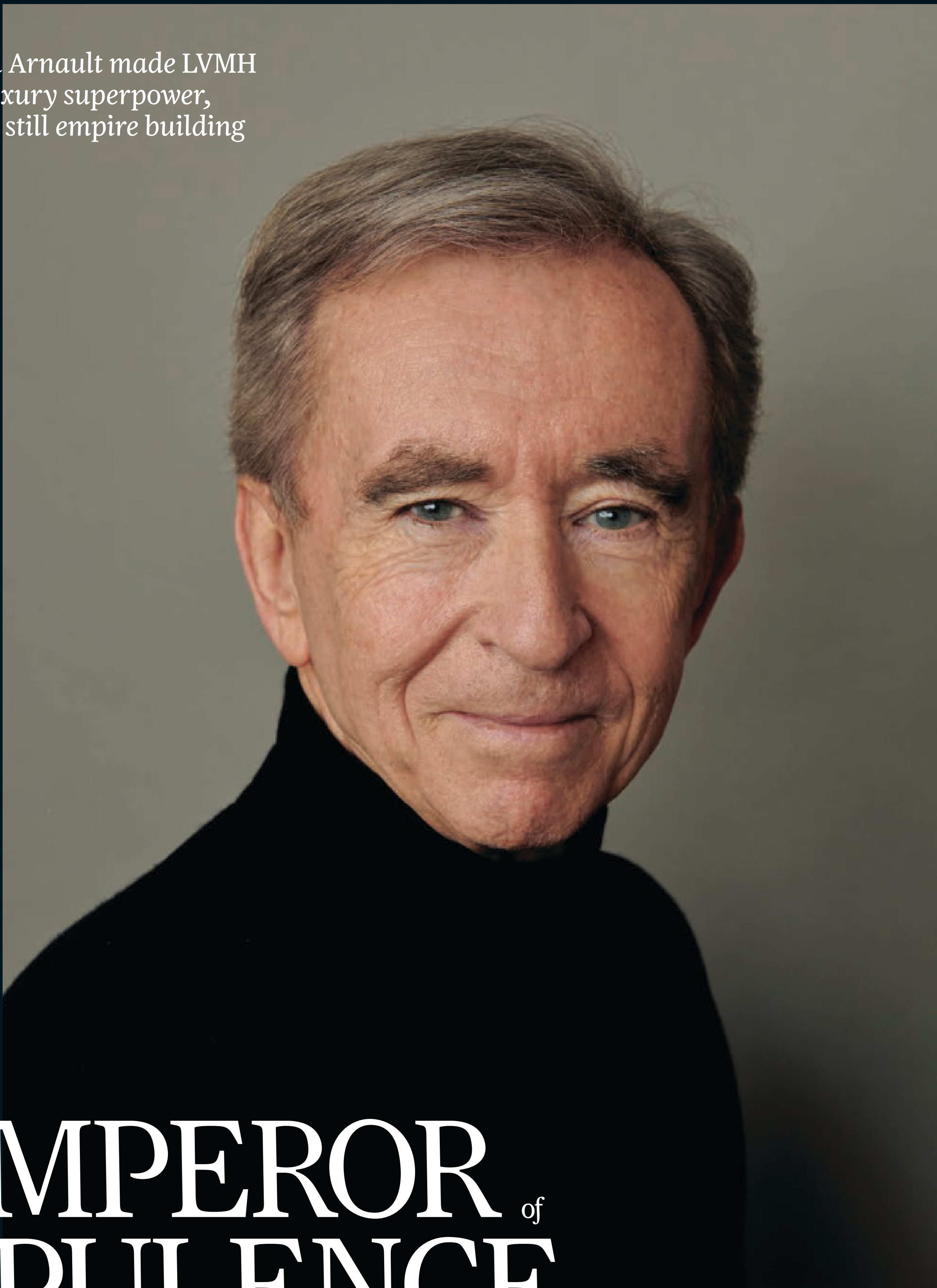
Bloomberg Businessweek

July 2024



Bernard Arnault made LVMH into a luxury superpower, and he's still empire building

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Bodrum guarantees a warm welcome for all visitors, going above and beyond to cater to all seeking to enjoy the scenery and its charm.

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The name "Bodrum" is whispered as a byword for luxury, respite, and an escape to serenity. With its sun-kissed beaches, secret coves, and lush landscape – not to mention its dazzling high-end resorts and premium shopping experiences – this idyllic peninsula has cast an enchanting smile across the face of visitors since it staked its claim as Türkiye's own slice of heaven on earth more than half a century ago.

Although the area has seen constant interest since the advent of tourism in the last century, Bodrum's history is vast to a point of which one can barely conceive. Some of the area's most notable sites include the town's iconic Bodrum Castle, the Mausoleum of Halicarnassus, and stunning 4th-century theatre that hosts musical acts and dance performances throughout the summer – the routes and trails between which, now are lined with Aegean hallmarks, such as white-painted homes, tangerines trees, bougainvillea and sun-soaked skies.

Today, the region is home to an increasing number of renowned resorts designed by international hotel gurus and residential communities attracting a globe-trotting clientele proud to call the Bodrum Peninsula their home. For those who want to truly indulge and release the strains of modern life, some of the world's finest spa experiences are on hand with top-notch facilities offering hamam (Turkish bath) treatments, as well as holistic therapies and yoga surrounded by some of the country's most breath-taking scenery.

Needless to say, the area sees the daily arrival of yacht owners and sailing enthusiasts berthing to enjoy the respite of its deluxe marina services, offering fine dining, fancy bars, and clubs, as well as a wealth of designer stores and art galleries. Gulets, traditional wooden sailing yachts, regularly leave port to invite visitors to daily explore otherwise inaccessible coves and islands in majestic comfort.

Speaking of Turkaegean delights, one is bound to seek out some of the area's wide array of dining options after enjoying a range of uplifting leisure activities. Here the restaurants bring a modern light "Bodrum" touch to local recipes and create delicious meals, benefitting from the abundance of the region. Whether in a

vast vineyard, or a luxury coastal hangout, Bodrum's sunsets provide an exhilarating backdrop to any evening meal. Locally sourced seafood freshly brought from net-to-plate is highly recommended, sided by refreshing appetizers – known as "meze." Order Gambilya fava, a wild bean purée, stuffed squash flower, and sea cowpea to get the taste of local dishes. All of this will undoubtedly go down well with a refreshing glass of rakı – a traditional anise liquor – or Turkish wine produced with local grapes. While small local fish restaurants line the seafronts of every town in the area, 5-star resorts are replete with the summer residencies of the country's biggest chefs and hot international restaurant brands offering the upper crust of fine dining in the most sumptuous of settings.

