ Center for Humane Technology works to reveal what technology is doing and how users can fight back.

When you head to Facebook, Harris says, Facebook calls up “all the clicks you’ve ever made, all the likes you’ve ever done, all the things you’ve ever watched.” Then the company bombards you with everything it knows you have trouble resisting. Creepy, huh? Once people understand what’s happening, Harris thinks they might even pay for a version of Facebook “that didn’t have any interest in manipulating your brain, basically making you as vulnerable as possible to advertisers.” Harris says it’s the advertisers—and not the users—who are the real tech giant customers.

After years of effort, Harris is seeing change. “I just want to give you hope,” he says to tech consumers. “I would have never expected so much to start changing.” People are pressuring companies to stop picking their brains. He adds, “We just need that pressure to continue.”
Amber Halliwell immediately regretted the tattoo she received about 10 years ago. The Pennsylvania firefighter wanted a Maltese cross—the shape of a firefighter’s badge—on her lower leg. But the tattoo artist added a scary face of his own design in the middle of the symbol.

For years, Halliwell lived begrudgingly with what she called the “monstrosity.” Her toddler son was frightened by it. Now a mother of four, Halliwell decided to do something about her unwanted ink. She turned to Elimination Station, a growing small business that removes tattoos.

A botched tattoo job like Halliwell’s isn’t the only reason people seek to remove their ink. According to Elimination Station owner Rochelle Pommer, there are dozens of reasons. Sometimes tattoo wearers realize they made a poor or immature choice in getting a tattoo. In some cases, the tattoo’s meaning has changed over time—what was once precious or significant isn’t any longer. Most just want their God-given skin back.

Pommer says it’s her place to help, not to judge: “I don’t care what you have, where you have it, or why you’re getting rid of it. I just want to help you.” Pommer started her business in mid-2016. She served about 150 clients in 2018 and is tracking to reach about 250 this year. In the treatment room, Pommer uses a laser to heat ink particles in a person’s tattooed skin. The heated particles swell and burst. Then the client’s immune system takes over. The body recognizes the burst ink particles as a foreign substance. The immune system flushes the ink out of the body.

Each session takes just a few minutes of exposure to the bright green laser. But most tattoos will need several sessions, spaced at least six weeks apart, to completely break down a tattoo. The process is only mildly painful. Pommer compares it to the sting of a rubber band snapped repeatedly against the skin. “Afterwards, it feels like a sunburn for a few days,” she says.

Cost ranges from $75 to $350 or more, based on the size of the artwork. But for many, that’s a small price to pay for such large regrets—especially when removing a tattoo may help open a door in life that has seemed closed. Some young adults find that facial tattoos make it more difficult for them to be taken seriously in job interviews. Those are the tattoos Pommer most enjoys working on. She says removing them “is literally giving people a second chance.”

Unwanted Ink

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Rochelle Pommer uses a laser to remove a tattoo.
Foie gras, anyone? Many people find fattened duck or goose liver a tasty treat. Now a New York City law could say *pas de foie gras* and end sales of the pricey French delicacy. And that ban could spell trouble for U.S. producers of the luxury food.

Foie gras (pronounced *fwah grah*) means “fat liver.” It is a spreadable, succulent food product made by forcing ducks or geese to consume large amounts of corn. Fans describe the dish as beefy and buttery; opponents call the making of foie gras cruel.

This summer, most New York City Council members signed a bill banning foie gras sales. If the bill passes, violators could pay a $1,000 fine and spend up to a year in prison for selling bird livers—or products made from them like pâté and mousse.

The bill alarms workers at Hudson Valley Foie Gras. The 200-acre farm north of the city is the largest foie gras producer in the United States. Hundreds of workers there and at another nearby farm feed about 350,000 birds per year.

What’s all the squawking about? Here’s what happens. Every eight hours, a worker inserts a six-inch plastic tube into a duck or goose’s beak. *Whoosh!* A soft mix of corn, soybeans, and water pushes down the bird’s throat, straight to the stomach. A feeding takes about six seconds. The process fattens birds’ livers up to 10 times their normal size. After three weeks of tube feeding, the birds are slaughtered for food.

It might sound horrible. But Hudson Valley farmer Marcus Henley insists it isn’t. Unlike humans, birds don’t have a gag reflex. They swallow their food whole. So the tube doesn’t bother them like it would a person. Henley also notes that the fattening process mimics a natural one. Ducks and geese in the wild overeat to store up extra nutrition for their long annual migrations. “We see no sign of stress or discomfort,” Henley says.

Opponents of the practice disagree. They say the force-feeding is barbaric. They point out the unnaturalness of having a tube pushed down the throat—and they say an enlarged liver is a symptom of disease.

Chicago banned foie gras in 2006. Lawmakers repealed the regulation in 2008 after then-Mayor Richard Daley called it “the silliest law that they’ve ever passed.” California banned the delicacy in 2012.

If Manhattan lawmaker Carlina Rivera has her way, NYC may be next. Rivera calls the ban “common sense” and the tube feeding “the gruesome abuse of animals.”

Henley says losing city sales would likely shut down his business and cost hundreds of people their jobs.
Ready or not, here they come! A new rule says electric bikes are allowed in national parks and on public lands—maybe even near you.

Electric bikes are the fastest-growing segment of the bicycle industry. They’re pricey, they’re popular, and they’re sometimes controversial. Their design combines the frame of a regular bike with lightweight batteries and electric motors. That gives a rider’s physical strength an electric power boost.

Once, electric bikes (or e-bikes) were restricted from public lands. But due to a recent Trump administration order, that is changing. E-bikes make it possible for more trail riders to experience greater heights, deeper forests, and longer views. Those scenic trails were once limited to traditional bikes—with riders fit enough to operate them.

National Park Service Deputy Director P. Daniel Smith explains that e-bikes “make bicycle travel easier and more efficient.” Gordon Goodwin, 69, agrees. He and his wife want to enjoy the 57 miles of carriage paths that wind through Acadia National Park. They want to see the trails’ stunning views. Until now, e-bikes were confined to the park’s paved roads. Now Goodwin gets to see the same sights as more physically capable bicyclists. “We’re stoked,” he says.

But more than 50 hiking, horse-riding, and other outdoor groups have opposed opening trails to e-bikes. The administration’s order allows for speeds up to 28 miles per hour. Opponents say that will change the nature of national parks. Kristen Brengel is Vice President of the National Parks Conservation Association. She explains some of the concern, saying, “If you’re hiking on a trail in Utah, and you’re rounding a bend, and something’s coming at you at 20 miles per hour, that really changes the experience.”

