

Best Inventions of 2021

TIME

A SAVVIER WAY TO COMMUTE

A DIY ROBOTIC ARM

100 Amazing Innovations Changing How We Live

A MORE ACCURATE WORLD MAP

A SLEEKER MOUTHWASH

A SIMPLER WAY TO FOCUS

A SMARTER SLIP-ON RUNNING SHOE

A MINI-CAR THAT TEACHES CODING

A TOY THAT KEEPS KIDS CALM

A LONGER-LASTING LAPTOP

NEXT-GEN NOODLES





TOWARDS A DREAM



LOUIS VUITTON

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*Doug Emhoff arrives at
East Side High School in
Newark, N.J., on Oct. 19
Photograph by Landon
Nordeman for TIME*





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Time Off

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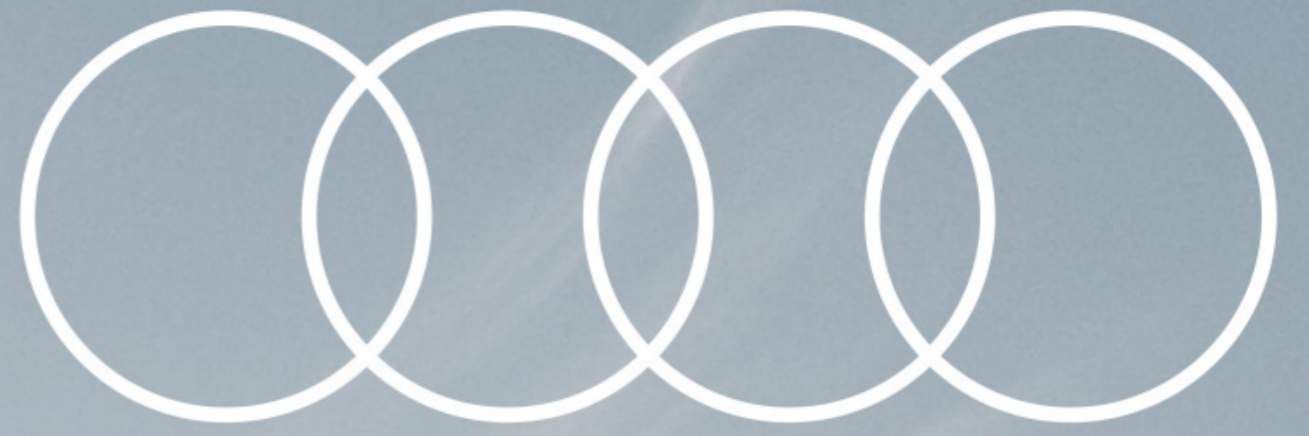
Shaping the future.

A new era of progressive luxury has begun. An experience device that redefines the future of premium mobility. Introducing the Audi skysphere concept.

Future is an attitude



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Concept vehicle shown. Not available for sale.
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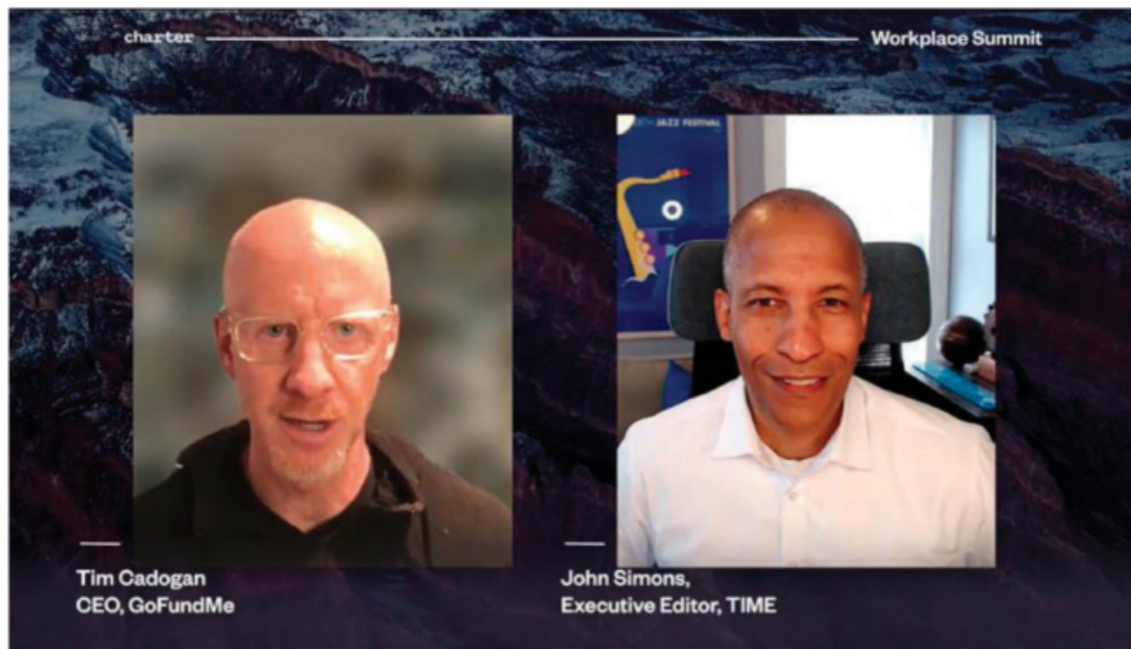
What you said about...

THE CLIMATE ISSUE

After reading about what's at stake for the world in the Nov. 8/Nov. 15 issue, readers shared their hopes that leaders will take bold steps to address climate change—and fears that they will fall short. “We are currently caught in a Catch-22 created by decades of pursuing economic growth,” wrote Barbara Williams of Long Hanborough, U.K. “If we fail to change our direction, we are doomed to a very messy collapse.”

Readers were inspired by the young people at the forefront of the climate-change movement. “Maybe it's time for the world's leaders to listen to even one young voice,” wrote Dennis Fitzgerald of Box Hill, Australia. “The ones that are going to be living in the world... long after they are gone.” Donna Snow of Lacey, Wash., was wowed by 24-year-old activist Vanessa Nakate, who appeared on the issue's cover. “Having a young woman leading the awareness about climate change is critical for our planet,” Snow wrote.

Offering “much appreciation to all those dedicated to dealing with the consequences of our disrespect and abuse of our planet,” Nanda Wilson of Felton, Calif., asked simply, “When will the U.S. give Nature a seat at the table?”



Future of work

At Charter's virtual Workplace Summit on Nov. 9–10, TIME executive editor John Simons interviewed GoFundMe CEO Tim Cadogan and LinkedIn CEO Ryan Roslansky on the most pressing issues facing today's business leaders, from the talent reshuffle to companies' social impact. See more at time.com/workplacesummit



TIME in space

On Nov. 6, a copy of TIME's Aug. 23/Aug. 30 issue featuring the crew members of Inspiration4, the first all-civilian flight into earth's orbit, sold for \$40,000 at a charity auction for St. Jude Children's Research Hospital. Autographed by the crew, the issue was one of several pieces of memorabilia put up for sale after going into space with the astronauts in September. As of Nov. 9, the mission has raised \$240 million for the hospital.



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On the covers



Photographs by Stacy Kranitz for TIME



Photographs by Margeaux Walter for TIME

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A NOTE TO READERS
In this issue, we are excited to begin **rolling out a number of changes to the look of TIME**—including a strong new type style, a fresh visual design for the table of contents, some new formats for the news analysis you've told us you love and new columns by TIME writers across Climate, Leadership, Health and more. We hope you like the upgrades and **welcome your feedback at letters@time.com**


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We look forward to seeing you in the air again

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**SINGAPORE
AIRLINES**



A STAR ALLIANCE MEMBER



Watch the video

TIME 2030 at COP26

AS NEGOTIATIONS AMONG WORLD leaders continued at COP26, the 2021 U.N. climate-change conference in Glasgow, Scotland, TIME convened its own solution-focused roundtable.

On Nov. 2, TIME hosted an event for more than 100 conference attendees. The evening included a keynote panel moderated by TIME co-owner and Salesforce chair and CEO Marc Benioff and featured U.S. special presidential envoy for climate John Kerry; former Vice President Al Gore, a Nobel Peace Prize winner for his work on climate change; Ugandan climate activist Vanessa Nakate, founder of the Rise Up movement; and designer Stella McCartney, a sustainable fashion pioneer. The event, part of TIME's decade-long 2030 initiative focused on how to build a healthier, more resilient planet, was held in partnership with SOMPO Holdings and BCG.

As oceanographer Sylvia Earle—whom TIME named a “Hero for the Planet” in 1998 and also featured in a 2017 series, “Firsts,” for being NOAA’s first female chief scientist—told senior correspondent Aryn Baker, “COVID-19 showed us we can change quickly when our lives are threatened. Climate is no different. Our very existence is on the line.”



Top, from left: moderator Marc Benioff, panelists Stella McCartney, John Kerry, Al Gore, Vanessa Nakate and Sylvia Earle; bottom right: TIME editor-in-chief Edward Felsenthal, left, speaks with Earle and entrepreneur Eric Collins



Climate futures

On Nov. 5 at COP26, TIME debuted *Generation Now*, a documentary about how youth activism has revolutionized the way politicians and media talk about climate change. It features Timothée Chalamet, U.S. Representative Alexandria Ocasio-Cortez and Greta Thunberg, among others. Watch the film at time.com/generation-now



Subscribe to TIME's climate newsletter to see how **major news stories are connected to the fight against the climate crisis.** For more, visit time.com/climate-newsletter



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'ALL I AM DOING IS THINKING ABOUT MY CHILD.'

SURAYA, mother of a baby handed to U.S. soldiers during chaotic evacuations at the airport in Kabul, on Aug. 19; months later, the baby is still unaccounted for, Reuters reported on Nov. 5



£155 million

Donation made by Vietnamese billionaire Nguyen Thi Phuong Thao to Oxford University's Linacre College, which will now be named Thao College, the college announced Nov. 1

'A pantomime election that was neither free nor fair.'

JOE BIDEN, U.S. President, in a Nov. 7 statement condemning Nicaragua's President Daniel Ortega's re-election

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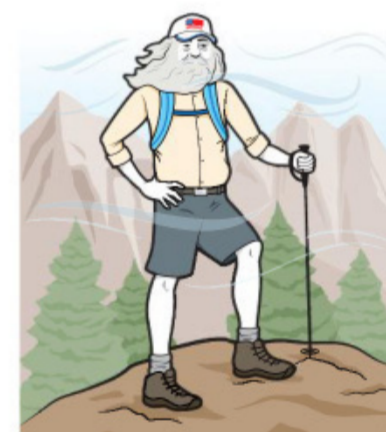
Number of U.S. state legislatures that have introduced bills aiming to restrict teaching and training—primarily related to race, racism and gender—in schools and workplaces in 2021, according to a PEN America report published on Nov. 8



BIG BIRD, the Sesame Street Muppet, sharing his COVID-19 vaccination status—and its aftereffects—in a Nov. 6 tweet

83

Age of M.J. "Sunny" Eberhart, who on Nov. 7 became the oldest hiker to complete the Appalachian Trail



'I will abide by the results of this poll, whichever way it goes.'

ELON MUSK, Tesla CEO, in a Nov. 6 Twitter poll that asked if he should sell 10% of his Tesla stock, valued at roughly \$21 billion; 57.9% of respondents said he should

'They have a nice spiciness to them, a little bit of a lingering burn.'

MEGAN MCARTHUR, NASA astronaut, describing the flavor of the first chili peppers grown in space, in a Nov. 6 interview



NEW

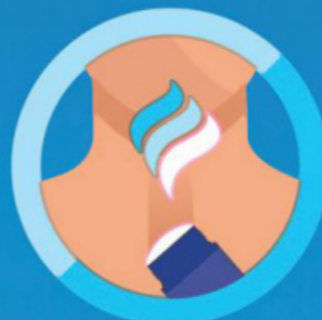
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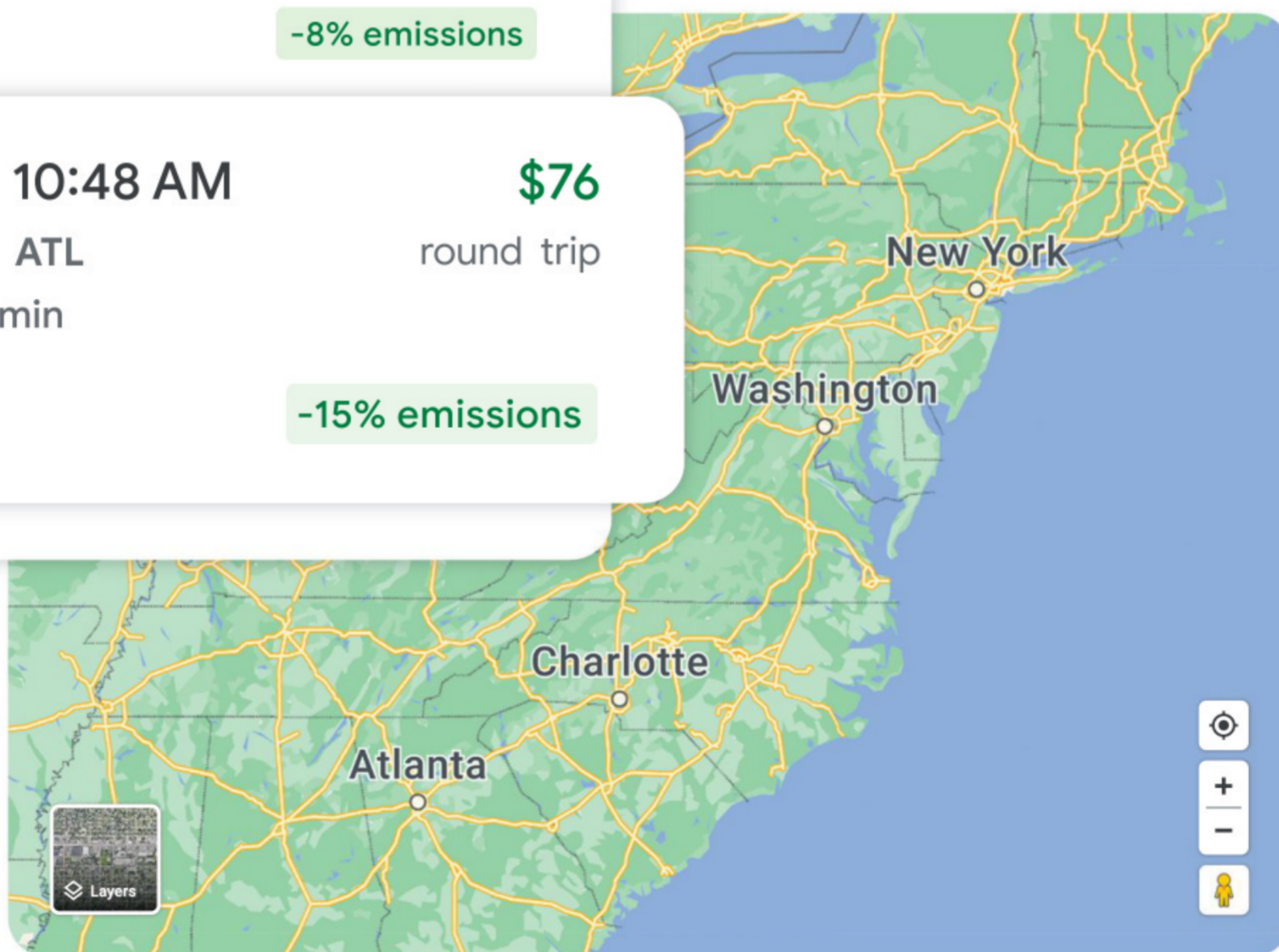
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The Brief



ZERO HOUR

BY CIARA NUGENT

The world's largest carbon emitters now all have net-zero pledges. Most of them are vague

INSIDE

GE'S GOVERNMENT SUBSIDIES WHILE OFFSHORING

WHY THE U.S. ISN'T ACCEPTING UIGHUR REFUGEES

SUPPLY-CHAIN ISSUES COLLIDE WITH HOLIDAY SHOPPING SEASON

IN A SURPRISE ANNOUNCEMENT DURING THE opening days of COP26—the U.N. climate summit taking place in Glasgow over the first two weeks of November—India, the world’s third largest emitter of greenhouse gases, pledged to reach net-zero emissions by 2070. The announcement means that all five of the world’s largest emitters now have a net-zero target—a date by which they intend to add no more carbon dioxide or other greenhouse gases to the atmosphere than they take out.

Climate scientists say the world needs to cut human-caused CO₂ emissions by 45% from 2010 levels by 2030, and reach net zero around 2050, lest global warming rise more than 1.5°C above preindustrial levels. That’s the point at which climate-change impacts become much worse for much of the world; avoiding it was the aim of the 2015 Paris Agreement—the result of the last major U.N. summit. And with a flurry of similar pledges made by countries before or during COP26, 87% of the world’s greenhouse-gas emissions—and 89% of its economy—are now covered by net-zero targets, although with differing time frames.

THAT’S A SEISMIC SHIFT in global climate politics. In less than a decade, “net-zero emissions” has gone from being a concept used by scientific researchers to a vague mention in the Paris Agreement to an established goal for nearly 139 nations—including some which have been previously most resistant to climate action.

“If you had asked me even a year ago, at COP26, will we see India, Nigeria, Saudi Arabia, Australia, Russia walking out with commitment to get to net-zero emissions? I would have said that that’d be very optimistic,” says Thomas Hale, associate professor in global public policy at the University of Oxford and part of the Oxford Net Zero research project on cutting emissions. “It’s really evidence of a tipping-point dynamic where something seems impossible and becomes possible, [starting with the work of] climate activists and developing countries, who pushed it into the Paris Agreement.”

But there’s a major caveat to climate advocates’ enthusiasm for the rise of net-zero pledges. The adoption of a target doesn’t mean that a country is on track to wean its economy off the fossil fuels that produce most greenhouse-gas emissions in time to stop the worst of climate change—or that it even intends to do so. Different governments have very different visions for what net zero will look like, and climate advocates warn many of them will not be sufficient.

Rather than cutting their emissions quickly, some major polluters, including Australia and Saudi Arabia, are planning to rely heavily on offsetting them, by capturing carbon from the air or paying other nations to grow forests. Other countries’ pledges involve targets of 2050 or 2060, but without setting an earlier interim target to ensure they start cutting emissions in the next few years, which scientists say is essential. And the vast majority of countries with net-zero pledges have not produced detailed plans for how they will start on the groundwork.

According to Oxford’s Net Zero Tracker, launched by Hale and colleagues the week before COP26, only a fraction are meaningful commitments with clear plans attached. In fact, just 18% of global emissions and 27% of global GDP are covered by these robust pledges. And even countries that do have strong pledges may not be acting as fast as they need to in order to meet them. For example, the U.K., the host country for COP26, has laid out a detailed plan to meet an ambitious target of reducing emissions by

78% compared with 1990 levels by 2035, and reaching net zero by 2050. But it is still considering approving new oil fields off the coast of Scotland. The International Energy Agency said in May that committing to new fossil-fuel projects was incompatible with reaching net zero by 2050.

THE PLEDGES BEING made represent the start—not the end—of efforts to get the world on track. But youth activists at COP26 fear that governments’ focus on setting the targets for decades from now is a way to delay the complicated and expensive work of lowering emissions now. Under all the emissions commitments submitted to the U.N. as of Nov. 2—which don’t include recent, vague net-

zero pledges not backed up by plans—global emissions would rise by 13.7% by 2030. “This is a two-week-long celebration of business as usual and blah, blah, blah,” activist Greta Thunberg said of the conference while addressing a large protest in Glasgow on Nov. 5. “The voices of future generations are drowning in their greenwashing empty words and promises.”

Hale agrees that a net-zero pledge alone is “obviously not sufficient.” But he hopes the targets will make it easier for the public and campaigners to push governments and businesses to get on track to meeting them. “The targets have really clarified what the direction of travel is,” he says. “And now, rather than discussing the goal, we’re discussing how quickly we can get there, which is a much more productive place to be.” □

The road to net zero

Here are the world’s eight highest CO₂-emitting countries and the extent of their current net-zero commitments

COUNTRY	NET-ZERO TARGET	COMMITMENT STATUS				SHARE OF GLOBAL CO ₂ EMISSIONS
		IN DISCUSSION	PLEDGED	IN POLICY	IN LAW	
China	2060			■		28.9%
U.S.	2050			■		15.0%
India	2070		■			7.4%
Russia	2060		■			4.8%
Japan	2050				■	3.1%
Iran	None					2.2%
Germany	2045				■	2.0%
Indonesia	2060	■				1.8%

SOURCE: NET ZERO TRACKER; GLOBAL CARBON ATLAS

NEWS TICKER

Japan sued over abrupt executions

Two death-row inmates in Japan launched a legal challenge Nov. 4 against the country's practice of **executing prisoners with only a few hours' notice**. Their lawyer, who called the method "extremely inhumane," said the pair also seek 22 million yen (\$194,000) in compensation.

Viral distress signal leads to teen's rescue

A 16-year-old car passenger was rescued from a Kentucky highway Nov. 4 after making a **hand signal, recently popularized on TikTok, to indicate she was in danger**. A driver recognized the signal—in which the teen folded her thumb into her palm before clenching her fingers over it—and notified police, who later arrested a 61-year-old man on a charge of unlawful imprisonment.

U.S. journalist faces charges in Myanmar

Amid increasing crackdowns on opposition figures by the country's ruling military junta, prosecutors in Myanmar have **filed sedition and terrorism charges** against U.S. journalist Danny Fenster, his lawyer said Nov. 10. Already behind bars for five months, Fenster could now face life in prison.



Fouled waters

Hindu devotees bathe among clumps of toxic foam in the Yamuna River in New Delhi on Nov. 10, as part of rituals during the four-day Chhath Puja festival. During Chhath Puja celebrations, which are dedicated to the sun god Lord Surya, it is traditional to bathe and pray in holy waters. The foam, which has been appearing more regularly on the river, is formed by sewage and pollution containing phosphates. —Jennifer Duggan

BULLETIN

U.S. taxpayers bankrolled General Electric. Then it moved its workforce overseas

GE, WHICH ON NOV. 9 ANNOUNCED IT WILL divide itself into three public companies—aviation, health care and energy—has seen a 75% decline in its domestic labor force since 1989, per a new report from Cornell University and the University of Massachusetts, Boston. That's a drop from 277,000 to just 70,000 U.S. workers; noteworthy, the report says, because of the state and federal taxpayer grants and subsidies GE received while disinvesting in the U.S. economy.

CASHING IN GE has drawn more than \$2.2 billion in public funds since 1992, according to data compiled by Good Jobs First, a nonprofit economic watchdog. (The company contests this figure.) GE's reliance on subsidies is "indisputable," says Nick Juravich, a primary author of the report and the associate director of the Labor Resource Center at UMass Boston, "as is our government's willingness to continue awarding [them] despite its rampant offshoring."

PAY CHECKS GE's offshoring of manufacturing jobs is most clearly felt by U.S. workers themselves—but there's also a "multiplier effect" apparent, says Arthur Wheaton, the report's other primary author and director of Western NY Labor and Environmental Programs for Cornell's Worker Institute. "A dollar doesn't just go to the employees, it goes through the community," Wheaton explains, and that has "a major impact when you're cutting thousands and thousands of jobs."

FUTURE-PROOF The researchers maintain that directing a fire hose of public funds at GE as it simultaneously wound down domestic manufacturing represents a lost opportunity for supporting a healthier U.S. economy—and for fighting climate change. "There's a huge amount of growth here," says Juravich of opportunities in the renewable-energy market. "The question is whether it's going to benefit American workers." —ABBY VESOULIS

Attorneys confer on Nov. 9, prior to the start of the trial in connection with Arbery's death, in Brunswick, Ga.



Q&A

What's behind America's white juror problem

IN NOVEMBER, TWO NEARLY ALL-WHITE juries were seated in two high-profile trials: that of Kyle Rittenhouse in Wisconsin and that involving the killing of Ahmaud Arbery in Georgia. The judge in the latter noted that jury selection seemed to have involved “intentional discrimination.”

Samuel Sommers, chair of the psychology department at Tufts University, studies racial inequities in institutions such as the criminal-justice system. He explained to TIME why the racial composition of the jury matters.

TIME: When you heard a nearly all-white jury had been seated in the Ahmaud Arbery case, what immediately came to mind?

SOMMERS: What comes to mind immediately? “This happens a lot.” It is not unusual, unfortunately, that juries do not feel like they’re particularly representative of the communities from which they are drawn. And in particular, it’s often that the juries are whiter than the communities from which they are drawn.

TIME: Why is that the case?

SOMMERS: There are obstacles to creating a diverse jury pool to begin with. Many jurisdictions use things like

voter-registration rolls or utility bills or DMV records. Underrepresented tend to be people who move around more often or who don’t own property, who are renters or who are less likely to register to vote. So some studies show that you get an underrepresentation of young people, people of color, people of lower socioeconomic status.

And then you’ve got a system that still has these peremptory challenges. Even though you’re not allowed, by Supreme Court rule, to base challenges on race and gender, that’s a very difficult prohibition to enforce. It’s not hard for people to generate a neutral explanation for a challenge.

TIME: What else should people know as these two trials proceed?

SOMMERS: When juries are more homogeneous, people feel like the system’s less fair. And that’s important to consider by itself. No one’s arguing that we know what’s going to happen now because we know the jury’s racial composition, but it does matter. The race of a defendant in a case, the race of a victim in the case, our own racial and ethnic identity—these things shape how we see the world around us. The scientific data are very clear on that point. —JANELL ROSS

WORLD

THE U.S. ADMITTED NO UIGHUR REFUGEES LAST YEAR. HERE'S WHY

Both the Biden and Trump administrations have condemned China’s persecution of Uighurs—which a Nov. 9 report from the U.S. Holocaust Memorial Museum claims is growing “in scale and severity”—and formally declared the country’s treatment of the mostly Muslim minority group a genocide. But the U.S. has admitted zero Uighur refugees in the past two fiscal years. The main reason is logistical; it’s next to impossible for Uighurs in China, most of whom are under extraordinary state surveillance in the country’s Xinjiang region, to access refugee resettlement systems. (Millions are also being held in mass detention camps.) China, which has consistently refuted allegations and evidence of human-rights violations, has also pressured other nations to return Uighurs who have escaped.

“For Uighurs, there is really nowhere to go,” says Maya Wang, a senior China researcher in the Asia division at Human Rights Watch.

Addressing the central issue—helping Uighurs inside China access refugee systems—would require intense pressure from world leaders, and may be nearly impossible given geopolitics in the region, experts say. But there are steps the U.S. can take, like fast-tracking the resettlement of Uighurs who have already left China. And in an Oct. 21 letter to Secretary of State Antony Blinken, 16 members of Congress called on the department to step up pressure on foreign countries “to end all deportation efforts to Xinjiang, and to ensure the safety of those who do not wish to return.” —*Jasmine Aguilera*

Get To Know The Unknown



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NEWS TICKER

China war games with mock U.S. ships

Amid rising tensions over Taiwan, China has **built mock-ups in the shape of a U.S. Navy aircraft carrier and U.S. warships** for apparent use in naval-warfare-training exercises, according to Nov. 8 satellite images reviewed by the U.S. Naval Institute, a nonprofit military association.

DOJ sues Texas over new voter laws

Restrictions placed on absentee ballots and assistance at the polls in a voting-rights law approved by Texas lawmakers in September **unfairly impinge on voters' access**—particularly for elderly and disabled people and those not proficient in English—the Department of Justice claimed in a lawsuit filed against the state on Nov. 4.

E.U. slams Belarus' cross-border tactics

On Nov. 9, the E.U. accused Belarus of employing “gangster style” behavior in its border standoff with Poland. The E.U. claims that the Russia-backed state has **encouraged migrants to cross illegally into Poland** in response to sanctions imposed upon it for human-rights abuses.

GOOD QUESTION

Have U.S. shoppers broken the supply chain?

AMERICA HAS LONG GOBBLED UP MORE goods from overseas than it sends back, but in the past year, spending has gone bonkers. Americans imported \$240 billion worth of goods in September, up 16% from September 2019. Meanwhile, the country exported about \$81 billion less than it imported—a record trade deficit, according to data released by the U.S. Census Bureau on Nov. 4. Spending will likely continue apace as consumers stock up for the holidays.

People largely stopped shopping in March 2020 as they hunkered down amid the early months of the COVID-19 pandemic, so shipping companies deployed containers for other tasks. When e-commerce spending started booming that summer, shipping containers were stranded in ports across the world. As backlogs grew, factories everywhere could no longer rely on the global supply chain to get them the parts they needed quickly, which meant delays in getting products to consumers. Meanwhile, big retailers rushed to load up warehouses to try and get goods to customers soon after they were ordered online.

“Americans have become singularly impatient consumers,” says Jock O’Connell, an international trade adviser at Beacon Economics. “We have much more inventory in this country than we would need if Jeff Bezos hadn’t convinced us we could have our stuff delivered tomorrow.”

Because there are so many more goods coming into the nation, U.S. ports are clogged. Consumer spending is usually good for the economy, but the bottlenecks created by America’s huge appetite are becoming a problem for economic growth. The U.S. economy grew at a rate of just 2% from July to September, the Commerce Department said on Oct. 28, down significantly from the 6.7% it grew the quarter before, largely because of supply-chain bottlenecks. “We’re in the midst of unprecedented cargo congestion,” said Gene Seroka, executive director of the Port of Los Angeles, on Oct. 29. “The system is all gummed up.”

BECAUSE THERE’S NO MORE ROOM to unload, longshoremen’s shifts are getting



cut, and because there’s nowhere to put the containers, cranes sit idle. And retailers can’t get all the products they ordered months ago, which could lead to empty shelves ahead of the holiday season. These bottlenecks are pushing the U.S. further in the direction of an economy that consumes things but doesn’t make them. Maersk says the U.S. accounted for much of the second quarter’s 3% increase over 2019 in demand for shipping containers—as well as for the 63% increase in what the shipping giant can charge for transporting one.

Merchants in the U.S. are doing what they can to get goods across the ocean and to shoppers ahead of the holidays. And they’re holding their breath to see if U.S. consumers will put up with higher prices. Charlene Anderson, who sells craft supplies on Amazon, says she’s going to have to raise prices 15%; even then, she’s worried about inventory arriving in time. “It’s not going to be a fun thing to answer all those ‘You ruined my Christmas’ emails,” she says. She recommends people do their holiday shopping now, because once products are sold out, replacements won’t be available until the new year.

—ALANA SEMUELS/LOS ANGELES

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DIED

Marília Mendonça, popular *sertanejo* singer-songwriter, in a plane crash in Brazil on Nov. 5, at 26.

SUED

A California fertility clinic, after two couples **gave birth to each other's babies** in an alleged embryo mix-up, per Nov. 8 court filings.

ANNOUNCED

Longtime NBC News anchor **Brian Williams'** departure from the network, he said on Nov. 10.

REMOVED

A post **shared by Ethiopian Prime Minister and 2019 Nobel Peace laureate Abiy Ahmed** on Facebook, on Nov. 2, after the platform ruled it was "inciting and supporting violence."

SUSPENDED

Publication of **Ukraine's oldest English-language newspaper**, the *Kyiv Post*, on Nov. 8 as its reporters accused its oligarch owner of infringing on editorial independence.