The peninsula features several small coastal towns and villages, each with its own earthly pleasures. To see and to be seen head to Türkbükü, one of Bodrum's most popular coastal towns, featuring exclusive boutique hotels, restaurants and bars. Here you can enjoy dressing up for a fine dining experience followed by cocktails at the stylish bar at night. While Yalıkavak and Göltürkbükü attract a globetrotting clientele with their luxury beach clubs,

The MICHELIN Guide Bodrum at a glance:
19 recommended restaurants including:

2 MICHELIN Star restaurants; Kitchen, Maçakızı

2 Bib Gourmand restaurants

15 selected restaurants

hotels and marinas; Gümüşlük emits bohemian vibes from its waterfront jazz bars and fish restaurants. Bodrum's center is ideal for shopping therapy at its historic bazaar, swarming with artisanal boutiques selling high-quality linen beachwear and Bodrum's handmade leather sandals. Bitez and Ortakent, on the other hand, stand out with their established communities living year-round, many ending their workdays on one of the pristine beaches that abound. Before leaving the city, make sure to tick off a couple of must-dos. Visit the iconic Bodrum Castle to see one of the oldest shipwrecks in the world in Bodrum Museum of Underwater Archaeology. Follow-up on the dates of live summer concerts staged in the ancient Bodrum theater. Each July and August, one of the world's leading ballet festivals, the Bodrum International Ballet Festival, is organized by the State Opera and Ballet, and welcomes outstanding ballet companies from Türkiye and around the world, offering a unique experience in the magnificent atmosphere. If you're planning to visit in October, don't miss the annual Bodrum Cup, in which the country's sailing hub hails the arrival of seafarers from far and wide and the most elegant sailing yachts set out to compete Turkaegean way of luxury.


Stand-up Paddling


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PHOTOGRAPH BY MUHAMMAD FADLI FOR BLOOMBERG BUSINESSWEEK

Indonesian nickel processing is a dirty—and deadly—business ▷ 76

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Contributors

● **Brad Stone** is the editor of *Bloomberg Businessweek*. He's been writing about the titans of business and technology for two decades.

● **Beth Kowitt** is a Bloomberg Opinion columnist covering corporate America. She's been writing about gender issues in the workplace since 2008.

● **Tom Orlik** is chief economist for Bloomberg Economics. Having started his career at Britain's Treasury, he says central banks' main frenemies are the ministries of finance.

● **Amanda Mull** is a *Bloomberg Businessweek* senior reporter. She writes about the intersection of culture and commerce in her column, Buying Power.

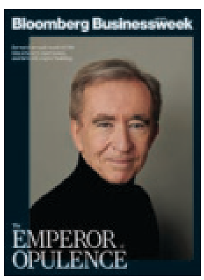
● **Angelina Rascouet** is a luxury reporter at Bloomberg News. She and Brad spent a week in Paris interviewing Europe's richest man, two of his sons and one of his top lieutenants.

● **Matthew Campbell** and **Annie Lee** have been researching Indonesia's role in the electric-vehicle supply chain for more than a year. Matthew is *Bloomberg Businessweek*'s Asia editor, and Annie is a metals and mining reporter at Bloomberg News.

● **Annie Massa** is a wealth reporter at Bloomberg News. She covers billionaires, family offices and other obscure corners of financial markets.

● **Laura Bliss** and **James Attwood** hand-drew a map of Chilean mines and observatories to report their story on light pollution. Laura is an editor and writer and James a senior commodities reporter at Bloomberg News.

Cover



For our inaugural monthly cover, renowned fashion and portrait photographer Ruven Afanador captured Bernard Arnault at LVMH headquarters, on Avenue Montaigne in Paris. Arnault, photographed without his usual Dior suit jacket, also posed with the Eiffel Tower behind him—two icons of French culture in dialogue in one picture. ▷ 68

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What Makes a Successful Succession

● By Brad Stone

Jacob Sapirstein, the son of a rabbi from Wasosz, Poland, immigrated to America in 1905 and, after passing through Chicago, ended up in Cleveland. He got a job with relatives dealing postcards in the lobby of a downtown hotel, then, with a $50 bank loan, he struck out on his own, importing and selling elegant, German-made postcards to candy and novelty shops and drugstores from a horse-drawn carriage.

Even during the turmoil of the early 20th century, the Sapirstein Greeting Card Co. thrived. Jacob upgraded his traveling office to a Ford and pioneered the use of self-serve wall cabinets and floor displays. He brought his three sons into the company, and they eventually changed the firm's name to American Greetings and the family's last name to Stone. In its heyday, American Greetings was among the 500 largest companies in the US and was listed on the New York Stock Exchange.

Academic research suggests that by the third generation, family-owned companies are often exposed to destructive forces. It's simple math: There are usually more grandchildren jockeying for power than there are positions to satisfy them. Nepotism collides with meritocracy, and tensions arise between preserving shareholder value and milking the company for cash. I have only a dim memory from my childhood of the conflict at American Greetings. Amid the fraternal struggle for control, our side of the family was summarily ejected from the business.

That's perhaps one reason why I'm introducing you to the July edition of *Bloomberg Businessweek* and not wishing you season's greetings or merry tidings on

the front of a greeting card. It's a happy fate, though: I am inordinately proud to bring you the first-ever monthly edition of this magazine. Although the print publication schedule has changed, the focus remains the same: the most important people, companies and trends in business, technology, economics and politics. I reported and wrote the cover story on Bernard Arnault, the founder and chief executive officer of the luxury conglomerate LVMH Moët Hennessy Louis Vuitton SE. The family-controlled company, which oversees brands such as Christian Dior and Tiffany & Co., has made him the wealthiest person in the world, a title he's held for much of this year.

So, not surprisingly, family companies have been on my mind. They're still everywhere—in beer (Molson Coors, Heineken, Carlsberg), media (Comcast, Cox, News Corp., New York Times Co.) and manufacturing (Cargill, Koch Industries, Kohler).

Recent research from the Wharton Global Family Alliance at the University of Pennsylvania shows family control is not only common among public companies, it can also have advantages. Some families exercise more patience than other kinds of investors during big organizational shifts and tolerate losses without worrying as much about the whims of Wall Street. Still, the complicated dynamics among people who know one another too well can ruin dinner, to say nothing of a board meeting. Understanding when to bring in professional managers is critical. In that respect, Logan Roy selling Waystar Royco in HBO's *Succession* may have been the epitome of prudent corporate governance.

Arnault, 75, has carefully considered the topic of succession and the preservation of his family's control. His five children all have important roles at LVMH and equal ownership of a holding company called Agache Commandité SAS. No family branch can sell shares or make a major change to LVMH strategy without the approval of the others for a period of 30 years. LVMH is publicly traded; the holding company is not, and votes on key decisions must be unanimous. "He has done everything he could possibly do to mitigate conflict instead of passing it on," says Raphael Amit, a professor of management at the Wharton School and an authority on family companies.

Although Arnault is preparing for the future, he didn't strike me as ready to retire. Steering a family company is apparently an invigorating undertaking and a potent longevity drug. My great-grandfather Jacob Sapirstein worked at American Greetings well into old age. He died in June 1987, two days before he was scheduled to retire from the board. He was 102. Ⓑ

■ ILLUSTRATION BY JOHNNY GREENTEETH


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No, Uncle Sam Won’t Tame Drug Prices

ILLUSTRATION BY DEREK ZHENG

By Damian Garde

It’s perhaps the only idea that unites former President Donald Trump and progressive Vermont Senator Bernie Sanders: The US pays too much for prescription drugs that are dramatically cheaper elsewhere in the developed world. The Inflation Reduction Act, President Joe Biden’s signature legislative victory, is meant to fix that by allowing the US government to negotiate directly with drugmakers, much like what Germany and France have done for decades. Progressives have cheered the move as a transformative boon for consumers, while some doomsayers in Big Pharma have warned it will end US pharmaceutical innovation because manufacturers will slow drug development in the face of price controls.