For years, parks and other public lands have struggled to regulate electric and gasoline-powered vehicles that can disrupt a peaceful trail experience. E-bikes frequently buzz in and out of the paths of those traveling on foot, horseback, or traditional bikes. As a result, the National Park Service has tried to sort out rules to minimize conflicts. For example, e-bikers are supposed to use motor power only to boost their own pedaling. They aren’t allowed to power up for speeding down hills. But how will short-staffed parks enforce such regulations?

Allowing e-bikes serves some who long to enjoy the sport of cycling. It makes trails accessible to people of varying fitness levels and abilities. But it also elevates risk for others using those same trails. Is it possible for everyone, regardless of physical ability, to enjoy the vast beauty God has given us?

The new rule affects only national parks, like Bryce Canyon National Park in Utah (pictured below). Will state parks follow suit?
Nothing says “Good Morning!” like a rooster. But evidently, the fowl noise makes some folks madder than wet (French) hens—as do donkey brays, frog croaks, and other distinctly rural sounds. For now, a judge says this cock can keep a-doodledooing. But Maurice the rooster illustrates the tension in France between country culture and city expectations.

Two years ago, a retired couple moved next door to Corinne Fesseau on the small island of Oléron, off France’s Atlantic coast. The two were likely prepared for tourists and bicycles (the island swarms with both) but not raucous farm animals.

Enter Maurice the rooster. Lawyer Vincent Huberdeau says Fesseau purposely set Maurice’s coop close to her neighbors’ window. The pair was not amused.

In fact, the couple sued to silence the crack-of-dawn hubbub, asking the court to make the offending bird move farther away . . . or pipe down. After hearing the tale of the rooster and the sleep-deprived neighbors, a judge ruled in Fesseau and Maurice’s favor. What’s more, he believed the plaintiffs had harmed Fesseau’s reputation. So he ordered them to pay $1,005 in damages and court costs.

Most people who heard about the case sided with the bird. Oléron’s population is only about 22,000 residents. But before the rooster’s day in court, more than 120,000 people signed a petition urging authorities to leave Maurice alone. A “support committee” made up of roosters and hens from around the region flocked to encourage Maurice’s owner during the trial. “The countryside is alive and makes noise—and so do roosters,” read one sign outside the courtroom.

Sometimes it appears that people are looking for reasons to be upset. Yet the Bible says, “Good sense makes one slow to anger, and it is [one’s] glory to overlook an offense.” (Proverbs 19:11)

There’s little patience or overlooking in Maurice’s case and several other rural-vs.-urban lawsuits slogging through French courts. Folks have complained about smelly, quacking ducks, cow bell clangs, church chimes, and even buzzing cicadas. 

Some French lawmakers want a law protecting the sounds and scents of the countryside as part of France’s rural heritage. Christophe Sueur is Oléron’s mayor. He asks, “Today it’s the [rooster], but what will it be tomorrow? Seagulls? The noise of the wind? Our accents?”

The mayor of the village of Gajaç, Bruno Dionis du Séjour, agrees. He gets annoyed with people who vacation or live part-time in the country and want to change the rural way of life. He says, “When I go into town, I don’t ask them to remove the traffic lights and cars.”
The metal doors of a cage open. Bird #811 launches into a giant aviary. The small finch spins in the air, lands on a willow branch, and cocks its head in curiosity. It seems surprised by its new freedom.

“That’s what it feels like to be free,” says veterinarian Juan Camilo Panqueba. He works at a quarantine center in Bogota, Colombia. He knows a bit of the little bird’s story. Three weeks ago, 32 finches were seized in a surprise raid of an illegal songbird contest. Leads from a previous raid helped authorities secretly penetrate the network that organized the event.

Sparring by way of song has been practiced for centuries throughout the Caribbean. Traditionally, the owner of the bird with the biggest pipes takes home a prize. The caveat? Wild birds are often used in the contests—and trapping wildlife without a license is a crime in Colombia. But for years, wildlife trafficking has been ignored by authorities in the country overrun by violence.

More people have begun noticing the great variety of Colombia’s wildlife. (The country has the second highest biodiversity in the world!) Violence in Colombia has also declined in recent years. With less violent crime, authorities can shift more resources toward tracking down animal traffickers. Last year, police there seized more than 34,600 illegally poached animals.

The rescued songbirds from the latest sting were abused by their captors. They were kept in tiny cages where they could not fly for exercise. Loud music played around the clock. Supposedly, the music would spur the stressed birds to sing. “For them, it was like torture,” says Panqueba.

The wildlife center that Panqueba works for has more than 1,000 rescued animals. They include macaws, sea turtles, and tiny titi monkeys—each rescued from traffickers. “Unfortunately, there’s not a single day [when] we don’t receive a wild animal,” says Panqueba.

The illegal wildlife trade is highly organized and dangerous. Trafficking is punishable with four to nine years in jail. So far this year, 3,500 people have been caught. For the most part though, traffickers continue to operate without consequence.

Some people think the crackdown and restrictions against capturing wildlife for sale seem too tight. Many of the bird species that are taken from the wild are not considered endangered. So why can’t these wild species be allowed to thrive in caring homes? After all, human interaction with wildlife can help us enjoy God-given biodiversity.
Secondhand is becoming first rate. No longer just for scrimpers and savers, used goods are attracting shoppers of all kinds. Even some traditional retail stores are going thrift-y in hopes of winning customers back.

Laura Fiebert admits being obsessed with thrift stores. The Head of Operations and writer at Listen Money Matters likens wandering the aisles as she deal-hunts to “exploring a magical treasure trove.” She writes, “I’m not broke or cheap, but I will never pay full price for anything, EVER.”

Fiebert isn’t alone. Today’s shoppers aren’t interested in paying full price. Statistics show that about 17% of Americans shop at thrift stores, while 12 to 15% visit consignment or resale shops. (Thrift shops usually sell donated goods; consignment/resale shops sell used goods for others and keep some of the profits.)

For years, shoppers have been buying and selling used clothes at such shops and on eBay. Through those outlets, they find great deals on clothes they could not normally afford. Plus, many would rather see clothes reused than sent to a landfill. But many physical resale shops were dingy, and sometimes it took weeks or even months for consigners to receive payment for their goods.

Then came a new generation of online resellers like ThredUP and Poshmark. They flourished because they made the shopping experience easier with new technology like virtual try-on options.

However, many of these businesses now see the need for physical stores. That’s partly because nearly 80% of customers born in the mid-1990s to early 2000s enjoy going to stores. James Reinhart is co-founder and CEO of ThredUP. His company has seen the handwriting on the wall: “You have to go where the customer is going,” he says. ThredUP now runs brick-and-mortar stores in the San Francisco area.

Resale is now becoming so mainstream that traditional retailers can’t ignore it.

This spring, department store chain Neiman Marcus invested in Fashionphile, an online seller of pre-owned designer accessories. Neiman Marcus will launch shops inside some stores where customers can sell items to Fashionphile.