APPROVED

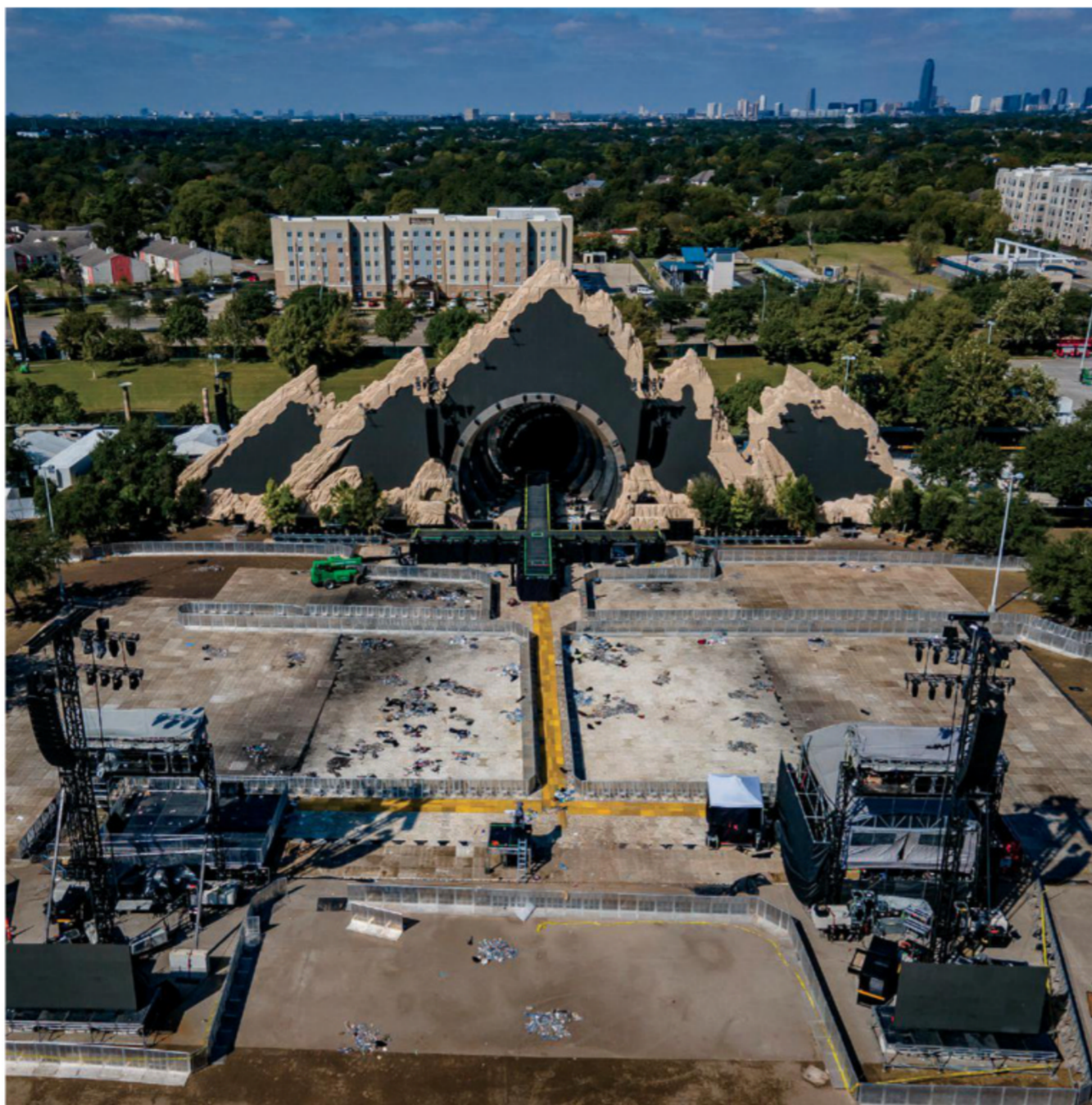
The first **pill designed to treat symptomatic COVID-19** by U.K. medicine regulators, the British government announced Nov. 4.

MARRIED

Women's-equality advocate and Nobel Prize winner **Malala Yousafzai**, on Nov. 9.

CONFIRMED

Beth Robinson, to the 2nd U.S. Circuit Court of Appeals, by the U.S. Senate Nov. 1, making her the **first out LGBTQ woman to serve on a federal circuit**.



Debris around the Astroworld main stage on Nov. 8, days after eight people were killed in a crowd disturbance at the concert

DIED

Astroworld concertgoers Music festival tragedy

EIGHT PEOPLE DIED AND HUNDREDS MORE WERE INJURED AT the Astroworld Festival in Houston on Nov. 5, when a crowd of some 50,000 people, eager to see the rapper Travis Scott, pressed relentlessly toward the main stage. Scott prides himself on the ferocity of his live shows, and has been arrested twice for encouraging his fans to storm his stages. On Nov. 5, many in the audience surged violently upon his arrival, causing some people to fall. This in turn resulted in additional panic; people began passing out in the middle of the scrum, where it was hard for them to escape or receive aid. Concert medics have also said they were dangerously understaffed.

The show continued for at least half an hour after officials declared a "mass-casualty event." Videos of concertgoers screaming, "Stop the show!" to no avail circulated widely on social media; other clips showed individuals being crowdsurfed to safety. (Scott did pause his set at least once to direct security to help unconscious people.) Extremely young concertgoers were among the dead, including two teenagers; the six other victims were confirmed as people in their 20s. At least 18 civil lawsuits have been already filed seeking damages for death or injuries, with Scott, the rapper Drake—who performed onstage alongside him—and Live Nation Entertainment Inc., the festival's promoter, among those named as defendants. Injury lawyers are seeking settlements in the millions of dollars. Local authorities, meanwhile, have begun an investigation into whether the festival's organizers were criminally negligent. —ANDREW R. CHOW

REOPENED

U.S. borders An end to a long COVID-19 closure

IN MARCH 2020, AMERICAN skies went strangely quiet. In an effort to control the pandemic, the U.S. banned travelers from 33 countries. Flights from Europe, China, Brazil, India, South Africa and more were canceled, alongside land crossings from Canada and Mexico.

All that changed on Nov. 8, as the White House threw open the gates to most international travelers—as long as they show proof of vaccination and can present a negative COVID-19 test. The move could be a tonic for the U.S. economy; the ban has cost an estimated \$300 billion in tourist spending and 1 million jobs, per the U.S. Travel Association.

But that is less relevant to the millions free to travel again than the reunions made possible after a year and a half apart. Couples separated by continents will embrace again; friends long reduced to Zoom will unite face to face; grandparents will meet grandchildren who were born during the travel freeze. Pandemics are cruel things. Their gradual end can be deeply sweet.

—JEFFREY KLUGER



Loved ones reunited at Newark airport on Nov. 8



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SPORTS

A new payday for teen basketball stars

BY SEAN GREGORY/ATLANTA

MOST HIGH SCHOOL HOOPS PLAYERS ACROSS America—if they're lucky—travel to their games in a yellow school bus. They might compete in front of the local junior-college scout. But members of Overtime Elite (OTE), the new professional basketball league for top 16-to-19-year-olds, arrive in style, to play before a far more influential audience.

On a crisp autumn morning in Atlanta, more than two dozen OTE pros stepped off a stretch-limo bus, one by one. The players entered the brand-new 103,000-sq.-ft. facility constructed by Overtime, a five-year-old digital sports-media startup that built a huge following posting Zion Williamson's high school dunks on Instagram. Waiting for them at OTE's inaugural "pro day": some 60 pro scouts, including reps from 29 out of 30 NBA teams. As the league's coaching staff led players through NBA-style drills, the scouts eyed Amen and Ausar Thompson, rangy 6-ft. 7-in. twins from Florida who skipped their senior year of high school to join OTE. The brothers drove down the lane to throw down thunderous dunks. "The Thompson twins are obviously top talents," says ESPN draft guru Jonathan Givony, who was also in Atlanta for the OTE pro day. "Those guys are ready to be seriously considered as NBA draft picks."

OTE is launching at a landmark moment in the history of American sports. For decades, talented teenagers in fields like acting and music could monetize their unique gifts by signing lucrative financial agreements. But archaic rules and attitudes largely kept athletes from doing the same, preventing them from cashing in until they reached major pro leagues like the NFL or the NBA. Those restrictions are now going the way of the peach basket. In June, the Supreme Court captured these shifting assumptions concerning athletic amateurism in a ruling that prevents the NCAA from capping education-related benefits. About a week later, the NCAA, with public opinion and the highest court in the land turning against those outdated notions, relented and allowed college athletes to profit off their names, images and likenesses.

But by betting on the popularity of high school basketball players, Overtime is taking a potentially transformative approach. Overtime's pitch to players: forget college basketball. OTE promises to pay six-figure salaries and offer access to



'I see the potential of this disruption to lead to a much more just and better world.'

DR. MARCUS ELLIOTT,
FOUNDER OF P3, A SPORTS-
SCIENCE INSTITUTE

high-level coaching and skill development in a sports-academy setting, to prepare athletes for a pro career. OTE has also hired teachers and academic administrators so players can secure their high school diplomas. The operation has financial backing from an all-star investor lineup, which includes Jeff Bezos' Bezos Expeditions fund; Drake; Reddit co-founder Alexis Ohanian; and a slew of NBA players like Kevin Durant, Carmelo Anthony and Trae Young. In March, Overtime raised \$80 million.

Signing with OTE isn't a decision players take lightly. Under current rules, OTE athletes are classified as pros who have forfeited any eligibility to play college basketball, an enterprise that, despite all its flaws, is a proven path to lifelong educational benefits and the NBA. If an OTE player does not make it to the NBA or secure a gig overseas, Overtime is pledging to kick in \$100,000 to pay for a student's college education.

For some, however, the OTE deal



Clockwise from left: Overtime Elite's (OTE) Ryan Bewley goes for a slam at the league's opening night in Atlanta on Oct. 29; a class session begins for OTE players; Amen Thompson (No. 1) sprints down court at the OTE Arena

sounds almost too good to be true. The sports landscape is littered with failed professional leagues. Dan Porter, Overtime's CEO and co-founder, has heard all the skepticism. "Everyone wonders, What's the business model?" he says. Porter points to OTE's late-October opening weekend of games as a sign of the league's promise: he says OTE content generated 23 million views and 8.8 million total engagements across social media.

A lot is riding on OTE's fate. Success could create economic empowerment and more options for young, mostly Black athletes who for far too long have been funneled into a system that mostly enriches white coaches and administrators, but not them. OTE's failure, however, might not cost just Bezos and Drake a rounding error of their overall wealth. Much worse, this disruptive idea could derail dreams.

THE OTE WEEKDAY starts around 9 a.m., when the players arrive at school. Academics last three and a half

to four hours a day, before the players grab lunch and head to practice. Classes are small; the student-teacher ratio rarely exceeds 4 to 1. Veteran educator Marcus Harden, OTE's senior administrator for academics and development, admits he worried that these high school juniors and seniors with healthy bank accounts and pro-basketball ambitions would tune out classwork. And although some OTE players are more invested in school than others—fighting student phone-scrolling habits in class is an ongoing battle—Harden insists that overall, the students have exceeded expectations. "We would be negligent if we sent them out into the world with fake diplomas," says Harden. "Even with the short day, I can say we're doing this with integrity."

For the sake of students who might not make it in basketball, OTE must deliver on this promise. Still, former NBA player Len Elmore, a senior lecturer at Columbia University's sports-management program, worries that

even if the players who get injured or don't pan out do return to college, they still might be worse off—savings accounts notwithstanding. "Come on, we're talking about 17- and 18-year-olds who now have fizzled out at their dream," says Elmore. "And now you expect them to go to a college that they were recruited by, or that they could have been recruited by, and enroll and go to class and watch other guys playing college basketball, knowing that they could have done that? That to me could also create some mental-health issues."

Players are placing their futures in the company's hands, which puts the onus on OTE's basketball development staff to ensure that at worst, each player receives a lucrative pro offer overseas. "I see the potential of this disruption to lead to a much more just and better world for these young athletes," says Dr. Marcus Elliott, founder and director of P3, a Southern California-based sports-science institute that provides advanced biomechanical analyses of elite athletes. "But I also see lots of peril. It's not about getting paid 100 grand to play as a 16- or 17-year-old. It's about getting your second or third contract in the NBA. And those are challenging and sophisticated blueprints to put together. And so the fact that their DNA has nothing to do with development, that's concerning."

Overtime insists all incentives align. The company has hired experienced basketball coaches and analytics experts because the growth of OTE's business hinges on the Thompson twins, and others, achieving their basketball dreams. They both know that to make it to the next level, they must improve on their outside shooting. "I'm going to be in the gym," says Ausar.

And where will they be in two years? Neither brother hesitates. Nor do any of the OTE players.

"The NBA."

□

A polar bear is seen resting on a large, dark, jagged rock formation. The bear's white fur is visible on its back and head, which is turned towards the right. The surrounding environment is rugged and rocky, with some sparse, reddish-brown vegetation. The lighting is soft, suggesting an overcast day.

LIGHTBOX

Hide out

A polar bear nestles among the rocks of Bird Cove on the rugged coastline of Churchill, Manitoba, on Oct. 29. The Canadian town, situated in the south of the Arctic, has long billed itself as the polar-bear capital of the world. But warming temperatures have brought a sharp decline in bear numbers; without them, Carlene Spence, a cook at the Lazy Bear Lodge, told the *New York Times*, “We don’t make money.”

Photograph by Damon Winter—*The New York Times/Redux*
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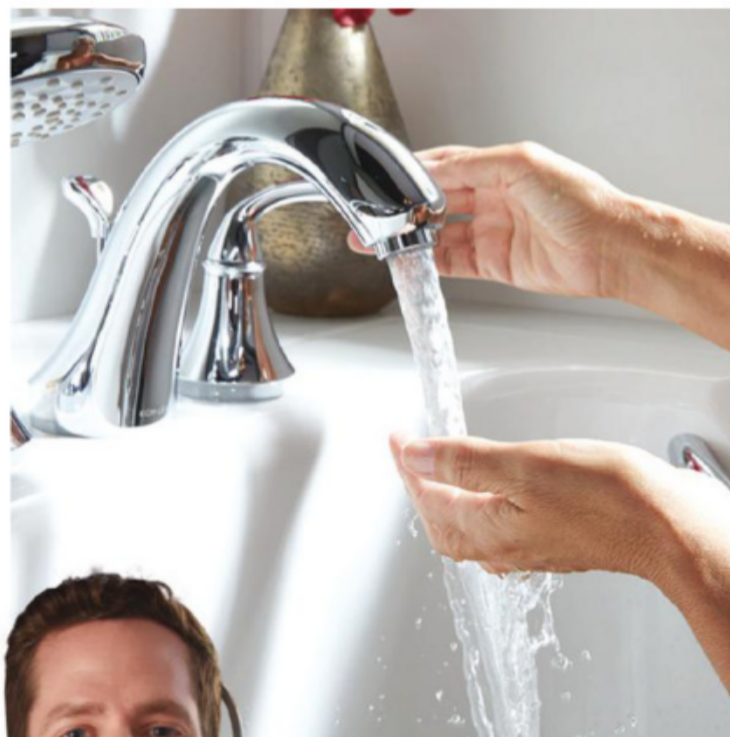
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The View

HEALTH

HOW TO KEEP KIDS SAFE

BY MONICA GANDHI AND JEFF VERGALES

With the Pfizer-BioNTech COVID-19 vaccine newly given emergency-use authorization for children 5 to 11, many parents are asking the question: Should we vaccinate our kids? Many of them may have already made up their mind. Some of those arguing against vaccinating kids make the case that COVID-19 typically does not cause severe illness among children with healthy immune systems. ▶

INSIDE

VOTING AND VIOLENCE
IN BAGHDAD

FACE THE THING YOU
ARE MOST AFRAID OF

THE INFRASTRUCTURE BILL:
NOT SUCH A HUGE VICTORY

Thankfully, purely as a percentage of total cases, it does hold true. To date, around 6 million children in the U.S. have contracted this coronavirus, which has led to more than 65,000 hospitalizations and 897 deaths. These numbers pale in comparison to the over 3 million hospitalizations among U.S. adults, and a staggering 754,000 deaths.

The low rates of complications and severe illness from COVID-19 in children are the exact data needed to justify a swift return to normalcy for many kids. They underscore that schools should be open, recreational activities can continue as scheduled, children should be allowed to socialize with one another in a normal fashion, mask mandates need an end date, and we should minimize learning loss from exposures. Yet the argument that kids are, for the most part, unaffected medically by COVID-19 ignores a simple yet essential premise.

Children are not supposed to die. The denominator of how many kids have contracted COVID-19 is so vast that it makes it easy to ignore the very small numerator. Although the low likelihood of severe illness in children should continue to drive our public policy, the fact that there are children who succumb to this illness needs to drive our vaccination guidelines.

TO PUT IT IN PERSPECTIVE, COVID-19 would currently rank eighth on the list of causes of adolescent death over the past year. Trauma (including motor-vehicle accidents, drowning, firearm incidents, suffocation and other injuries) dominates the majority of childhood deaths and drives advancement of seat belt laws, car seat laws, firearm laws and swimming pool laws to reduce this number. Cancer, mental health disorders and heart disease come next, and are massive focuses of research spending and medical advances aimed at improving survival of these conditions. Although all these events are rare, just like deaths of children from COVID, they absolutely do occur and are devastating for families.

Yet none of these conditions has a preventive strategy as profoundly effective as immunity to COVID-19.



A child gets the Pfizer-BioNTech COVID-19 vaccine at the Fairfax County Government Center in Annandale, Va., on Nov. 4

We vaccinate children to prevent severe illness and death, not to prevent mild disease. It is the same reason pediatricians emphasize influenza vaccination—not to prevent all kids from getting the flu, but to protect at-risk children from hospitalization and death. This remains true for the other 14 pediatric immunizations the CDC recommends and nearly every state requires. The goal is to prevent severe disease in children, keeping children alive and healthy.

The vaccine must also be safe to be effective. COVID vaccines have now been given to more than 4 billion people worldwide, with the safety data clear. Furthermore, the vaccine prevented 90.7% of COVID infections in children.

In pediatrics, we are used to prescribing medications “off label,” meaning not for their initial intended purpose or age range. We do so because we frequently lack clinical trial data in kids and have to base medical decisionmaking on assumptions and very small studies. With the conclusion of the current trial, pediatricians will be prescribing this vaccine with more data and knowledge behind it than virtually any other medicine we routinely

administer. We will base this on billions of real-world examples in adults and thousands of kids in a clinical trial. Although that might not be enough for many parents, that is vastly more data than have been used to validate other medications we already give kids.

So where did we lose our way? Parents who previously vaccinated their children for other illnesses up to this point remain hesitant to give the COVID-19 vaccine even though the rationale, safety profile and approval process are identical. We need to return to our usual approach to childhood vaccination by recognizing that a one-size-fits-all strategy is impractical and ineffective. Conversations and medical decisionmaking surrounding childhood need to leave the political sphere and return to the doctor’s office. We should not be discussing the necessity of vaccinating children against COVID-19; instead we should be determining the best way to do it.

Gandhi, M.D., is a professor of medicine and associate division chief of infectious diseases at San Francisco General Hospital; Vergales, M.D., M.S., is an associate professor of pediatrics at the University of Virginia

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THE RISK REPORT BY IAN BREMMER

The dispiriting truth about the latest violence in Iraq



ON NOV. 7, IRAQI PRIME Minister Mustafa al-Kadhimi survived a predawn assassination attempt by armed drones, which de-

scended on his home in Baghdad and wounded six guards. Iraq's Interior Ministry suspects Iran-backed Shi'ite militia groups, which are furious that an alliance of pro-Iran parties lost two-thirds of its seats in parliamentary elections in October. The alliance's leader denies any involvement in the attack.

It's not clear what anyone could gain from this assault, even if it had succeeded. The postelection process of

forming a new government is the central point of contention in Iraq at the moment, but the Prime Minister has virtually no role to play. Nor is he a powerful politician. He's a compromise candidate without a reliable political base of support who answers to the parties that back

him. The attacks will only boost his profile, which doesn't serve the interests of any of Iraq's main power brokers. It's possible this attack was simply a spontaneous act of retaliation by a militia group following the killing of pro-militia protesters by security troops in November, a sign of continuing chaos in Baghdad rather than of a coup attempt.

Baghdad has denounced the attack. We shouldn't be surprised; though many militia groups stoking violence in Iraq have Iran's backing, this assassination attempt isn't good for Tehran either. It throws gasoline on anti-Iranian anger in parts of Iraq, and across the Middle East, and puts their militia allies in Iraq more directly in harm's way.

For now, the biggest question for Iraq's future is what effect this dramatic news will have on the process of forming a new postelection government.

Political parties linked to militias have refused to accept the result of that vote. In fact, full and final results haven't been made public a month after votes were cast, stoking fears among those who performed poorly that backstage vote manipulation will cost them even more seats than first projected—and more of the privileges and access to wealth that come with a role in Iraq's government.

But the attack on the Prime Minister should make clear that continuing uncertainty over who will now wield power in Iraq will increase the risk of ever more deadly violence. (The current government was formed in 2019 in response to the killing of large numbers of

protesters by security forces and then powerful Shi'ite militias.)

For now, the violence appears limited to elite groups and political figures jockeying for power. If Iraq's instability boils over to much broader public unrest, violence will be harder to contain. There is

also the risk that a single dramatic act of violence will trigger a larger confrontation that few of the major players in Iraq really want. For example, an angry Prime Minister might try to use Iraq's armed forces to retaliate against those he blames for the assassination attempt, and any perceived act of personal vengeance might let loose armed groups that don't answer to the power brokers inside Iraq or Iran. The Iraqi military has so far shown no appetite for that kind of conflict.

A generation has passed since the George W. Bush Administration argued democracy could quell violence among Iraq's warring factions. Unfortunately, the reality remains that the counting of votes and the sharing of power still leave men with guns keenly focused on threats rather than opportunities. There are no signs of this changing soon. □

The violence appears limited to elite groups and political figures jockeying for power

AN ANCIENT HACK FOR ANXIETY

Some 2,000 years ago, in the throes of a targeted chase to the death, a Roman philosopher named Seneca had a thought: What's the worst that can happen?

Today, a growing body of research suggests that a Seneca-inspired exercise—inviting the worried brain to literally envision its worst fears realized—is one of the most evidence-based treatments for anxiety. In scientific terms, that exercise is called imaginal exposure, or “facing the thing you're most afraid of” by summoning it in your mind, says Regine Galanti, founder of Long Island Behavioral Psychology and a licensed clinical psychologist who regularly integrates imaginal exposure into her therapy.

As a subset of cognitive behavioral therapy, imaginal exposure relies on simple logic. Just as anxiety is created in your head, it can also be squashed in your head. That's why a growing brigade of psychologists are finding ways to help people do imaginal exposure in their own homes, on their own terms.

So how does it work? Galanti advises her clients to jot down whatever is causing them anxiety, and then to pick a specific time—ideally not before bed—to revisit those concerns. “The reason why this works is that it sets boundaries, so when a worry comes up at 9 a.m., you can say, ‘Hey, not now; your time is coming.’”

Galanti says people rarely use the full 15 minutes of allotted worry time, but it helps put anxiety into perspective: “Sometimes when you hit your worry list, you might find that the thing that bugged you at 9 a.m. that you thought would be the end of the world is actually not bugging you anymore at all.” —Julia Hotz

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The Leadership Brief By John Simons

EXECUTIVE EDITOR

In today's youth-centric tech industry, Michael Dell, 56, is an elder statesman. The Dell Technologies chief executive started his company as a teenager in a college dorm room; 30-plus years later, he's a billionaire. He details his journey in a new book, *Play Nice but Win: A CEO's Journey From Founder to Leader*. Dell spoke with TIME about what he's learned.

In 2010, Dell laid out ambitious goals around inclusion and sustainability for 2020. What led you to spell out those goals a decade ago?

Let me back up to the early '90s. We were producing enormous numbers of computers and doubling every year. You figure out, Wow, this is a machine with a defined life span. At some point, it's no longer useful. What the heck happens then? What if these things end up in a stream or a dumpster or a ditch? So I challenged our team: Let's really do a molecular-level look at everything we're putting in our machines. I don't want to be known as the guy that created an environmental catastrophe, right? When all we were trying to do was make computers.

What are some of the key problems you think technology could do more to alleviate?

Take inclusion, diversity, equity. There's a real opportunity to increase the aperture of how organizations are thinking about talent and create tremendous opportunity. If you think about decarbonization and the environment, technology is the fulcrum. All of these challenges I believe are at some level tied to computational power, networks and communications.



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Biden walks toward the Oval Office on Nov. 8



The D.C. Brief By Philip Elliott

WASHINGTON CORRESPONDENT

PRESIDENT JOE BIDEN PULLED OFF his sunglasses when he heard the reporter's question on the South Lawn. **Was the President, whose agenda had been on life support just days before, expecting the bipartisan infrastructure bill's passage to give a boost to his social spending plan?** "It ain't over yet," Biden responded cheerfully. "But I feel good."

The President shouldn't get too comfortable. The infrastructure bill that cleared Congress on Nov. 5, authorizing \$550 billion in new spending on bridges, tunnels and airports, languished in the House for months. Democrats in the House wouldn't pass it without a deal in the Senate on the scope of the Build Back Better Act, the bill that includes expanded social safety-net programs like universal pre-K and Pell Grants. As Senate Dems wrangled over that, voters became increasingly skeptical that the party could get anything done.

It took a calamitous election night on Nov. 2 for Democrats to register that sentiment. Voters in Virginia, after voting for Biden last year, elected Republican Glenn Youngkin as their next governor, and in reliably blue New Jersey, Governor Phil Murphy very nearly lost his re-election bid. It was a rout in state legislatures, too, as voters said they'd had enough.

Democrats were already bracing for a tough 2022. The party in the White House typically faces deep losses in its first midterms, and Biden's polls are at the lowest point of his tenure. The Nov. 2 results lit a fire under House Democrats, who passed the bipartisan infrastructure bill three days later.

By then, what should have been a huge victory for Biden read like a failure. It passed just before midnight on a Friday, not exactly prime scheduling for the news cycle. It came after delays that can only be seen as self-created, and tested the limits of Biden's reputation as a skilled dealmaker.

The President is still the one person in Washington who can force unity in his fractured party, but Biden has so far preferred to take a softer approach with his former colleagues. If Democrats stand a chance next year, Uncle Joe may need to become Sheriff Joe. Other Presidents have had to make similar pivots; Biden was the understudy as Barack Obama decided his quest for bipartisanship on health care was going nowhere. Reinvention is the game in Washington, and Biden must now decide if he wants to play it. □



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Connecting Cultures | TAIWAN AND THE U.S. STRIKE A LANGUAGE AGREEMENT

A new era of cooperation between the U.S. and Taiwan is underway, led by the most fundamental form of human connection: *language*.

The U.S.-Taiwan Education Initiative, which launched in December of 2020, will increase opportunities for Americans to learn Chinese, while simultaneously expanding access to learning English in Taiwan. Taiwan and the U.S. already have robust student exchange programs in place. Taiwan is the seventh-largest source of international students in the U.S., with over 23,000 Taiwanese students studying here last year. Taiwan, in turn, hosted 3,800 American exchange students in 2020.

But the U.S.-Taiwan Education Initiative is more ambitious in scope. According to Taiwan's Foreign Minister Joseph Wu, "The U.S.-Taiwan Education Initiative marks a starting point for comprehensive educational cooperation between the two countries. The two sides will build upon existing language learning programs and academic exchanges going forward to further consolidate relations between Taiwan and the U.S."

A Memorandum of Understanding for this agreement was signed by the American Institute in Taiwan and the Taipei Economic and Cultural Representative Office in the U.S. Several initiatives are already underway to increase U.S.-Taiwan collaboration in language learning.

In September, 12 universities from Taiwan and the American Midwest signed the Taiwan Huayu BEST Program agreement, bringing the total to 31 participating universities from both countries. The program facilitates the recruitment of Chinese-language educators from Taiwan to teach at select U.S. universities and provides scholarships as well as teaching resources.

Fifteen Taiwan Centers for Mandarin Learning will open across the U.S., with the first of these already operational in Princeton and Murray Hill, New Jersey. The agreement also aims to increase student exchanges through existing programs like Fulbright and encourage more American students to study in Taiwan.



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TAIWAN'S REPRESENTATIVE TO THE UNITED STATES, AMBASSADOR BI-KHIM HSIAO,
FROM THE CHICAGO SUN-TIMES

In September, Taiwan and Kentucky signed an agreement on higher education cooperation, the country's first with a state government since the launch of the initiative. Over the years, a number of states have signed similar agreements with Taiwan to promote educational exchanges, and now more are expected to follow suit as the new initiative continues to gain traction.

The strategic importance of the U.S.-Taiwan Education Initiative cannot be overlooked. The recent closures of China's Confucius Institutes, a widely used source of Chinese language education in the U.S. which critics claim was being used by China for politically-motivated purposes, has put a renewed emphasis on the importance of languages being taught in a manner that's free of bias and censorship. Moreover, Harvard University's study abroad summer program, which allows students to learn Mandarin and participate in cultural activities, will be relocating from Beijing to Taipei in 2022.

The U.S. State Department has listed Chinese as a language that is critical to national security. In addition to helping protect national interests, Chinese language knowledge will open up new economic opportunities, giving speakers an

advantage in the global economy and enabling communication with over a billion people.

In 2018, Taiwan set a national goal of becoming a bilingual nation by 2030, and it has since been scaling up its investment in English language instruction for both students and members of the workforce. Higher fluency in English will bring positive outcomes for Taiwan, including driving new economic activity, disseminating Taiwanese culture, and strengthening links between Taiwanese people and the international community.

Language is the primary tool for communicating and connecting with one another. It enhances cultural understanding, stimulates economic development, and allows people from opposite sides of the world to share knowledge and form long-lasting relationships. The U.S.-Taiwan Education Initiative will facilitate these interactions and bring the people of both nations more closely together, heralding increased cooperation in the future and highlighting a commitment to our shared interests and values.

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State laws have added new costs, paperwork and requirements over the years, driving many abortion clinics out of business





NATION

ON THE LINE

**MISSISSIPPI'S LAST
ABORTION CLINIC HAS
FACED COURT BATTLES
BEFORE. BUT THIS TIME
IT'S DIFFERENT**

By Abigail Abrams

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SHANNON BREWER'S EYES DART TO A grid of grainy images on a wide, black screen above her desk at the Jackson Women's Health Organization (JWHO). Live footage shows a large truck creeping into the clinic's parking lot, its side emblazoned with a pair of blue, ghostly baby feet and the words *WHERE ARE OUR CHILDREN?* Brewer doesn't recognize the driver. Her spine stiffens.

As the director and de facto head of security at the last abortion clinic in the state of Mississippi, Brewer is not easily spooked. In her two decades there, she has seen bomb scares and stalking incidents, and protesters getting in fights with her staff. She keeps the number of an FBI contact amid a sea of sticky notes beside her desk. But this year, she says, everything feels more intense. More dangerous. More consequential.

Her clinic, known as the Pink House for its bubble-gum-colored exterior walls, is at the epicenter of the fight over abortion access, in Mississippi and the country. On Dec. 1, the U.S. Supreme Court will hear arguments in a case, *Dobbs v. Jackson Women's Health Organization*, about a Mississippi state law banning nearly all abortions after 15 weeks of pregnancy. If the court allows the law to remain in effect, the decision will effectively hollow out *Roe v. Wade*, the landmark 1973 decision that established a constitutional right to an abortion before fetal viability. "This is not gonna just affect Mississippi," Brewer says. "It's gonna affect women everywhere."

Five years ago, this moment was unthinkable. Even the Supreme Court's decision to take up a case that directly challenges *Roe* would have been considered outlandish, legal scholars say. But the landscape has shifted rapidly.

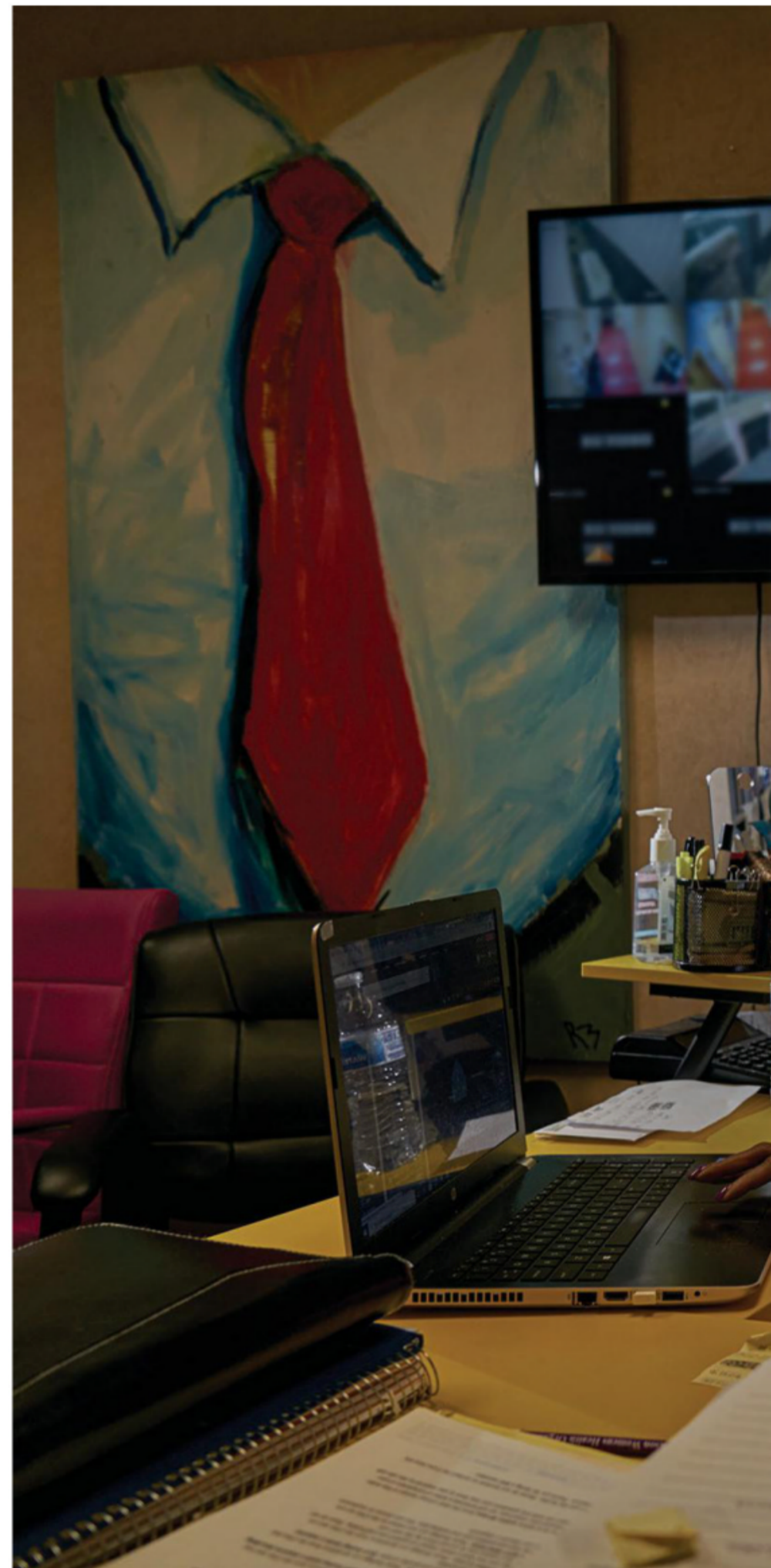
Over the past year, GOP-controlled state legislatures have passed a record-breaking 106 abortion restrictions, including a Texas statute that bans nearly all abortions after roughly six weeks of pregnancy. Conservative state and federal judges have allowed some of those laws to stand, while President Trump's appointment of three Justices—Neil Gorsuch, Brett Kavanaugh and Amy Coney Barrett—has put *Roe* at risk. *Dobbs v. Jackson Women's Health Organization* will come before the most conservative bench in decades.