Despite those high hopes and dire warnings from the two sides, Uncle Sam’s new ability to negotiate drug prices is unlikely to make a meaningful dent in how much Americans pay for their medicines, which is determined by a Rube Goldberg machine of discounts, rebates and middlemen that baffles and sometimes bankrupts consumers. ▶

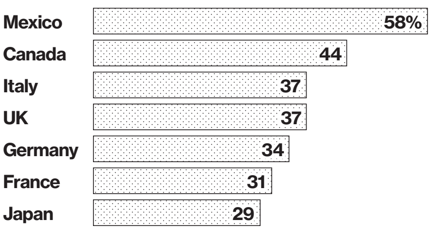
◀ That's because the IRA, passed in 2022, applies solely to Medicare, which covers only about 20% of the country's population. And its negotiated prices, slated to kick in in 2026, will affect just 10 of the costliest drugs in the program.

The prices Uncle Sam will pay will be disclosed in September. The number of drugs subject to price bargaining will increase in years to come, saving the government an estimated $237 billion over a decade, but the odds of that trickling down to the majority of Americans with commercial insurance are long, experts say.

Even the drug industry, which once bemoaned the IRA as "negotiation with a gun to your head," has signaled to investors that its future profitability is hardly at risk, says David Maris, a longtime pharmaceuticals analyst and managing partner at Phalanx Investment Partners.

American Premium

Average price of prescription drugs compared with the average US price, 2022



That's because the trillion-dollar pharma sector is quite good at working around obstacles to profit. Blockbuster drugs will be up for negotiation only about a decade after they hit the market, meaning manufacturers, which set their own prices when drugs win approval, could simply charge more at the outset to make up for future reductions. They also could wriggle around the details of the law to keep the prices of high-cost drugs just below the negotiation threshold, experts say, all while marshaling their considerable legal might to challenge every facet of the law in court.

Then there are the middlemen. For most drugs, the path from the factory to the pharmacy is policed by a handful of pharmaceutical "ticketmasters" that extract fees and negotiate discounts on behalf of insurers and employers. Those companies, called pharmacy benefit managers, generally make more money handling expensive medicines than they do for cheap ones, creating perverse incentives that can help drive drug prices upward. A little bit of government negotiation, however well-intentioned, isn't going to change that system.

"The story, as with pretty much any government program, is that the sizzle is bigger than the steak," Maris says. "I do think they had their hearts in the right place, but I'm 100% confident it will not result in meaningfully lower prices that most consumers notice."

Still, policy experts say focusing on the admittedly limited scope of pricing negotiation is missing the larger point. Medicare's prescription drugs benefit, as currently constructed, is a byzantine system held together by years of legislative duct tape. The IRA is not so much a step toward socialized medicine in the US as it is an attempt to rescue a teetering program from collapse, says Stacie Dusetzina, a health policy professor at the Vanderbilt University Medical Center in Nashville.

Negotiating a handful of drug prices won't upend American health care, but it will help pay for other provisions of the law that will have measurable benefits for seniors. The majority of Medicare beneficiaries use the program to get generic drugs that cost pennies a day, but for those who need high-dollar medicines for cancer or autoimmune disease, the program's current Swiss cheese coverage system has left them paying thousands of dollars a year for the treatments they need to survive. The IRA changes that, implementing a $2,000-a-year cap on out-of-pocket drug spending that will help American seniors who might otherwise have to choose between filling a prescription and paying rent.

"We severely underestimate how many people are just going without expensive drugs," Dusetzina says. "In reality, being asked to pay thousands of dollars out of pocket for a single prescription is just out of reach for many people."

David Mitchell relies on a Bristol Myers Squibb drug called Pomalyst to treat his multiple myeloma, a form of blood cancer that can be controlled if caught early. Pomalyst carries a list price of more than $250,000 a year, and Mitchell, a 74-year-old Medicare beneficiary in Bethesda, Maryland, has been on the hook for about $16,500 each year just to stay alive. Thanks to the IRA, his annual bill will come down to $2,000 next year, a "life-changing" difference, he says. About 19 million seniors will benefit from the out-of-pocket cap, the government estimates, each saving $400 a year on average.

Although the IRA benefits only a fraction of the US population, proponents of the new law hope it will function as a test for broader changes to how the country pays for its drugs. Mitchell, who founded an advocacy organization called Patients for Affordable Drugs Now, is pushing Congress to crack down on pharma's ability to file new patents on old drugs, increasing their exclusive ownership—and high prices—for years longer. And the academic policy architects of the law are already mapping out ways to expand prescription drug price savings beyond Medicare to the hundreds of millions of Americans with commercial insurance, moves bound to renew Big Pharma's warnings that tighter price controls could mean fewer innovative medicines.

"The drug industry has historically been successful with these Chicken Little arguments," says Michelle Mello, a professor of health policy at Stanford Law School. "But I think people will see this come online and notice that the sky hasn't fallen and they kind of like not being gouged on high-cost drugs." Ⓑ

How High Rates Boost The US Economy

● **By Ye Xie**

Higher interest rates are supposed to slow the economy. What if they're helping it instead?

The idea is so radical that it borders on heresy. But as the US economy hums along, confounding experts who'd warned

■ ILLUSTRATION BY TIM ENTHOVEN ■ CHUANFU: VICTOR MORIYAMA/BLOOMBERG ■ DATA: US DEPARTMENT OF HEALTH AND HUMAN SERVICES, BLOOMBERG CALCULATIONS

of an imminent downturn, more investors are willing to at least entertain the fringe economic model the disciples of Modern Monetary Theory have championed.

The contrarians—who now include such prominent figures as hedge fund manager David Einhorn and BlackRock Inc.'s bond guru Rick Rieder—argue that the jump in interest rates to more than 5% from almost 0% over the past two years is giving Americans a significant stream of income from their bonds and savings accounts for the first time in two decades. "The reality is people have more money," says Kevin Muir, a former derivatives trader who writes an investing newsletter called the *Macro Tourist*. These people—and companies—are in turn spending a big enough chunk of that newfound cash, the theory goes, to push up demand and sustain growth.

In a typical rate-hiking cycle, the additional spending from people and businesses that receive interest isn't nearly enough to match the drop in demand from those who stop borrowing money because higher rates make taking out mortgages and issuing bonds more expensive. These factors cause the classic Fed-induced downturn (and, in theory, a corresponding drop in inflation).

But it's different this time for a few reasons, the contrarians argue. Principal among them is exploding US budget deficits: The additional interest the government has to pay on its debt puts more money in the pockets of American (and foreign) bond investors. In April alone, the interest payment totaled $102 billion, more than double the amount a decade ago.

Greenlight Capital's Einhorn, one of Wall Street's best-known value investors, says US households receive interest on more than $13 trillion of short-term assets, almost triple the $5 trillion in consumer debt, excluding mortgages, on which they have to pay interest. (Many Americans managed to lock in ultralow rates on their 30-year mortgages during the pandemic, shielding them from much of the pain that rising rates have caused.) At today's rates, that difference translates to a net gain for households of about $400 billion a year, Einhorn estimates.

Another important change is the demographics. As baby boomers retire, the elderly have become the biggest driver of US consumption. Although higher interest rates hurt low-income borrowers, they enrich the retirees, who tend to have the most savings and who account for more than 20% of consumer spending, says BlackRock's Rieder.

In a corollary to the rate-hikes-lift-growth theory, there's the idea that rate cuts might push inflation down, not up, because they'd reduce the income and spending. "People are spending—older people, middle- to high-income are spending—and are keeping that service-level inflation at high levels," Rieder said in an interview on Bloomberg Television. "I would lay out an argument that, actually, if you cut interest rates, you bring down inflation."