J.C. Penney and Macy’s are getting into the secondhand game too. The stores will sell used merchandise from ThredUP in certain locations.

Most experts applaud the second-time-around strategy as a way to drive customers into stores. But they also see some downsides: Could selling second-hand undermine regular retail business and anger new goods suppliers?

There’s no guarantee that resale will lure young shoppers back to the mall. Still, as ThredUP’s Reinhart says, “Trying to live in the past is a recipe for disaster.”

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“Forgetting what lies behind and straining forward to what lies ahead, I press on toward the goal for the prize of the upward call of God in Christ Jesus. — Philippians 3:13-14
JAPAN'S PRICY OLYMPICS

With the Tokyo Olympics nearly a year away, records are already being broken. Ticket demand is sky-high, and hotel rates are outrageous. It seems the metropolitan area of 35 million, with its safe streets and long-time support for the Olympic Games, is fueling huge demand for the 2020 event. Tokyo is going for gold as the priciest Olympics ever.

"I don't know if I can afford to go to the Olympics," says sports agent Brant Feldman. He’s attended seven straight Olympics and represents American and Canadian athletes for AGM (Athletes Global Management) Sports. "It's going to be the most expensive in history."

As usual, the home country gets first dibs on tickets—with 70 to 80% of passes going to residents of Japan. But experts say demand is exceeding supply by at least 10 times.

More than 80% of Japan’s residents who applied for tickets came up empty in the first wave of sales earlier this year. One official ticket reseller says Tokyo is "30 times more popular" than London was in 2012.

Tokyo organizers are also offering packages to the country’s residents. Low-end packages start at about $1,500 for one session at a less-popular event like handball or field hockey. Luxury packages court wealthy executives who treat the Olympics as a place for doing business and schmoozing—with sports as an interesting sideshow. These soar to about $60,000. They’ll include opening and closing ceremonies, nine days of track and field with superior seating, gourmet dining, and celebrity appearances.

Many of the remaining tickets go to sponsors, national Olympic committees, and sports associations. What’s left can be sold to those living outside Japan. Nonresidents must buy from an Authorized Ticket Reseller (ATR) in their various countries. ATRs are reporting record ticket demand. That means "unofficial reselling" will probably flourish—and boost prices even more.

Even if someone snags a ticket, modest hotels near the Olympic venues are charging $1,000-$1,500 per night. Japan's famous capsule hotels—or sleep pods—will cost more to crawl into as well. (See Squeeze Inn on page 28.) Those prices are up to four times the usual cost.

Olympic athletes get housing and a few tickets to share for their own events. After that, family and friends are on their own. Feldman laments, "I don't know how any of those families are going to be able to afford the airline tickets, the Airbnb, the hotels, or get the [event] tickets."

Says ticketing agent Ken Hanscom, "This is the biggest [Olympic] demand ever—by far."
Flowers, foliage, works of art: A botanical garden show attempts to distill the genius of influential Brazilian artist and landscape architect Roberto Burle Marx.

Curvy pathways draw visitors in, winding through tapestries of bold, colorful, almost sculptural plant forms. Brazilian music fills the background. Burle Marx did more than just decorate with foliage. He created spaces for human activity to take place.

In this case, it’s all in the Bronx—a borough of New York City often thought of as merely gray walls, concrete, and stone. From June to September, the New York Botanical Garden hosted its largest botanical exhibition ever. The event was called “Brazilian Modern: The Living Art of Roberto Burle Marx.” The title fits. Burle Marx’s art wasn’t only made from living materials. It used those materials to create spaces for living.

Many people are familiar with what today is known as “Midcentury Modern” architecture, furniture, and home styles. That design movement spanned roughly 1933 to 1965. In building, Midcentury Modern featured open spaces instead of segmented rooms. Large, undivided glass windows brought the outdoors in. Furniture used smooth materials and clean lines—but not as straight and harsh as the pure Modernist style that preceded it. Chair backs and arms flowed just a bit. Lampshades took on curves again.

But not many people today have heard of Midcentury Modern landscaping. The New York show is a tribute to one of that form’s masters. Burle Marx lived from 1909 to 1994. In between, he designed nearly 3,000 landscapes, beginning in the late 1930s. Todd Forrest is vice president for horticulture and living collections at the New York Botanical Garden. He applauds the breadth of Burle Marx’s work, which ranged “from a small estate garden to roof gardens on institutional buildings to massive urban parks,” Forrest says.

One of Burle Marx’s signature elements was the biomorphic (resembling a life form) paving pattern. Walkways functioned not just as a way through. They also contributed to a site’s organic beauty. The artist often used architectural elements as well: concrete and steel walls, borders, frames.

Burle Marx found a rich palette of natural materials in his native Brazil. As he explored the plant life he worked with, he became a conservationist. He identified and rescued plants that might otherwise have been lost—bringing them back and planting them in his own garden, and propagating them in his designs. The exhibit includes a display of many of the two dozen plants named after Burle Marx.

“The gardens were meant to be immersive,” says Joanna Groarke, curator of exhibitions at the garden. Burle Marx truly created spaces for people to dwell amid nature.

*The Lord God planted a garden in Eden, in the east, and there He put the man whom He had formed.* — *Genesis 2:8*
Penicillin, strawberries, eggs, peanuts—the allergy list goes on. More and more people seem to suffer from allergies. Now one researcher thinks a solution may literally lie in the dirt.

Dr. Cosby Stone is an immunologist and allergy researcher at Nashville’s Vanderbilt University Medical Center. He studies medication allergies and allergy prevention. According to Stone, genes explain less than half a person’s allergy risk. But if genetics don’t fully explain allergies, what else causes them?

There are two theories: the barrier hypothesis and the hygiene hypothesis.

**THE BARRIER HYPOTHESIS:** God began building your immune system before birth. (Psalm 139:13) Imagine that system is an army behind a castle wall. The wall (“barrier”) is your respiratory tract, digestive tract, and skin. The army is made of white blood cells and other cells. They are designed to attack threats to your health.

When your barrier wall gets injured, immune system soldiers try to defend you. But allergens can penetrate a weak barrier, and allergies flare up in the broken-down areas.

Many things—diseases, pollution, nutrient deficiency, food absorption disorders—can harm the barrier. They can cause damage to the lungs, intestines, skin, etc., and increase the risk of allergic responses.

**THE HYGIENE HYPOTHESIS:** This theory says that humans have accidentally killed off good bacteria alongside bad. As our ultra-clean society removes diseases caused by filth—with measures such as bathroom hygiene and water sanitation—humans reduce how much their immune systems practice fighting disease.

Overuse of antibiotics is another culprit. Too much of a good thing may kill off both good and bad bacteria. In other words, good things like antibiotics and sewage and water treatments may have kicked off an allergy epidemic. The human immune system no longer gets the practice of a workout, fighting off smaller-scale germs.