Antiabortion activists are energized. In a normal year, the Pink House has its share of regular protesters, but ahead of the December hearing, "abortion tourists," as the clinic volunteers call them, have begun showing up on the sidewalk every day. Melissa Fowler, chief program officer at the National Abortion Federation, which tracks threats to abortion clinics, says she's heard from members "who report an escalation in anti-abortion rhetoric, criminal activities and the intensity of activities" since last year.

Brewer herself has become a lightning rod. "She thinks she's doing a good thing," says Barbara Beavers, who was trying to discourage patients from entering the Pink House in October. "But she's killing babies." Coleman Boyd, a local physician who regularly protests outside the clinic with his wife and children, also calls out Brewer by name. She and her staff, he says, "have a heart to kill."

It's in this context that Brewer, one eye still trained on the security footage, walks out the clinic's front door and strides over to the unfamiliar truck, idling a few yards from the building. She exchanges words with the driver, then rolls her eyes and flashes a nod of assurance to her staff. The truck is part of a national antiabortion group's protest that evening. Nothing to worry about.

Back at her desk, in front of a sign reading *QUEEN WARRIOR*, Brewer considers the enormity of her role in the moment—the last director of her state's last abortion clinic, just weeks before the most momentous high-court hearing



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Brewer has worked nearly every job at Jackson Women's Health Organization over her 20 years at the abortion clinic (A portion of this photograph was blurred due to security considerations)

on abortion in a generation. "I'm going to appreciate the time that we have," she says. "Once we go to court, every day that we are open and see patients and get to talk to them—it's like we don't know if this is the last time."

ABORTION WASN'T ALWAYS such a partisan subject in America. Nearly a half-century ago, when the Supreme Court decided *Roe*, the ruling wasn't as polarizing as it is now, says Mary Ziegler, a law professor at Florida State University and an expert on the legal history of abortion. Republicans kept the issue at arm's length, wary of antiabortion activists who they saw as "wild children,"



she says; Democrats rarely discussed it at all.

That began to change in the 1980s, Ziegler explains, when a cadre of GOP strategists seized on abortion as a way to animate the religious right and win over voters who might otherwise lean left. These activists began to test the limits of *Roe*, working closely with state lawmakers to pass new abortion restrictions, such as mandated waiting periods or minimum measurements for clinics' rooms and corridors.

That legal strategy was supercharged by a 1992 Supreme Court decision, *Planned Parenthood v. Casey*, in which the Justices ruled that states could restrict abortion so long as they did not impose an "undue burden" on patients. In the three decades since, the number of laws restricting abortion multiplied. Abortion opponents framed many of these new rules as protections for women's health, but doctors often described

them as medically unnecessary.

"It's simply that the enforcement of these regulations would make it hard to keep clinics open," says Elizabeth Nash of the Guttmacher Institute, a research center that supports abortion rights. The plan worked. In 1992, there were 2,380 abortion providers in the U.S., according to Guttmacher. In 2017, the most recent year for which statistics are available, there were 1,587.

'In the South, we're limited on who's speaking out. This is not the time to be quiet.'

—SHANNON BREWER

Mississippi has been the tip of the spear in this strategy. In the '90s and 2000s, state lawmakers passed more than two dozen restrictions on abortion, each of which came with new costs, paperwork, or staffing rules that pushed abortion clinics out of business. By 2004, JWHO was the only clinic in the state left standing. Brewer says it's still struggling to stay afloat. "There are so many hurdles," she says.

Brewer was first hired at the Pink House in 2001 as a sterilization technician. Back then, she says, she was not attuned to the national politics of abortion. Her outlook was guided by her own experience growing up in a poor family outside Jackson, where she received no sex education in school and no one ever talked about abortion. In her mid-20s, she tried to get an abortion, but was too far along, and had a baby when she didn't feel prepared to do so. Brewer now has six kids she loves. When she talks about "reproductive justice," she describes it as letting people decide if, when and how they choose to have a family.

In 2010, when Brewer was promoted to clinic director, the national politics of abortion found her. Brewer credits Diane Derzis, majority owner of the Pink House, for helping to guide her. "She taught me how to speak up and how to fight," Brewer says. "In the South, we're limited on who's speaking out. This is not the time to be quiet."

Derzis, who became an outspoken advocate after getting an abortion in 1975, eventually bought clinics in four Southern states. (In addition to the Pink House, she now owns two more clinics, in Virginia and Georgia.) She has been on the front lines of the battle for decades. In 1993, an antiabortion activist in Florida killed a doctor whom Derzis had known for years. Five years later, her Birmingham, Ala., clinic was bombed, killing a guard and permanently maiming a nurse. In 2012, a new Mississippi law nearly forced the Pink House to close, but a federal court blocked it the day it was set to take effect, setting off a legal battle that lasted until 2017.

So for Derzis, this strange moment—in which her clinic is the plaintiff in a Supreme Court case that could result in overturning *Roe*—doesn't feel strange at all. It feels inevitable. From her vantage,

the antiabortion movement's long-term objective was always to capture politics at every level, from local city councils to state legislatures to Congress and the presidency, in order to reshape the court and relitigate *Roe*. Under Trump, who campaigned on the promise to appoint judges who would overturn *Roe*, Republican state legislators turned to passing a raft of laws designed to get the justices to finish the job. Marjorie Dannenfelser, president of antiabortion group Susan B. Anthony List, recognized the work that state lawmakers have done in passing anti-abortion bills to get the Mississippi case before the Supreme Court. "This is a landmark opportunity" for the anti-abortion movement, she said last spring.

"This has been a campaign they have waged over 45 years," Derzis says. With Trump, "they got their Supreme Court Justices." It was game time.

OVER NEARLY 50 years, the Supreme Court has heard more than two dozen cases touching on abortion. (Earlier this month, it considered an enforcement mechanism embedded in the Texas abortion law.) But the Mississippi case that will come before the court on Dec. 1 is different by an order of magnitude. This one is not "biting around the edges" of abortion access, says Ziegler. It's "going for the jugular." Mississippi has explicitly asked the court to overturn *Roe*.

It is, of course, impossible to predict how the court will rule. With six conservatives on the bench, a majority could well choose to overturn the nearly 50-year-old precedent. Such a decision would be audacious, but not unheard of. The court has reversed precedent dozens of times in the nation's history. If it happens again, the fallout for people seeking abortions would be immediate. Twelve states, including Mississippi, have what are known as "trigger laws" that ban nearly all abortions immediately or shortly following such a court decision. Another nine states have already written strict restrictions that they could move quickly to implement.

But legal scholars say it's much more likely that the court would rule

'This is a landmark opportunity.'

—MARJORIE DANNENFELSER



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National antiabortion groups like Live Action protest at the Jackson clinic ahead of the Supreme Court hearing

in a way that stops short of technically overturning *Roe*—while weakening the constitutional right to abortion so substantially that it's largely hollow. For example, the Justices could hold that the "viability standard"—the idea, embedded in *Roe*, that states cannot restrict abortion before a fetus can survive outside the womb—is no longer central to the precedent. Such a decision, while formally leaving *Roe* in place, would render it nearly unrecognizable. If the court allows states to ban abortion before viability, there are dozens of other abortion restrictions currently blocked or being challenged in lower courts that could be reconsidered too.

The Supreme Court could also decide that Mississippi's law is constitutional because it allows people to access abortion prior to 15 weeks, and therefore does not present an "undue burden," as defined by *Casey*. A decision like that would undermine the viability standard and redefine the court's previous definition of "undue burden." Whatever the court decides, legal experts say the justices may be likely to remand the case back to lower courts, asking federal judges to reconsider the law under

a newly modified interpretation of *Roe*.

Abortion-rights advocates say any ruling that does not explicitly find the Mississippi law unconstitutional amounts to a distinction without a difference. "The law has been absolutely clear for 50 years that bans on abortion before viability are unconstitutional," says Julie Rikelman, the litigation director at the Center for Reproductive Rights, who will represent JWHO before the Supreme Court. And any decision that creates more legal uncertainty is bad for abortion access, as it leaves clinics—most of which are already operating on a shoestring—to fight costly legal battles or temporarily shut down while judges deliberate.

In recent weeks, as the Supreme Court hearing has drawn nearer, Brewer and Derzis have huddled to discuss contingency plans. Although only 10 to 15 of the roughly 300 patients at JWHO each month request an abortion after the 15-week mark, Brewer says that if the high court allows this law to stand, she fears what laws Mississippi will pass next.

In the meantime, Brewer is focused on the fight. The day after we spoke was a Saturday, but she planned to be at the clinic bright and early—as she always is. She's doing it for the next generation, she says, in hopes they take up the mantle for the ones who come next. "That's kind of how it goes," she says, turning her eyes briefly away from the security screen. "You have to have people to continue to fight." —With reporting by MARIAH ESPADA/WASHINGTON and LESLIE DICKSTEIN/NEW YORK ■

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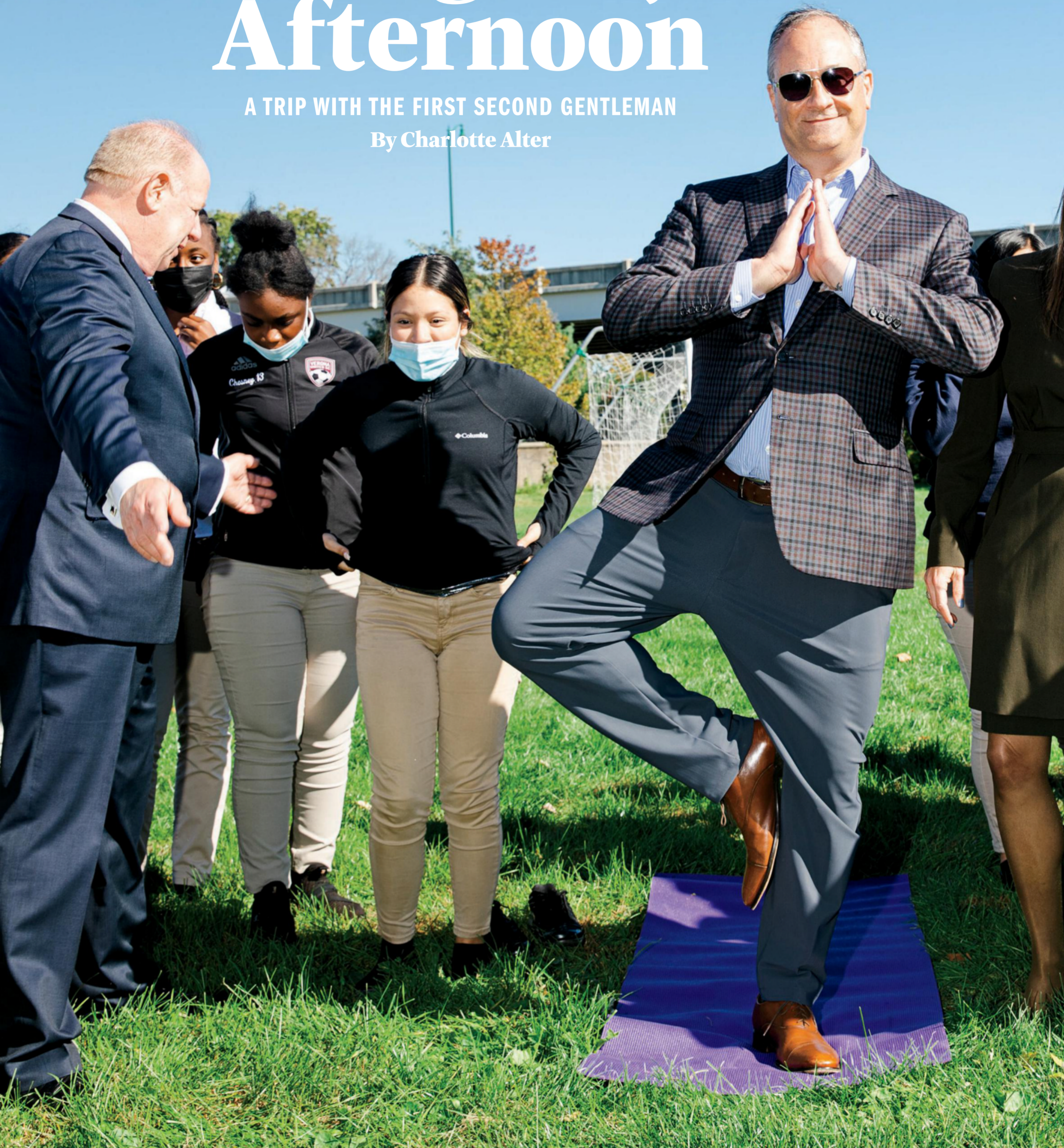
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POLITICS

Doug Day Afternoon

A TRIP WITH THE FIRST SECOND GENTLEMAN

By Charlotte Alter





It's

A SUNNY OCTOBER DAY, AND DOUG EMHOFF IS BACK in his native New Jersey for the first time as Second Gentleman of the United States. “It looks surprisingly the same, except this beautiful city walk we’re on, which is incredible,” he says, gesturing to a riverside pathway, which sits across from a set of dumpsters, a pile of old mattresses and an ambulance parking lot. “It really feels like home.”

Emhoff has just finished a long day of asking people how it’s going. First, he was at a Newark high school, asking students, “How’s it going? Going back to school?” He told the principal that they’ve “got it going on” with their high student vaccination rate. Then, after eating lunch at a picnic table outside a diner, he had come to this scenic path in Elizabeth to visit young environmental-cleanup workers and talk about the climate provisions of President Joe Biden’s Build Back Better plan. Emhoff walks abnormally slowly, his hands clasped at his belt, pretending to ignore the photographers crouching ahead of him. Occasionally, he looks down at a rectangular note card and then says something like, “What does a space like this do for your community and your peers?”

If all this seems a little new to him, Emhoff deserves a bit of slack. Not long ago, he was a single dad and L.A. lawyer perhaps best known for winning an intellectual-property case involving the Taco Bell Chihuahua. Today, the husband of Vice President Kamala Harris—he actually refers to her as “Kamala Harris” when she’s not around—is the first ever male spouse of a Vice President and the first Jewish person in one of the two leading couples of American life.

Emhoff has turned out to be pretty good at this unlikely role. He’s one of the White House’s most enthusiastic surrogates, traveling to 30 states and 21 COVID-19-vaccination clinics to promote Biden and Harris’ domestic-policy agenda and vaccination push. Party fundraising emails sent out under Emhoff’s name do as well as those signed by high-profile congressional Democrats, according to a party spokesperson, and Emhoff was one of the party’s top five email fundraisers in September.

I wanted to know what it was like for a regular guy to suddenly become one-quarter of America’s most powerful double date. Few people get to

Emhoff practices his tree pose with a yoga class during a trip to New Jersey on Oct. 19

inhabit the all-encompassing political machinery that surrounds the President and Vice President; fewer still experience it with fresh eyes, unjaded by decades of guarded politicking. In the span of just over a year, Emhoff has been thrust into an uneasy world of constant scrutiny and heightened security. “He never used the word *lonely*, but I think there’s so much stuff that he can’t do,” says one old friend.

Does Emhoff ever stop to wonder how a guy who is trying to get his wife to like Radiohead and named his fantasy football team “Nirvana” became someone who’s surrounded by earpieced bodyguards and gets birthday gifts from the President of the United States? He smiles, blinks slowly and says in a low voice, “Every minute of every day.”

EMHOFF WORKS FROM a corner office at the end of a gleaming hallway in the Eisenhower Executive Office Building, next to the White House and overlooking the Washington Monument. It’s crammed with knickknacks: a photo of his first flight on Air Force Two; a map with pins for every place he’s visited as Second Gentleman; a souvenir from star quarterback Tom Brady’s visit to the White House. “Everyone wanted to talk about football, so I asked him about golf,” Emhoff recalls. “And at the end, I said, ‘Who are you again?’”

Born in Brooklyn in 1964 and raised in Old Bridge, N.J., Emhoff moved as a teenager to California, where he attended college and law school. As a corporate lawyer at Venable LLP in Los Angeles, he represented clients like the pharmaceutical company Merck and the arms dealer Dolarian Capital, as well as the husband of one of the *Real Housewives*. Former colleagues recall him as competitive where it mattered, but with a reputation for looking out for younger associates. One junior colleague recalled that Emhoff would be the partner who ordered Chipotle for associates working long nights at the office. Emhoff is a “good sit-next-to guy,” says his close friend Mitch Evall. “He’s a really pointed observer of human behavior.”

Everyone I called told me the same thing: Emhoff seems to be, as NBCUniversal CEO Jeff Shell put it, “just a good dude.” Emhoff’s son Cole described him as “a little embarrassing,” and mentioned his habit of falling asleep in movies. Cole and his sister Ella used to tease Emhoff for forcing them down black-diamond slopes on family ski trips, in what they called “Evil Daddy Ski School.” (He named them Cole and Ella after jazz greats; they call him “Doug,” not Dad.) Cole says his friends like to rib him about the Democratic fundraising appeals they receive under his father’s name: “Oh, your dad just emailed me.”

Emhoff is a regular guy who has suddenly become one-quarter of America’s most powerful double date

Emhoff met Harris in 2013 on a blind date set up by a mutual friend. He was immediately smitten. Even now, friends say Emhoff is so excited to see the Vice President when she comes home that he will hang up on them in the middle of a FaceTime conversation. “He’ll be like, ‘She’s home!’” says Evall, “and it’s a blank screen.”

When the couple met, Harris was the attorney general of California—a big job, but not one that required Emhoff to upend his life. Even when Harris won a U.S. Senate seat in 2016, the move to D.C. didn’t change much. Emhoff joined the law firm DLA Piper, but he was still an anonymous figure who could go to the grocery store, attend Dodgers games and live a relatively normal life.

Emhoff and his ex-wife Kerstin Emhoff have been close friends and co-parents since their 2009 divorce; he remained her lawyer and business adviser until he gave up his law practice before the Inauguration in January. By all accounts, theirs is a thoroughly harmonious blended family. Still, Emhoff has grown since his first marriage. He now tries to “listen more than you talk,” he says, and Kerstin says he does things with Harris, like plan couple’s trips, that he didn’t before. “Of course he’s a better husband, and that’s great,” Kerstin says. “That’s how it should be.”

Kerstin says Emhoff was always supportive of her career during their marriage. But being the spouse of a presidential candidate requires a different level of cheerleading. During Harris’ short-lived run, Emhoff was rarely without a T-shirt bearing his wife’s name. Former campaign staff recall he tended to be more digitally savvy than some of Harris’ advisers, often the first to see a particular Instagram post or a tweet about the campaign. (Once glued to Instagram, Emhoff now has “the phone of a 7-year-old,” he says, for security reasons.) His apparent glee at his wife’s accomplishments made him America’s favorite Wife Guy, partly because he seemed less closed-off than other political spouses. “In politics, you’re expected to be very guarded,” recalls Chasten Buttigieg, who became friends with Emhoff during the Democratic presidential primary. “But he would see me down the hallway and he would shout my name across hundreds of people.”

When Biden chose Harris as his running mate in August 2020, life “changed on a dime, without any time to breathe or reflect,” Emhoff recalls. Reporters were suddenly camped outside his condo. His living room filled with campaign staff toting boxes of binders. “It was just like a rocket ship.” Emhoff was thrust onstage into a carefully choreographed ballet of official duties, even though he’s still learning the steps.



At Biden’s Inauguration, for example, Emhoff briefly went viral for forgetting where to stand as he and Harris climbed the stairs of the Capitol. “They’re trying to explain to you, ‘O.K., you’re going to get out of the limo and walk up the stairs in this order.’ I’m like, ‘Oh, O.K., I got it,’” he recalls. “And I just got overwhelmed.” He went viral again during the President’s first address to a joint session of Congress, for waving at Speaker Nancy Pelosi and blowing kisses at his wife as the two women waited for Biden to enter. “I looked like Forrest Gump,” he says. “I’m just thinking, ‘O.K., nobody saw that.’” Everybody saw it.

But if Emhoff draws attention for his bumbling exuberance, his tenure as Second Gentleman has been mostly free of verbal gaffes. “Being a lawyer comes in handy,” he says. “I’ve been very cognizant of what comes out of my mouth.” His facial expressions are a different story. When I ask what he misses about his old life, he crosses his eyes and smiles, as if to say, *a lot*.

IF EMHOFF’S NEWNESS gives him an unfiltered view from inside the White House bubble, it’s his maleness that makes history. All of his predecessors have been women—and usually women who were used to the political spotlight. Jill Biden had been through two presidential campaigns and spent decades as a Senate spouse by the time she became Second Lady; Karen Pence was first lady of Indiana before she was Second Lady of the United States. When I asked Emhoff if he had heard from “Mother” Pence, as her

▲
Snapping a selfie with Tammy Murphy, the first lady of New Jersey, and high school students in Newark

husband reportedly refers to her, his eyes flashed. “Mrs. Pence,” he snapped, has been “very gracious in giving advice.”

The role of Second Spouse traditionally involves historically feminized tasks, like hosting luncheons and selecting china. To that end, Emhoff says he is “learning about wallpaper.”

“Some of those things are genderized, where, ‘Oh, a man can’t pick wallpaper and pick china.’ Technically, in the reporting and flow charts, it all reports up to me,” he says. But, he adds, “I’m married to Kamala Harris, and she’s going to have some opinions on china and wallpaper.” So Emhoff usually narrows selections down to a few choices and then lets his wife pick. “I’m doing things that I probably wouldn’t have done,” he says, “because one: it’s part of the job. And two: it helps her.”

Still, Emhoff seems thrilled to find moments of spontaneity where he can. After the visit to the scenic Elizabeth river walk on his New Jersey trip, Emhoff comes across a gym class full of high schoolers doing yoga poses in their school uniforms. Having spent the day walking slowly where he’s told, and standing on pieces of blue tape for photo ops, he seems to sense an opportunity to finally have some fun.

“Should I downward dog this thing, or what?” he says. Then he joins the kids for a shaky tree pose as the cameras click. “I can’t hold this forever!”

Later, I asked the kids what they thought of Second Gentleman Doug Emhoff. They responded with a near unanimous chorus: “Who?” —*With reporting by JULIA ZORTHIAN* □

THE WORLD'S MOST POPULAR 10-YEAR- OLD

Ryan Kaji 
**is the YouTube sensation behind
 your child's holiday wish list**
 By Belinda Luscombe

IN HUMAN YEARS, RYAN KAJI IS 10. IN YOUTUBE views, he's 48,597,844,873. If, in our digital age, a person's life can be measured by their online footprint, Ryan's is the size of a brachiosaur's, which, as a lot of Ryan's fans know, is gargantuan. Another way of putting it is that even if every one of Ryan's YouTube views were just 30 seconds, he has been watched 4,500 times longer than he has been alive.

There's a sacred text that talks about an era of peace and harmony, where lions lie down with lambs. The kicker is that a child is in charge of it all. Except for the part about peace and harmony, we are in an age where a child does indeed rule a significant subsection of the Internet. Ryan has been the highest paid YouTube star for three years straight, partly because he has nine channels on the platform. His revenue last year, according to *Forbes*, was about \$30 million. Most of that was from his far-flung merchandise empire: he (or his parents) has lent his name to 1,600 licensed products in 30 countries, including Skechers, pajamas, Roblox, bedding, watches, sporting goods, water bottles, furniture, toothpaste and, of course, toys.

As well as a legion of YouTube videos, Ryan has

shows on Nick Jr. (the Emmy-nominated *Ryan's Mystery Playdate*) and Amazon Kids+ (*Super Spy Ryan*) and his own streaming channel. His animated superhero alter ego, Red Titan, will appear for the second time as a Macy's Thanksgiving Day Parade balloon. "Ryan is bar none the crown prince of YouTube," says Quynh Mai, founder of Moving Image & Content, a creative agency for digital content. (She does not represent him.)

How did we get to a place where a person can be the linchpin of a media empire before he has armpit hair? And of all the exuberant folks on YouTube, why has this kid raked in the most cash? Part of the answer is that this is no ordinary child, but another part is that Ryan's rise speaks volumes about the way entertainment, business, technology and family life have changed in the past decade.

Ryan's prominence, and the existence of the genre of human known as "kidfluencer," is a source of consternation to many parents, authorities and child-development experts. Four of the 10 U.S. YouTube channels with the most subscribers are geared toward young children. Legislation has recently been introduced in the Senate that may





PHOTOGRAPH BY BEA OYSTER FOR TIME

THE MAKING OF A TOYCOON



Family biz

Within a year of posting their first video, both of Ryan's parents were working full time on his channel



Child's play

Ryan's family made merchandising deals early and often, with 1,600 products to date

curtail the activities of Ryan and his fellow YouTube toycoons. But his ascent has also shown how profoundly childhood has been and is being reshaped, and that it may be too late to put the jack back in the box.

ONE THING THAT EVERYONE agrees on is that much of Ryan's fame was a result of timing. He was about 3½ in 2015 when he asked his mom Loann Guan—the family changed its name to Kaji to preserve some anonymity as they got famous—if he could be on YouTube like other kids. Loann, 37, was a science teacher on spring break looking for kid-friendly activities. She and her husband Shion, 34, had watched YouTube in college and had a grasp of the format and how the algorithm worked.

At the same time, technological changes were making online video more accessible to kids. “It was like a perfect storm when Ryan came in,” says Mai. Laptop prices had dropped enough that people were moving away from tablets. The YouTube Kids app had launched. “Parents gave their iPads to their children as entertainment devices, and that made it so easy for kids to navigate the Internet,” she says. Feeling stretched in terms of childcare, lots of parents needed to keep their kids occupied. “When young children see lots of colors and sounds and movement on a screen, it's almost like a mobile above the crib,” says Dr. Jenny Radesky, a developmental behavioral pediatrician at the University of Michigan. “They calm down. They focus. Studies have shown that it often leads to less body movement.”

The period after 2015 also marked a growth phase for the so-called creator economy. With the advance of digital ad technology, advertisers realized they could get more traction from microtargeting followers of a regular person—an influencer—than from a celebrity. Among the most popular figures when the Kajis began were

‘RYAN IS BAR NONE THE CROWN PRINCE OF YOUTUBE.’

—Quynh Mai, founder of Moving Image & Content

the unboxers, people who filmed themselves opening shoes or makeup, or kids opening toys.

So that's what Loann and Ryan did. Ironically, Ryan had not really liked playing with toys as a baby, except one: a remote-control car, which, his dad says, he could more or less operate by the age of 6 months. This meant every relative gave him toy cars. When the unboxing trend spun off into the Giant Egg trend, Loann hid those cars in a papier-mâché egg she'd made. The resulting video, “GIANT Lightning McQueen Egg Surprise with 100+ Disney Cars Toys,” shot Ryan's ToysReview, as the channel was then called, into the stratosphere. “That one video became his most popular video on our channel for the next two years,” says Shion. It currently has more than a billion views.

At first, strange comments below the video alarmed them. “It was all gibberish,” says Shion. Then he saw Ryan typing random letters beneath videos and realized other kids were doing that too. Some of them may not have spoken English. “We noticed a huge percentage of the viewership coming from Asia,” says Shion. Ryan's channel had launched just as YouTube was spreading to Asia, and videos like Ryan's filled a void that TV had overlooked. Shion was born in Japan, and Loann in Vietnam. “For a lot of minorities,” says Mai, “YouTube was the place where you saw people like you.”

Ryan's ToysReview quickly became one of YouTube's most popular channels. By 2016, both parents had quit their jobs to make videos full time. Shion is a Cornell-educated structural engineer, which may be why he sensed the danger of having Ryan, just 5, carry the bulk of the show. He beefed up the production team to avoid burnout and had animators create characters based on Ryan's personality for more content. Shion and Loann also appear in the videos and play with toys and games on their own channel.



Car culture

In Ryan's breakout video, cars were hidden in a giant egg



Flying high

The Red Titan balloon will float in its second parade this Thanksgiving

There may be a place in which one small family can produce so much intellectual property and be left in peace, but that place is not the USA, circa 2017. Ryan caught the eye of Chris Williams, who as a former Disney and Maker Studios executive had watched media habits change in real time. "I saw linear television's ratings fall off a cliff," he says. "I saw kids and family audiences flocking to YouTube." His experience at Disney had also taught him about the power of building a franchise. "There are stars, characters and intellectual property on YouTube that have bigger audiences than the entire Disney Channel network. Why are we not thinking about them in the same way?" In 2017, he started Pocketwatch to do licensing deals with YouTube stars, and the Kajis, who had formed their own production company, Sunlight Entertainment, were among its first partners.

The move came just in time. Merchandisers were not the only ones who noticed how much content was directed at the very young. Parents, child-development experts, media watchdogs and eventually legislators did too, and many didn't love what they saw. There were videos of adults playing with toys in inappropriate ways. Some of the families on YouTube fell apart. Others seemed to be treating children badly to draw clicks.

Advertisers pulled back. YouTube removed comments sections from and kept ads off some videos. It wasn't enough. In 2019, YouTube and its parent company Google paid \$170 million to settle allegations by the Federal Trade Commission (FTC) and the New York State attorney general that it collected data about minors and violated the Children's Online Privacy Protection Act. By 2020, YouTube required creators to specify whether their videos were for kids and stopped feeding personalized ads to those that were. Many kid-centric channels lost the bulk of their revenue. But thanks to the merch deals, the Kajis sailed on. Williams says the franchise is his company's biggest earner.

RYAN'S RICHES (2020)

\$29.5 MILLION

Total revenue of the Ryan's World empire, according to *Forbes*

\$250 MILLION

Amount generated in retail sales by Ryan-themed products, according to Pocketwatch

29%

Proportion of 8-to-12-year-olds in the U.S. who want to be a YouTuber or a vlogger, according to a Harris poll

THE REFORMS MAY HAVE lessened the problem of advertising to children, but they did nothing to change the thorny fact that watching endless hours of a child opening toys is of dubious—at best—educational or social-development value. There's not much definitive research on what that kind of media diet does to a developing brain, but the small amount out there is dismaying. In a study out of the University of Colorado, Boulder, 78% of parents reported their kids watched unboxing videos on a regular basis, with almost 17% estimating it at between three and nine hours per week. "The more time a child spends watching unboxing videos," says Harsha Gangadharbatla, an associate professor of advertising, who presented the paper at a journalism conference in 2019, "the more likely they are to ask for things and throw tantrums if the parents weren't purchasing those things."

Studies have shown that children form parasocial relationships with the media figures they encounter. "They're dealing with a developing brain that is figuring out the world," says Dr. Michael Rich, a pediatrician and the director of the Boston Children's Hospital's Digital Wellness Lab. "And if one of the very powerful inputs into that developing brain is 'Look at how happy Ryan is with his toy!' of course they're going to say, 'I want that.'"

Just before YouTube and Google paid the fine, the nonprofit Truth in Advertising (TINA) filed a complaint with the FTC against the Kajis—who then changed the name of their channel from Ryan's ToyReview to Ryan's World. The group had found that Ryan played with toys that would appeal to kids 5 years of age or younger in 90% of the channel's 200 most popular videos. TINA claimed the sponsored videos were not clearly enough delineated. "Sometimes, they weren't adequately disclosing such that an adult would know, and other times, it's just the fact that this vulnerable population of toddlers cannot differentiate between organic content and ads," says



▲
Ryan and his twin sisters Kate, left, and Emma moved to Hawaii during the pandemic, partly because their parents wanted them off screens and outdoors

Bonnie Patten, TINA’s executive director. (The FTC does not talk about pending investigations.)

Williams says the Kaji family has been unfairly singled out because they offer the biggest target. He points out that they have shifted to more educational content, with science experiments and travel videos. At the same time, he is open to greater research and regulation. “I worry about the effects of all of it. Not just what we see on YouTube and other platforms, but movies and TV,” he says. “Nobody wants to do the work around researching this stuff. They just want to make proclamations: ‘Hey, it’s different from what I grew up on. It must be bad.’”

The Kajis maintain that they “follow the guidelines” for labeling their content, but, says Loann, “if I could do it over, I would try to incorporate more of the educational component right from the get-go.” A legal team screens their videos, but they do not have a child-development expert on staff.