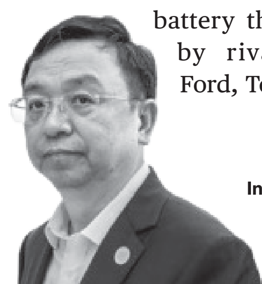
To be clear, most economists and investors still firmly believe in the age-old principle that higher rates choke off growth. As evidence, they point to rising delinquencies on credit cards and auto loans and to how job growth, while still robust, has slowed. Mark Zandi, chief economist at Moody's Analytics, spoke for the traditionalists when he called the new theory simply "off-base." But even Zandi acknowledges that "higher rates are doing less economic damage than in times past." Ⓑ

BYD's Wang Chuanfu: China's Henry Ford?

● **By Danny Lee**

At the headquarters of BYD Co. in Shenzhen, there's a wall crammed floor to ceiling with about a thousand framed patents representing more than 30,000 innovations the electric-vehicle maker's billionaire founder, Wang Chuanfu, and his army of engineers have devised.

The patents—for breakthroughs such as the low-cost lithium-iron-phosphate battery that's also used by rivals including Ford, Tesla and even ▶



◀ Toyota—are among the invisible assets turning Wang's company into the world's biggest EV maker. After selling 3 million electric and hybrid vehicles in 2023 and logging $85 billion in revenue, it's on course to overtake Tesla Inc. this year. Now Wang is further disrupting China's EV industry with cars costing less than $10,000, bringing affordable transport to the masses—once an Elon Musk goal.

The success of Wang's two-decade bet on EV tech has led many to call him the Musk of China. But unlike the Tesla co-founder, whose ventures range from EVs to space travel to brain implants to tunnel boring, the BYD chief has been far more focused.

The 58-year-old Wang, who studied battery metal chemistry in college, started making cellphone batteries in 1995. He continually refined the technology for bigger car batteries—attracting attention and investment cash from Berkshire Hathaway Inc. Chairman Warren Buffett along the way. As the company grew, Wang steered it into complementary businesses such as battery storage, semiconductors and solar, but he always worked to keep prices low, in line with BYD's "Build Your Dreams" motto.

In addition to being an innovator who spotted the prospects of battery-making early on, Wang is known as a management execution specialist. He saw vertical integration as key to BYD's strategy: The lower costs that came from controlling his supply chain gave him a standout advantage over rivals.

Charlie Munger, the late vice chairman of Berkshire Hathaway, hailed Wang as a fanatical engineer and a genius who saved BYD in its formative years from going broke with his own 70-hour workweeks. Munger said Wang's willingness to understand concepts and actually make things, practically with his bare hands, made him better than Musk.

Bill Russo of Shanghai-based consultants Automobility says Wang "is to the 21st century EV industry what Henry Ford was to the 20th century automotive industry: Both entrepreneurs leveraged vertical integration and economies of scale to democratize mobility." Ⓑ

The Right Stuff

By the Pursuits editors

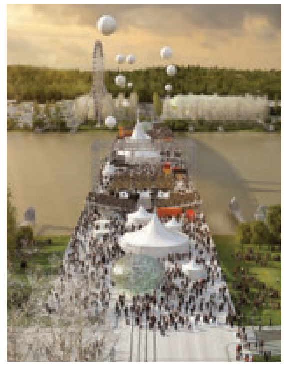
The products, experiences and innovations that we're obsessing over this month

A Scotch Distillery Reborn

For almost four decades, Port Ellen sat silent on the craggy coast of one of Scotland's southwesterly isles. Now, after a seven-year, roughly $23 million refurbishment by owner Diageo Plc, the legendary Islay distillery roars once more. You can see, smell and taste its glory on the four-hour Atlas of Smoke tour of the airy new stillhouse, culminating in lunch and a pull from a 1979 cask that's been resting patiently in a seaside warehouse. The single malt is briny, subtly saccharine and sublime.

Simone Veil Bridge in Bordeaux, France

Can a bridge count as a cultural destination? International starchitecture firm OMA certainly thinks so. Its 549-meter (1,800-foot) span across the Garonne River connects the municipalities of Bègles and Floirac and is intended as much for the flow of goods (it will have transport lanes) as it is for the gathering of people. The bridge, set to open on July 6, is designed as a cultural center, with spaces for festivals, markets and concerts.



Lalique Iconics Rose Nebula Collection

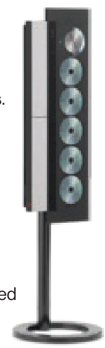
The Bacchantes vase has been coveted since René Lalique designed it in 1927—the brand sells about 2,400 of them every year. This summer it gets reimagined in a lustrous pink, along with other brand signatures ranging in price from $240 to $23,000. To get the color, a mist containing yellow gold is applied and then annealed in a high-temperature oven.

Panerai Submersible Elux Lab-ID PAM01800

Instead of using glow-in-the-dark paint to light up its markers and hands, this $96,300 dive watch uses four mechanical barrels to store energy when it's wound, plus a microgenerator to convert it to electricity to light tiny LEDs for as long as 30 minutes.

Beosystem 9000c

When it was released in 1996, Bang & Olufsen's Beosound 9000 CD changer became an instant design classic courtesy of its ingenious vertical stack of compact discs. With interest in CDs on the rise again, the Danish manufacturer disassembled vintage players and restored them into the new $55,000 Beosystem 9000c. Two Beolab 28 speakers are included as well. Just 200 will be available.



Nike KD 4 Nerf

NBA star Kevin Durant has 16 lines of sneakers for Nike, but this summer the brand revisits a fan favorite from 2011. The $150 collaboration with Hasbro Inc.'s Nerf makes use of the foam toy's vibrant colors and splashes a playful spray paint design across the tongue.

Ferrari 12Cilindri

The Italian carmaker will unveil its first all-electric vehicle in 2025, but that doesn't mean it's quitting gasoline anytime soon. Its new 12Cilindri line is inspired by the brand's grand tourers of the 1950s and '60s but packs 819 horsepower from 12 roaring cylinders (hence the name) and gets a top speed of 211 mph. Deliveries of the car, which will start at €395,000 ($425,000) and go up to €435,000 for the convertible version, begin later this year.

■ BRIDGE: COURTESY OMA. REMAINING: COURTESY COMPANIES

More Disabled People Are Working—Remotely

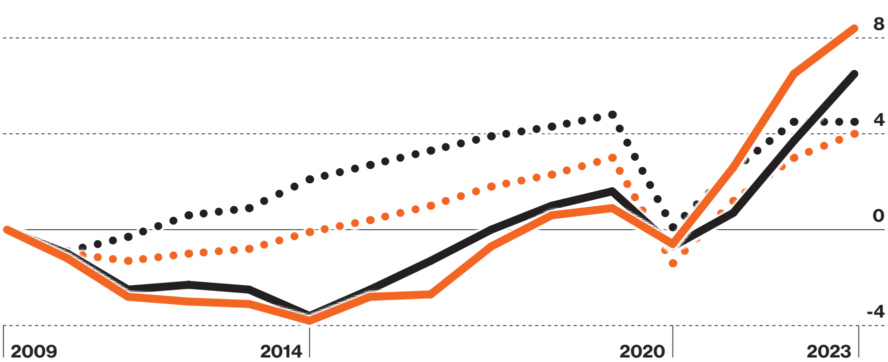
● By Laura Bliss and Mark Glassman

Among the greatest beneficiaries from the rise of remote work are people with disabilities, who've entered the US workforce at record levels over the past three years. Working from home—along with flexible hours, job sharing and other adjustments—has given people who were once on the margins of the labor market the opportunity to join it, says John O'Neill, director of Disability Employment Research at the Kessler Foundation. "I think Covid sensitized many employers to the usefulness of accommodation practices" in a new way, he says. The tight labor market, created partly by large numbers of people across the workforce leaving their jobs, is another likely factor. But disparities persist: People with disabilities are still about twice as likely to be unemployed as their nondisabled counterparts. And according to our analysis, they're overrepresented in jobs with relatively low pay.