Vaccinations appear to be an exception to the hygiene hypothesis. Stone says vaccines protect against diseases without increasing allergic disease risk. Unlike antibiotics—which attack bacteria and sometimes the body too—vaccines cause the body to turn on its own germ-fighting powers.

Studies show that growing up in rural areas exposed to germ-carrying farm animals may decrease the risk of allergies and asthma. Mice studies reveal that inhaling molecules from some soil-dwelling bacteria can promote an immune system that better handles allergens.

**THE CURRENT RX:** Not everyone can live on a farm. Researchers are studying how people could prevent allergies by protecting their “barriers”—while allowing exposure to certain allergens, such as peanuts and other things, very early in life. For now, no one can say how much dirt or what kinds of bacteria a child should experience while growing up. But scientists are working on these questions.

Until then, Stone gives this broad advice:

- **Children should play outside, get dirty, and try new foods as much as possible.**
- **Plain soap and water work best.**
- **Don’t sanitize everything.**
- **Use caution in taking antibiotics.**
- **Get routine vaccinations against serious illnesses,**
Ask a Texan about the Alamo, and you’re likely to hear a story as big as the state itself. Today, the Alamo Mission represents hard-fought freedom to Americans. But time has taken a toll on the site. So the Texas General Land Office has spearheaded a $450 million preservation effort to restore it.

The Battle of the Alamo was a turning point in the Texas Revolution. It occurred between February 23 and March 6, 1836. The Alamo Mission wasn’t originally a fortress. It was constructed by Spanish Roman Catholic missionaries. But the building—and its ministry to Native Americans—was abandoned in the late 1790s. Within 10 years, it was being used as a garrison for soldiers.

Mexican troops led by General López de Santa Anna launched a devastating attack on a small group of Texians (as the rebels trying to free Texas from Mexico were called) occupying the Alamo. The 13-day siege ended with Mexico’s victory—but that glory was short-lived. The loss fueledTexians to respond fiercely. Weeks later, they defeated the Mexican Army at the Battle of San Jacinto. Texas then separated from Mexico and became the Republic of Texas.

You might recognize the names of some who fought and died at the Alamo. Frontiersman Davy Crockett, knife-battle legend James Bowie, and young lawyer and soldier William B. Travis lost their lives there.

But despite the site’s historical significance, the restoration project has not been without debate. On the one hand, the structure is in dire need of repair. Crews are digging pits adjacent to the building’s limestone wall foundation. They must expose it to protect it. The archaeological dig occurring along with the project has unearthed musket balls that experts say could date to the 1800s. Workers have also recovered a mid-1800s bottle and a piece of tin-glazed painted pottery called “majolica”—all part of the Alamo’s rich history.

On the other hand, the site is also the resting place of human remains. Early settlers and Native Americans were buried at a cemetery on the Alamo grounds years before the famous battle. The Texas Historical Commission named the Alamo a “Historic Texas Cemetery” this year. That designation means it should be preserved. But some people would rather the site be left undisturbed.

It’s likely that graves will be discovered during the restoration project. Should that stop the repairs? Or should it spur them on? Is it possible to maintain the integrity of the mission’s original purpose while updating and protecting the structure? Without preservation, America will most likely lose the centuries-old monument.
From “Fall seven times, stand up eight” in Japan to “The night rinses what the day has soaped” in Switzerland, proverbs occur in nearly every culture. These short, pithy sayings usually express important truths. Now a leading proverb researcher is proving that one man’s private book collection may be an entire university’s treasure.

Wolfgang Mieder is one of the world’s foremost paroemiologists, or proverb researchers. The University of Vermont professor has spent 50 years pondering proverbs. Dan Ben-Amos is professor of folklore at the University of Pennsylvania. He calls Mieder “one of the greatest proverb scholars of all times and the greatest of our generation.”

Not only does proverb-loving Mieder study this folklore genre, but he also collects sayings and writes books. His library includes stockpiles of foreign-language proverbs and writings on what proverbs are, their origins, and their function.

Mieder, a professor of German and folklore, has published 246 books and 569 articles on proverbs. He’s also presented more than 400 talks on the topic in 21 countries.

According to Mieder, proverbs may be short—usually “about seven words”—but many pack a big punch. Take this one: “A bad worker always blames the tools.” The saying points out the human tendency to not take responsibility for problems. It also illustrates a trait Mieder admires of proverbs: the ability to “say things without offending . . . because we can always say it’s just a proverb.”

Mieder’s favorite proverb? “Different strokes for different folks.”

“It tells you to be reasonable, to realize that people have different priorities, different thoughts, different ideas,” Mieder says. (He also says he always reminds his students that it doesn’t mean they can do whatever they want!)

Mieder also likes a proverb that Martin Luther King, Jr., used often, “Making a way out of no way.”

In 2018, the University of Vermont renovated its Billings Library—which was no longer serving as a library. School officials turned a large lounge back into a reading and study room. But the chamber was lacking something on the rich wood-paneled walls. As the proverb goes, “A room without books is like a body without soul.”

Then this fall, the University of Vermont placed Mieder’s entire proverb-related collection—all 9,000 volumes—in the newly refurbished library. “In my wildest dreams I never thought this would happen,” says Mieder. To him, those actions speak louder than words.
Eleven of the sons of Ben and Hattie Davis make up a uniquely personal "band of brothers." Combined, these siblings contributed U.S. military service that adds up to 158 years.

Seven of the 11 veterans gathered midsummer in Mississippi for a reunion thick with brotherly love and military pride. They laughed and told stories, as brothers by blood and brothers in arms do. They reminisced some about being black men in the U.S. military in 20th-century America. But they talked less about racism than about the overall lack of respect for veterans among their fellow Americans today.

The Davis family consisted of 16 siblings—the 11 veterans plus three sisters and two other brothers who did not enter the military. They grew up on a 60-acre cotton farm in Wetumpka, Alabama. Their parents worked hard to provide for the brood.

Arguster Davis, now age 67, says of his parents' example, "Their moral and ethical values were pristine."

In 2017, the Davis men were honored by the National Infantry Museum Foundation. Their names plus the name of their uncle are engraved on paving stones at the museum in Columbus, Georgia. That uncle, 99-year-old Master Sergeant Thomas Davis, survived the 1941 surprise attack on Pearl Harbor.

Foundation president Pete Jones says, "Their sense of duty is unrivaled and is the kind of spirit that makes our nation's armed forces the greatest in the world."

As the Davis boys graduated high school, it seemed natural to them to enter the military. Ben, Jr., was first to enlist. He joined the Navy in 1944 while World War II raged.

Lebronz, now 70, saw the heaviest fighting as an Army soldier in Vietnam. He says the jungle assignment taught him advanced napping skills for survival.