One solution would be to take down the old unboxing videos and stop putting up new ones. After all, Sunlight Entertainment releases 25 new videos a week across its channels. But surveys show that in the U.S., “the No. 1 thing for our channel is that they still want Ryan playing with toys,” says Shion. In August, however, YouTube announced that it would remove “overly commercial content” from the YouTube Kids app and mark sponsored videos more clearly. And on Sept. 30, as Congress began to take a closer look at social media companies, Democratic Senators Edward Markey of Massachusetts and Richard Blumenthal of Connecticut reintroduced the KIDS Act, which would force sites like YouTube to stop recommending unboxing

videos for kids. YouTube declined to answer specific questions from TIME, but pointed to a raft of policies, developed with child-development experts, intended to keep young viewers safe.

Nevertheless, Pandora has already completed her unboxing. Ryan’s branded toys are everywhere. And he’s not alone. There’s a new crop of stars coming, on Tik Tok, Instagram and YouTube. Vlad, 8, and Niki, 6, Russian-born brothers who live in Florida, released their first toy figures in June. Nastya, 7, also a Russian-born Floridian, launches her dolls Nov. 15. Kidfluencers no longer have to hawk toys; they can just become them.

ANY DISCERNING VIEWER who watches Ryan’s videos notices within a minute that they don’t offer much in the way of entertainment. The production is amateurish. There’s no narrative arc. This is intentional. The Kajis are not artists; they’re parents. They started making videos, they say, because their kid wanted to and was good at it. “We don’t really do multiple takes,” says Loann. “What I get from him, that’s what I’m going to use.”

The DIY nature of the videos also mimics, they hope, what it’s like to go on a playdate. “We don’t want the viewers to watch our videos one after the other,” says Shion. “What we ideally want is kids to watch our video and then that inspires them to have an idea for what they want to do and they put down their iPad.” At the onset of the pandemic, they put up several videos of Ryan doing homework, so kids could feel like they were studying with a friend.

It’s difficult to ascertain if kids do indeed go play after watching the videos. The fact that some

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Ryan's World videos are hours long suggests that a certain amount of sedentariness is allowed, if not encouraged. Many parents loathe them; they overwhelmingly garner one-star reviews on sites like Common Sense Media. It was Ryan's World that caused Mike Lutringer, in Houston, to swear off YouTube Kids forever. When his second daughter was born and he and his wife needed to attend to her, he'd put on an educational Ryan video for his older child. "But very rapidly it'll transition over to marketing and sales and reviews," he says. "You can see how they've designed it to really capture the attention of the child."

Dylana Carlson, in Galesburg, Ill., on the other hand, says that during the pandemic, her two children would watch Ryan or another kidfluencer and then try to play the way they did. Occasionally they'd ask for a playdate with their Internet friend. "I think that they assume that they can just go meet these kids," she says. "I have thought about this stuff, like, Is that depressing? Or is that weird? But corporations pay to have a dress-up Spider-Man come to the grocery store. How is this different?" Quynh Mai, the marketer, thinks this is one of the secrets of Ryan's success. "These kids, I think, are really lonely," she says. "Ryan provides the emotional connection."

AS ONLINE FRIENDS GO, Ryan is a Hallmark-level cherub. He appears to have a bottomless vat of enthusiasm for any toy/room/situation he encounters. In interviews, he is cheerful and eager, with an age-appropriate inability to be self-reflective. He loves school, especially math! He swims, plays soccer, does tae kwon do, but gymnastics is his favorite! He hates when he can't find his lunch box! If he could have any superpower, it would be super speed! When he grows up, he wants to be a "game developer or a comedian who is a YouTuber who makes funny videos!"

During the pandemic, Loann homeschooled the kids, and when the Kajis tested Ryan to see if he had fallen behind, they found he was several grades ahead. One of the reasons they moved to Hawaii this year is for a more academically challenging school than his public school in Houston. The other, interestingly, is that they felt the kids were spending too much time on screens. In Hawaii, they take more walks, which Ryan at first found exhausting. He's also learning piano and Japanese, but he's not crazy about either.

There are two ways to look at the Kaji parents. One is that they have dragooned their offspring into living out their lives on camera to get rich. The other, the one they present, is that they stumbled into a world where their child became a star

and they tried to keep up. Ryan's onscreen ability, they say, is as big a surprise to them as to anyone. He often takes a video in a new direction during shooting, telling the editors what effects to add as he goes. "On or off camera he is the exact same way," says Shion. "He genuinely connects with his viewers." Lest anyone think that's pure parental boasting, Loann says Ryan's 5-year-old twin sisters also love making videos, but "it's not as natural to them." (Yes, they already have their own line of toys.)

The journey hasn't always been a thrill ride. In 2003, Loann spent a month in jail for shoplifting, and after Ryan got famous, her arrest record became public knowledge. The family did exactly one in-person event with Ryan, in Bentonville, Ark. Thousands of families turned out, and the resulting melee shook them up. They reject the accusation that Ryan is their workhorse. Loann cites an incident on the set of *Playdate* when Ryan hurt his

ankle. The production adjusted the scenes he'd shoot so he could sit and, after a break, kept filming. Loann agreed with the decision, but adds that "if that happens at home, we would not be filming for the next week or two." The Kajis also say that while the family will go to L.A. for a spell to shoot his shows, Ryan's YouTube videos take just a few hours a week. He belongs to local sports clubs and goes to school like other kids.

What most worries Shion are families who try to emulate the Kajis' success more recklessly. Ryan is the public face of kidfluencers, so any YouTube parent who is less than exemplary might reflect badly on him. Pocketwatch and YouTube issue manuals on how to be both parent and programmer, and Shion hints that he's trying to start a working group of YouTube families to set industry standards. He won't go into details, but says he would like more input from YouTube, especially on how families manage their finances, their kids' time and fame. After all, the platform is taking a healthy cut of the money, and the minors who have made their name on it have few legal protections. The Kajis say a portion of the revenue from the family business goes into trust accounts they've established for their children, and they have put all of Ryan's TV earnings into another trust.

There are children on YouTube now with more subscribers than Ryan. His parents seem somewhat relieved. "I don't want YouTube to be his future career," says Loann. "We really want him to do something else. We're continuing right now because he's enjoying doing it." The question remains: having found the perfect platform for their child, can they persuade him to leave it? —*With reporting by* SIMMONE SHAH *and* NIK POPLI □

'YOU CAN SEE HOW THEY'VE DESIGNED IT TO REALLY CAPTURE THE ATTENTION OF THE CHILD.'

—Mike Lutringer, father of two in Houston

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¹ Source: Global Cement and Concrete Association

² Annual global cement production in 2019: 4.1 billion tons. Source: IEA.

³ Precast industry is 30% of total. Sources: The Business Research Company & Fortune Business Insights.

⁴ Typical passenger vehicle emits around 4.6 metric tons of CO₂ per year. Source: EPA.

A teal-colored truck is shown from a side-front perspective, with a network of white nodes and lines overlaid on its body. The background is a dark, abstract space with a grid of white lines and dots, suggesting a digital or data environment. The truck's details, such as the side mirror, door handle, and fender, are clearly visible.

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¹ IEA (2017), The Future of Trucks, IEA, Paris

² IEA (2020) CO₂ emissions from heavy-duty vehicles in the Sustainable Development Scenario, 2000–2030

³ One young tree absorbs 5.9kg CO₂ per year. Source: Urban Forestry Network.



THE 1000 BEST INVENTIONS OF 2021

Every year, TIME highlights inventions that are making the world better, smarter and even a bit more fun.

To assemble our 2021 list, we solicited nominations from TIME's editors and correspondents around the world, as well as through an online application process. We then evaluated each contender on a number of key factors, including originality, creativity, efficacy, ambition and impact.

The result is a list that includes an innovative, eco-friendly dye for jeans, a truly novel pasta shape, groundbreaking vaccines for COVID-19 and malaria—and much more.

PHOTOGRAPHS BY MARGEUX WALTER FOR TIME

With reporting by Eloise Barry, Leslie Dickstein, Mariah Espada, Alejandro de la Garza, Nik Popli, Simmone Shah and Julia Zorthian



BEAUTY

SKIN CARE ON DEMAND

Opulus Beauty Labs Treatment System

Dr. Robb Akridge, who invented the Clarisonic face-cleansing brush 17 years ago, found inspiration for his latest beauty creation in a chocolate shop in Paris. “Most of the chocolates were individual morsels,” he says, “and each created an experience that could only be achieved at the time you bit into them.” Why couldn’t skin care be the same, he wondered. Now it is. Think of the Opulus Beauty Labs Treatment System (\$395) as a Nespresso machine for skin care—minus the plastic waste. Customers place a small paper pod, which includes two formulations, into the water-bottle-size device, which heats up to mix the formula and deliver a single-use dose of skin-care product, to be applied immediately when it is warm and more easily absorbed by the skin. Opulus currently offers a retinol treatment, and with a recent \$8 million infusion of cash from investors, more treatments are on the way.

—Taylor Bryant



EDUCATION

TEACHING KIDS TO CODE

Sphero indi

At its most basic level, coding is a matter of problem solving and pattern recognition. Sphero indi teaches both—no screen required. Instead, kids as young as 4 use different-colored silicone tiles to move a robotic car from point A to point B—green tiles increasing its speed, pink tiles telling it to turn 90 degrees left, purple tiles telling it to spin and dance, and so on. “We really wanted to take these abstract concepts and bring them into the physical world,” says Jeff Wiencrot, one of the principal engineers who worked on the product. A student kit priced at \$124.99 includes the car and 20 colored tiles to help kids make programming-based puzzles. —Chad de Guzman



DESIGN

Comfy kicks for health care workers

Clove sneakers

The average health care worker spends more than five hours of their workday standing. The Clove sneaker (\$129), created specifically for those who tend to patients, provides some much needed foot therapy for doctors, nurses and more. Thick EVA (ethylene-vinyl acetate) foam midsoles offer an extra layer of comfort and stability. The shoes are wrapped in Japanese Clarino artificial leather, making them easy to clean and fluid-resistant so they're less susceptible to damage from exposure to hospital chemicals (or bodily fluids) that may deteriorate lesser sneakers. Thanks to high-rebound, supportive and machine-washable insoles, the sneakers fight odors and prevent bacteria buildup too.

—Jenna Caldwell



ENTERTAINMENT

DIGITAL DRUMS, AUTHENTIC SOUND

Roland VAD706 V-Drums Acoustic Design Electronic Drum Kit

What if notoriously noisy drum kits could be rendered neighbor-friendly without compromising sound quality? Electronic-musical-instrument manufacturer Roland finally achieves its long-held goal with its latest offering, the VAD706 V-Drums. By encasing ultra-sensitive digital drum pads in full-size wooden and metal shells, Roland has created the first electronic kit with the look, tone, feel and response of an acoustic set—even if you're playing with headphones on. Released last summer, it's a premium product with a premium price tag (\$7,999), but already has some high-profile converts, including Journey and Duran Duran. —Eloise Barry



MEDICAL CARE

A PUBLIC-HEALTH BREAKTHROUGH

Mosquirix malaria vaccine

Malaria has long been a global scourge, killing some 500,000 people a year, more than half of them children under 5. But that may be about to change, thanks to the introduction of a malaria vaccine—the first vaccine ever against a parasitic infection. The shot has been in the works since 1987, at a cost of more than \$750 million, mostly funded by the

Bill and Melinda Gates Foundation and GlaxoSmithKline. Dubbed Mosquirix, it was recommended for approval by the World Health Organization in October, after a field trial involving 800,000 children in Ghana, Kenya and Malawi. The four-dose regimen was found to cut the risk of infection by 40% and the risk of severe infection by 30%. —Jeffrey Kluger

CONSUMER ELECTRONICS

Frames for digital art

Infinite Objects NFT Video Print

Sales of nonfungible tokens (NFTs), which allow people to buy and sell the rights to unique pieces of digital art, topped \$10 billion in the third quarter of 2021—and Infinite Objects lets you hang them on your real-life wall. Joe Saavedra, a Parsons School of Design grad, had the idea of embedding short video loops in Lucite-encased LCD screens when he launched Infinite Objects in 2018 (before NFTs went mainstream, the tech enabled artists to sell limited editions of digital works). Users can also upload their own video clips to “print” as moving wall art. “It brings back video collecting, which we haven’t really done since DVDs and VHS,” Saavedra says. —Don Steinberg



WELLNESS

A REFINED RINSE

Quip mouthwash

Using mouthwash may not be as important as brushing and flossing, but a daily rinse can kill bacteria in your mouth, strengthen your teeth and help prevent gum disease. Still, about 40% of Americans didn’t use mouthwash in 2020, perhaps because of the “burn” associated with it—though the look of the bulky plastic bottle on their bathroom sink probably didn’t help either. Quip, best known for its stylish



electric toothbrushes, has launched a similarly sleek, refillable dispenser—“It lives front and center in the bathroom to remind you to rinse every day,” says Simon Enever, the company’s co-founder and CEO—filled with mouthwash formulated to avoid that nasty burning sensation. But the company isn’t just trying to encourage better oral hygiene. The product comes in a concentrated formula in 100% recyclable bottles that are much smaller than the average plastic mouthwash container—so it’s better for the environment, not just for your mouth.

—Amy Gunia

CONSUMER ELECTRONICS

The on-the-go workstation

Espresso Display

Laptops make it possible to work from anywhere, but the small screens can be a pain for those who need to hop between multiple applications or are used to having more than one monitor on their desks. “There’s only so much you can do on a 13-in. screen,” says Will Scuderi, co-founder of Espresso, maker of the Espresso Display (from \$329). Made from aeronautical-grade aluminum and just 0.2 in. thick, the monitor easily slides into most any backpack and can turn a laptop, or even a smartphone, into a robust workstation. —Alison Van Houten



ACCESSIBILITY

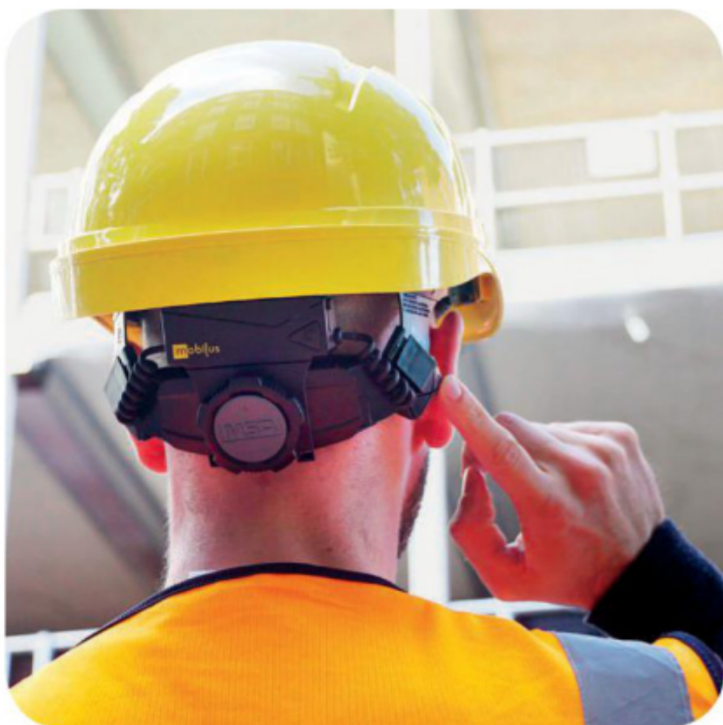
THE SPACE-SAVING WHEELCHAIR

Revolve Air

Former Ferrari designer Andrea Mocellin knows how to make things move fast. Now he’s applying his skills to an even more gratifying project: building a better, more travel-friendly portable wheelchair. The Revolve Air’s hexagonally structured, puncture-proof wheels fold up, allowing the chair to take up 60% less space than a standard

folding wheelchair, so it fits in an airplane’s overhead compartment. Mocellin’s next speed challenge: getting the Revolve Air (from \$2,500) out by mid-2022 to the nearly 12,000 customers on his waiting list. “Basically, they’re telling me, ‘Do it as soon as possible, because we need it,’” Mocellin says. —Jesse Will





CONNECTIVITY

Bone-conduction communication

Mobilus Labs mobiWAN

When your environment makes listening challenging, mobiWAN helps you communicate—by directing voice calls through your head. The headset speaker and microphone, created by Mobilus Labs, works through bone-conduction technology, transmitting sound as vibrations in the wearer's skull. This allows workers to remain in communication with one another in conditions that are too noisy or chaotic to allow speaking over a phone or radio—think construction sites or a ship in a howling storm. “You can still hear someone talking clear as day,” says Jordan McRae, founder of Mobilus Labs. The headset (\$490 per year for hardware and software license) launched in October, though the company has been testing it with the British Army and National Health Service. —Alejandro de la Garza



SUSTAINABILITY

SMARTER FARMING

SupPlant

Growing crops in drought-impacted areas means striking a tricky balance between conserving water and ensuring crop yields. Israeli agritech company SupPlant has created an AI-enabled sensor, placed in the soil and on the plants themselves, that informs farmers exactly when and how much to water, based on an algorithm that calculates plant needs, soil moisture, climate conditions and weather forecasts. It is currently used by farmers in 14 countries, and tests in Mexico found it reduced water consumption for a mango crop by 15% while increasing yields by 20%, according to company data. —Aryn Baker

ROBOTICS

A COMPASSIONATE COMPANION

Robin the Robot

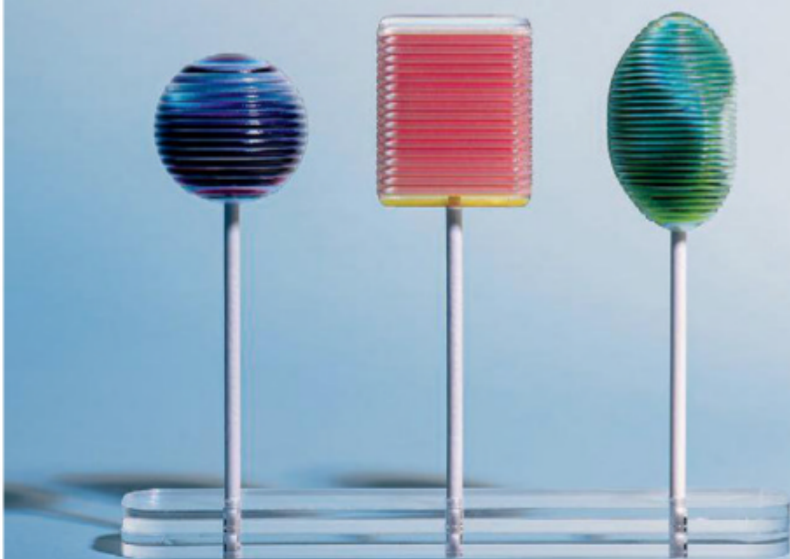
When an 8-year-old pneumonia patient at a clinic in Armenia had barely eaten for two days, the medical staff brought a new face into her room: Robin the Robot. After about 20 minutes of discussing favorite animals and playing a game of I Spy, Robin said goodbye, vowing to return only if the patient promised to eat. Sure enough, she dug in. With big, googly eyes and a cheerful personality, Robin is an AI-based companion designed to ease anxiety and loneliness among children in hospitals and clinics. “The goal was to create a technology that’s not just a device—but a peer and friend,” says entrepreneur Karen Khachikyan, Robin’s proud parent. The robot is like a real-life Pixar character that can recognize a child’s emotions and respond based on stored memory, even explaining medical procedures in a simple way. Robin is being used in 12 facilities worldwide and is set to be deployed in another 100 in the U.S. over the next 12 months. —Nik Popli

EXPERIMENTAL

Digital gets physical

Illusory Material

Everything from houses to pharmaceuticals can now be 3-D-printed, but the inventors behind Illusory Material are aiming even higher—their goal is “to create things that were previously impossible to bring into the physical world,” says co-founder Honghao Deng. Illusory’s device prints colors and patterns beneath a layer of tiny digital lenses that cause a material’s appearance to change based on the viewing angle—think hard materials that appear soft, or “blank” packaging that only displays information about the contents when picked up. The tech, Deng says, could be used to create innovative apparel, medical braces and more. —Simone Shah



AI

AUTOMATED INSPECTIONS

Percepto AIM

The 2018 Camp Fire in Northern California, the deadliest in the state’s history, was caused by a worn hook on a transmission tower—a faulty part that might have been caught had there been more frequent inspections. To prevent similar occurrences, the robotics manufacturer Percepto developed AIM, a software program that uses drones and robots



TRANSPORTATION

SELF-DRIVING DELIVERY

Nuro R2

Someday in the near future, your pizza order might arrive at your door courtesy of a robot—specifically, the R2 delivery system, an electric self-driving vehicle developed by San Francisco-based Nuro. About the size of a golf cart, the R2 is equipped with 360-degree cameras, short- and long-range radar and ultrasonic sensors, and is capable of speeds of up to 25 m.p.h. The vehicle is designed to solve a longtime problem for shippers: last-mile delivery—that is, the point at which goods are brought from distribution centers to their ultimate destination—which tends to be the most logistically tricky, because individual items need to go to different addresses, which can involve a lot of trucks, drivers and stops. Nuro has partnered with Domino's, FedEx and Kroger in Houston to test the R2 in real-life traffic conditions; they're also on the road in Phoenix and in Mountain View, Calif. —Jeffrey Kluger



BEAUTY

A more sustainable wash

L'Oréal Water Saver

As climate change disrupts the global water supply, every industry needs to reduce consumption. For hair salons, which use thousands of gallons a day, one solution is L'Oréal's Water Saver, which was unveiled in January and is now being rolled out to salons in free pilots. The system, which attaches to sinks, has three slots for normal shampoos, conditioners, and treatment, which are distributed directly into the water stream. The Water Saver then creates micro-ionized droplets by colliding them together in a highly pressurized stream, creating water particles that are 10 times smaller and reducing overall consumption by as much as 80%. —Ciara Nugent



to inspect and monitor infrastructure like power lines, industrial sites, power plants, refineries, and mines more efficiently and safely—and importantly, more frequently. The software automates a fleet of drones and robots on a routine,

then takes the data and makes sense of it. “With better foresight, we might be able to prevent these environmental tragedies that seem to be happening on a monthly basis,” says Percepto CEO Dor Abuhasira. —Jesse Will

SOCIAL GOOD

Grid-free electricity

Reeddi

Unreliable electricity was a chronic problem during Olugbenga Olubanjo's childhood in Ibadan, Nigeria. In fact, according to the World Bank, 85 million Nigerians still lack access to grid electricity, making it the country with the largest energy-access deficit in the world. That's the issue that Olubanjo set out to address with Reeddi, a compact and portable solar-powered battery that people can rent—for 50¢ a day—to charge their devices, including laptops and televisions. The battery provides 200 watts per hour of energy and can be picked up from corner stores in Lagos. Following their return, empty batteries are collected and recharged by Reeddi. “Our aim is to accelerate access to clean energy in energy-poor regions of the world,” Olubanjo says. Currently, 600 households and businesses in Lagos use the product every month, and the company plans to expand further in Nigeria before taking the products to other nations in Africa and Southeast Asia. —Abhishyant Kidangoor





FOOD & DRINK

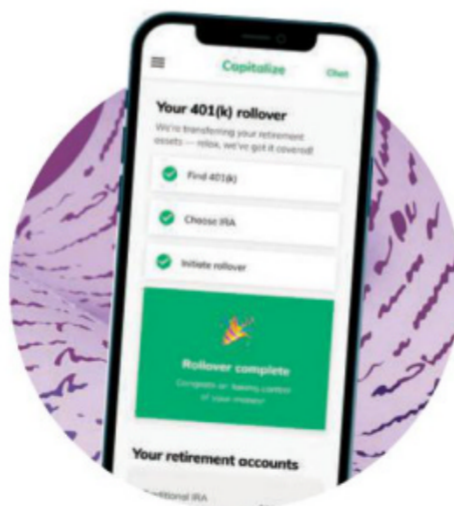
Catch of tomorrow***Kuleana tuna***

Tasty and nutritious plant-based alternatives for meat and chicken have been available for years. But seafood? Not so much. That's the void that Kuleana is trying to fill with its 100% plant-based, sushi-grade, ready-to-eat tuna made from ingredients including algae, koji (a fungus that grows in East Asia), radish, bamboo and potato. Deep red in color and designed to be prepared as sushi, nigiri, carpaccio, poke or ceviche, the alt-tuna retains the iron, vitamin B12 and omega-3 fatty acid of the real thing—without the microplastics, mercury or high cholesterol. And the benefits are more than nutritional—it may also help to alleviate reliance on industrial fishing in the face of increasing demand for fresh food. The product is currently available at select markets in Los Angeles, restaurants in the Midwest and Poké Bar locations nationwide, with a wider rollout via e-commerce slated for the near future. Next on the menu: high-quality, sushi-grade, plant-based salmon. —Sanya Mansoor

FINANCE

RECOVERING SAVINGS***Capitalize Online 401(k) Rollover Platform***

Millennials change jobs often, and when they do, many neglect to bring along their 401(k)s, put off by the hassle of long phone queues and locating obscure documents. Gaurav Sharma co-founded Capitalize to make the process less arduous. Simply enter the names of former employers or retirement-account providers, and Capitalize does the rest—unearthing accounts, handling paperwork and suggesting IRAs where old money can make new gains. Since launching in 2020, the free service—it makes money through referral bonuses when customers set up IRAs—has helped tens of thousands of users roll over millions of dollars. —Abby Vesoulis



ENTERTAINMENT

AWARD-WINNING TELEVISION***LG C1***

If you want to know what the best of the best of the best feels like, sit in front of an LG C1 for an hour. The 4K OLED television's display ditches LCD TVs' traditional backlit design, opting instead for pixels that create their own light, resulting in gorgeous colors, crisp images and striking contrasts, even in low-light scenes. The C1 series (from \$1,099) also offers a high-speed 120 Hz refresh rate and support for

gamer-friendly features like AMD FreeSync and NVIDIA G-SYNC, making it one of the best options for pairing with the new Xbox Series X or PlayStation 5 consoles. No wonder it was the year's best-selling premium TV—the C1 series even won a Technical and Engineering Emmy in January, as they're often used as reference monitors for movie production and optimization.

—Patrick Lucas Austin

BEAUTY

Dual-purpose skin care***Supergoop! Daily Dose Vitamin C + SPF 40 Serum***

Vitamin C skin-care products, which are proven to help fade dark spots and even out skin tone, are more popular than ever. But after surveying customers, Supergoop! founder Holly Thaggard found few users were aware that the active ingredients in vitamin C treatments are rendered ineffective by the sun and, as a result, need to be paired with an SPF. "We wanted to create a formula that could solve that problem in one fell swoop," she says. Combining the two is harder than it sounds: both SPF and vitamin C require specific pH environments in order to stabilize, Thaggard explains, which makes them difficult to formulate together. Making the final result scentless and transparent also proved tricky. The Daily Dose Vitamin C + SPF 40 Serum (\$46) took more than three years and 15 iterations to perfect—but it's since become the brand's most successful direct-to-consumer product launch to date. —Taylor Bryant



Chronic pain can make
a new day seem daunting.



Our pain management
technology gives you relief.

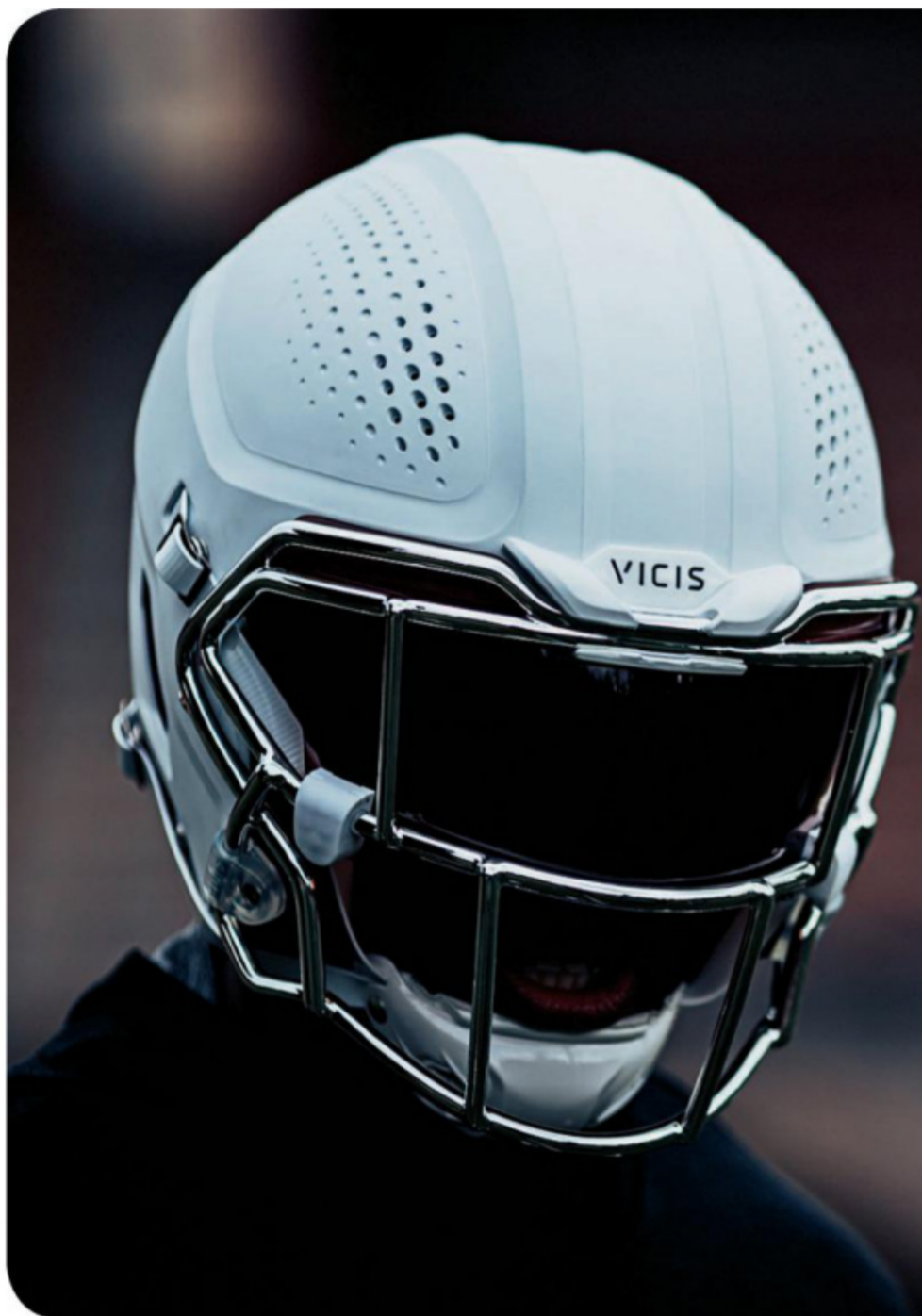
The burden of chronic pain can limit everyday life.
Abbott's neurostimulation system changes the signals that
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Dignity demands that you can live each day to its full potential.
So it demands life-changing technology from us.