Larger Employment Gains for the Disabled

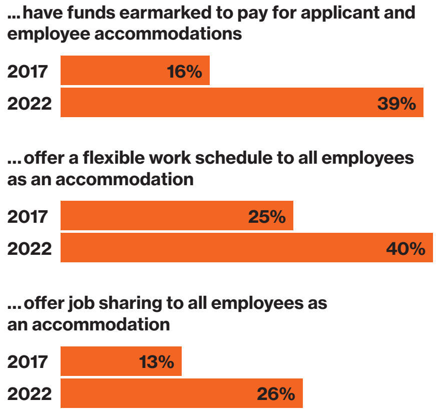
Percentage-point change in share of population employed, age 16 to 64, since 2009

Women with a disability · With no disability · Men with a disability · With no disability



More Amenable Company Policies

Share of supervisors who say that their organizations...



Disparity in Job Types and Compensation

Difference in each occupation's share of the 2023 disabled and nondisabled employed populations, in percentage points

■ Median weekly earnings under $980*

The Impact of WFH

Share of US employees who are fully remote

12.6% with a disability

10.6% with no disability

Share of US employees who are hybrid-remote

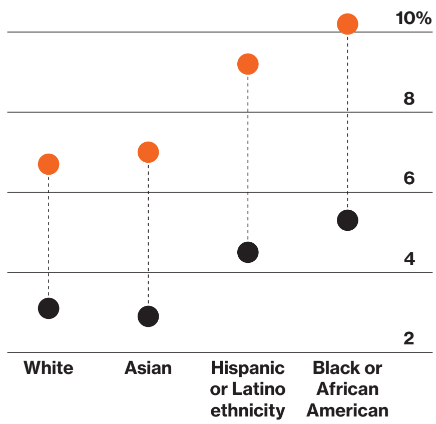
11.1% with a disability

11.8% with no disability

Wider Gaps for Minorities

Unemployment rate, 2023 average

● With a disability ● With no disability



■ *MEDIAN FOR ALL JOBS. DATA: US BUREAU OF LABOR STATISTICS CURRENT POPULATION SURVEY, KESSLER FOUNDATION, ECONOMIC INNOVATION GROUP CHANGES IN EMPLOYMENT BASED ON ANNUAL AVERAGES. EARNINGS DATA EXCLUDE THE SELF-EMPLOYED. REMOTE WORK FIGURES AS OF Q1 2024

Still the Real Thing In Russia

● By Dasha Afanasieva and Brett Pulley

After Vladimir Putin's troops surged over the Ukrainian border in February 2022, the Coca-Cola Co. was among the first multinationals to pledge it would quit Russia in protest. Aiming to avoid the inevitable headaches of complying with expected Western sanctions on the Kremlin, Coke asked its partners there to pull its cans and bottles from stores, cease deliveries of syrup to soda fountains and stop bottling its brands.

Two years later, Coke's distinctive red logo is still easy to find in supermarkets and restaurants across the country. And taking into account a newcomer called Dobry Cola—sold in cans with a remarkably familiar red tint and a taste few would be able to distinguish from the original—Coke by some measures remains Russia's leading fizzy drink maker.

That's because Multon Partners, the Coke bottler in the country, is owned by a separate, London-listed company called Coca-Cola HBC in which the US mother ship owns a 21% stake. When HBC stopped making Coke after the invasion, Multon introduced Dobry, which has become the country's most popular soda, with 13% of the market, according to researcher Prodazhi.rf. "The profits from selling Coca-Cola in Russia have merely shifted to Coca-Cola HBC, which has taken market share through the success of Dobry Cola," says Garrett Nelson, an analyst at CFRA Research.

And Coca-Cola itself is still widely available, imported from neighbors such as Georgia and Kazakhstan. Following the invasion, Russia passed a law allowing branded goods to be sold without the trademark owner's consent. With countless cases crossing the border, Russians with a hankering for "the real thing" can still get it. Those imports alone have made Coke Russia's No. 3 soda brand, with 6% of the market, according to Prodazhi.

Cola Competition

Top-selling carbonated drinks in Russia, market share by volume

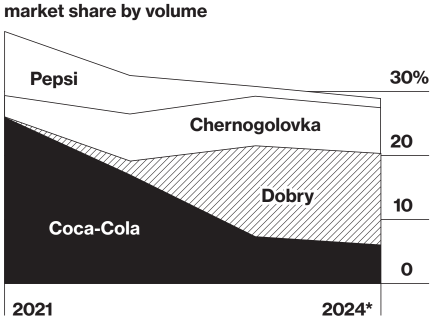


PHOTO ILLUSTRATION BY BEN DENZER ■ *2024 DATA IS FOR MAY. DATA: PRODAZHI.RF RESEARCH

That's not to say Coke hasn't suffered. HBC says its volumes in Russia grew 12% last year, but they remained almost a third below their level in 2021, when Coke was the top-selling soft drink, with 26% of the market. And while Coke does profit from Dobry's popularity, the Atlanta company says it has recused itself from management of the operation.

Coke is far from alone in making a less-than-complete exit from Russia. PepsiCo Inc. in September 2022 said it had stopped producing and selling Pepsi, Mountain Dew and 7Up there, and its market share collapsed. But Pepsi soon added a new cola, Evervess, and boosted output of Frustyle (similar to fruity Mirinda) at its half-dozen plants in the country. Last year the Russian unit's beverage sales jumped 12%, to 209 billion rubles ($2.4 billion), its reports to local tax authorities show. And revenue at its baby food and dairy business in 2023 expanded 10%, to 129 billion rubles. PepsiCo declined to comment.

Since 2022 more than 1,000 multinationals have said they're scaling back Russian operations, according to research from the Yale School of Management. But many have remained. French supermarket operator Auchan, clothing retailer Benetton Group and restaurant chains Subway and TGI Fridays continue operating with no apparent plans to cut back.

For companies still in the country, repatriating earnings is tough, as they require hard-to-get permission to take out money. But the profits are substantial. Lifted by war spending, the Russian economy expanded 3.6% last year, helping drive down unemployment and sharply boosting wages. "There's loose fiscal policy pumping record amounts of money into the public sector," says Tatiana Orlova of Oxford Economics. "And Russia's labor market is extremely tight." Ⓑ

● Déjà Vu

● By Christopher Palmeri

The Las Vegas residency, an extended run of concerts by an artist, has never been hotter. In any given week, fans can choose from an array of shows that might include Adele with a string section at the Caesars Colosseum, Lady Gaga performing jazz standards on a piano at Park MGM or Carrie Underwood belting out her country hits at Resorts World.