"I can go out in any bushes and sleep like a Holiday Inn," Lebronz quips. "You learn how to do it because you are so tired. But guess what, you can hear a gnat go by you."

The brothers don't talk much about wartime experiences. One says he won't watch war movies. He's had enough of real-life violence. Though their personalities differ, they clearly share traits of friendliness, a strong work ethic, and mutual respect. They also share a response to the question, "Are veterans respected as much today as in the past?" The siblings boom a collective "No" to that. Arguster says he is weary of the overused phrase, "Thank you for your service."

He would rather hear, "Thank you for helping to keep this country free."
Some U.S. medical schools are sending students to train with small-town, country doctors. The would-be physicians get tempted with all the local attractions during their stay too. It’s all part of an experiment to draw a new generation of docs to struggling rural areas.

Katherine Schaffer is excited to meet people who share her interest in rural medical practice. She says her med-school friends worry they wouldn’t have a social life in a small town.

Schaffer’s friends aren’t alone in their concerns. To combat the image of boring country life, medical colleges like East Tennessee State University’s Quillen College of Medicine organize outings and cultural experiences in Appalachia. They’re hoping to sell students on going rural after graduation.

Schools like Quillen go the extra country mile to show students what rural life offers—bike trips, storytellers, local foods, whitewater rafting, and even cattle branding.

“It’s a little sense of what the fun part of rural life can be,” says Dr. Dana King. He is the faculty chair of the Family Medicine Department at West Virginia University School of Medicine.

At the University of Colorado School of Medicine, students meet with the mayor, police chief, or other rural community leaders. They interview residents to learn about the town.

“We want to give students an idea about what goes into the workings of a small community,” says Dr. Mark Deutchman, director of the school’s rural track.

Dr. Darrin Nichols says the rural program at West Virginia confirmed his choice to practice near his hometown of roughly 800 people. He was struck by the camaraderie of coal miners he met during a trip organized by the school.

It is human nature to desire community. (Genesis 2:18) When we seek out relationships—in the city or the country—we reflect God’s three-in-one nature and His purpose.

“I always wanted to stay near my family,” Nichols says, “and practice in a community that had those types of relationships.”

The U.S. Department of Health and Human Services estimates that rural America needs nearly 4,000 more physicians than it has. Currently, about 39 accredited medical colleges have rural training tracks. That’s about a fifth of U.S. medical schools.

Dr. Joseph Florence directs the rural programs at Quillen. He says big-city medical programs push students to become specialists, not primary care doctors. “They beat rural out of you by the time you leave,” he says. Rural track programs, on the other hand, give general practitioner students opportunity to “not only be accepted but be appreciated for” offering needed, but simpler, care.

Becoming a doctor is a long and difficult process. It should be! These professionals will examine, diagnose, treat, and sometimes operate on patients. Here are the basic steps to becoming a doctor in the United States:

► Earn a bachelor’s degree: In most cases, a four-year college degree is required.
► Take the Medical College Admissions Test: The MCAT asks questions about biology, chemistry, and physics.
► Earn a medical degree: Medical school includes classroom and lab work plus clinical experience.
► Finish a residency program: Residency involves working with patients in a chosen specialty area.
► Obtain a license: Getting a medical license requires another exam. These exams are state specific. In other words, what one state requires, another one may not.

Why do some people go through all of that in order to become doctors? For many, helping people live happier, healthier lives—and maybe even saving their physical bodies—is its own reward.
Using a microscope and tweezers, Cheryl Hayashi dissects a silver garden spider. She’s hunting for tiny web-making glands. It’s a delicate operation. One day, these organs could reveal the secrets of the miracle that is spider silk.

All spider silks start out the same—as a wad of goo, similar to thick honey. A spider stashes the goo in a gland until it wants to use it. Then a narrow nozzle opens. The goo flows out and morphs into a solid strand that the spider weaves with other strands from other glands.

Hayashi has collected glands from about 50 spider species. Each gland produces a different type of silk. Some are stretchy, others stiff. Some dissolve in water. Others repel it.

“They make so many kinds of silk!” says Hayashi of the eight-legged creatures. “That’s just what boggles my mind.”

Orb-weaving spiders alone make seven types of silk. One has a sticky glue to catch prey. Another is tough but stretchy enough to absorb insect crash landings. The orb-weaver dangles from a third type that’s as tough as steel.

How and why different silks have different features is a mystery that God alone understands. Scientists believe the secret lies in the genes.

God’s creation is remarkable and vast. There are more than 48,000 known spider species, nearly nine million animal species, and billions upon billions of stars. Then consider plants and viruses and people . . . Thinking on God’s works, we may well ask Him with the psalmist, “What is man that you are mindful of him, and . . . that you care for him?” (Psalm 8:4)

Hayashi has been studying spider silk for 20 years. Her lab at the American Museum of Natural History is analyzing the genes behind gossamer threads. She is creating a kind of “silk library.”

The library will help scientists learn how spiders make multiple kinds of silk and how each kind performs. The information could help others develop new pesticides, bullet-proof vests, space gear—even fashion fabrics.

“Any function that we can think of where you need something that requires a lightweight material that’s very strong—you can look to spider silk,” Hayashi says.

While Hayashi studies the silk, researcher Sarah Stellwagen works to re-create it. Scientists have been able to make a small amount of material that perfectly mimics one type of silk from one species. But there are thousands of other types. Plus, she says, lab-built silk is simply “not as good as what a spider makes.” At least, not yet.
Maine’s beloved puffins are having a productive mating season on remote islands off the state’s coast. That’s great news for the colorful, well-recognized sea birds. (Check out the “puffin cam” hosted by Explore.org to see some yourself.) According to National Audubon Society scientist Stephen Kress, the bright-beaked waddle-walkers are well on their way to setting a record for breeding pairs. Atlantic puffins are listed as vulnerable by the International Union for Conservation of Nature. A mere 1,300 puffin pairs live in Maine, while others live on hard-to-reach islands off the state’s northeast coast. Mathias Seal Island boasts the largest puffin colony in the Gulf of Maine. The island sits in disputed waters between the United States and Canada. It is home to more than 5,000 puffin pairs. Scientists believe puffins are threatened by a recent trend of warmer ocean temperature, by fluctuating food sources, and by predators like gulls. Squid and butterfish dominate the warmer Atlantic waters. Neither are nutritious for puffins. Atlantic puffins are known for having long-term relationships. Males and females work together to build a nest several feet under ground. They line the soft soil with grass, leaves, and feathers. Females lay a single egg. Both parents incubate and protect it. Atlantic puffins nest in remote places like Seal Island National Wildlife Refuge and Eastern Egg Rock Island. In 2018, nearly 750 pairs nested on those islands. The 2019 breeding season number is projected to be higher. Several factors impact elevated nest numbers. This year, the cooler-than-usual Gulf of Maine has been brimming with perfect puffin cuisine. When waters are cool, excellent puffin prey like young haddock, hake, and herring are in abundance. Puffin nests began to fill up ahead of schedule this year. Females laid eggs earlier than usual. That’s an indicator that puffin parents are healthy. In spite of good health, puffins’ breeding patterns fluctuate. Their population trend tracks like a roller coaster. Good years alternate with not-so-good years. Historically speaking, this year’s good news probably doesn’t indicate a long-term puffin population trend. I know all the birds of the hills, and all that moves in the field is mine. — Psalm 50:11

Research assistant Andreiina Alvarez of Ecuador holds a puffin chick before weighing and banding the bird (above). A puffin comes in for a landing on Eastern Egg Rock, a small island off the coast of Maine (left).
Watch out, Australia: A rock mass bigger than Manhattan is coming! As the vast stony milkshake drifts along, scientists debate what effect it could have on life Down Under.