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FITNESS

The head protector*VICIS Zero2 Trench*

In college and pro football, offensive and defensive linemen crash helmets when the ball is snapped, resulting in more than twice as many head impacts during games as other players sustain. The Zero2 Trench from VICIS is the first position-specific helmet approved for in-game use in the pros. Engineers added an extra layer of protection, a force-absorbing outer shell made of deformable plastic, to the front of the helmet, where linemen are more likely to get hit. In its annual ratings of a football helmet's ability to reduce concussion risk, Virginia Tech gave the Zero2 Trench (\$799–\$999) its top score. VICIS says some 50 to 60 top college programs, and 30 out of 32 NFL teams, have put in orders for the helmet. —Sean Gregory



PARENTING

THE HIDDEN BREAST PUMP*Elvie Stride*

The bulky designs and battery packs of most breast pumps seriously curtail a nursing mother's mobility. Not so with the Elvie Stride (\$210), a pump that can be worn under clothing with integrated cups that fit into a bra. "We found that most pumps on the market had bad architecture and big motors," says Tania Boler, inventor of the Stride. The device pairs with an app that can remind users which side they've recently pumped. Covered by many insurance providers, the Stride also offers a higher level of suction (270 mm of mercury, a measurement of vacuum pressure) than other wearable pumps. —Jesse Will

SUSTAINABILITY

Blue jeans go green*Huue*

Jeans are a perennial fashion favorite, with more than 4.5 billion pairs sold every year. But their synthetic indigo dye takes a toll on the environment, contaminating water with toxic chemical runoff. Biotechnology company Huue has specially engineered bacteria that turns natural sugars into indigo-identical dye—without the environmental impact—by mimicking how enzymes in plants create colors. In September, the company partnered with the cell-programming platform Ginkgo Bioworks to scale up production, and plans to start shipping to denim designers by the end of the year. —Aryn Baker



SOCIAL GOOD

HELP FOR THE HUNGRY*Bento*

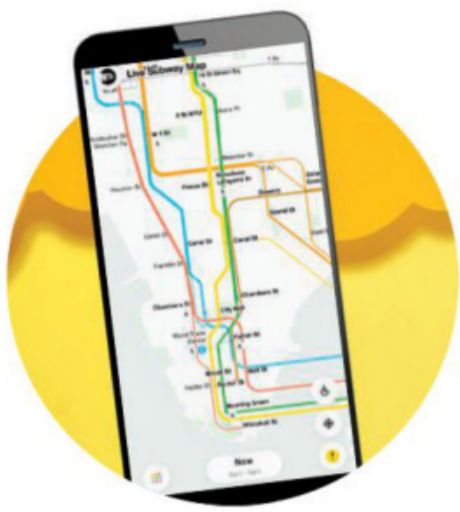
When Mick Ebeling set out to tackle the food-insecurity crisis that affects 1 in 8 Americans, he envisioned something useful and convenient that could also protect users' dignity. The answer: cell phones—more specifically, a text-messaging service called Bento that partners with local organizations and government agencies to enroll people in need of food assistance. Once signed up, users can text "hungry" to a number associated with the service. They can then select a no-cost meal from nearby participating restaurants, which process Bento orders as they would any other—allowing users to pick up their meals without drawing attention to their situation. Bento has provided 150,000 healthy meals since its launch in March 2020, Ebeling says. —Guadalupe Gonzalez



HOLIDAY PARTY



YETI®



APPS & SOFTWARE

RELIEF FOR STRAPHANGERS

MTA Live Subway Map

Even diehard New York City subway devotees will admit that keeping up with service changes on the system's 36 lines and 472 stations is nearly impossible. But now there is hope: the new MTA Live Subway Map is a web-based visualization that shows subway service in real time, redrawing itself when lines or stations are down or trains are running on alternate lines. Created in partnership with digital agency Work & Co, the map is a design feat, retaining the iconic, four-decade-old look while bringing it up to the minute with live data. "What you're seeing is actually the current state of the subway—you don't need to read all those posters anymore," says Work & Co design partner Felipe Memoria. —*Jesse Will*



SUSTAINABILITY

The carbon cutter

Watershed

Plenty of companies want to cut their carbon footprints, but it's hard to know where to begin. Watershed can help. The company collects data from every corner of a client's business that generates emissions—from supply chains to electricity usage to the commuting patterns of its workforce. The data is plugged into software that gives clients like Sweetgreen and Shopify a dashboard view of where the emissions are highest. Watershed's climate-strategy team then helps create a comprehensive footprint-reduction plan. —*Leslie Dickstein*



PRODUCTIVITY

FREEDOM FROM DISTRACTION

TimeChi

Chatty colleagues and social media disrupting your workflow? Sean Greenhalgh faced the same problem at his previous job as a product manager in Sydney. "I

did my best work after everybody left, and that was utterly unsustainable," he says. The experience prompted him to dig into a time-management method he had read about and combine it with his expertise in technology. The result: TimeChi. With the click of a button, this mouse-size desk gadget (\$129) enables a do-not-disturb feature on your devices and apps. Should



a colleague wander over to visit you at your desk, the TimeChi displays a light to let them know, politely, that you are trying to focus. “It acts like a traffic light,” says Greenhalgh, whose goal is to help people increase their productivity and prevent burnout—something more than half of U.S. workers say they experienced in 2021.

—Abhishyant Kidangoor

TRAVEL

Weightlessness awaits

New Shepard

On Oct. 13, the actor William Shatner and three others boarded a rocket and were shot 62 miles into the sky, to the edge of Earth’s atmosphere, heralding a new era of commercial space tourism. Captain Kirk’s vessel: the New Shepard rocket, a nimble, 59-ft.-tall booster and capsule designed and built by Blue Origin, the aerospace company founded by former Amazon boss Jeff Bezos. The rocket has so far carried two crews of space tourists on brief, 11-minute hops to space. It uses clean-burning liquid oxygen and hydrogen fuel and is entirely reusable, with

the capsule portion descending by parachute and the booster portion returning to Earth under its own engine power and landing upright. Interested in blasting off yourself? Unfortunately, Blue Origin has not yet announced a price for New Shepard tickets or a date when they will be publicly offered. —Jeffrey Kluger



TRAVEL

A MORE COMFORTABLE HAMMOCK

ENO SkyLite

More backpackers, eager to shed weight from their gear, are opting to leave their tents and sleeping pads in the garage and pack a hammock and a tarp instead. Think of the Eno SkyLite, created by Eagles Nest Outfitters, as the five-star hotel of hammock camping. Unlike traditional hammocks that sag, the SkyLite features two removable,

lightweight aluminum bars on either side that hold the hammock together like a bed frame, offering a flat and supportive sleeping platform. Other features include a mesh canopy and a built-in bug net; its attached compression sack doubles as an easily accessible pocket that’s big enough for a phone, a flashlight and more. —Jared Lindzon



APPS & SOFTWARE

THE 911 ALTERNATIVE

Subdial

Americans know to call 911 when dealing with an emergency. But whom do you call when neither law enforcement nor paramedics are the right choice for the problem at hand? Griselda Viteri, then a finance manager at the design firm Big Human, came up with a solution: Subdial, a free app offering direct access to resources that can help users with issues relating to mental health, domestic violence, hunger and more. On the app, users can view cards that contain information about local and national resources relevant to their situation. The cards include phone numbers—with the option to immediately place a call—and directions to organizations' physical locations, as well as links to their websites. The app's database has more than 1,000 resources, all vetted and verified by the Subdial team.

—Jason Cipriani



AR & VR

Powering the Metaverse

Qualcomm Snapdragon XR2 Platform

With tech companies like Meta—previously known as Facebook—going full steam ahead on augmented and virtual reality (AR/VR), or what some call the Metaverse, the need for high-speed mobile processors capable of running AR/VR applications is obvious. Enter Qualcomm's XR2 processor, the first mobile AR/VR chip with 5G broadband connectivity, which enables high-speed AR/VR processing even on the go. Already being used in AR/VR headsets from Meta, HTC and others, the XR2 is not just fast—tracking technology lets users move freely around a space, meaning headsets using the chip don't need cumbersome wires that can interrupt the experience. If the Metaverse is indeed our future, tech like the XR2 will help get us there.

—Patrick Lucas Austin



CONSUMER ELECTRONICS

A SPEAKER THAT READS THE ROOM

Syng Cell Alpha

Syng founder Christopher Stringer spent 22 years at Apple, where he helped design the iPhone, iMac and other iconic products. Now he's hoping for another hit with his Cell Alpha (\$1,799), a wireless, design-forward speaker that produces audiophile-quality sound. During setup, the Cell Alpha—which resembles *Star Wars'* Death Star—uses tones and microphones to calibrate itself to the shape and acoustics of the room it's in for maximum aural quality. Then bass-booming woofers and drivers emit a sound that seems to come from all directions. Move it, and it'll automatically perform a new sound check; if you have two, they'll calibrate to each other.

—Don Steinberg

TRAVEL

A MORE PEACEFUL FLIGHT

JetKids BedBox

Goal No. 1 when flying with a toddler: get them to fall asleep. The JetKids BedBox (\$199), a carry-on suitcase that converts into a seat extender with a comfy mattress on top, makes that a little more likely. Even if you're in coach, kids 2 or older can use it to lay flat—just like those grownups in first class. An engineer and former airline pilot, Halvor Holmgren dreamed up the product while traveling

with his 6-month-old, building an ad hoc bed with his crew bag and a few blankets. "I told my wife as a joke, 'I'm going to make this for real,'" he says. Unlike that initial experiment, the BedBox has wheels, which means your kid can ride atop it as you rush to the gate. The 7-lb. carry-on has already been approved by carriers like American Airlines and Delta Air Lines.

—Jesse Will



HOME HEALTH

A FINE-LOOKING FILTER

Mila

Amid growing concerns about airborne diseases and pollution, sales of home air purifiers are surging. But while high-efficiency particulate air (HEPA) filters have been shown to reduce most bacteria and a bevy of fine airborne particles, there is at least one problem: "Most air purifiers look like refrigerators sitting in the corner," says Grant Prigge, CEO and co-founder of Mila. So Prigge set out to make something that looks as good as it performs. His company's eponymous purifier (\$349) not only boasts sleek midcentury-modern aesthetics but also includes a slew of consumer-friendly features not found on competing models, including a radar detection system that senses when people are present and turns down the noise. Backed by Electrolux and Vulcan Capital, Mila also sells a subscription-based menu of filters (from \$59) tailored to pet owners, home renovators, the allergy-prone and more.

—Alison Van Houten



WELLNESS

Never miss a dose

Emme Smart Birth Control System

The birth control pill is 99% effective when taken each day at the same time. But it's easy to miss a dose, so for most users, efficacy drops to 91%—which means nearly 1 million U.S. women a year have unplanned pregnancies, despite being on the pill. The health-tech company Emme has developed a Bluetooth-connected smart case (\$99) that works with more than 100 different

brands of birth control pills. The case syncs with an app that increases accountability by sending custom reminders to take the pill, follows up if users don't remove a pill from the case, offers pill delivery, and lets users track their cycle and mood. Emme reported an 80% reduction in missed pills among its customers during beta testing.

—Abigail Abrams



FITNESS

High-tech training***Tonal***

When hardware engineer Aly Orady decided to lose weight, he devoured research about the science of strength training to figure out how to build muscles and shed pounds more effectively. His fitness journey led him to develop Tonal, a wall-mounted digital weight system that uses electromagnetic resistance rather than traditional metal plates, allowing users to change weight resistance with a tap on a screen. Tonal collects heaps of user data—about how much you can lift, at what pace and so on—to customize workouts. And unlike other high-tech exercise machines, it alters workouts in real time based on your performance, as a personal trainer would. That's led athletes like Serena Williams, Stephen Curry, and LeBron James to sign on as endorsers and investors. All told, Tonal has raised about \$450 million in venture capital and was valued at \$1.6 billion in early 2021. Tonal costs \$2,995 and requires a yearlong \$49 monthly membership. —
Guadalupe Gonzalez



CONNECTIVITY

MESSAGING THAT MAKES SENSE***In-telligent BuzzBell***

A text from your spouse whose car has broken down is a lot more important than, say, a friend sending a cool video. But while you can designate different tones for different callers, your phone otherwise treats all messages the same. BuzzBell changes that. It's a messaging platform that lets you give approved senders the ability to assign different levels of urgency to messages—a gently vibrating buzz for the moderately important and an audible bell for those you can't ignore; both notifications bypass the recipient's mute settings. Recent world affairs opened up a gap in the market. "When the pandemic hit, and people were quarantined and isolated, the ability to get a hold of people urgently became much more meaningful," explains Allan C. Sutherland, In-telligent's founder. The free app has grown to nearly 100,000 users. —*E.B.*



TOYS & GAMES

GAMING GOES OLD-SCHOOL***Playdate***

While the PlayStation 5 and Xbox Series X chart gaming's future, Playdate aims to explore different territory. Created by Oregon-based startup Panic, the bright yellow handheld device (\$179) sports a black-and-white 2.7-in. screen, with a three-button control scheme reminiscent of Nintendo's iconic Game Boy. What's more, in a world in which games increasingly resemble multimillion-dollar blockbuster movies, Playdate plans to release "seasons" of modest, independently developed games to all owners. As with the Xboxes and PlayStations of the world, the Playdate is in high demand: Panic reportedly sold 20,000 devices in 17 minutes ahead of its fall launch. New orders won't be available until sometime in 2022, the company now says.

—*Peter Allen Clark*

DESIGN

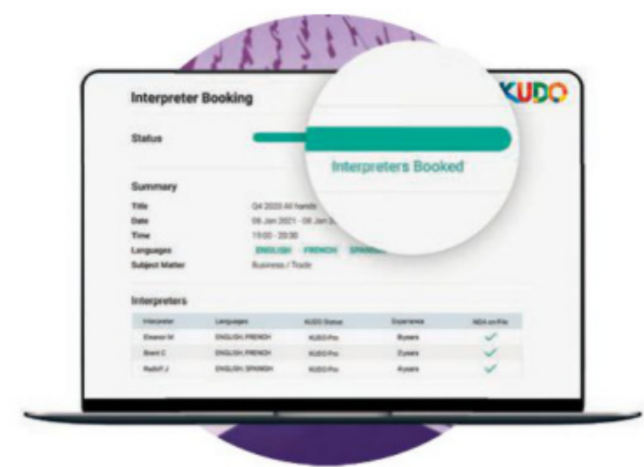
A MORE ACCURATE WORLD MAP

Gott-Goldberg-

Vanderbei Projection



In 1569, when Flemish cartographer Gerardus Mercator flattened the earth's cylindrical surface onto paper, he gave sailors the tools to navigate ocean voyages. But he also distorted the size of countries nearest the poles—North America appears abnormally large, for example. Despite the inaccuracies, the Mercator projection became the norm, and was even the basis of Google Maps until as recently as 2018. Astrophysicist J. Richard Gott, along with colleagues David Goldberg and Robert Vanderbei, set out in 2019 to fix the inaccuracies and came up with a double-sided map that is similar to a vinyl record in shape. It improves geographical parity between continents, finally representing the southern hemisphere as fairly as possible on paper. The map is free to access online, and the scientists are working with publishers to make it widely available for sale in the future. —*Eloise Barry*

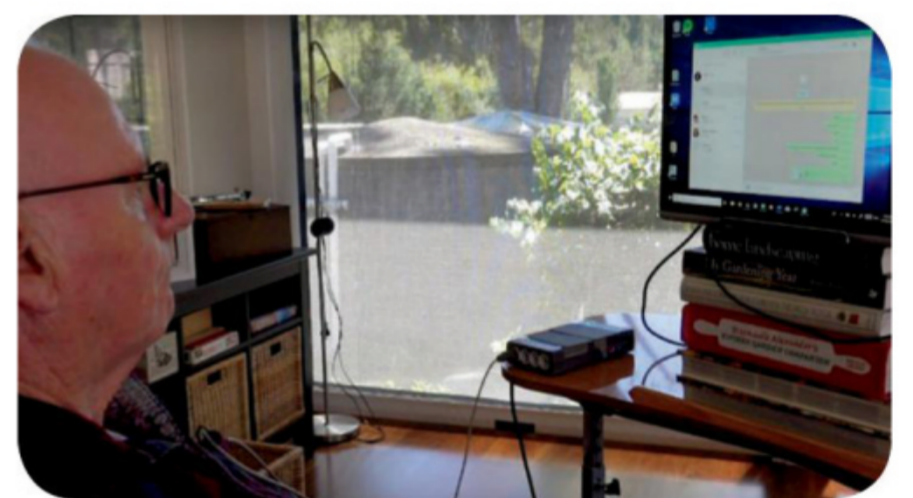


CONNECTIVITY

Multilingual meetings made easy

Kudo Marketplace

Online videoconferencing can make it easy to connect with people all over the world—provided, of course, that everyone speaks the same language. Kudo Marketplace, a scheduling tool tied to a Zoom-like platform, takes care of that. The system, launched in January, lets meeting hosts book skilled human interpreters, fluent in more than 90 spoken and 147 sign languages. Once the meeting begins, attendees simply go to a pull-down menu and select their preferred language. Clients include Microsoft, Etsy and U.S. government agencies. Booking time isn't cheap, though: 30 hours of interpretation runs about \$3,000. —*Alejandro de la Garza*



EXPERIMENTAL

MIND-CONTROLLED COMPUTING

Synchron Stentrode

Watching a video demonstration of Synchron's Stentrode in action feels like watching something out of a science-fiction movie. A man sits at his computer, writing emails, texting and searching the Internet—but he never touches a key. Instead, he operates the machine with only his thoughts. Intended for people with paralysis, the Stentrode system digitizes signals generated by the part of the brain that controls movement, translating them into commands that a computer (equipped with the right software) can execute. So far the device, which remains in the experimental stage, has proved successful for two people with ALS, and the Food and Drug Administration has given its sign-off for a larger study in the U.S., bringing the technology one step closer to widespread use. —*Jamie Ducharme*



CONSUMER
ELECTRONICS

ATTACHABLE AUDIO

JLab JBuds Frames

Audio eyewear—that is, specs equipped with speakers—is undeniably useful for glasses wearers. The problem: most options require you to commit to a single pair of readers that can cost as much as \$250. JBuds Frames (\$49) are an affordable alternative—a pair of wireless attachments that slide onto the arms of almost any pair of glasses, transforming them into a set of open-ear headphones. They’re easily swapped if your lenses become scratched or if you simply want to change up your look. Whatever the case, they direct sound into your ear without masking your surroundings or annoying your neighbors (unless you really crank it up).

—Alison Van Houten

TRANSPORTATION

WIRELESS IN-ROAD CHARGING

ElectReon

What if electric vehicles (EVs) could be charged by the very streets upon which they drive? That’s the idea behind ElectReon, an Israeli firm developing an in-road inductive charging system that powers EVs via electrical fields generated by coils under the asphalt, similar to how a wireless charger juices your phone. In part, the company’s goal is to allow EVs to carry smaller batteries—or, perhaps, none at all—thereby making them lighter and more efficient, as well as reducing the environmental costs of battery production. “Everyone is trying to improve the battery; we started to think about removing the problem,” says co-founder and CEO Oren Ezer. The company is conducting tests in Germany, Italy and Sweden, and in October inked a \$9.4 million deal to charge electric buses in Tel Aviv. —Alex Fitzpatrick



AI

A fix for film dubbing

Flawless AI TrueSync

The process of dubbing a film into a foreign language hasn’t changed much over the past century. When a movie is dubbed, the dialogue often gets changed to fit an actor’s mouth movements, which leads to two big problems: first, the new dialogue never really fits; and second, even skillfully altering a script can wind up sacrificing a film’s meaning and nuance. To address those issues, Flawless AI, founded by former film director Scott Mann, has created software

called TrueSync, which analyzes the entirety of an actor’s performance and then subtly alters the original footage of the actor’s face and mouth movements to fit any vocalization. So when you see *A Few Good Men* in, say, French, Jack Nicholson’s mouth really looks like it’s speaking the language. The end result, according to Mann: “We’re going to get to enjoy and experience content from abroad in a way that we’ve never been able to before.”

—Jesse Will

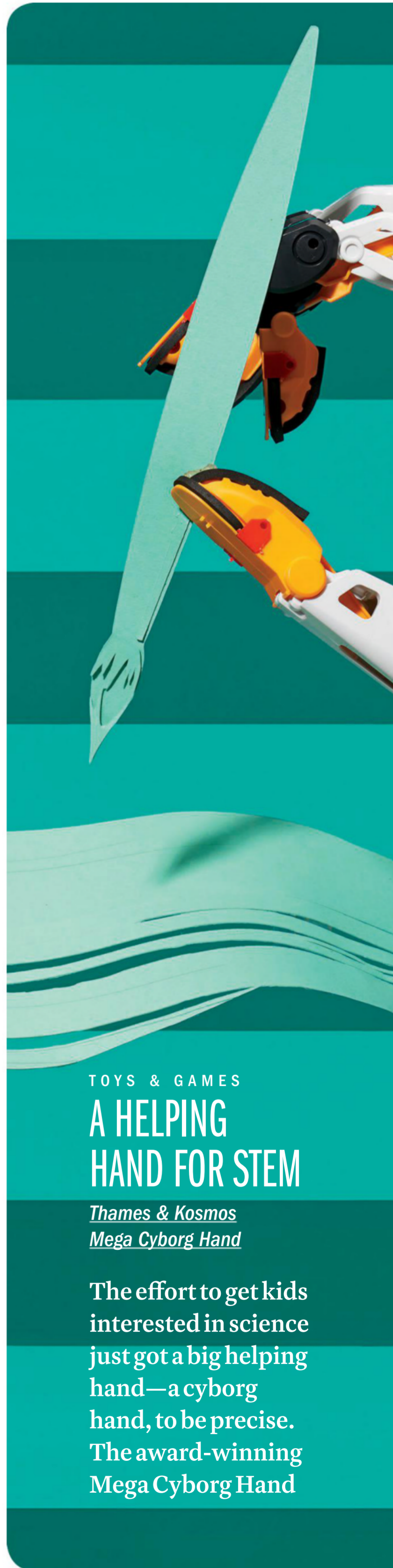


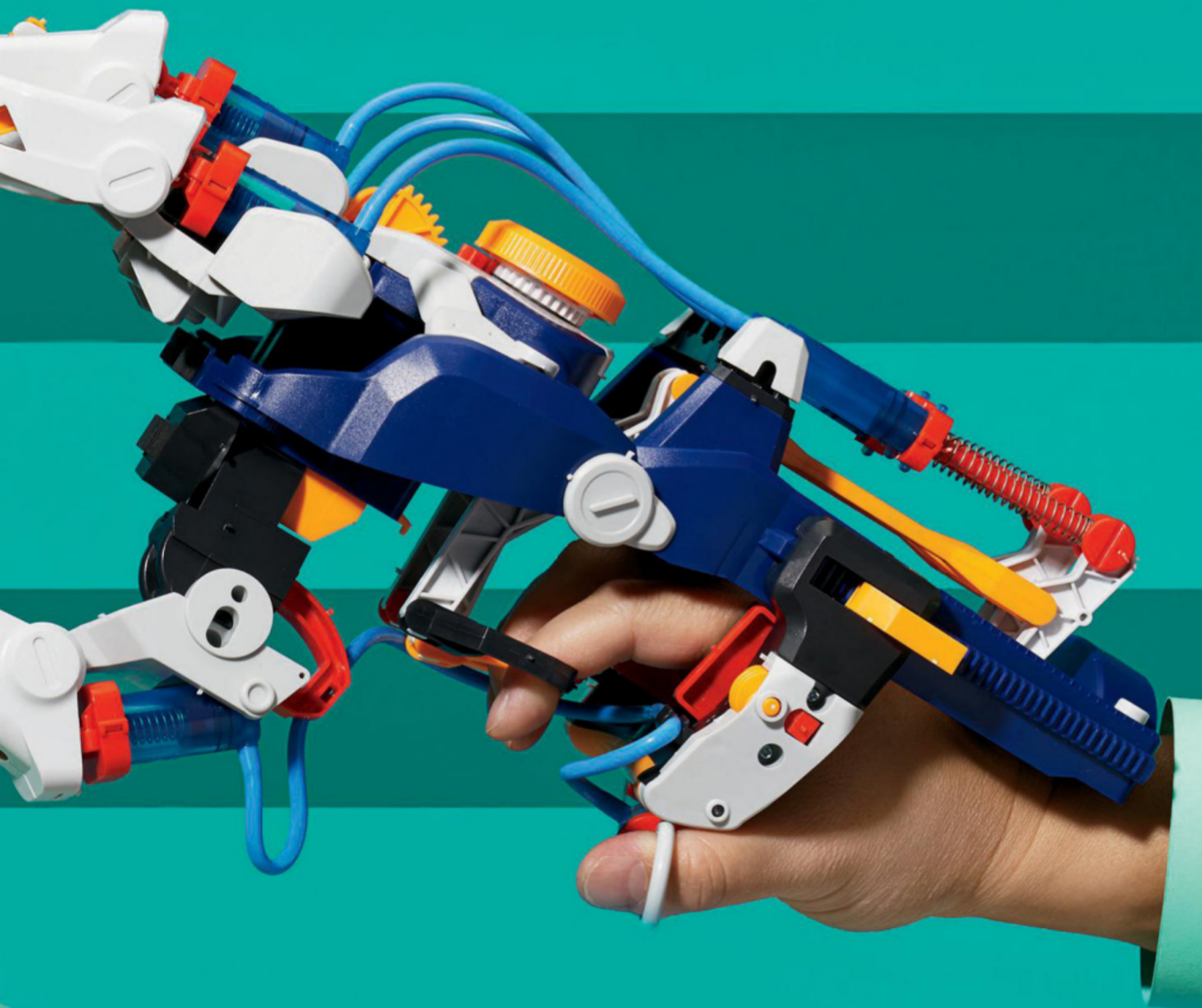
TOYS & GAMES

A HELPING HAND FOR STEM

*Thames & Kosmos
Mega Cyborg Hand*

The effort to get kids interested in science just got a big helping hand—a cyborg hand, to be precise. The award-winning Mega Cyborg Hand





(\$39.95), created by educational toymaker Thames & Kosmos, helps kids build a robotic arm that mimics their hand gestures, while they learn about hydraulics, pneumatics, engineering and robotics.

You won't find any wires, motors or electronics; instead, the toy consists of plastic pieces and piston tubes filled with water. Once assembled and slipped on like a glove, the device uses hydraulics to transmit forces

from the user's fingers to the extended digits of the robotic hand. The Mega Cyborg Hand can be adjusted to fit hands of all sizes, easily switching from left-handed to right-handed to "claw."

—Jared Lindzon



DESIGN

Back-to-back screens

Lenovo ThinkBook Plus Gen 2

Laptops tend to be pretty similar affairs, at least superficially—all of them are equipped with keyboards, track pads and screens. Lenovo's new ThinkBook Plus stands out by offering two screens in a single machine. In addition to the usual 13-in. display, the laptop (\$1,578 and up) sports a second screen on the outside of its lid—a fully functional e-ink display that turns the computer into a tablet when it's closed, eliminating the need for a separate device for reading or note taking. At just over 2.5 lb., the ThinkBook Plus has the weight of a laptop, but lets you leave your hefty hardcover books at home.

—Patrick Lucas Austin



HOME HEALTH

TEST THYSELF

COVID-19 home testing kits

At-home rapid tests turn the question of if you have COVID-19 into a yes-no exercise, similar to a pregnancy test. The FDA has authorized several over-the-counter, DIY tests—made by Abbott, Ellume and ACON, among others—that are about 90% reliable in picking up SARS-CoV-2 proteins. At-home versions don't replace the gold-standard PCR tests (Ellume recalled some kits over false positives, working to resolve a manufacturing issue), but they can serve as a front line of defense in identifying those who might be infected and keeping them from spreading the virus further. That's why the Biden Administration pledged \$3 billion to increase availability of rapid testing for Americans, as well as at community health centers, schools and food banks, and is supporting retailers like Walmart and Amazon so they can provide the tests at cost for the next three months.

—Alice Park

EXPERIMENTAL

Fast and futuristic*Boom XB-1 supersonic demonstrator*

Supersonic air travel once was considered the transportation of the future. But the Concorde—the supersonic jet that flew at speeds of over 1,300 m.p.h. from 1969 to 2003—was grounded in part because of noise and environmental issues. Now, supersonic travel may be back, thanks to the XB-1 supersonic demonstrator, a 71-ft.-long, faster-than-sound jet developed by Denver-based Boom Supersonic. The jet, which tackles the Concorde's problems with cleaner-burning fuel and noise-mitigation technology, can achieve speeds of Mach 1.7—allowing it to cover the distance from New York to London in 3.5 hours instead of six. What's more, it can make that journey relying on 100% sustainable aviation fuel—an alternative to fossil-based fuels developed to be net-zero carbon. The company hopes to be flying full-size planes that can carry up to 88 passengers by 2029.

—Jeffrey Kluger



PRODUCTIVITY

REIMAGINING VIRTUAL MEETINGS*Teamflow*

For the past 18 months, millions of Americans have spent their workdays staring at screens featuring grids of their colleagues' faces. Teamflow offers an alternative. Though the remote-work platform was conceived before the pandemic, it offers a much needed antidote to Zoom fatigue. Teamflow allows companies to create virtual offices—replete with desks, meeting rooms and whiteboards. Users' faces appear as bubbles that can be moved around the virtual office, similar to a video game. When you want to talk to a colleague, simply drag your bubble to theirs—a kind of virtual approximation of the much missed spontaneous work conversation. The application (\$15 per employee per month) has been embraced by companies like Netflix and Shopify.

—Abhishyant Kidangoor



WELLNESS

A MORE STRAIGHTFORWARD STRETCH*Lululemon Take Form Mat*

Practicing yoga usually requires you to look at your hands and feet, at a mirror or at your instructor to determine alignment on the mat. Now, after years of research and development, Lululemon has released the Take Form Mat (from \$128), which gives the mat itself a role in the process. That's because the Take Form is printed with three-dimensional visual and tactile cues that resemble water droplets—or, more helpfully, targets—to help yogis find the proper place for their feet and hands. Made from a cushiony and sustainable FSC rubber material, it's designed to create a more focused yoga experience. "The critical interaction between the yogi and their mat has been unlocked," says Chantelle Murnaghan, Lululemon's VP of research and science of feel. —Mariah Espada



CONSUMER ELECTRONICS

The ultimate selfie stick*Vecnos IQUI*

The panoramic views offered by 360-degree photos and videos are a blast to share. But the cameras you need to capture them haven't always been so easy to use. Designed specifically for social media, the minimalist IQUI (\$299) makes 360-degree photography simpler than ever. Created by Vecnos—led

by Shu Ubukata, creator of the first compact 360-degree camera—the IQUI is equipped with four lenses on a sleek, slender 5.5-in. stick, three shooting horizontally and one pointed straight up. A stand lets you effortlessly capture an entire scene—even if it's placed, say, at the center of a dinner party—and a companion app easily converts photos into swooping, special-effect-laden MP4 video clips, perfect to wow your pals on Instagram and Twitter.

—Alison Van Houten





PRODUCTIVITY

KEEPING FIRST RESPONDERS COOL

SlateSafety BioTrac Band

Heart disease is the leading cause of death among firefighters, in large part because of their extended exposure to high-heat situations, a problem that also affects industrial workers and members of the military. SlateSafety aims to solve this problem with the BioTrac Band (\$495), a wearable tracking device that watches for signs of heat stress. Worn on the arm, the device measures each user's heart rate, core body temperature and exertion, pinging a cloud-based platform to alert commanders and colleagues when those measures hit unsafe levels. Since its inception, the company has been awarded \$1 million by the National Science Foundation and has received three contracts from the Department of Defense; the device is now used by 35 fire departments and the U.S. Army, Navy and Air Force. —A.K.

CONSUMER ELECTRONICS

THE RETURN OF THE FLIP

Samsung Galaxy Z Flip3

For the past few years, manufacturers have been trying to merge the functionality of smartphones with the portability of a '00s-era flip phone—with results that were middling at best. But with the Galaxy Z Flip3, Samsung finally seems to have nailed it. The Z Flip is as compact as devices from two decades ago, only instead of a tiny display and

physical dial pad, you get a vibrant 6.7-in. display, with another screen on the front cover so you can easily read messages or screen calls when it's closed. Even better: the \$999 price tag, making it the first mainstream phone with a foldable display that's priced below \$1,000, putting it in direct competition with high-end iPhone models.

—Jason Cipriani



AI

VR gets real

NVIDIA Omniverse

Virtual worlds are for more than just gaming—they're useful for planning infrastructure like roads and buildings, and they can also be used to test autonomous vehicles. NVIDIA's Omniverse project is making it easier to create ultra-realistic virtual spaces for those real-world purposes. The platform combines the real-time ray-tracing technology of the brand's latest graphics processing units with an array of open-source tools for collaborating live in photorealistic 3-D worlds. Architects like Foster + Partners are using the tech to visualize building details earlier in the design process, and BMW has built a "digital twin" of one of its factories, enabling the company to test more efficient assembly-line possibilities. —Jesse Will



HOME HEALTH

THE SMART RADON DETECTOR

EcoQube

Harpreet Chohan never worried much about radon—until a close friend died of lung cancer, likely due to exposure to the radioactive gas in his home. Generated by underground uranium deposits, radon causes about 20,000 lung-cancer deaths a year, according to the U.S. Environmental Protection Agency. To help detect the invisible danger, Chohan's company, Ecosense, created the EcoQube (\$183), which enables users to monitor their home's radon levels on a companion app. The small black box uses an ion chamber to detect the deadly gas, and independent tests showed that the underlying technology—which has been certified by the National Radon Safety Board—performs similarly to much more expensive professional radon detectors.



—Alejandro de la Garza

EDUCATION

THE AI TUTOR

Amira and the StoryCraft

Research shows that the best remedy for reading disorders is early intervention. Unfortunately, there are not nearly enough teachers and tutors for one-on-one instruction. Amira and the StoryCraft was developed to help. Using speech-recognition software, the app (\$7.99) listens to students read aloud, pausing when a child stalls or makes a mistake on a word. Then, the app teaches them how the word is pronounced. A Carnegie Mellon University study found that students using the software for 20 minutes posted twice the gains as those using traditional methods.