A Storied Past

Over-the-top pianist Liberace is often credited with establishing the Vegas residency in 1955, when he began performing at the Riviera for the princely sum of $50,000 a week. Elvis Presley, whose first Vegas appearance—with a big band and comedian Shecky Greene—bombed, adopted Liberace's sequined look for his extended runs in the 1970s. Regular shows at the Sands by Frank Sinatra, Dean Martin and Sammy Davis Jr. cemented their status as the Rat Pack.

The Economics

One big reason today's performers head to Las Vegas: money. Sin City had the top average concert ticket price—$176—of any city in the US last year, up 16% from 2022, according to data from market researcher Pollstar. U2 led Las Vegas residencies in 2023, with an average ticket price of $390.

Most expensive US concert markets, average 2023 ticket price

1	Las Vegas	$176
2	Palm Springs, Calif.	128
3	Los Angeles	123
4	Milwaukee	122
5	Miami-Ft. Lauderdale	115
6	New Orleans	111
7	El Paso	110
8	New York	106
9	Houston	105
10	Phoenix	104

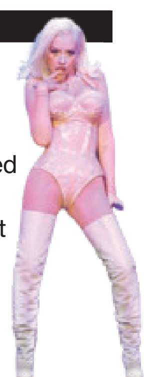
Highest-grossing US residencies, 2023

■ In Las Vegas

1	U2	$110m
2	Usher	40
3	Billy Joel (New York)	33
4	Bruno Mars	30
5	Lady Gaga	17
6	Katy Perry	16
7	Maroon 5	13
8	Kelly Clarkson	11
9	Luke Bryan	9
10	George Strait	8

The Revival

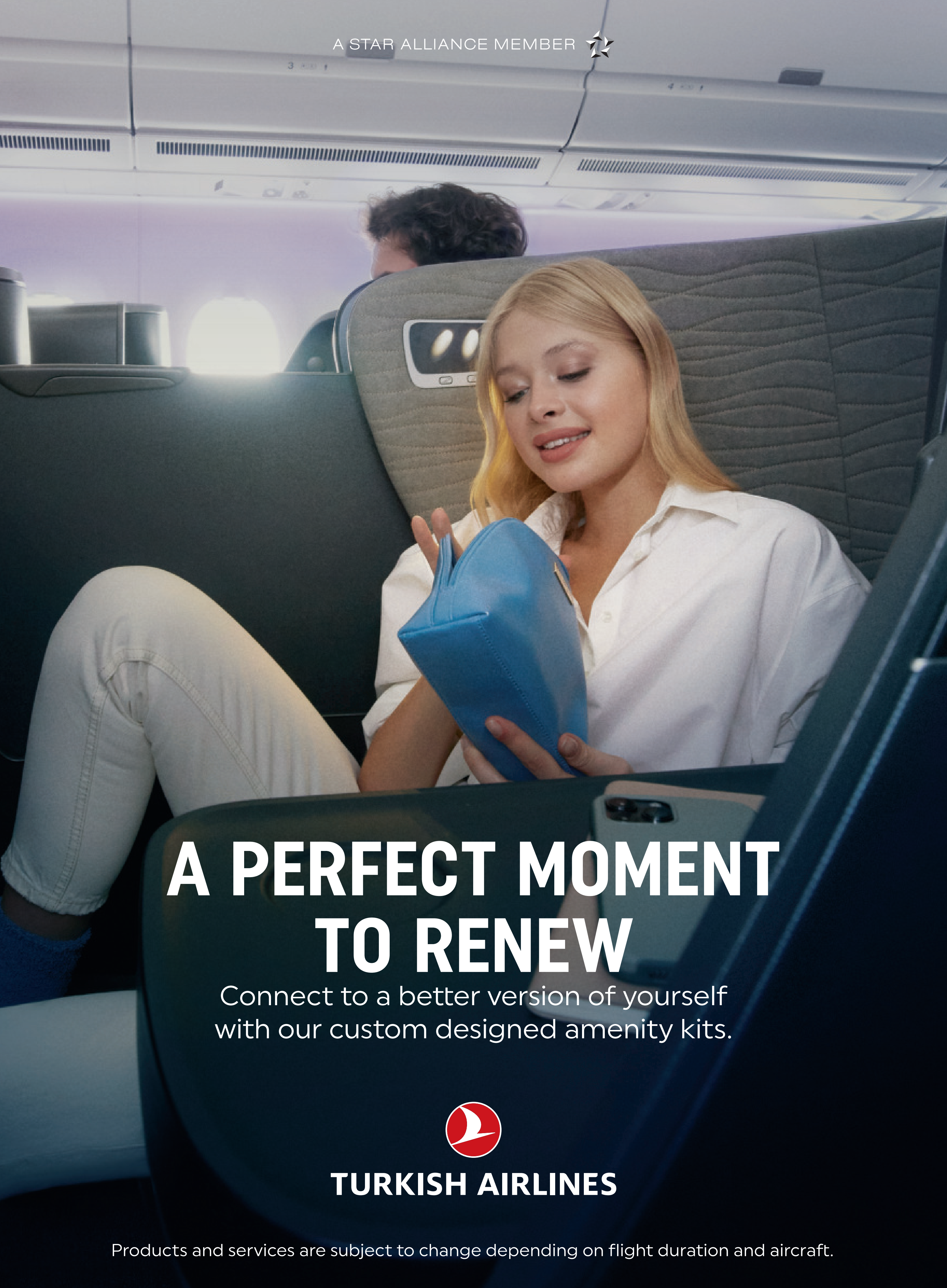
Celine Dion established the modern-day residency after signing a $100 million contract to perform five shows a week at the newly opened Caesars Colosseum in 2003. Elton John, Cher and other stars followed, luring gamblers and high-spending holidaymakers to a city that welcomed 40.8 million visitors last year. Experiencing top performers away from huge arenas doesn't come cheap. Tickets for Christina Aguilera's current residency at the Venetian Las Vegas' 1,000-person Voltaire theater start at $200—for standing room. Sitting at a table during her show requires spending at least an additional $250 in food or drinks per guest.



What's Next

Acts less like the old showroom staples are gaining ground fast. According to *Billboard*, Usher's Vegas residencies have earned over $100 million. Dead & Co., famous for touring, had a lengthy stay at the Sphere this summer. And Wu-Tang Clan is playing in what's billed as the city's first hip-hop residency, at the Virgin Hotels Las Vegas.

■ LIBERACE: LAS VEGAS NEWS BUREAU. AGUILERA: DENISE TRUSCELLO/GETTY IMAGES ■ DATA: POLLSTAR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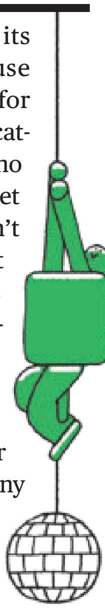
Green Text Bubbles Are Cool, Actually

● By Shirin Ghaffary

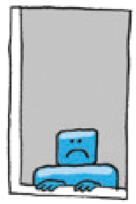


When Apple Inc. launched its iMessage, it reserved the use of even some basic features for iPhone users. When communicating with iPhone users, people who use devices powered by Alphabet Inc.'s Android software still can't view photos at their highest quality level, see the three dots meaning the other person is typing or display receipts showing that someone's read a text. IMessage also indicates non-iPhone users by showing their messages in green, a decision many people interpret as an attempt to shame them in front of their blue-bubble peers.

Because the iPhone has been the prototypical high-end smartphone for almost two decades, the green bubble carries a certain down-market stigma. Many Android users have complained that their dating lives and relationships with family and friends have suffered because people don't want to talk as much to someone whose texts come in green. The US Department of Justice even cited Apple's two-tiered texting system in its antitrust lawsuit against the company, arguing that it's harming competition by undermining the texting experience on rival phones.