In August, NASA satellites spotted a light-colored blob in the ocean. It turns out, it was miles of pumice. When frothy lava hardens quickly, pumice forms. The rock is so full of air holes that it floats. Gritty pumice is used in cleaning products, polishes, erasers—and as the stone for “stone washing” fabric.

Geologists believe this summer’s 58-square-mile mass—called a “raft”—likely came from an underwater volcano that erupted near the Pacific island of Tonga. Volcanoes have “dramatic ways to announce their presence,” NASA scientists say. Those God-created spectacles can include columns of ash, lava and mud flows, earthquakes, and even new islands bulging above the water.

Scott Bryan is a geology professor who studies underwater volcanoes at Queensland University. He says pumice shows up in rafts like this every five years or so.

This raft is Australia-bound. Experts estimate the voyage may take as long as 12 months.

Australian sailors Michael and Larissa Hoult encountered the pumice in August. They posted photos and videos on Facebook. The raft resembles a thick, gray fluid. It rolls and swells along with the ocean waves. The Hoults say there were “stones from marble to basketball size” as far as they could see.

Scientists believe the raft could be home to creatures like crabs, barnacles, and corals. As the pumice bobs with the current toward Australia’s Great Barrier Reef, the sea life travels along too.

“Each piece of pumice is a rafting vehicle . . . for marine organisms to attach and hitch a ride across the deep ocean,” Bryan says. The arrival of new life could help Australia’s reef, which has seen coral bleaching and die-off in recent years. But it could also introduce harmful species to the region.

Marine scientists worry about the Great Barrier Reef’s dying corals. Some hope the animals on the pumice raft will help replenish the reef’s sea life, especially corals. (Read about reef health in “Northern Red Sea Corals Are Thriving” at teen.wng.org/node/5268.)

But Mark Eakin, a coral reef specialist for the National Oceanic and Atmospheric Association, calls that “a bit of wishful thinking.” He says corals can grow on pumice, but he believes the amount on this raft probably won’t make a difference for Australia’s vast reef.

Regardless of whether the pumice helps, for the next year or so, it’s making part of the Pacific a very rocky road.
A drone soars over a blazing hot cornfield in northeastern Colorado. It snaps images with an infrared camera. Researchers will use those pictures to decide how much water to give the crops the next day. They will analyze the images to look for signs that the corn plants are stressed from lack of water.

The U.S. Department of Agriculture (USDA) station is using technology to squeeze the most out of every drop of water in the Colorado River. That beleaguered waterway serves about 40 million people.

Remote sensors measure soil moisture and relay the readings by wi-fi. Cellphone apps collect weather data. Others calculate how much water different crops are consuming. Researchers deliberately cut back on water for some crops. They are trying to get the best harvest with the least amount of moisture—a practice called deficit irrigation.

In the future, tiny needles attached to plants could directly measure how much water they contain. Then computers would signal irrigation systems to switch on or off, based on those measurements.

Researchers and farmers are running similar experiments in arid regions around the world. The need is especially great in seven U.S. states that rely on the Colorado River. They are Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming.

The river supplies more than 7,000 square miles of farmland. It supports a $5 billion-per-year agricultural industry, according to the U.S. Bureau of Reclamation. That department manages most of the big dams and reservoirs in the Western states. The river also irrigates about 700 square miles in Mexico.

The problem facing lawmakers is how to divert water appropriately. They want to meet the needs of people in growing cities without drying up farms, ranches, and the environment. The researchers’ goal is to gain a precise understanding of crops, soil, and weather. With that knowledge, they hope to help farmers determine exactly when and how much to irrigate.

“We call it precision agriculture, precision irrigation,” says Huihui Zhang. She is a USDA engineer at the Greeley, Colorado, research farm. “Right amount at the right time at the right location.”

And there may be more benefits than just conservation. Blaine Carian grows grapes, lemons, and dates in Coachella, California. He already uses deficit irrigation. He says withholding water at key times improves his grapes’ flavor by speeding up sugar production.

For I will pour water on the thirsty land, and streams on the dry ground; I will pour my Spirit upon your offspring, and my blessing on your descendants.

— Isaiah 44:3
Venezuela’s political crisis has now hit America’s favorite pastime. Major League Baseball is banning its players from participating in the Venezuelan Winter League. The ban is one of the first public effects of new U.S. economic sanctions against the Venezuelan government. Many major league baseball players use the Venezuelan Winter League to hone their skills in the off season. But MLB says it will “fully adhere to the policies” made by the U.S. government. President Donald Trump’s administration issued a broad ban blocking American companies and individ-

uals from doing business with Venezuela’s socialist government. This move put Venezuela on a short list of U.S. adversaries. The others on the list are Cuba, North Korea, and Iran. All four nations are targeted with aggressive financial restrictions. The purpose of the sanctions is to cause those governments to amend practices that harm their citizens or threaten global security.

In order to respect the current sanctions, MLB says it will stop all involvement with the Venezuelan league for now. But it will not prevent Venezuelans who play on American teams from returning to their home country during the off season. Long before Venezuela’s current president, Nicolás Maduro, took office, the United States enjoyed a robust relationship with the oil-rich South American nation. Venezuela freely participated in mutual trade with the United States. But that relationship became strained when socialist Hugo Chávez rose to lead Venezuela. It got even worse after his successor Maduro continued down the same path.

Today, Venezuela’s economy and social structure is in a state of collapse. Reckless government spending of the nation’s oil wealth has created political tensions and drastic poverty. Hyperinflation makes it almost impossible for most citizens to purchase basic necessities like food and medicine. Major League Baseball once operated sports academies in Venezuela. It regularly sent scouts to find young talent and bring players to “The Show” in the States. But due to rising crime rates and severe economic depression, MLB has pulled its scouts from Venezuela. Young baseball hopefuls must find another way to get the attention of big league teams. They depend on Venezuelan players who have already made it in America to bring them to the United States to compete.