—Chad de Guzman



SOCIAL GOOD

REVVING UP CONSERVATION

CAKE Kalk AP

Rangers across Africa's national parks and wildlife reserves are in a constant battle to protect endangered species from poachers. But those rangers are at a disadvantage: their loud gasoline-powered motorbikes alert poachers to their presence. Swedish electric-bike company CAKE worked with the Southern African Wildlife College to adapt their Kalk bike, giving it a super-quiet electric motor and a portable solar-panel charger. For \$25,000, consumers can buy their own solar-powered bike—which will also pay for another to be sent to the anti-poaching fight. —Ciara Nugent



BEAUTY

Just add water

Everist Waterless Haircare Concentrates

Inspired by the emerging (and environmentally friendly) trend of water-activated tablets in home-care items, Everist co-founders Jessica Stevenson and Jayme Jenkins decided to apply the concept to hair care. Everist's shampoo and conditioner (\$24 each) come in a paste format that turns into a foamy lather and serum-like conditioner when activated by water. While the 100 ml tube might appear tiny, it's equivalent to a full-size 300 ml bottle of shampoo. —Taylor Bryant



ENTERTAINMENT

TV gone social

Kiswe

Since the early days of television, watching a sporting event or concert meant doing just that: watching. Kiswe—a cloud-based, interactive video-production platform—aims to change that by transforming live broadcasts into unique, personalized experiences. Rather than just turning on the tube, viewers using Kiswe's tech can purchase tickets allowing them to select specific camera angles, buy merch, post comments, interact with other fans, upload selfies and more. The platform, which makes its money through licensing its software or taking a percentage of ticket sales, has inked partnerships with major broadcasters like ESPN, Globo and Turner Sports. Its most popular event so far: a record-breaking October 2020 BTS concert, livestreamed to 993,000 fans worldwide. —Jenna Caldwell



FOOD & DRINK

Nonsoggy takeout

SAVRpak

No one wants to eat a mushy meal—and with the SAVRpak, they won't have to. It's a peel-and-stick patch placed inside standard plastic takeout containers, clamshells, pizza boxes and paper bags to keep food fresh while in transit. "Nothing tastes better when it's soaked with water," says Greg Maselli, SAVRpak's co-founder and co-CEO. "You have chefs perfecting recipes and throwing them in a box only for them to become a steaming, soggy sop." SAVRpak solves the soggy dilemma by extracting moisture from the air inside food containers before it turns into condensation on the surface of food. It's also designed to minimize waste, as fewer mushy fries end up in the trash. The product is being used in more than 20 countries and has been sold to more than 250 customers in the restaurant, grocery and produce business. The company recently signed an initial deal with DoorDash. The next move: adapting the tech to preserve produce sold in grocery stores.

—Sanya Mansoor



TOYS & GAMES

KEEPING KIDS CALM

Sproutel Purrble

During the pandemic, countless children have been isolated at home and distressed as their lives and routines were abruptly disrupted. For some, Purrble (\$49.99) came to the rescue. An interactive plush toy equipped with seven sensors that respond to touch, Purrble's haptic

heartbeat speeds up to 135 b.p.m. when it senses somebody's playing with it. Kids can then comfort their companion with gentle petting, slowing Purrble's vibrational heartbeat to a purr—calming themselves as well in the process. Developed using research from the Committee for Children, a nonprofit and global leader on social-emotional learning, the device aims to help children

learn to regulate their emotions. Preliminary research shows that Purrble is doing just that: in a study with 20 families, 19 parents reported that the toy helped their kids calm down when they needed to. "I grew up with a chronic illness as a child and would have loved to have this," says Aaron Horowitz, CEO of Sproutel, which designed the toy.

—Paulina Cachero

SOCIAL GOOD

A CHATBOT FOR
CRISIS RESPONDERS*Crisis contact simulator*

Nearly half of U.S. LGBTQ youth ages 13 to 24 thought they needed mental-health counseling in 2020 but didn't receive it, according to a report from the Trevor Project, a nonprofit LGBTQ suicide-prevention organization. To help meet demand and train more counselors, the group partnered with Google.org to create Riley, a genderqueer Black teenager from North Carolina who also happens to be an AI chatbot. Riley is a skilled conversationalist and can remember the details it shares throughout a conversation, which helps trainees learn how to show they are listening and absorbing what a person in crisis is sharing. Since its launch in January 2021, Riley has helped train hundreds of counselors, says Dan Fichter, head of AI and engineering at the Trevor Project; Fichter envisions a future where AI personas help people "learn to be even better at what they're doing."

—Guadalupe Gonzalez



STYLE

Underwear for good

Bombas underwear

Bombas, which made our socks notably more comfy and durable, has set its sights on underwear. Just as with their footwear, Bombas designers attacked the challenge of creating comfortable, high-quality undergarments by paying close attention to every detail—the waistband, cotton blend, seam placement, breathability, moisture wicking, the fly. And just as with its socks, for every pair sold, the company donates another to organizations serving the unhoused—especially important since underwear, like socks, are “wear-through” items that cannot be donated once they’ve been worn. “Socks and underwear, it’s like peanut butter and jelly, Hall and Oates—it’s the natural next step,” says company co-founder and chief brand officer Randy Goldberg. The company has sold nearly 250,000 pairs of undies, which range in price from \$18 to \$28, since sales began in January.

—Julia Zorthian

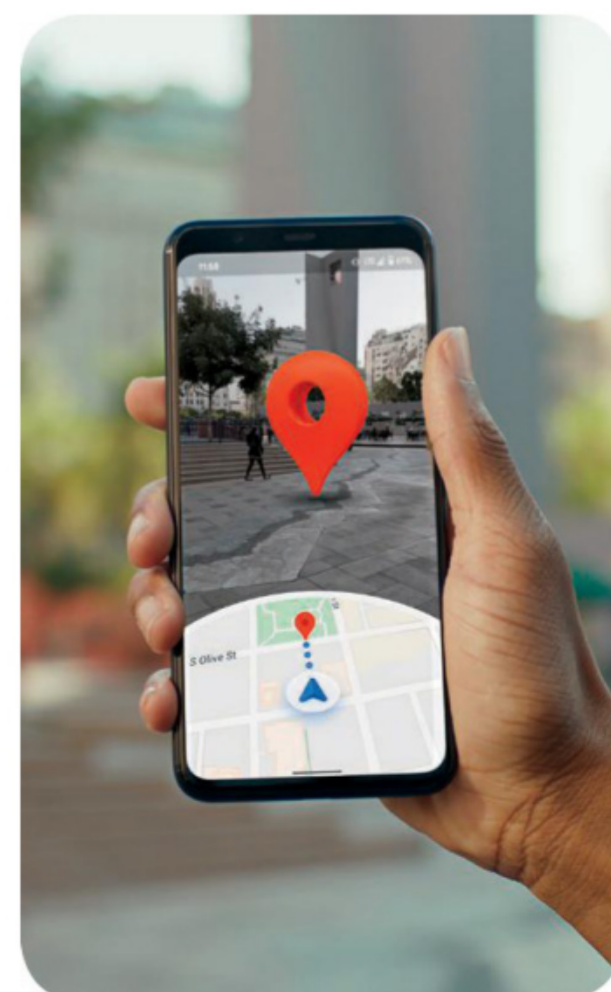
AR & VR

LOOK
WHERE
YOU'RE
GOING*Google Maps Live View*

How many times have you wandered around an unknown location, staring at the map on your phone and wondering where to turn? As a pedestrian, orienting oneself with bird's-eye directions is far from intuitive. Google Maps' free Live View mode fixes that, using augmented

reality to lay instructions on top of what you're seeing live on the street via your smartphone camera's viewfinder—"effectively aligning your map with the real world," says Andre Le, lead designer for Live View. So far, Google has Street View coverage for about half the world, and Live View was launched in tricky multi-level transit hubs, airports and malls in Tokyo prior to the Olympic Games (as well as in Zurich). The company is still piloting indoor locations in the U.S., such as shopping malls, but tens of millions have already used Live View globally.

—Alison Van Houten





FITNESS

THE FULL-BODY TREADMILL

BodyEnergy BE-A230

If you consider treadmill workouts not quite tough enough, then hop on the BodyEnergy (\$3,999). The motor-free, self-propelled treadmill works both your upper and lower halves, integrating elliptical-machine-like resistance arms to enable high-intensity, full-body workouts. Manual treadmills can be tough to control, but BodyEnergy's addition of an arm-drive system makes it simple to modulate speeds up to 12 m.p.h. And while motorized treadmills may take several seconds to power down, this stops instantly once you stop running, lessening your chance of taking one of the approximately 22,500 treadmill-caused trips to the ER per year.

—J.W.

PARENTING

A better bassinet

Juno Bassinet

After buying an expensive crib and organic mattress as an expecting parent, Amazon employee Herman Chan was bummed to learn that what he really needed—for the first few months, at least—was a small bedside bassinet so that he and the baby could sleep in the same room. But “everything we looked at was made with a lot of plastic and smelled horribly,” says Chan. So along with another now former Amazon colleague, he decided to build something better. Made of sustainably sourced corrugated paperboard, the minimalist Juno Bassinet (\$148) is coated with a biodegradable water-repellent coating and paired with an organic cotton zippered sheet. When not in use, the Juno can be folded and tucked away for storage or travel. And when baby is ready to move to the crib, the Juno Bassinet can be recycled. —Jesse Will



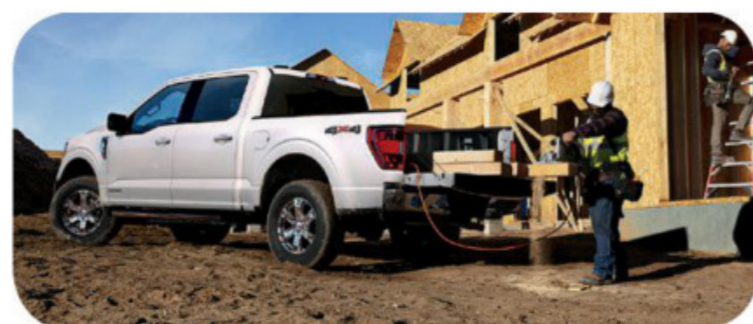
PRODUCTIVITY

FROM HORSEPOWER TO HOUSE POWER

Ford Pro Power Onboard

Big trucks love to flaunt their capabilities. But the new Ford F-150 makes a claim you don't hear too often: it will power your house. Beyond its payload and towing capabilities, the truck's hybrid and electric models feature an optional Pro Power Onboard system that transforms the vehicle into a full-on generator able to supply up to 9.6 kilowatts of power—enough juice to run a typical home for three days, according to Ford. The system came in handy for F-150 owners when millions of people were left without heat and electricity following the major storm in Texas last winter and Hurricane Ida earlier this year. “Entire cities were going dark, and our customers could turn their trucks into generators,” says Michael Levine, Ford's director of North America product communications. The electric model currently has 150,000 preorder reservations ahead of its spring delivery.

—Nik Popli



CONSUMER ELECTRONICS

CUSTOM LISTENING

Nuratrue

Just like fingerprints, everyone's hearing is different. Yet most earbuds, even the priciest and most sophisticated, treat us all the same. Nuratrue (\$199.99) takes a different approach—gauging the quirks of your hearing by playing about a minute's worth of various tones and measuring the sounds that your cochleas produce in response, tones that are inaudible to humans. Nuratrue then applies a custom aural profile to anything you listen to, augmenting specific auditory ranges to create a richer, more detailed experience. Originally launched as over-the-ear headphones that earned innovation awards from Red Dot, CES and SXSW, these new true-wireless buds open a hidden door to all the detail you never even knew you were missing in your favorite music. —A.V.H.



WHAT IS AVAXHOME?

AVAXHOME-

the biggest Internet portal,
providing you various content:
brand new books, trending movies,
fresh magazines, hot games,
recent software, latest music releases.

Unlimited satisfaction one low price

Cheap constant access to piping hot media

Protect your downloadings from Big brother

Safer, than torrent-trackers

18 years of seamless operation and our users' satisfaction

All languages

Brand new content

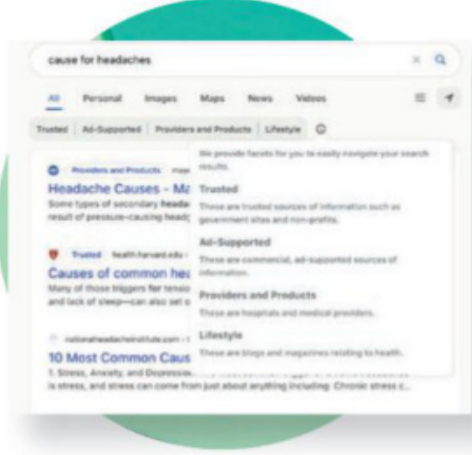
One site



AVXLIVE **ICU**

AvaxHome - Your End Place

We have everything for all of your needs. Just open <https://avxlive.icu>



APPS & SOFTWARE

PRIVATE,
AD-FREE
SEARCH

Neeva

Search engines like Google and Bing claim to be free, but users pay by surrendering their data—surely you’ve noticed that ads for a product you recently researched magically begin appearing on every website you subsequently visit. Neeva wants to change that, offering a totally ad-free and private search experience starting at \$4.95 a month (the first three months are free). Developed by a team of former Google employees, Neeva offers apps for Android, iPhone and iPad, and extensions for browsers. Since launching in June, it has garnered loads of positive reviews.

—Jason Cipriani



ACCESSIBILITY

Mobility for the
littles kids

Permobil Explorer Mini

Children who are slow to walk because of diseases like muscular dystrophy, cerebral palsy or Down syndrome have been shown to benefit cognitively and socially by moving around with the help of a motor. The problem: most motorized wheelchairs are too big for the tiniest kids. As a result, some parents of such children have been stuck modifying toy cars to help them out. Enter Permobil’s Explorer Mini (\$2,695): a U.S. Food and Drug Administration–cleared motorized device built expressly for kids ages 1 to 3. Kids can control the chair, available only with a prescription, via a joystick. The idea, says Amy Morgan, a pediatric physical therapist and Permobil project manager, is “to jump-start [kids’] physical development.” —J.W.

ACCESSIBILITY

MAKING TEXT AUDIBLE

OrCam Read

Reading can be a serious challenge for tens of millions of people, whether they struggle with comprehension difficulties, poor vision, dyslexia or other issues. But using computer vision and artificial intelligence, the OrCam Read (\$1,990) can read any piece of text aloud. Users target the device’s laser frame at a page of a book, a menu, an advertisement or a screen displaying text, press a button, and the device instantly vocalizes it, in a voice that sounds remarkably natural; it also can read text in multiple languages. And since the device is able to respond to voice commands, you can ask it to read, say, a phone number from an ad, the operating hours of a business—or your favorite story again, starting from “Once upon a time.”

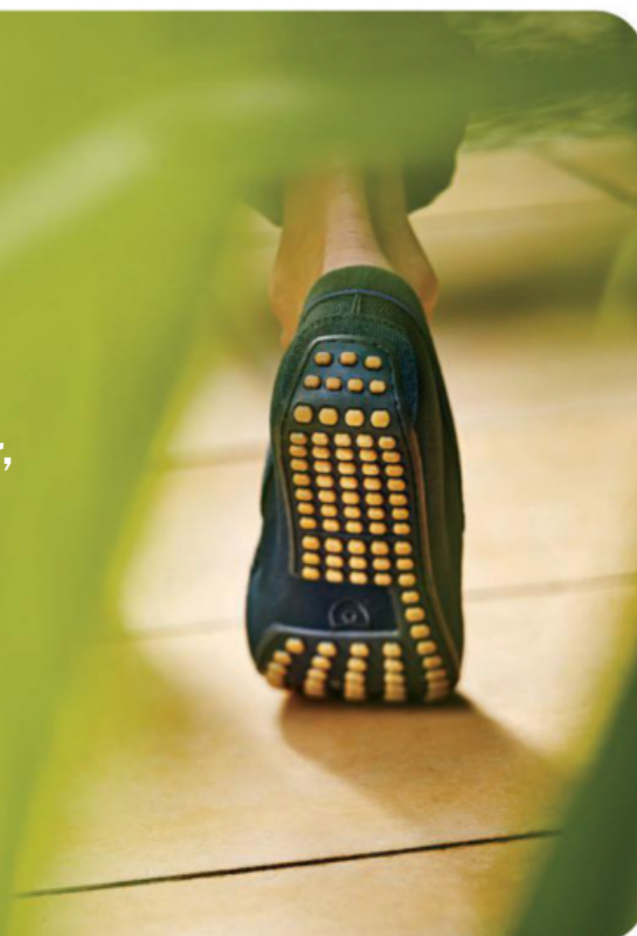
—Jesse Will

STYLE

A reimagined classic

Rothy’s driving loafer

After making a name for itself creating simple yet elegant sustainable women’s footwear that you’ve almost definitely seen all over Instagram, San Francisco–based fashion startup Rothys dipped a toe into the men’s market this year with its driving loafer, a classic silhouette made from natural and recycled materials. It’s an ideal shoe for the late-pandemic era, as the world’s professional class seeks out clothing that’s not too schlubby but not too flashy. Rothys co-founder and president Roth Martin sees the loafer—made using a high-tech knitting process that dramatically reduces waste—as a major technological evolution in a much-loved but little-changed design. “Here’s a silhouette that’s steeped in history, a classic style, yet no one’s done anything with it in years,” he says. —Alex Fitzpatrick



EDUCATION

ONLINE
LEARNING,
OFFLINE

The Learning Passport

The COVID-19 pandemic saw students around the world struggle as schools shut down and home school was hindered by slow or—in many places—nonexistent Internet service. The Learning Passport’s solution: give students app- or browser-based classes that do not require a consistent web connection. Instead students



AI

Poster-worthy smartphone snaps

Adobe Super Resolution

Most of the photos we take these days look great on the small screen of a phone. But blow them up, and the flaws are unmistakable. So how do you clean up your snaps to make them poster-worthy? Adobe's new Super Resolution feature, part of its Lightroom and Photoshop software, uses machine learning to boost an image's resolution up to four times its original pixel count. It works by looking at its database of photos similar to the one it's upscaling, analyzing millions of pairs of high- and low-resolution photos (including their raw image data) to fill in the missing data. The result? Massive printed smartphone photos worthy of a primo spot on your living-room wall. —J.W.



PARENTING

THE UNBREAKABLE BOTTLE

ChiccoDuo Hybrid

Until now, parents have had to make a choice when it comes to bottles: Glass or plastic? Glass can be heated without leaching chemicals and is easier to clean, but plastic is lighter and more durable. The ChiccoDuo Hybrid features the best of both, with a thin layer of unbreakable glass bonded to an outer plastic layer. "Liquid only touches glass inside, but the bottle feels like plastic," says Brenda Liistro, a general manager at Artsana, Chicco's parent company. The Hybrid bottle (\$20 for two) is now available after its launch was delayed when the technology was used to make vials for Moderna's COVID-19 vaccine. —J.W.



TOYS & GAMES

THE GO-ANYWHERE CONSOLE

Steam Deck

The runaway success of the Nintendo Switch proved there's a huge market for hybrid gaming consoles that owners can use at home or on the go—but the Switch doesn't get all the latest and greatest games. Enter the Steam Deck, Valve Corporation's Switch-style system, built to play most of the 50,000 games available on the company's Steam platform. "Whatever you're in the mood for, Steam Deck can do all those things," says Valve product designer Greg Coomer. —Peter Allen Clark



access the platform when they can, downloading their lessons to complete later, offline. Developed jointly by UNICEF and Microsoft, the Learning Passport allows educators to upload local curricula—meaning

it works across multiple languages, subjects and age groups. First deployed in Timor-Leste in 2020, the Learning Passport now has some 1.6 million users in 13 countries.

—Chad de Guzman



TRANSPORTATION

A NEXT-GEN SHAREABLE CYCLE

Lyft New E-Bike

Urban bike-sharing programs are more popular than ever, and on-demand transportation firm Lyft is building on that momentum with its latest shareable two-wheeler. An electrified pedal-assist bike offering up to 60 miles of range (double that of older shareable bikes), Lyft's new model—which can be charged at docking stations—was developed to withstand more journeys with fewer battery swaps, meaning lower operating costs and reduced environmental impact. Lyft's team put safety top of mind too, with features like retro-reflective paint to keep riders visible at night. The new bike will roll out across Lyft's markets in the coming months, starting in Chicago. —Alex Fitzpatrick

TOYS & GAMES

The kid's gambit

Story Time Chess

Most of today's games for kids involve at least some electrical circuitry and often a screen, but one of the year's most acclaimed new toys combines two pastimes that have been cherished for centuries: storytelling and chess. A completely novel approach to the classic game, *Story Time Chess* (\$49.95) teaches children as young as 3 how to play by pairing board pieces with engaging tall tales. The king, for instance, is a silly man with a belly so full of food that he can move only one square at a time. The game has received 15 top industry awards, including the 2021 People's Choice Toy of the Year. Says the game's creator, Andrew Kashian: "You can really teach children anything, including the complex game of chess, if you present it in a way that's accessible for them."

—Jared Lindzon



CONSUMER ELECTRONICS

A NOTEBOOK YOU CAN REPAIR

Framework Laptop

Framework's breakthrough isn't the usual whizbang technology that makes older laptops obsolete. On the contrary—it's that customers can swap out the battery, keyboard and other parts to repair or upgrade them, making the sleek machine (\$749–\$999) more immune to tech's relentless churn. Framework CEO Nirav Patel, who once developed software at Apple, figures people want an alternative to "products that are glued together, sealed up and soldered down, designed to be disposable." The U.S. Public Interest Research Group, a leader in the "right to repair" movement that's pushing back against manufacturers that make their products unfixable by users, estimates Americans could save \$40 billion annually by repairing rather than replacing electronics. There's a green impact, too, in sending fewer machines and their toxic chemicals to landfills. —Don Steinberg



TRANSPORTATION

SWAPPING BATTERIES FOR EVS

Ample

Electric-vehicle sales were up 160% globally in the first half of 2021, but they still face a major roadblock: EVs can take several hours to charge, making them fine for many everyday drivers, but not so great for taxi drivers or truckers with fares to collect

and schedules to keep. One answer lies in battery swapping—an EV pulls into a station, its depleted battery is removed, and a fully charged unit is popped in. Many dismiss that approach in part because it's



difficult to service EVs from multiple manufacturers. But San Francisco-based Ample thinks it has the answer, in the form of universal modular batteries. The company's big breakthrough, says co-founder John de Souza, is a patented design that allows Ample's batteries to work with cars from any manufacturer, in terms of both physical and chemical compatibility. Ample is already operating six stations in its hometown and is working with five major automakers. —A.F.



SUSTAINABILITY

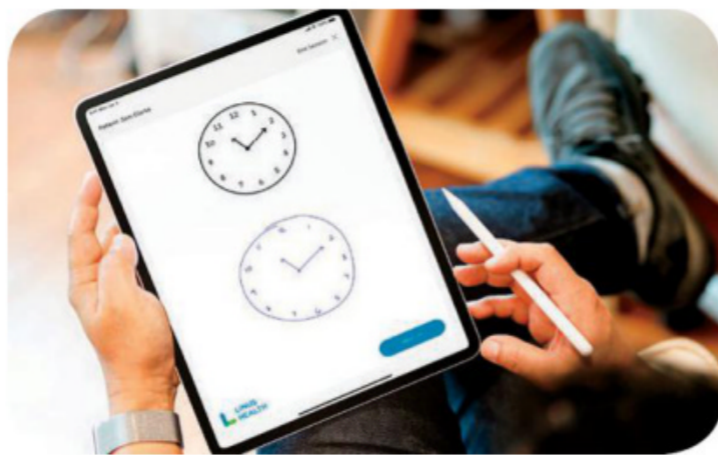
THE REUSABLE SHIPPING BOX

Boox

An estimated 200 billion cardboard boxes are shipped around the world annually, and most of them are used just once before ending up in landfills or the ocean.

Boox is the first shipping box specifically designed to be used over and over again. After unpacking their items, customers fold the Boox flat, scan a QR code and send it back to Boox with the included return label, no other box or envelope required. Constructed from polypropylene, most Booxes (\$1–\$2.50 per shipment) can make more than 20 journeys before being recycled. Since its launch in 2020, the Boox has been adopted by retailers like Sephora and the women’s denim line Boyish Jeans, contributing to the more than 125,000 estimated Booxes sent to every U.S. state and more than 20 countries.

—Mariah Espada



MEDICAL CARE

Early detection for cognitive decline

Linus Health DCTclock

The number of people worldwide with dementia is projected to reach 139 million by 2050, but it is still thought to be underdiagnosed. A new innovation aims to change that—Linus Health DCTclock, an upgrade to a long-standing test in which a patient draws the face of a clock with a pen and paper—a simple task that picks up signs of declining spatial reasoning, memory and fine motor skills. Linus’ innovation uses a digitizing pen to capture hundreds of subtler details that might otherwise be invisible to clinicians. —Tara Law

STYLE

NO SEAMS NEEDED

Unspun

The fashion industry is organized around mass production—but not Unspun, which has spent the past four years figuring out how to make garments on demand, reducing overproduction and leaving no unused scraps of fabric. In November, it unveiled the result: a machine that 3-D-weaves yarn into a one-of-a-kind pair of jeans (\$200–\$215) tailored to fit individual buyers. Each made-to-order pair starts with a body scan (which can be done on an iPhone) capturing 30,000 data points to create a design in the fabric and style the

customer chooses. Unspun then uses its topographical weaving machine to produce the jeans in just 10 minutes. Now, the company is partnering with other labels (including the H&M Group and Pangaia) to bring its technology to wider use under co-branded operations, and has plans to add other items as well.

—Julia Zorthian



AR & VR

Five screens at a time

Lenovo ThinkReality A3 Smart Glasses

When you sit down at your desk sometime in the near future, instead of turning on a monitor or opening your laptop, you may simply don a pair of Lenovo’s ThinkReality A3 Smart Glasses (\$1,499). Connect the glasses to a computer or smartphone, and high-definition displays built into the lenses will show as many as five different virtual desktops. As you move your head to view the different desktops floating in front of you, you can continue multitasking between Excel spreadsheets or Word documents as you normally would using a standard keyboard, track pad or mouse, all while streaming a Spotify playlist through the headset’s built-in speakers. Connect the specs to the Moto G100 phone (it doesn’t yet support other products) to take the experience on the go, expanding their functionality. —Jason Cipriani



SOCIAL GOOD

A STEPPING STONE TO STABILITY

ProxyAddress

When a person loses their home, they lose more than the roof over their heads. Without a physical address, basic things like filling out an application for a job, an apartment or government help become exceedingly tricky. The London-based organization ProxyAddress can't house the homeless, but it does offer them an address they can use to keep their access to support. The group solicits businesses, local government agencies and individuals to "donate" their addresses to those in need. Next, ProxyAddress plans to expand to several other cities in the U.K. before expanding further. —B.P.



MEDICAL CARE

BOTTLED HOPE

COVID-19 vaccines

This year looks very different from the last when it comes to the pandemic, and that's largely thanks to the COVID-19 vaccines—three of which, from Pfizer-BioNTech, Moderna and Johnson & Johnson–Janssen, are approved or authorized by the U.S. Food and Drug Administration. The vaccines use different technologies and have reduced rates of severe COVID-19 as well as hospitalizations and deaths. But with new variants, including Delta, that protection, while still strong, is waning. That's why countries including the U.S. are authorizing booster shots to strengthen that immunity. —Alice Park



ACCESSIBILITY

THE HANDS-FREE RUNNING SHOE

Nike GO FlyEase

The ability to tie our shoes may be something most people take for granted—but for many of us, lacing up can be a real pain. Nike aims to fix that problem with the GO FlyEase (\$120), a shoe that wearers with disabilities can slip on and off, hands-free. A hinge in the middle allows the shoe to bend open, while a midsole tensioner band,

ROBOTICS

Printer to pad

Relativity Space Stargate

Relativity Space is changing how rockets are built—by using a giant 3-D printer, called Stargate, to create them. The system produces fully reusable rockets in just 60 days—compared with two years or longer for traditional aerospace companies—thanks to a streamlined manufacturing process leveraging autonomous robots and artificial intelligence. Early next year, the company will stage the first test launch of its Terran 1 rocket, which is designed to be used on resupply missions and to launch satellites. —Billy Perrigo



SUSTAINABILITY

THE LEAD-PIPE FINDER

BlueConduit

The Flint, Mich., water crisis has drawn Americans' attention to the risks associated with lead pipes and water contamination, but it's hard to tell which homes are most in danger. That's why professors Jacob Abernethy of Georgia Tech and Eric Schwartz of the University of Michigan created BlueConduit, which detects lead pipes using an algorithm based on a variety of factors,



crafted from surgical tubing, snaps it back into place. The shoe could help people with a wide range of conditions, from flexibility issues and arthritis to visual impairments. “The human experience is vast and broad—why aren’t we providing solutions that help people dress themselves independently?” asks Sarah Reinertsen, a Paralympic athlete and member of Nike’s innovation team who worked on prototypes of the shoe. “Nike wants to make sports more accessible, and this is a part of that.” —*Jesse Will*



including utility records and the age of a home. The technology is now being used in about 50 cities and has so far led to the removal of more than 15,000 service-line pipes. Accessibility and equity remain key priorities: BlueConduit—a for-profit enterprise—has worked with various foundations to

make its predictive modeling approach more accessible, and in 2022—thanks to a \$3 million Google grant—the company will provide a free open-source machine-learning tool to help communities start identifying lead pipes, the first step in the removal process.

—*Sanya Mansoor*

TOYS & GAMES

FROM BOTTLES TO BLOCKS

Lego recycled brick

About half of the world’s PET plastic—which is used to make plastic water bottles and containers—winds up in landfills. Someday soon, a good amount could end up in Lego sets instead. The Lego Group, which has vowed to make all Lego bricks from sustainable sources by 2030, spent the past three years testing 250 variations of recycled PET materials, and in June finally unveiled its prototype for a recycled PET brick that is nearly identical to the usual brick. That milestone achieved, the Danish toy giant hopes to integrate the recycled blocks into Lego sets in the next 18 to 24 months. The impact could be considerable: the company uses some 100,000 metric tons of plastic resin in its products each year.