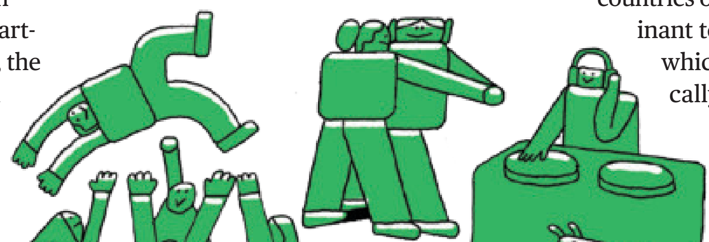
But in some tech circles, green bubbles are a badge of honor. "I'm proud to be a green bubbler," says Brendan Schachle, a 30-year-old product manager at a biotechnology company. He switched from iPhone to Android more than a decade ago because Android gave him more ways to customize his phone. "As everyone was leaning more into Apple, I decided to take a different route," he says.

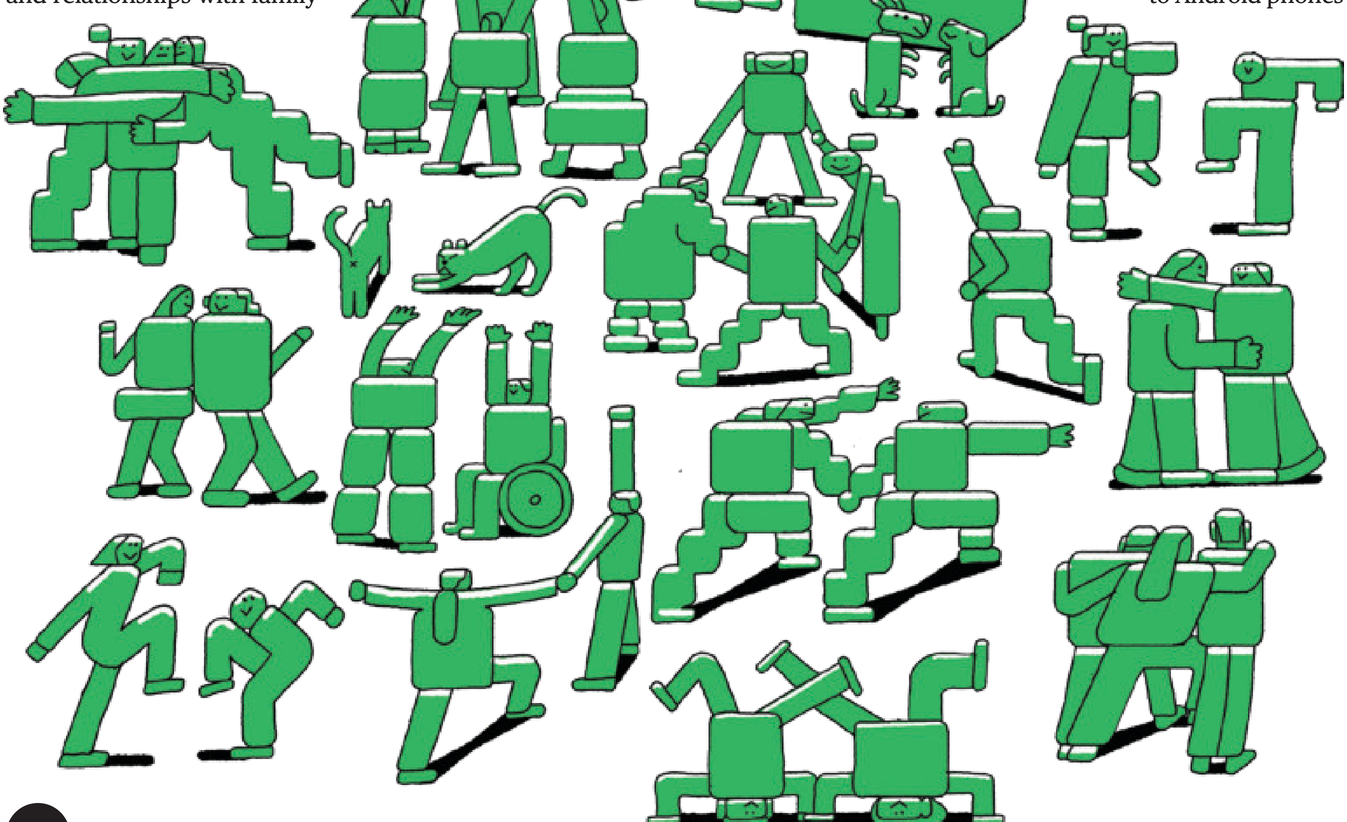
Android is open source—anyone can download, customize and distribute its source code for free—making it cheaper and easier for many developers to build on it. That also gives it more cachet to many in the coding community, which has the potential to be quite valuable. The founder of one tech startup recounts texting with a venture investor from an Android device and being told that seeing the green bubbles was a good sign. (The person asked not to be named because they didn't want to reveal private discussions.)



It can also just be a sign of contrarianism, a way to show you haven't been taken in by Apple's marketing machine. Alexandru Voica, head of corporate affairs for generative AI startup Synthesia, has been involved in tech for more than 15 years. Since the dawn of the Android-versus-iPhone debate, Voica says, "there was always this perception that Android was the open platform, and therefore there was a certain level of coolness attached to it."

This phenomenon is largely absent in countries outside the US, where the dominant texting platform is WhatsApp, which functions (and looks) basically the same for Android and iOS users. Pranay Baid, founder of startup LibGem Analytics, says he got used to Android phones





■ ILLUSTRATIONS BY EGE SOYUER (PEOPLE) AND KIMBERLY ELLIOTT (WALLET) ■ DATA: CENTER FOR AMERICAN PROGRESS ANALYSIS OF US CENSUS FIGURES because he's from India, where "it does not make any financial sense to buy an iPhone" and the only reason to have one is "showing off status." He enjoys using his Nothing Phone 2, which runs on Android, saying he likes the cool lights on the back. When he moved to the US, Baid refused to switch. That "makes it difficult for a group text," he writes in a message, "but things are now improving pretty quickly."

Apple has promised to make life easier for green bubblers sometime this year by supporting rich communication services (RCS), a new messaging standard, which will give Android users access to features such as group chats, location sharing, typing indicators and high-quality photo sharing.

Still, Apple hasn't promised to change its social signaling: Android texts will still be green. This means iMessage users will still know who's using an Android phone. It's easy to see how this could stoke hostility from green bubblers. But many of them seem to harbor no resentment. "A lot of people I know are Apple enthusiasts," Voica says, "and we're still friends." Ⓑ —*With Anne VanderMey*

Trump's Taxing Tariffs

● **By Nancy Cook**

If he returns to the White House, Donald Trump has pledged to enact a 10% across-the-board tariff on imports that he says will raise billions of dollars in revenue to pay for more tax cuts.

Yet mainstream economists say the GOP candidate's second-term trade agenda—which could be boiled down to "tariffs on steroids," as it also calls for increasing duties on Chinese-made goods to 60% or more—would essentially amount to a tax increase for American households. A recent report from the Peterson Institute for International Economics pegged the annual cost for the average middle-income family at $1,700, likening it to a sales tax. The Center for American Progress, a left-leaning think tank, crunched the numbers on the minimum 10% tariff and came up with about $1,500 per household per year, including a $90 increase in the cost of food, $90 for prescription drugs and $220 for autos.