From a political stance, the Trump administration supports Juan Guaidó, Maduro’s opponent. The sanctions are intended to help oust Maduro. The current U.S. leadership wants Guaidó to have an opportunity to lead Venezuela in a different direction—back to prosperity and security for its citizens.

A ruler who lacks understanding is a cruel oppressor, but he who hates unjust gain will prolong his days.
— Proverbs 28:16
Invasions, fires, earthquakes—Alexandria, Egypt, has withstood many disasters during its 2,300-year history. But today, rising sea levels and sinking land threaten the entire area. Will human ingenuity be able to stem the tide?

Alexandria is the second largest city in Egypt. Alexander the Great established the city along the Nile Delta with the Mediterranean Sea on three sides. Changes in sea level make this low-lying, coastal city extremely flood prone.

In recent years, engineers installed sea walls to protect the city. Sea walls are designed to prevent erosion and flooding from extreme water events. Many are made of cement, rocks, and steel. The concrete sea wall near Alexandria’s ancient Citadel of Qaitbay looks like a collection of giant blow-up toys.

Despite the sea walls, residents say the flooding hasn’t lessened. “Every year the waves are much stronger than the previous year,” says Abdel-Nabi el-Sayad. “We did not see any improvement.”

Many of Alexandria’s famous beaches show the marks of erosion.

Egypt’s Ministry of Water Resources and Irrigation says the sea rises about one-tenth of an inch per year—enough to threaten the city’s ancient landmarks. Not only is the water rising, but the whole area is also sinking. One study predicts that more than 280 square miles of the Nile Delta could be swamped by 2050.

Experts acknowledge that sea-level trends and their effects are not well understood. Yet God isn’t confused by sea levels and weather events. As the all-wise Creator, He controls Earth’s waters. (Matthew 8:27) What’s more, He’s promised never again to destroy the whole Earth by flood. (Genesis 9:11)

However, local flooding still happens—more so in some places than others. According to Alexandria fisherman Sayed Khalil, “It is hard to imagine that [the neighborhood] will be here in a few decades.” He adds, “The area you see now will be an underwater museum.”

Alexandria’s ancient sites—those that survived its turbulent history—may also be endangered. Inland landmarks, including second-century catacombs and the medieval fortress, the Citadel of Qaitbay, could be at risk.

Ashour Abdel-Karim, head of Egyptian General Authority for Shores Protection, says waves and currents have pushed into the Citadel’s foundations. Authorities have installed concrete sea barriers visible from the downtown waterfront known as the Corniche.

“Without such barriers, parts of the Corniche and buildings close to the shore would be damaged,” Abdel-Karim says.

And on Alexandria’s Prophet Daniel Street, one of the world’s oldest roads, bookshop owner Mohammed Mahrous says, “We are aware that this street, which survived for hundreds of years, could be underwater in the coming years, in our lifetime.”
Rethinking Ink

Need a pair of kicks to match an outfit? Perhaps you’d like to jazz up a tired-looking phone case? Changing patterns and colors can be difficult. But taking a cue from God’s amazing quick-change artists like chameleons, scientists are working to create non-living objects that change color too.

Massachusetts Institute of Technology’s (MIT) Computer Science and Artificial Intelligence Laboratory has developed what it calls “reprogrammable ink.” The liquid is dubbed “Photo-Chromeleon” after its lizard namesake. This high-tech ink changes color when ultraviolet (UV) light hits it. Even better: The process is completely reversible. It can be done over and over. Talk about reuse, recycle!

Yuhua Jin is the lead author on a paper about the PhotoChromeleon project. Yuhua says, “Users could personalize their belongings and appearance on a daily basis, without the need to buy the same object multiple times in different colors and styles.”

PhotoChromeleon could someday help customize just about anything from cars to clothes.

The process uses a mix of photochromic dyes. Photo means “light,” and chroma means “color.” A user can create any pattern with it—from zebra prints to checked blocks.

The “magic” of PhotoChromeleon comes from a mix that contains the three basic CMY printing colors: cyan (greenish-blue), magenta (pinkish-purple), and yellow. Different light wavelengths interact with the dye colors. By controlling the light, researchers control what color the dyes turn. According to MIT researchers, “if you use a blue light, it would mostly be absorbed by the yellow dye and be deactivated, and magenta and cyan would remain, resulting in blue,” and so on.

The scientists use a computer to map a design or image onto an object. (One test item was actually a toy chameleon!) They spray PhotoChromeleon onto the object and then place it inside a box. Projecting UV light onto the object activates the colors—and thereby the pattern.

Getting rid of the pattern is easy too. Just hit the object with UV light again to start over.

MIT Professor Stefanie Mueller says allowing users to customize belongings could save resources. Even more, the system allows for lots of creativity. Ford Motor Company agrees. Scientists at Ford have been collaborating with MIT on the color-changing project.

PhotoChromeleon “could reduce the number of steps required for producing a multicolor part,” says Ford technical specialist Alper Kiziltas. It could also “improve the durability of the color from weathering or UV degradation. One day, we might even be able to personalize our vehicles on a whim.”
As NASA’s Mars 2020 Rover is prepping for its upcoming interplanetary journey, it’s harboring a stowaway. An experimental helicopter is coming along. Engineers at NASA’s Jet Propulsion Lab in Pasadena, California, attached the twin-rotor, solar-powered helicopter to Rover’s underbelly in late August. They say it will be the first aircraft to fly on another planet.

The Mars Helicopter is completely encapsulated to protect it from debris during entry, descent, and landing. Once on the dusty surface, it will deploy for test flights near the Jezero Crater. On this trip, the helicopter won’t be used for collecting data. That way, if there are glitches or malfunctions, the Mars 2020 mission won’t be impacted. But if it does take flight as designed, future Mars missions could enlist second-generation models of the helicopter to add an aerial dimension to their explorations.

But how does it work? Helicopters achieve lift by pushing air downward as the blades of the rotors spin. That creates pressure which raises the copter up—on Earth, that is, where God provided a dense atmosphere to harness with those blades. Mars has barely any atmosphere in comparison—only about 1% of the density of that on Earth. There’s not much air there for the blades to push against. That means the Mars Helicopter will have to work a lot harder than earthly whirlybirds.

The rotors on the Mars Helicopter spin between 2,400 and 2,900 rpm (revolutions per minute—think about that speed!). That’s about 10 times faster than a helicopter operating in our home atmosphere. But it will take that much constant rotation to move enough Martian air over the blades to create lift.

Once aloft, the helicopter will fly on its own. It won’t have input from controllers millions of miles away back at home. The entire purpose of this little craft is to prove that powered flight on Mars is possible.

But after that is achieved, NASA scientists imagine all that helicopters might do there one day. They envision space choppers investigating difficult-to-reach destinations on the rocky Red Planet such as cliffs, caves, and deep craters. The craft could carry small science instruments or act as scouts for future human and robotic explorers. The idea that soon “the sky’s the limit” on another planet is truly “out of this world”!