—*Rebecca Katzman*



HOME HEALTH

Access to care at home

Abbott NeuroSphere Virtual Clinic

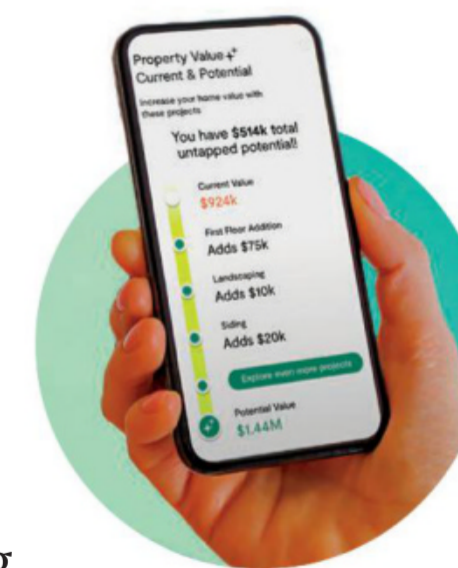
For patients suffering from chronic pain or movement disorders, visiting the doctor can be a serious ordeal. Abbott’s NeuroSphere Virtual Clinic aims to help by enabling physicians to talk to their patients over a video app, as well as remotely adjust a range of Abbott’s implanted neuro-modulation devices. The NeuroSphere Virtual Clinic, which received U.S. Food and Drug Administration approval in March, is available in the U.S. and several European countries; the company plans to expand availability soon. —*Abigail Abrams*

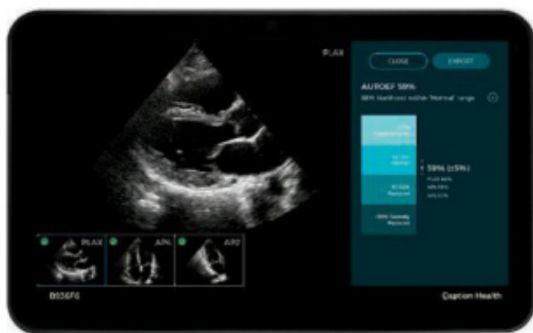
FINANCE

INCREASING PROPERTY VALUE

Realm

Homeowners often struggle to decide which upgrades will offer the biggest property-value boost. Realm helps out by analyzing real estate, tax, zoning and other data to offer recommendations—assessing the impact of different designs, materials and financing options to calculate the return on, say, a kitchen renovation. Realm is free—it makes money via vendor referral fees—but in a service currently offered only in California, for a fee of \$199 to \$500 (credited toward project costs), an adviser will provide a deeper analysis as well as find architects, contractors and more. —*Juliette Pearse*





AI SONOGRAMS MADE SIMPLER

Caption AI

Heart sonograms can help diagnose conditions like rheumatic heart disease—which kills 1.4 million people annually—but many poor countries lack ultrasound machines and the technicians trained to use them. Caption AI’s machine-learning software can help. The software, envisioned to work with a new generation of handheld ultrasound devices, guides techs through the small adjustments needed to capture a view of the heart that a doctor can then examine for potential problems. “You can’t send every single person to a cardiologist every year,” says Kilian Koepsell, Caption Health’s co-founder and CTO. “But you can go to a regular checkup with your primary-care physician, and with these technologies they can screen you much better than it was possible before.” —*Alejandro de la Garza*



SUSTAINABILITY

A portable power plant

EcoFlow DELTA

With extreme weather making power outages increasingly common, demand is on the rise for personal power generators to keep the lights on when the grid fails. While most generators are noisy and powered by gasoline, that’s not the case with the EcoFlow DELTA PRO (\$3,599 per unit), a whisper-quiet battery about the size of a beer cooler. The DELTA PRO can fully charge from a household outlet in three hours; it’s also chargeable from solar panels or electric-vehicle charging stations. With a 3,600-watt capacity, it can keep household essentials running for nearly 24 hours, and multiple units can be networked together to power a whole house for days. —Don Steinberg

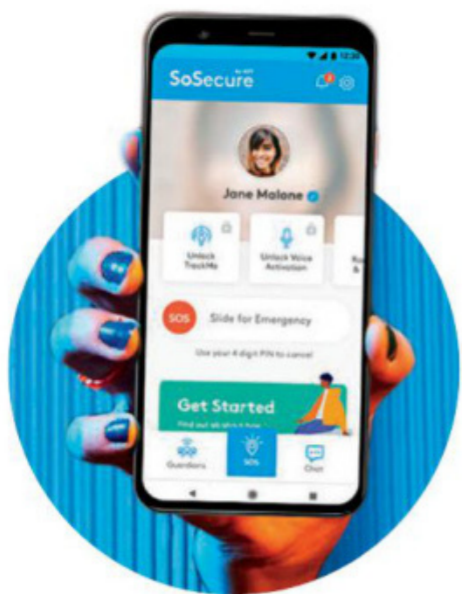


FOOD & DRINK

A NOVEL NOODLE

Sfoglini Cascatelli

No pasta shape was good enough for Dan Pashman. The obsessive foodie and host of the *Sporkful* podcast judges pasta shapes on sauceability (how readily sauce adheres), forkability (ease of getting and keeping it on a fork) and toothsinkability (how satisfying it is to sink your teeth into). “Most of the pasta shapes out there are only good at one or two,” he says. So Pashman set out to create his dream pasta shape, an experience chronicled on *The Sporkful*. Three years and several prototypes later, he finally unveiled Cascatelli, with a half-tube shape to catch sauce and ruffles to provide a dynamic bite, all in a short noodle that’s easily forked. Now manufactured by Sfoglini (\$19.96 for 4 lb.), it’s sold nearly 300,000 lb. since debuting in March. —*Eliana Dockterman*



APPS & SOFTWARE

ON-CALL SAFETY SUPPORT

ADT SoSecure

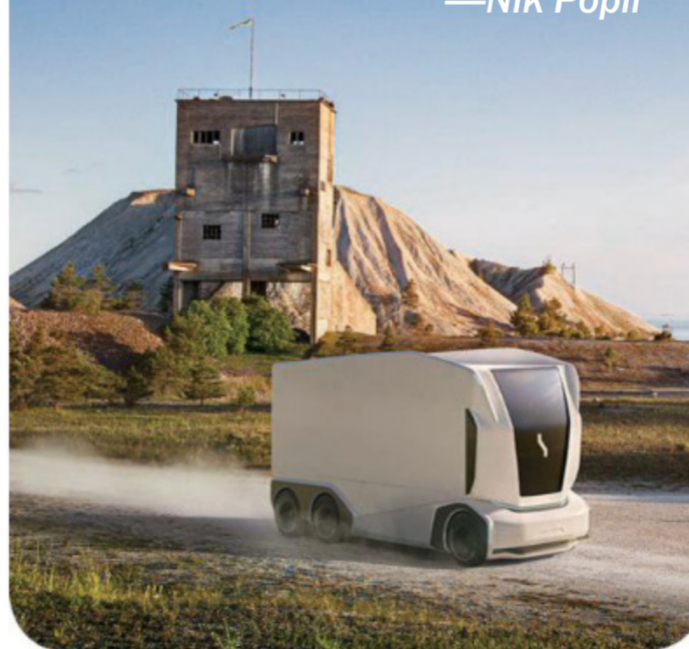
Using SoSecure is like calling a friend when you're walking home alone at night—except your friend is an ADT security professional trained to help you through a potentially dangerous situation. Swipe the SOS slider on the app (a basic version is free; for \$4.99 or \$9.99 a month, subscribers can access other features including voice activation) to connect with a live operator, who can dispatch police if requested or simply stay on the line until you've made it home safely. Your GPS coordinates and pre-selected identifying information (gender, skin tone, hair color) are automatically transmitted, and call recordings can be requested by law enforcement should a crime be committed. There are also features to discreetly send SMS messages or initiate a muted video connection, should a voice call not be possible. These features earned the security-award-winning app praise from a slew of elected officials amid a pandemic spike in domestic violence. —*Alison Van Houten*

TRANSPORTATION CLEANER DRIVERLESS TRUCKING

Einride

Diesel-fueled freight trucks account for roughly 7% of the world's total emissions. That's why Sweden-based Einride designed a new type of freight vehicle: an all-electric, totally autonomous truck that can carry up to 35,000 lb. of goods, promising to reduce carbon emissions by more than 90% compared with a conventional big rig. With no seat for a driver or even a steering wheel, Einride "pods" drive themselves through a cloud-based remote-monitoring system that allows human operators to take control if necessary. "It's the next generation of transport," says founder and CEO Robert Falck. The company's sleek white vehicles are already being tested on public roads in Sweden, and the firm has partnered with companies like Coca-Cola, Bridgestone and Lidl.

—*Nik Popli*



CONSUMER
ELECTRONICS

Low-tech meets high-tech

Paper Shoot Camera

Looks are deceiving with this \$120 camera, which is constructed out of eco-friendly stone paper. Created by Taiwanese inventor George Lin, the battery-operated Paper Shoot looks like a film camera but is actually digital, able to store up to 32 GB of photos in a cleverly hidden SD card. Users can customize the electronic body with interchangeable pop-art-inspired covers (\$25) and a variety of lenses (\$24.50). Photos taken using the four distinct filters—sepia, black and white, blue, and normal—come out with a filmlike quality but without film's high price tag and environmental impact. "I wanted to make a camera that can change the world, that can help the earth and make people love cameras—like I do," says Lin.

—*Guadalupe Gonzalez*

EXPERIMENTAL

ULTRA-TARGETED COMPLEXION AIDE

Opte Precision Skincare

What if you could even out your skin tone without foundation or concealer? Sweep the Opte wand (\$599) and its high-definition camera over your face or body, and 120 tiny nozzles dispense mineralized, pigmented serum to make every discoloration blend in. An entire face takes roughly five minutes to treat—and the result is an even, natural and glowing complexion. The system—which took over 14 years and 13 patents to create—is not just a quick fix: the niacinamide in the serum is clinically proven to brighten features like sun or age spots. —*Julia Zorthian*



Disney

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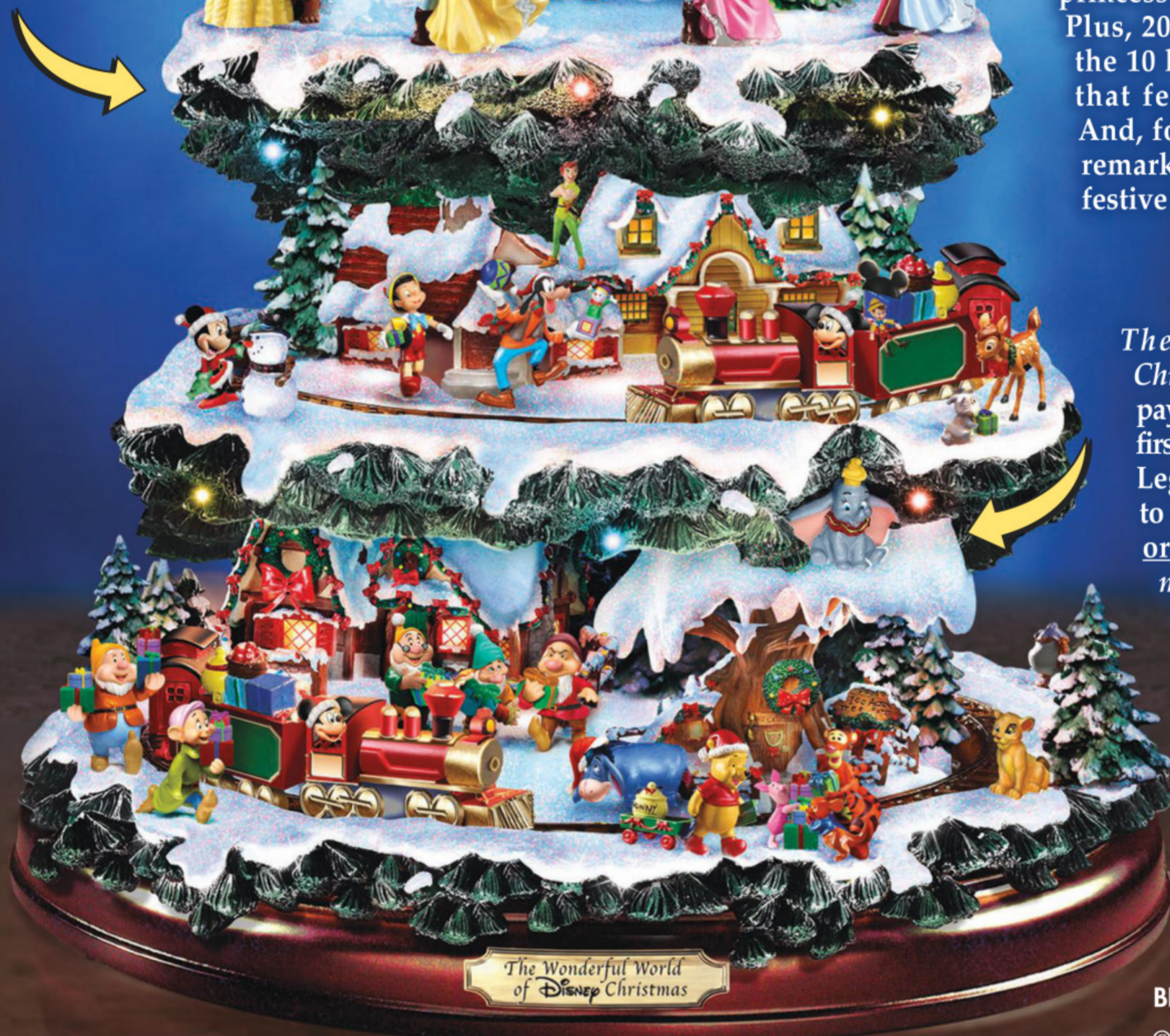


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Time Off

DRIVING FORCE

BY SEAN GREGORY

King Richard, starring Will Smith, serves up questions about parenting—on and off the court



INSIDE

KENNETH BRANAGH REVISITS HIS CHILDHOOD IN *BELFAST*

A NEW SERIES PUTS TEENAGE GIRLS IN A *LORD OF THE FLIES*-INSPIRED DRAMA

ADELE'S SINGULAR PLACE IN THE POP-MUSIC FIRMAMENT

IN *KING RICHARD*, THE NEW BIOPIC CHRONICLING the rise of the superstar tennis sisters each now known by one name—Venus and Serena—the protagonist Richard Williams, played with standout moxie by Will Smith, acts on a familiar parental impulse. Who among us hasn't spouted off about the talents of our dear children to anyone within earshot? Richard, however, always possessed a supernatural level of confidence in the athletic abilities of his two youngest daughters. Parenting handbooks would tell you to set reasonable expectations for your children. Richard literally wrote his own plan: a 78-page blueprint for turning Venus and Serena into legends. "I'm in the champion-raising business," Richard says at one point in the film.

Early on, in the movie as in real life, the lily-white tennis establishment resisted Richard's conviction that these young Black girls, who learned the game on the cracked, weedy courts of Compton, Calif., would redefine the game. One racist onscreen coach asks Richard if he's considered basketball for his daughters. Richard sends tennis footage of the girls, shot on an '80s-era camcorder, to noted instructor Vic Braden (Kevin Dunn). In a meeting with Richard, Braden, though impressed, explains why he can't take on Venus and Serena as pupils. "It's like asking somebody to believe that you have the next two Mozarts living in your house," he tells their unrelenting dad.

Once it's apparent that the sisters are the real deal, another coach tells Richard he might have the next Michael Jordan on his hands. He doubles down, naturally. Richard tells him he has "the next two."

Smith's performance has earned him early Oscar buzz. When *King Richard*, directed by Reinaldo Marcus Green and out in theaters and streaming on HBO Max on Nov. 19, premiered at the Telluride Film Festival in September, the crowd cheered during the closing credits. And although audiences know the ultimate ending—Richard's plan worked just fine; the Williams sisters own 30 Grand Slam singles titles between them—the movie manages to hook viewers as though the outcome were a mystery, especially during the climactic tennis sequence. Even close Williams watchers might not recall whether or not Venus, at just 14, upset then world No. 2 Arantxa Sánchez Vicario in 1994 (and I won't spoil it here).

Over the Thanksgiving holiday, families are sure to take in *King Richard* together over popcorn or leftover stuffing. Venus and Serena, played charmingly by Saniyya Sidney and Demi Singleton, respectively, offer plenty of inspiration for the kids. For dads and moms—of athletes, piano players, premed students and more—both the movie and the improbable real-life saga provide a chance to forget those guidebooks and "rules" for a few hours and take stock. What kind of parents are we? And what kind of parents do we want to be?

NOT THAT ANYONE could really duplicate the Williams' story. Though the film is a flattering portrait of the irascible Richard—to be expected for a movie in which Venus, Serena and their older sister Isha Price served as executive



^
Venus, Richard
and Serena
Williams,
pictured in 1991

producers—it's not without criticism of his unorthodox approach, nor does it completely sugarcoat his more maddening qualities. The movie's most searing scene involves Richard's then wife Oracene Price, who in a fine piece of acting by Aunjanue Ellis gets her oft-overlooked due for helping keep Richard's plan for their daughters on course, calling out her husband's past failures and inflated ego.

The story largely stays true to Williams family lore. Yes, according to Richard's 2014 memoir *Black and White: The Way I See It*, a nosy neighbor called the cops on him, convinced he was abusing his daughters. Yes, Sánchez Vicario took an unsporting bathroom break in her '94 duel with Venus that threw the green teen off. But the film takes some liberties. While Richard writes about the time he grabbed a gun to hunt down the Compton gang members who beat him up on the tennis courts, one of them wasn't killed in a drive-by shooting just as Richard nearly pulled the trigger on him, as the movie depicts. In the book, the gang members take off when they see an armed Richard approaching; he



later discovers one of them is dead.

Long before the events of the movie begin, Richard hatched his plan to have two more daughters and turn them into tennis champs after watching, on television, Virginia Ruzici of Romania receive a \$20,000 check for winning a tournament in 1978. Only two things were missing: the actual children, and any working knowledge of tennis. Venus and Serena would soon arrive. Richard learned the game by taking lessons from a guy named Old Whiskey, whom he said he paid in booze. Before Venus turned 3, Williams moved his family from Long Beach, a block from the coast, to Compton. “It would make them tough,” he wrote. “Give them a fighter’s mentality.”

Corey Gauff, whose daughter Coco stormed onto the tennis scene in 2019 when she beat Venus at Wimbledon, is one of the few parents to successfully copy at least parts of the Richard Williams blueprint. While Corey never needed Old Whiskey’s services—he grew up playing the game—he’s also found great success coaching his daughter. At 17, Coco is ranked 17th in the world. “The biggest thing he and

his daughters did was let me know that it is possible,” Corey tells TIME. “And it’s O.K. to do it your way.”

Richard’s braggadocio is not for everyone. But *King Richard* turns the lens disapprovingly on the country-club parents who resented Venus’ 63 consecutive wins at junior matches. They yell at their kids. One dad implores his daughter to cheat. When the cops arrive at Richard’s Compton house, he suggests they arrest the other tennis parents. The viewer can’t help but laugh in agreement.

And if you look past Richard’s carnival barking, you’ll find him homing in on two key tenets of success: patience and practice. Amid Venus’ stunning youth winning streak, Richard pulled her from the circuit, on the advice of only himself. Richard had seen other young sensations who preceded his daughters, like Tracy Austin and Jennifer Capriati, suffer from injuries and burnout. He wanted to slow things down and emphasize education. When the sisters moved to Florida to train at tennis academies, they attended school and got good grades. “Education is a good foundation, but it also makes you a better athlete,” says Corey Gauff, whose wife Candi, a professional educator, homeschools Coco. “The brain is a muscle too, right?”

By keeping Venus out of tournaments, Richard also gave her more time to hone her skills in training. America’s youth-sports culture emphasizes constant competition, especially in today’s era, where athletes are incentivized to specialize and secure ridiculous rankings to be broadcast on social media earlier and earlier in life. All the travel and showcasing leave little time for actual improvement. It’s almost as if Richard spotted the “10,000-hour

‘The biggest thing he and his daughters did was let me know that it is possible.’

COREY GAUFF, FATHER AND COACH OF U.S. TENNIS PLAYER COCO GAUFF

rule”—research disseminated through Malcolm Gladwell’s 2008 book, *Outliers*, touting the benefits of deliberate practice—more than a decade ahead of its time.

The result: the sisters have made millions, launched fashion brands and speak multiple languages. While they were developing outside interests earlier in their careers, pundits questioned their true dedication to the game. Venus is 41; Serena is 40. They’re still playing on tour.

NONE OF THIS IS EASY. The benefits of practice are no secret. But when you’re all too aware that your neighbors’ kids are playing in this travel tournament this weekend, and that travel tournament the week after that, the FOMO is real for both parent and child.

As a spectator watching my own son, who’s now 15, play youth sports, on far too many occasions I’ve stomped a foot in frustration, or buried my head in my hands, after a disappointing play. Not the best display of patience. If he spots me doing this, I know his confidence will only suffer. I feel terrible afterward, and swear I’ll never do that again. I do it again.

“In all matters, including tennis, I decided I would always be their father first,” Richard wrote. “It was the best decision I have ever made. I have seen so much damage in this world done by parents who take the other road.” Richard pushed his daughters to succeed, but it’s clear he avoided damaging their psyches, unlike more notorious tennis dads like Stefano Capriati, who admitted he put too much pressure on his early-’90s phenom daughter, or Jim Pierce, who was accused by daughter Mary of physical and verbal abuse; at one point she filed a restraining order against him. If Richard crossed a line, it’s highly doubtful his daughters would produce *King Richard* in his honor.

Be a father first. Seems like the winning formula. You likely won’t achieve the same results as Richard Williams. Don’t expect to be portrayed by a world-famous actor down the road. But do expect the love and respect of your kids. That’s worth more than any Oscar. □

BOOKS

A user's guide to human emotions

BY BELINDA LUSCOMBE

WHY IS THAT PEOPLE ARE QUICK TO SAY THEY'RE jealous of someone, but will not admit to being envious? What's the difference between shame and guilt? Is hopelessness the same as despair? These are the questions Brené Brown, the sociology professor turned best-selling author and leadership consultant, tries to answer in her new book, *Atlas of the Heart*, out Nov. 30.

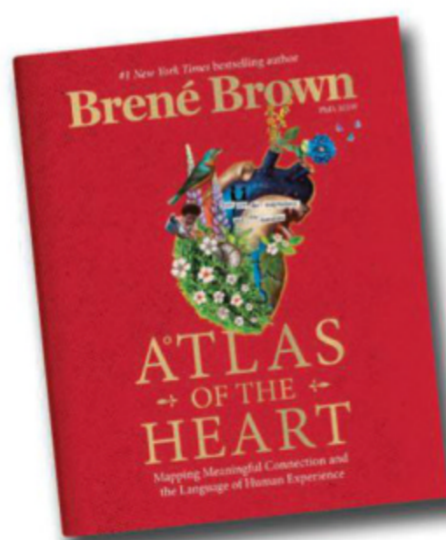
Although these may seem like trivial taxonomic issues to some, Brown believes the ability to precisely name feelings is a crucial skill, especially in days of division. "If we want to find the way back to ourselves and one another, we need language," she writes, "and the grounded confidence to both tell our stories and to be stewards of the stories that we hear."

In surveys taken by 7,000 people over five years, Brown and her team found that on average people can identify only three emotions as they are actually feeling them: happiness, sadness and anger. For Brown, who made her name by illuminating the finer contours of humans' emotional landscape, this is not nearly enough. So she sets out to map 87 different emotions and experiences, pointing out the distinguishing features of each.

The difference between guilt and shame—for example, as fans of Brown already know from her wildly popular TED talks, her five previous No. 1 best sellers, her podcasts and Netflix lecture—is that guilt tells people they did something bad while shame tells people they are something bad. The difference between envy and jealousy is that envy materializes when one wants something somebody else has—looks, status and wealth are the big trio—while jealousy is the feeling that a relationship is being threatened. Hopelessness is a fleeting fear that a task is too difficult, and despair is a feeling that life is too difficult. And so on.

AS A POTENTIAL CARTOGRAPHER for the human experience, Brown is a solid candidate. She's the Dr. Fauci of feelings; she can take complex subjects that require years of study and explain them in a comprehensible and reassuring way. But unlike America's most famous public-health official, Brown is allowed to be vulnerable. Indeed, she insists on it. *Atlas* flicks at her personal biography as a source of exposition. She mentions in passing that she came from a dysfunctional but high-performing family, and that she's a recovering alcoholic, a committed swimmer and a perfectionist.

This formula, very human subject + rigorous



▲
Brown's latest book attempts to explain 87 human emotions, why they matter and how to respond to them

research, has powered her work for 20 years. *Atlas*, sold to HBO Max as an unscripted series even before it was published, is her most reader-friendly book yet—but it may also be her thinnest. Examining 87 emotions in an easy-to-digest 300 pages is a tall order. And some readers will feel the stretch marks. A good portion of the book is oversize quotes, and there are some less-than-persuasive sections: Isn't "bittersweet" self-explanatory? What is "irony" doing in a list of emotions?

The pleasure of reading Brown's previous work has been dawning self-recognition, as she carefully and diligently loosened the knots that bound readers' hearts and hindered their ability to cope with their circumstances. This is more a book of quick hits, a reference guide to dip into when readers need a little reorientation. Brown's attempt to help people find their way to one another is laudable, but she has compiled an atlas when we need a GPS. □



Norman and Phoenix:
high fives all around

MOVIES

**TWO OLD SOULS,
ONE OF THEM
JUST A KID**

Movies about childless adults learning life lessons from children are pretty much a terrible idea—unless they’re made by Mike Mills, who turned his reflections on his own upbringing into the marvelous *20th Century Women*, from 2016. In *C’mon C’mon*, Joaquin Phoenix plays Johnny, a single New York City radio journalist who agrees to look after his nephew Jesse (Woody Norman), a Los Angeles kid, while his sister (Gaby Hoffmann) tends to some emotionally complicated personal business. At first Johnny has no idea what to do with Jesse, an exceptionally bright 9-year-old whose favorite bedtime game is to imagine himself as an orphan with a tragic backstory. But each learns to accommodate the moods of the other, making both of their worlds a little bigger, and a lot better.

Phoenix earns accolades for playing oddballs and troubled loners, but he’s better than almost anyone else at playing regular guys bewildered by life, and both he and Norman are terrific here. You may go into *C’mon C’mon* thinking you know exactly what it’s going to be. But coming out, you may see that you also got a million little firefly flashes of feeling you weren’t expecting. And that right there is the Mike Mills touch. —Stephanie Zacharek

MOVIES

**A big-time filmmaker revisits
his Northern Ireland boyhood**

KENNETH BRANAGH—WHO GAVE US both a gorgeous full-length *Hamlet* (1996) and a bloated *Murder on the Orient Express* (2017)—is an all-caps filmmaker, generally preferring the grand dramatic gesture even when a subtler flourish would do. Accordingly, his semiautobiographical *Belfast*—which takes place in that Northern Irish city in 1969, at the onset of the Troubles—is both intimate and almost comically egotistical. Yet Branagh has poured so much love into it that you can’t be too hard on him. The movie’s affectionate energy ultimately proves irresistible.

Early in *Belfast*, we see adorably sweater-clad 9-year-old Buddy (newcomer Jude Hill) playing with other kids on his idyllic little street. Then an angry mob storms the block, smashing windows and setting fires for no reason that would be apparent to a kid. The small, tidy house where Buddy lives with his mother (Caitriona Balfe) and brother (Lewis McAskie)—

his father (Jamie Dornan) is working in England to support his family, returning home for periodic visits—remains unscathed. It is, we’re told, “only the Catholic houses” that are the targets of the rioters’ rage, and Buddy’s family is Protestant. Still, his parents decry the violence: Should they stay, or should they go?

If you’re looking for cogent ideological analysis of fairly recent Irish history, you won’t find it in *Belfast*. But as a portrait of one future auteur’s late-1960s childhood, the movie is vivid and heartfelt. Balfe and Dornan are superb as young parents trying to figure out what’s best for their family amid escalating political violence. And as Buddy’s adored grandfather, Ciarán Hinds might have been a salt-of-the-earth cliché, yet his lovelorn-hound eyes keep the movie grounded. *Belfast* is all about the power of memory, and not even Branagh—a lauded, over-the-top filmmaker, and a knight to boot—can escape its spell. —s.z.



Dornan and Hill, striding toward the future through a world of strife

CHINA WATCH

PRESENTED BY CHINA DAILY 中國日報

Celebrations for a century of excavation

Archaeological site dating back more than 5,000 years was first in field

BY WANG KAIHAO

A village in central Henan province has been celebrating after many of China's leading archaeologists gathered there on Oct. 17 to mark the opening of a new venue.

Some locals in Yangshao village, Sanmenxia, may still be unaware of the area's significance, but there was dancing and broad smiles as the Yangshao Archaeological Ruins Park was opened.

The site, more than 5,000 years old, was discovered a century ago, heralding the beginnings of modern Chinese archaeology.

Chen Xingcan, director of the Institute of Archaeology at the Chinese Academy of Social Sciences, said: "If the distribution of various prehistoric cultures in China can be compared to a flower with layers of petals, Yangshao was at the center of the blossom."

Johan Gunnar Andersson, a Swedish academic who was a geology consultant for the Chinese government, led the

first round of excavations at 17 locations in Yangshao over 36 days from late October 1921.

A Neolithic culture best recognized for its painted pottery was unearthed, astonishing academics. It was later called Yangshao culture, the country's first named prehistoric archaeological culture.

"Yangshao was the start of scientific research into the Neolithic period of China," Chen said.

This period, which in China dates back between 4,000 and 10,000 years, has contributed many of the country's biggest archaeological findings. A list of the country's top 100 such discoveries in the past 100 years issued on Oct. 18 contains 33 entries from the Neolithic period.

Nevertheless, before Andersson's findings, people had little understanding of this time.

"Some people even thought that China had no Neolithic period," Chen said. "Discovery of the Yangshao village site ended such thoughts and provided great inspiration for Chinese scholars, building their confidence."

Several milestone findings

a remote, loose, weak linkage, or in the case of Liu Bing, a temporary decoupling of him and the accessories he sells.

Liu, 35, is a vlogger on the short video app Douyin, where he imparts so-called life lessons through a series of two-minute video clips to young people aged 18 to 28, he said.

But a more ambitious plan is in the making: when the cur-



From top: Painted pottery is displayed at the Miaodigou Yangshao Culture Museum in Sanmenxia, Henan province. PHOTOS BY WANG KAIHAO / CHINA DAILY
An ivory sculpture of a silkworm unearthed at the Shuanghuaishu site, dating back about 5,300 years during the later period of Yangshao Culture, in Henan. PROVIDED TO CHINA DAILY
Unearthed objects are displayed at the Miaodigou Yangshao Culture Museum. WANG KAIHAO / CHINA DAILY

were made in various places in the country in the 1920s, including the Yinxu ruins in Henan and the Zhoukoudian site in Beijing. Both are UNESCO World Heritage sites.

Over the past century, a comprehensive picture of Yangshao culture, dating back 5,000 to 7,000 years, has emerged across China, mainly along the upper

When the salesperson becomes the sales point

BY HE WEI

In traditional commerce, businesses keenly peddle their merchandise, highlighting features, functionalities and alluring price tags.

All eyes are on the products, and the relationship between customers and merchants is as simple as transactional.

Today some merchants prefer

rent 30,000 followers grow to exceed 50,000, Liu will consider introducing necklaces, earrings and other jewelry items featuring Chinese characteristics that he designs, manufactures (in partnership with an original equipment manufacturer) and sells.

Liu's choice of detour uncovers a new way of doing business: selling your persona before selling your brand.

Enriching media forms from short videos to livestreaming are rewriting the retail playbook in China. Merchants are elbowing their way to capture people's significantly shortened attention span, and that is when emotional connection kicks in.

"We are witnessing a shift from rack-based shopping to discovery-based shopping, and eventually to trust-based shopping," said Jason Yu, general manager of the consultancy Kantar Worldpanel



and middle reaches of the Yellow River. Related heritage sites were found in 10 provincial-level administrative regions, scattered over more than 386,000 square miles. The border area of Henan, Shanxi and Shaanxi provinces was the core of Yangshao culture.

Wang Wei, president of the Archaeological Society of China, said: "This culture is thus the longest-lasting and widely influential type of prehistoric culture in China. Covering such a wide area, it also brought a cultural mix and created a foundation for early-stage Chinese civilization at a pivotal time."

Thanks to continuous excavations, more discoveries have been made.

At the Banpo site in Xi'an, Shaanxi, Yangshao culture

dating back 7,000 years was unearthed. The Miaodigou site in Sanmenxia, which is 6,000 years old, reflects the peak period for this culture. Both sites were discovered in the 1950s.

One discovery at the Xipo site in Lingbao, Henan, amazed archaeologists. Architectural ruins with surrounding corridors, covering 5,554 sq. ft. and including a 2,196-sq.-ft. indoor space, were unearthed in 2002.

Wei Xingtao, a researcher at the Henan Provincial Institute of Cultural Heritage and Archaeology, said similar "big houses" covering more than 1,076 sq. ft. were also unearthed from September last year to June at another site near Xipo. Key discoveries included the carbonized remains of wooden columns and beams.

These buildings were probably not used for people's homes but to host highly important rituals or used as tribal assembly halls, Wei said.

"The findings are significant for us in reconstructing how prehistoric architecture appeared in China. They also reflect a highly developed society."

In Yangshao village a series of excavations re-started in August after a break of about 40 years. Newly found relics span the entire Yangshao culture period. In addition to residential compounds, roads and tombs, many artifacts have been found, including pottery, jade and items made from stone, bone, and ivory.

No matter the number of discoveries in recent years, painted pottery remains a typical symbol of Yangshao culture.

This pottery, with hand-drawn patterns of smooth lines and various forms, is often seen as the first artistic wave in the prehistoric period of China.

The Miaodigou site and the area under its influence are generally considered to represent the highest-level achievements of Yangshao painted pottery, which

was found as far as the middle reaches of the Yangtze River.

Li Shuicheng, an archaeology professor at Peking University, said: "During the boom time in Miaodigou, Yangshao culture

entered an era of unity with vast influence, which can be seen from painted pottery unearthed elsewhere."

Decorations on Yangshao painted pottery also include petals and patterns of an arc triangle and circular dots. Other designs such as birds, fish, human faces and flames are commonly seen.

In researchers' eyes, these designs are more than mere decorations.

Ma Mingzhi, an associate researcher at the Shaanxi Academy of Archaeology, said the designs may provide clues to a belief system, while the human face design is a symbol of witchcraft and priests.

"Birds and fish may have acted as ambassadors between the people and heaven," he said. "These patterns were not casually drawn on pottery to look good, and their use followed rigid rules involving the gods. Many variants await further clarification."

“
THIS CULTURE
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CHINA.”

WANG WEI, PRESIDENT
OF THE ARCHAEOLOGICAL
SOCIETY OF CHINA



A boy learns to make replica painted pottery at the Yangshao Village National Archaeological Ruins Park in Sanmenxia on Oct. 17. WANG KAIHAO / CHINA DAILY



An official in Dexing, Jiangxi province, livestreams a promotion of local fruit on the short video platform Douyin. ZHUO ZHONGWEI / FOR CHINA DAILY

China. "I choose to buy something not necessarily because of the products per se, but because of the person selling it."

This retail new normal can be traced back to the early days of livestreaming, a real-time interaction between customers and store owners materialized by technological readiness, that is, smartphones and high-speed internet connections.

When the e-commerce platform Taobao introduced

livestreaming five years ago, it took off and turned into something of a must for businesses seeking younger consumers.

Today the platform has groomed a handful of influencers, better known as hosts, in online shopping.

The model is now embraced by a growing number of players, who adapt to, and make variations on, this influencer-driven shopping in a bid to keep abreast of varying consumer interests.

Douyin, for instance, is seen by many industry observers as giving mature e-commerce players a run for their money. By ramping up its e-commerce initiatives since last year, Douyin's gross merchandise volume, a key gauge of sales in e-commerce, topped \$77 billion last year, more than three times that of 2019.

It is placing its latest bets on agriculture related e-commerce, encouraging and facilitating farmers to be part of online selling.

CHINA WATCH

PRESENTED BY CHINA DAILY 中國日報

BY WANG HAO,
WANG RU

and HU DONGMEI

High ambition

Ningxia plots path to greatness in world of wines

In *Discussion on Tea and Wine*, an article written by the man of letters Wang Fu during the Tang Dynasty (618-907) and discovered in 1900 in the Mogao Grottoes in Dunhuang, Gansu province, an imaginary debate between tea and wine, each trying to stress its importance over the other, is vividly depicted.

Despite the amusing contrast, tea and wine have a lot in common. Both come from plants, and people care about the regions where they are produced. They are viewed not only as drinks but also as a way of life.

The Dunhuang article shows Chinese people have a history of drinking wine, viewing it as important as, if not more so, than tea.

China is known globally for its tea, but now the country is seeking to build its reputation as a major producer of wine, especially in the Ningxia Hui autonomous region, which "has the conditions to become a world-famous wine region", said Zhang Xu, vice-minister of culture and tourism.