An artist’s concept of the Mars Helicopter
Bears Burn the Midnight Oil

The versatile Ursus americanus is proving its adaptability. Two researchers tracked American black bears in Massachusetts. They found that the bears altered their natural daily rhythms in order to live alongside humans—but on different schedules. Black bears are normally active during daytime hours and asleep at night. But when food sources are scarce and their calorie needs are high, the bears will become more nocturnal. They eat while people sleep. Black bears prefer to avoid humans, but they do move into human-dominated areas to seek out easy victuals: bird seed, pet food, garbage, and backyard fruits and vegetables. In spring, a bear needs to replace fat used up over the winter’s hibernation. In fall, it packs on as many as 20,000 calories daily preparing for its next winter rest. That’s the equivalent of eight large pizzas or five gallons of ice cream each day! The American black bears studied proved that was worth staying up late for!

Monster Penguin Fossil Found

Everyone loves the tuxedo-clad, waddling, flightless water fowl called the penguin. But would a penguin still be cute if it was big enough to look you eye to eye? Scientists in New Zealand say they’ve found the fossilized bones of a monster penguin that was as tall as many adult humans. The previously undiscovered species stood over five feet and weighed up to 176 pounds! Paul Scofield co-authored a paper about the giant Crossvallia waiparensis for Alcheringa: An Australasian Journal of Palaeontology. He says the humongous penguin thrived shortly after dinosaurs became extinct. “The oceans were ripe for the picking with the lack of mega predators. It looks like . . . penguins were just starting to exploit that niche.” With plenty to eat and little to eat it, the species grew to proportions that seem shocking based on our modern penguin experiences.

Squeeze Inn

Tokyo is a big city on the rather small island nation of Japan. Residents there are accustomed to making the most of small spaces. But how small can you go? Visitors who are not claustrophobic can find out by staying in one of the city’s capsule hotels. Rather than renting an entire room for a night, it’s possible to rent a tiny tube that contains nothing more than a mattress and a carved-out shelf with outlet to recharge electronics. Guests at capsule hotels use the spaces for sleeping—and that’s all. A community bathroom offers basic hygiene facilities but little privacy—though they are separated for men and women. Travelers choose capsules to save money. Most of the year, tourists and businesspeople can crawl in and crawl out for $30-$50 per night. That’s less than half the cost of a full hotel room.
Prison Family Dance Event

Serving prison time may be a necessary consequence when a person breaks the law. But when that person has a family, the sentence is hard on more than just the lawbreaker. Spouses and children of the incarcerated suffer too—and the goal of jail time is not to harm families. Once, visitors to jails could speak to their loved ones only through a glass window with a corded telephone. Today, some jails like the Willard-Cybulski Correctional Institution in Enfield, Connecticut, are trying out family-friendly events. The prison held a family dance. Spouses and children of inmates invited. The dance was part of a program called Family Connections. Inmates also take parenting classes. The goal is to help maintain family bonds so that prisoners can resume their roles as fathers or mothers once released.

Stamp Price Increase Licked in Court

In January, the United States Postal Service increased the cost of a “Forever Stamp,” the first-class postage required to mail a standard letter, by 10%. It was the greatest percentage increase in history, raising the cost from 50 to 55 cents. So a disgruntled postal customer took the service to court. In September, a federal appeals court in Washington, D.C., ruled to throw out the price hike. One member of the three-judge panel, Neomi Rao, referenced the Stamp Act of 1765 in her decision. She said, “The American Revolution was fomented in part by ordinary people who objected to taxation through stamps.” U.S. Postal Service spokesman David Partenheimer said in an email that prices won’t go down yet, despite the ruling. The Postal Service is considering legal options to keep the increase. For now, postal customers will still be charged the higher rate.

Amazon’s Ring under Scrutiny

Is it for your security—or an invasion of others’ privacy? Ring is an Amazon-owned doorbell camera company. Customers install Ring to keep watch over who sets foot on their property. But in guarding one door, Ring also captures and stores footage of the surrounding area. Massachusetts senator Edward Markey sent a letter to Amazon CEO Jeff Bezos. In it, he addressed privacy and civil liberty concerns about Ring cameras. Markey wants to know more about video-sharing agreements Ring might have with law enforcement agencies. The Washington Post reported that more than 400 police agencies have signed agreements with Ring since last year. Some of those agencies say Ring helps neighborhoods set up their own digital watch groups online—neighbors looking out for neighbors. But critics say being always on the lookout turns neighborhoods into surveillance areas and creates suspicion rather than trust.
1. Who do you think is in the right concerning e-bikes on public lands: the conservationists who want to keep motorized vehicles out of the natural landscapes or the advocates for people with physical limitations who need e-bikes to reach trails they couldn’t otherwise enjoy?

2. Consider the jobs that the foie gras industry provides, the enjoyment some people take in the delicacy, and the process that the animals endure. Do you think foie gras should be banned or allowed?

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**Quiz My Reading**

1. Human downgrading is the idea that _________________.
   a) technology must be constantly changing or else it becomes outdated.
   b) in many ways, technology has made people worse rather than better.

2. What do people against the making and sale of foie gras object to?
   a) tube-feeding ducks and geese in order to fatten their livers for eating by humans
   b) allowing ducks and geese to eat contaminated food that could end up in its organs

3. Elimination Station is a growing Pennsylvania business that specializes in what?
   a) using a laser to break down and remove unwanted tattoos
   b) evaluating other companies’ business plans to cut wasteful spending

4. What is the new administration order’s speed limit for electric bikes on national park trails?
   a) 20 miles per hour
   b) 28 miles per hour

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**Words To Bank**

1. controversial
   a) contentious
   b) harmonious
   c) laid back

2. gripe
   a) tight hold
   b) complaint
   c) accusation

3. vulnerable
   a) fortified
   b) virtuous
   c) susceptible

4. begrudgingly
   a) willingly
   b) resentfully
   c) uncleanly

5. succulent
   a) moist and tasty
   b) delicate and elegant
   c) greasy and slimy

6. barbaric
   a) trim and proper
   b) wild and violent
   c) cultured and sophisticated

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**Mind Stir**

1. Who do you think is in the right concerning e-bikes on public lands: the conservationists who want to keep motorized vehicles out of the natural landscapes or the advocates for people with physical limitations who need e-bikes to reach trails they couldn’t otherwise enjoy?

2. Consider the jobs that the foie gras industry provides, the enjoyment some people take in the delicacy, and the process that the animals endure. Do you think foie gras should be banned or allowed?
Isaiah 61:3 “They will be called oaks of righteousness, a planting of the Lord for the display of his splendor.”

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LAUNCHING AUGUST 2020