Ningxia has produced wines that have won nearly 1,000 prizes in international competitions, including six gold medals at the Decanter World Wine Awards, the world's largest wine competition, in 2019, said Zhao Yongqing, executive vice-chairman of the Ningxia regional government.

With abundant sunshine,



From left: A volunteer helps pick grapes at Jade Vineyard. Vintner Ding Jian (third from right) with Jade Vineyard visitors. PHOTOS PROVIDED TO CHINA DAILY



little rainfall and a semi-sandy soil, Ningxia has favorable conditions for growing grapes. It started to make wine in the 1980s, and now grapes are planted on 91,430 acres of its land, accounting for a quarter of China's capacity. The more than 200 wineries in the region can produce 130 million bottles of wine a year, Zhao said.

Ningxia's wine industry is growing, especially in the eastern foothills of Helan Mountain.

Hao Linhai, former vice-chairman of the Ningxia regional government, said he realized Ningxia was ideally suited to wine making after talking with a French expert.

Ningxia is spreading local culture and telling its stories through its wine as well.

"We believe wine is not only a commodity but also a product of civilization," said Herve Novelli, former French minister of culture and tourism.

"Tasting wine helps us learn more about the terroir of the region, including the people who make the wine, their

history and the views of the region."

For Ding Jian, owner of Jade Vineyard in Ningxia, the design of her wine bottles and winery has rich cultural connotations.

For example, wines named Ruyi have been produced by her vineyard and won international prizes. On the bottle there is a jade *ruyi*, a decorative scepter with an S-shaped handle and a head resembling a *lingzhi* mushroom, an auspicious totem in Chinese culture, against an emerald backdrop. *Ruyi* also means "things will go as you wish", showing people's blessings for others.

Jade Vineyard is also taking the lead in combining music with wine. That attracted Yao Mengshi, 30, to volunteer at the vineyard when the grape-picking season began.

She had an "immersive experience" when she and seven other volunteers picked grapes and squeezed out the juice to make wine.

For Gao Yuan, owner of Silver Heights winery in Ningxia,

the bio-dynamic method she follows is related to traditional wisdom.

"Unlike in modern industrialized agriculture, in which people calculate the minerals in a piece of land by computer and apply the proper dosage of fertilizers based on the calculation, we grow grapes in a natural way," she said. "By observing the moon and following a planting calendar that depends on celestial observations, we use compost as fertilizer and avoid most pesticides.

"In some way it is similar to the habit ancient Chinese people had of doing things after checking *Tung Shing*, a Chinese divination guide and almanac, and some ideas echo *I Ching*, an ancient Chinese divination text. I hope this will lead other local wineries to follow our example and apply this environmentally friendly method."

Ningxia has announced 10 tourism routes, centering on the wineries in the foothills of Helan Mountain. The routes also combine traditional tourist sites such as Zhenbeipu Western Film Studio and the rock art of Helan Mountain.

Liz Thach, a U.S. wine expert who has been to Ningxia twice, said: "I must admit I am a big fan of Ningxia's cuisine and wine, and the growth of its wineries has been phenomenal since I visited in 2012.

"Ningxia has done incredible things in wine tourism, combining architecture and cuisine. I think it has succeeded in its goal to attract Chinese tourists. The next goal is to promote wine tourism for people from around the world."



Silver Heights winery is one of the major companies in the booming wine industry in the eastern foothills of Helan Mountain in the Ningxia Hui autonomous region.

Survivor of earthquake
steps out to make bold
fashion statement

BY WANG QIAN

On the catwalk she dazzled those who saw her, but not just because of her beauty or the clothes she wore. She also seemed to radiate an inner strength. She is not a professional model, but her one-minute catwalk had racked up more than 160 million views on the micro-blogging platform Sina Weibo by Oct. 26.

When Niu Yu strutted confidently down the catwalk at the Shanghai Fashion Week that concluded in October, she did so with her artificial leg in full view.

"It is a really big breakthrough for me to stand on a stage," Niu said.

"Losing a leg doesn't mean losing my passion for life."

Everyone has their own beauty, she said.

The 24-year-old is a photographer in Chengdu, Sichuan province, who, at the age of 11, lost her right leg, which was amputated just above the knee, in the 2008 Wenchuan earthquake. It took her more than 10 years to accept her new body image, she said.

Having faced prejudice against the physically challenged, as well as negative and hurtful comments, Niu found her own way to challenge stereotypes.

Her latest video shows her walking along Chunxi Road, Chengdu's busiest commercial street, in September, with her prosthetic leg lit up with LEDs. The shining limb made it impossible for passers-by not to stare.

"My prosthesis is a badge of survival and courage, of my fight for life in hospital," she said. "It is a part of me and not something to be hidden."

She wants to tell those who are physically impaired and who are stuck at home to walk out on the street and



IRON NERVES forged in ADVERSITY



Clockwise from top left: Eleven-year-old Niu Yu being rescued after being buried in the ruins of her school in Sichuan province for three days following the Wenchuan earthquake in 2008. Niu finishes running the half marathon marking the 10th anniversary of the quake. Now 24, it has taken Niu more than 10 years to accept her body image.

PHOTOS PROVIDED
TO CHINA DAILY

enjoy the sunshine, she said.

Her optimistic attitude has charmed social media users. Some said that in her they see

someone who is "bright, sunny and wholesome".

Thirteen years ago Niu was buried under the ruins of her school

in Beichuan Qiang autonomous county for three days following the 8.0-magnitude earthquake that hit Wenchuan in Sichuan. The right leg of the fifth-grader was so badly hurt that it had to be amputated above the knee. When doctors suggested amputating the other leg, fearing a gangrenous infection, her father begged for them not to.

After more than 30 operations to remove the dead, damaged and infected tissue, and staying in hospital for more than three months, her left leg was finally saved. Niu has learned to stand on one leg and move with the use of the prosthesis.

Her trauma caused her to doubt herself, she said. She became introverted and refused to ride on the subway by herself or dine out alone. Every time she went outside, she would tape sponge to her prosthetic leg and wear long trousers to hide her disability, while constantly fearing that her gait would give her away.

The turning point came in 2018, the 10th anniversary of the earthquake, when she registered to run a half marathon organized by the Wenchuan county government. Niu wore shorts in the event, showing her prosthetic leg in public.

She finished the 13-mile event in 3 hours and 53 minutes, at times almost walking. But the time did not matter. It was her way of thanking those who helped Wenchuan recover from the earthquake and tell the world that it was all in the past. The present and the future now demanded her attention.

Since the race, Niu said, she has embraced herself for who she is.

She keeps reminding herself that life is short and every moment counts. And she knows that it is not what she is missing that defines her, but what she has got — courage and confidence.



◀ Lewis' Natalie knows her way around a rifle

the survivors have taken remarkably different paths in life. Shauna (Melanie Lynskey) married young and lives in a suburban stupor with a teenage daughter who finds her pathetic and a husband who's always "working late." Juliette Lewis is perfectly cast as Natalie, a gun-toting rebel just out of rehab. A nerd who found her purpose administering first aid in the woods, Misty (Christina Ricci, wonderfully creepy) has become a lonely, officious nurse. And Taissa (Tawny Cypress), a married lesbian with a little boy, is embarking on a political campaign that promises to put the women's shared past under a microscope.

TELEVISION

In *Yellowjackets*, ladies of the flies grow up

BY JUDY BERMAN

"WOMEN ARE FOOLISH TO PRETEND THEY ARE EQUAL to men," *Lord of the Flies* author William Golding once opined. "They are far superior and always have been. But one thing you can't do with them is take a bunch of them and boil them down, so to speak, into a set of little girls who would then become a kind of image of civilization, of society." How well this assessment holds up, nearly six decades after Golding published his classic novel about preteen boys who survive a plane crash only to find themselves stranded on a desert island, is open to debate. At the very least, *Yellowjackets*—a superb Showtime thriller that riffs on *Flies* without repeating it—suggests the author's benevolent gender essentialism might have been a mistake.

Created by *Narcos* alums Ashley Lyle and Bart Nickerson, the show swaps out the schoolboys in favor of a women's varsity soccer team on its way to nationals. It's 1996, alt rock rules the radio, and the girls are traveling in style because (get ready to suspend your disbelief) a rich dad has lent them his private plane. When it falls out of the sky and into the wilderness, the traumatized players wait for a rescue that never happens. They'll ultimately spend 19 months fending for themselves out there, so you know things are bound to get weird.

This isn't just a teen survival drama, though. *Yellowjackets*' main plot unfolds 25 years after the crash, as a reporter starts sniffing around. Each scarred in her own way by what they endured,

◀ Ricci plays a health care worker who is so desperate to help others, she almost always hurts them instead



"WHAT DO YOU THINK really happened out there?" the reporter (Rekha Sharma) keeps asking. That—and specifically the full story of what befell the team's charismatic captain, Jackie (Ella Purnell)—is the central mystery. Yet *Yellowjackets* is the rare series whose execution improves upon an already strong premise. Each episode has its puzzles and twists, just as each woman has her secrets, all set up carefully enough to make you wonder why you didn't unravel them sooner.

Lyle and Nickerson are deft with genre tropes. While Nat and Misty serve up a dark buddy comedy, Shauna is a wild soul trapped in a domestic drama and Taissa's life is a political thriller tinged with horror. The show delivers genuine scares; not for nothing is Karyn Kusama (*The Invitation*), who directed the premiere, an executive producer.

What makes this patchwork of styles, tones and time periods hang together is the thread of psychological realism that runs through every scene. From menstrual cycles to sexual double standards, *Yellowjackets* never stops digging through the particular baggage that teen girls bring into a state of nature.

YELLOWJACKETS premieres Nov. 14 on Showtime



Rudd messes with Ferrell's mind

TELEVISION

WHEN THE SHRINK IS A SCHMUCK

Marty Markowitz has issues. His father has died, leaving him a textile business and a vast fortune. Alas, Marty (Will Ferrell) lacks the intestinal fortitude to tell his ex-girlfriend he won't bankroll her vacations, let alone lead a company. So his sister Phyllis (Kathryn Hahn, doing the *SNL* "Coffee Talk" accent) sends him to a psychiatrist, Dr. Ike (Paul Rudd), who makes a quick diagnosis: "You let people take advantage of you." Then Ike spends three decades doing just that—manipulating Marty into giving him a job, money and residence at a Hamptons house where Ike, posing as the owner, throws lavish parties.

It sounds far-fetched, but it really happened, as recounted in the podcast *The Shrink Next Door*, before being fictionalized in this star-packed series of the same name. Although Rudd gives depth to an '80s Gatsby, the tone (comedic but rarely funny) and pace feel off. After a sluggish start, later episodes skip over decades at a time, leaving too many blanks to fill in. Most unfortunate is how many of the conspicuously Jewish characters, from Marty the nebbish to Ike the shyster to Phyllis the shrew, play into ugly stereotypes. —J.B.

THE SHRINK NEXT DOOR

premieres Nov. 12 on Apple TV+

TELEVISION

Space Cowboy rides again

COWBOY BEBOP IS A MOOD. ONE OF Japanese anime's most distinctive creations, the 1998 series is set in the year 2071 and follows a colorful crew of bounty hunters—and a corgi—as they pilot their spaceship, the *Bebop*, through the galaxy in search of fugitives. Creator Shinichiro Watanabe conjures a postapocalyptic landscape of casinos and dive bars, where refugees from Earth have colonized other planets, mixing cultures and clinging to pop-cultural detritus. It's film noir and *Blade Runner*, jazz and westerns, a love letter to ramen, martial arts and classic rock.

This is the kind of immersive world that attracts fiercely protective, tantrum-prone fans. As news about Netflix's live-action remake trickled out, some protested that John Cho, at 49, was too old to play 27-year-old antihero Spike Spiegel. Others griped that Daniella Pineda didn't look sexy enough as Faye Valentine, an animated character so curvaceous as to be structurally unsound. As it turns out, the casting isn't the problem at all.

Neither is the plot, a lightly serialized chronicle of the *Bebop*'s intensifying

conflicts with a powerful interplanetary crime syndicate. We learn about the heartbreak that made Spike the languid drifter he is. His crewmates, fiery Faye and Jet Black (Mustafa Shakir), a former police detective, have painful backstories of their own.

What's missing from this gratuitous adaptation is the atmosphere. Although it does have a certain pulpy, shoddy-chic visual style and benefits greatly from a jazzy, dynamic new score by original *Bebop* composer Yoko Kanno, it can't match the collage of aesthetics, vibes and cultural references that made its predecessor feel more like a dispatch from the future than an attempt to simulate it in the present. Showrunner André Nemec has said he aimed "to mine the archetypal nature of the characters and dig out deeper histories." Maybe that explains the otherwise baffling decision to adapt a 25-minute cartoon into episodes of up to an hour. Sadly, it misses the core appeal of *Bebop*, which finds its deepest resonance in a richly textured surface. —J.B.

COWBOY BEBOP hits Netflix on Nov. 19



The ageless Cho channels beloved anime antihero Spike Spiegel

MUSIC

The everlasting appeal of Adele

BY ANDREW R. CHOW

SIX YEARS IS A LIFETIME IN POP music. In the time since Adele's last release, streaming took over, TikTok became the world's hit laboratory, reggaeton moved to pop's global center, and Taylor Swift became a rapper turned indie-folk chanteuse. Then there's Adele, picking up right where "Hello" left off, still belting out earth-shaking ballads in the pouring rain.

In October, the 33-year-old Brit returned from creative hibernation with "Easy on Me," the first single off her fourth album, *30*, arriving Nov. 19. As the years pass, her anachronisms grow more pronounced: she's an album artist in an era of virality, opting for scarcity instead of constant output and leaning on instrumentation that was available to Frank Sinatra. Still, "Easy on Me" set a new high for Spotify streams in a single day and has topped the *Billboard* Hot 100 for two weeks.

How has Adele remained relevant while blatantly ignoring trends? Part of her success lies exactly in this rebellion, which endears her to those concerned with the disposability of today's pop. But to paint her solely as a savior of some outmoded definition of "real music" would be to ignore the ways she aligns perfectly with digital-age celebrity. Adele is both a throwback torch singer and a modern marketing genius—and it's the nexus of the two that will ensure her longevity.

OF COURSE, ADELE'S APPEAL starts with her music. Her voice has been astonishingly powerful since she broke out with 2008's "Chasing Pavements" and has only improved since. "Easy on Me" shows an utter mastery from her raspy middle to airy glissandos near the top. Equally vital is her emotional acuity: her keen understanding of narrative arc and ability to turn broad, relatable themes like nostalgia and insecurity into epic personal dramas. Her songs channel, then resolve, our own pain, rubbing both salt and aloe



^
A singular combination of an old-school sound and a savvy approach to modern celebrity fix Adele in the pop firmament

on our wounds. It's not surprising that many have succeeded in mimicry: see the months-long chart performance of Olivia Rodrigo's "Drivers License" or *A Star Is Born*'s "Shallow."

Adele fans like to wax poetic about her musical integrity and wholesome approach in the era of "WAP." Those kinds of comments are not just racially coded but also ignore a host of non-musical reasons for her dominance. The popularity of music has always been entwined with larger narratives, and Adele is a master of turning life

Adele is both a throwback torch singer and a modern marketing genius

into art; to come off alternately as unreachable and relatable; to respond winkingly to headlines in a way that creates more headlines.

Her brand is consistent: album covers are simple closeups of her face, and titles reflect her age, as if she were releasing sequels in a cinematic universe. She's uniformly hilarious and potty-mouthed in interviews, playing up her Britishness almost to the level of caricature. Her faux clumsiness is offset by high fashion and celebrity friendships. She writes songs about real people, revealing select details in interviews, which in turn send listeners back to the songs to hunt for lyrical Easter eggs, all this lending a mythic quality to the music itself. Adele is a constant in a world in flux—suffice it to say we have a pretty good idea of what to expect when 36 rolls around. □

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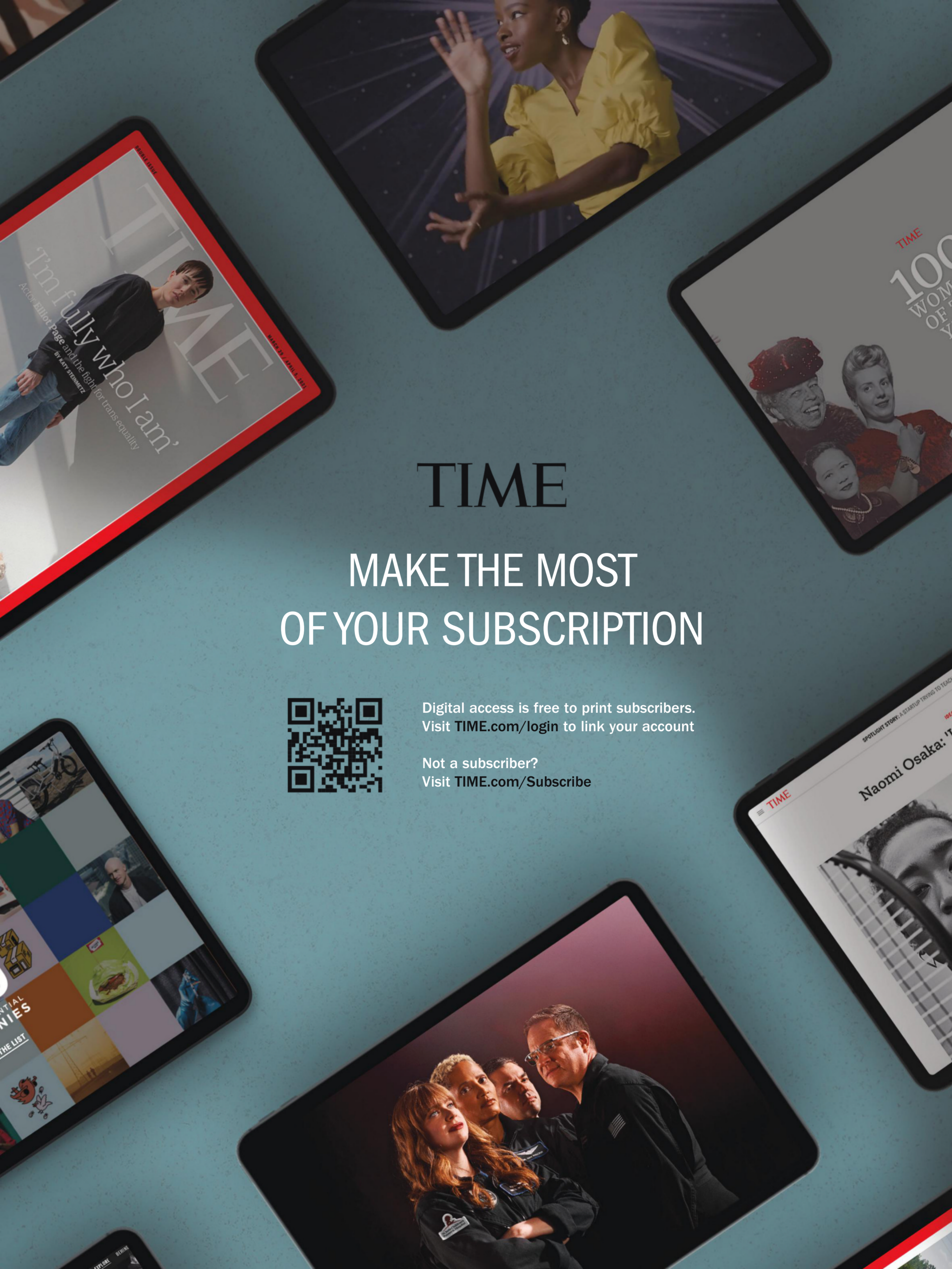


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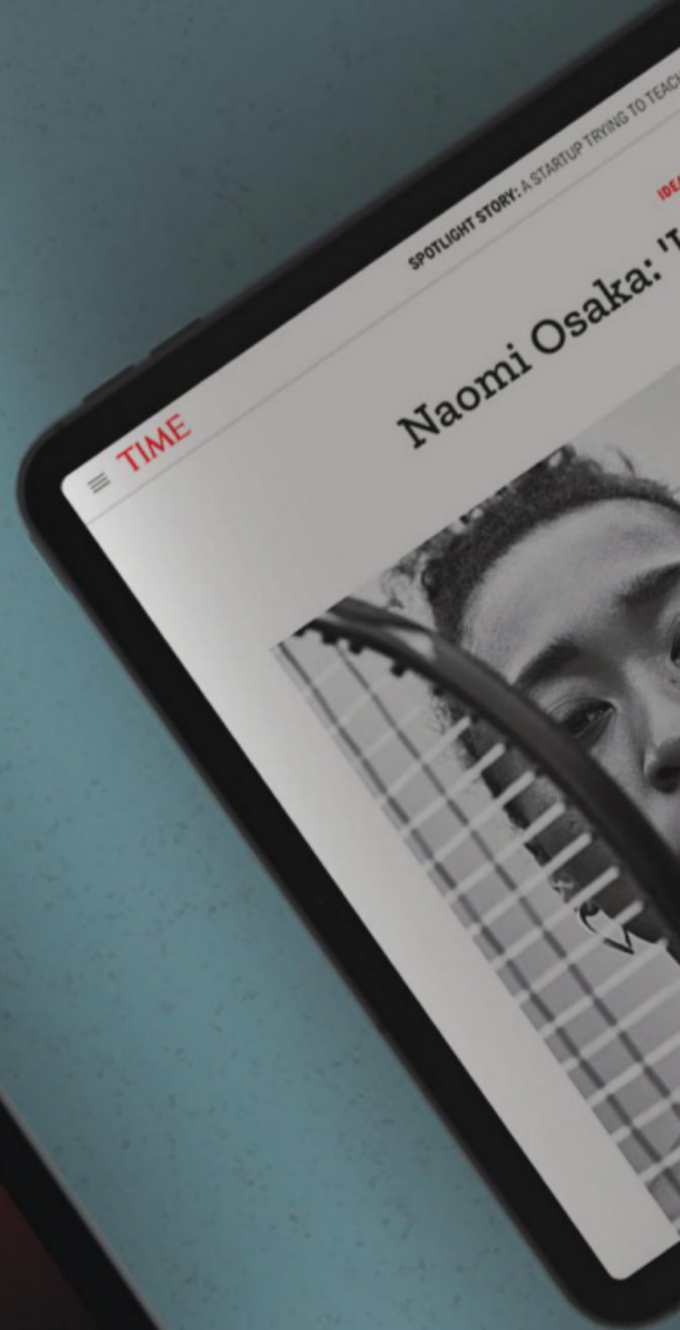
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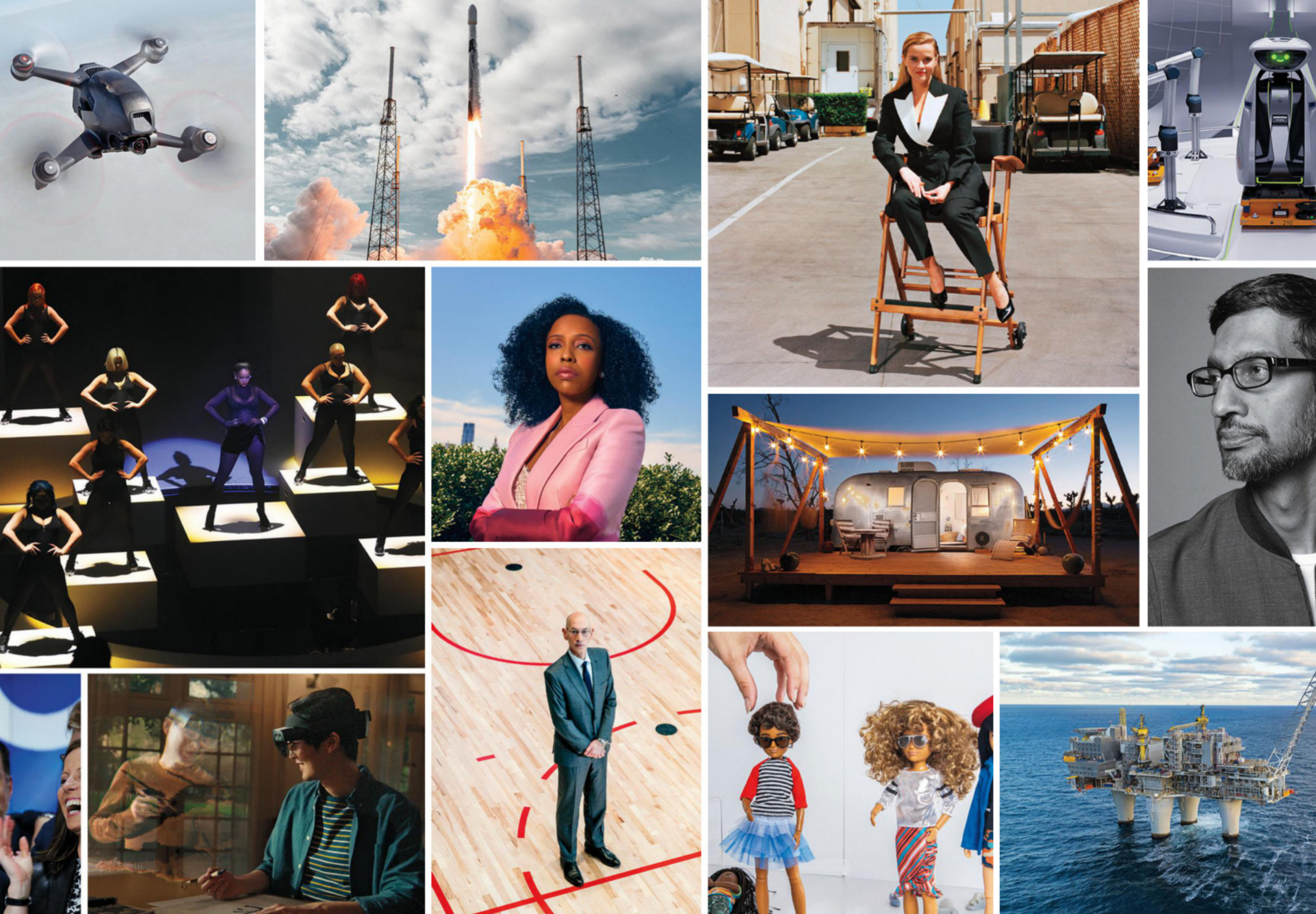
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Robert Plant and Alison Krauss The Led Zeppelin front man and the bluegrass icon on their new album, transcending genre bounds, and TikTok

On your new collaborative record *Raise the Roof*, you cover musicians like Geeshie Wiley and the Everly Brothers. Are there qualities in older roots and country songs that are missing from current pop?

AK: I like the simplicity and the timelessness of the songs on this record and from that era. There's no current phrases or anything, and the way they phrased things was so beautiful. There's a romance about their poetry.

While both of you move freely between genres, there have been many debates lately over what is and isn't country music—especially related to Lil Nas X and Kacey Musgraves. What do you make of those tensions?

RP: Are there genres just for charts, or just so the industry, whatever that term is, can decide who does what or where it fits? I know we've been in it. When *Raising Sand* had its ultimate zenith moment in the sun, what category were we in? I don't know.

AK: It's funny. The industry, they want you to be unique and different, and then they're mad they can't put you in a category.

RP: I think it's absolute rubbish. If you go to the glorious days of the late '60s—I don't know whether there were Grammys then, I suppose there were—where did that leave people like Jefferson Airplane and stuff? Are they rock? No! What is going on?

Led Zeppelin just joined TikTok, and videos tagged with Alison's name on the app have 5 million views. Are you excited about the app's impact on music?

RP: I don't want to sound like some tired old fart, some hippie languishing in the afterglow. But when we make these records, it's a collection of songs. It'll come as a bit of a surprise to some people who can't even imagine that an artist would want to start at Track 1 and finish Track 12 and say, This is where

What have you learned about yourself from culling through decades of your own music?

RP: I don't know; it's an ongoing question. I've been flamboyant, ridiculous, sometimes self-deprecating. Most times, I should shut the f-ck up a bit more and let other people surmise. I haven't learned anything, really, except for everything.

we're at. But what did you say at the beginning—Led Zeppelin what?

Led Zeppelin has an official TikTok account.

RP: Well, thanks for telling me.

You two won Best Album at the Grammys in 2009. Do you have any Grammy aspirations this time?

RP: What category? Comedy, maybe. I don't know. We never thought that we'd ever make a record together. If you think about us in isolation 15 years ago, you would never imagine that we could get to this point. I mean, she's such a nice woman, to end up singing alongside a monster.

AK: We made something we're all proud of. Just a really nice, enjoyable, inspired time.

RP: It's been a frolic. It's a shame that it's fall and winter, because otherwise we could be skipping along the side of that river that winds through Tennessee. I've been canoeing there.

AK: The Harpeth.

RP: Yeah, the Harpeth. Skipping on the riverbank with flowers in our hair, daisy dancing. But the Grammys? I don't know about that. I'll have to buy some new clothes.

Robert, did you see that the singer-songwriter Margo Price dressed up as you for Halloween?

RP: No, how about that. Which me was it?

At Kezar Stadium in San Francisco in 1973, holding a dove.

RP: That old chestnut? I also had a cigarette and a bottle of Newcastle Brown. And none of that was staged, I have to say. Very, very strange moment. I once had a girlfriend who said that I had a kind of low hum that attracted animals and small children. Well, thank you, Margo, wherever you are. I hope she looked as good as I did then.

—ANDREW R. CHOW



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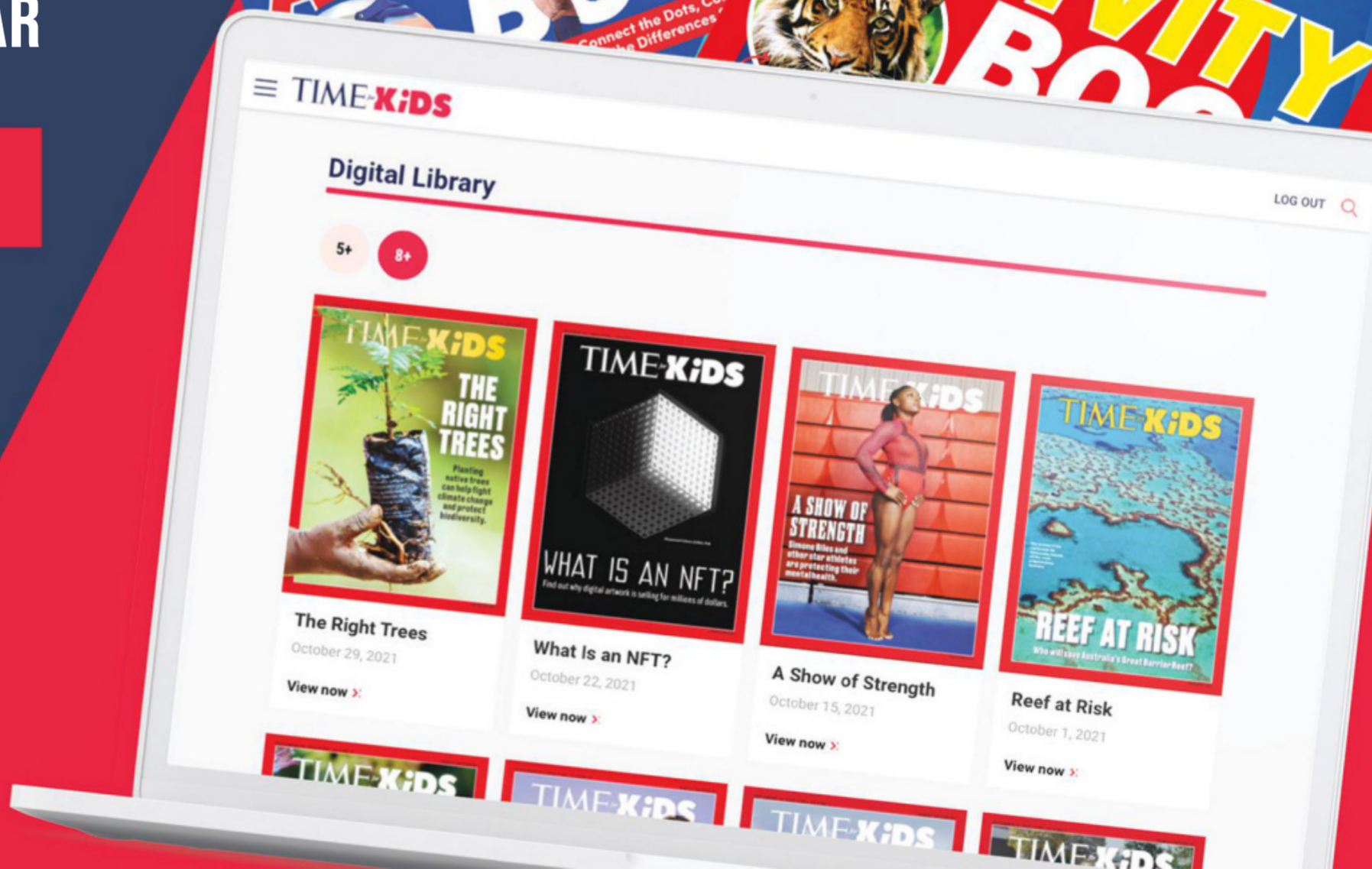
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