During his presidency, Trump wielded tariffs as a multipurpose tool. One stated objective was to narrow the US trade deficit. And by that measure, the levies, which President Joe Biden largely kept in place, have shown some success: The trade shortfall shrank almost 19% in 2023 from 2022—the most since 2009.

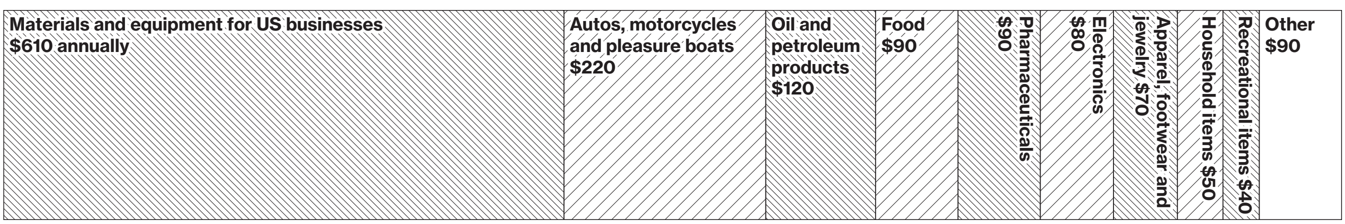
Another widely trumpeted goal was to prod US businesses to bring their supply chains back home, thereby spurring job creation. On that score, Trump's trade policies were at best "a wash," concluded a group of economists led by the Massachusetts Institute of Technology's David Autor in a working paper published in January, because the modest employment gains were canceled out by job losses in sectors China targeted for retaliation, such as agriculture.

"The notion that tariffs are a tax on US consumers is a lie pushed by outsourcers and the Chinese Communist Party," says Republican National Committee spokesperson Anna Kelly. "President Trump put America first by instituting tariffs while simultaneously keeping inflation and consumer prices low."

Michael Strain, director of economic policy studies at the right-leaning American Enterprise Institute, is skeptical that the results would be different in a second Trump presidency. "I do ▶

How a 10% Tariff Would Filter Down to US Consumers

A typical household would see prices for a broad assortment of goods go up as importers pass on the cost of the duties



◀ not think it will bring manufacturing jobs back to the US," he says. "It would be a lot of disruption for no gain."

Perhaps Trump's most effective use of tariffs was to get America's allies to bend to his will. It was the threat of duties that compelled Mexico and Canada to agree to renegotiate parts of what's now called the US-Mexico-Canada Agreement (previously known as Nafta). The former president also used duties on steel and aluminum imports from Europe to get NATO countries to comply with his demand that they pony up more money for their defense.

If Trump wins again, it's more than likely that European nations will be targeted once more, given that his advisers want the European Union to take a harder line with China on trade and investment.

Gone from Trump's orbit are many of the free-trade acolytes from his first term, such as former National Economic Council Director Gary Cohn. Former US Secretary of the Treasury Steven Mnuchin, another free-trade voice, isn't expected to return for a second Trump administration. Their departures may have cleared the way for former US Trade Representative Robert Lighthizer to claim a bigger role in a second administration.

A lawyer who understands the weedy details of trade policy and knows how to advance his ideas within a large government bureaucracy, Lighthizer lives near Trump in Palm Beach, Florida, and has kept in close touch. He's told associates he would like to run the Treasury Department.

Having accustomed the American public and both political parties to the idea that access to the giant US market should be used as a bargaining chip to achieve big-picture strategic goals, Lighthizer wants to keep ratcheting up pressure on countries like China. "We're dealing with an aggressive adversary, so clearly we need across-the-board tariffs as President Trump has called for," Lighthizer said on Fox Business in late May, even as he dismissed Biden's new tariffs on Chinese-made solar panels and electric vehicles as "too little, too late." Ⓑ

The Internet Isn't Getting Any Meaner

● **By Joshua Brustein**

As conventional wisdom would have it, the internet is more toxic than ever. Anyone old enough to have been around during the 2010s can remember Twitter as a place where people made friends and Instagram as a distribution platform for breakfast-plate portraiture. Now, it seems, we're all locked in an unending flame war, egged on by malevolent algorithms, foreign agents and nefarious bots.

A group of researchers tested this thesis by gathering 500 million comments people had made at different times in the past 34 years on eight popular online platforms, from Usenet to Facebook. The team then ran the data through a machine-learning tool Google developed to help moderators flag toxic content, which it classifies as any "rude, disrespectful or unreasonable comment likely to make someone leave a discussion."

The group published its findings in *Nature* earlier this year. It concluded that the amount of online meanness has been more or less consistent across services and over time. Conversations tend to deteriorate if they include people with starkly differing opinions or if they go on for a long time. Perhaps most surprising, people don't necessarily leave conversations when they turn toxic.

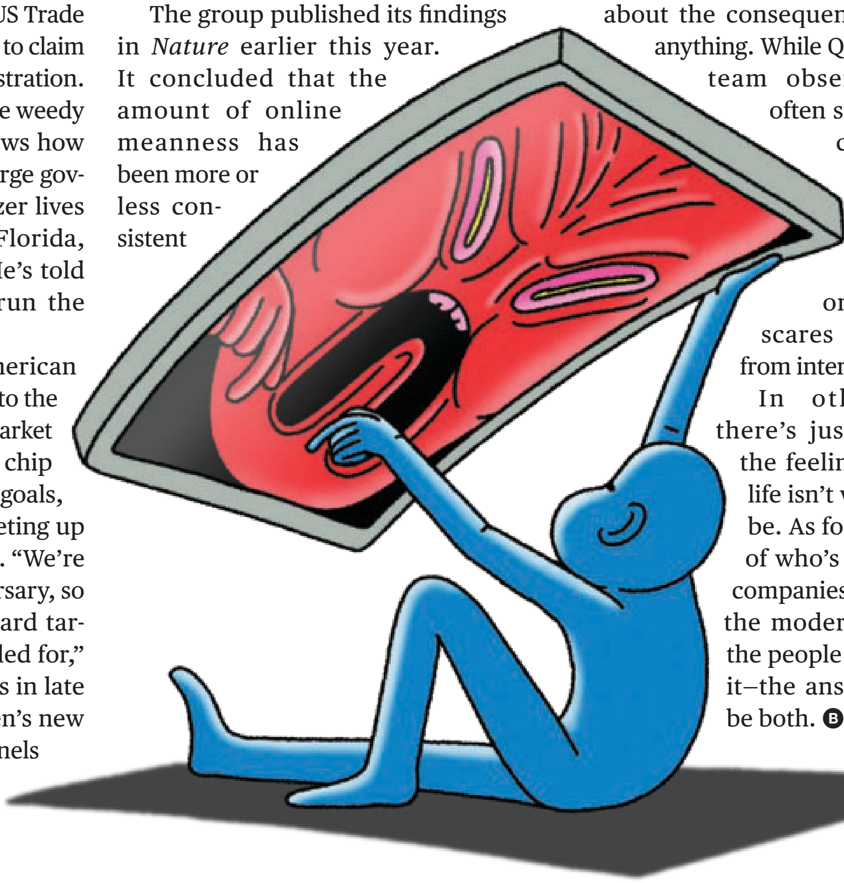


ILLUSTRATION BY ALEX GAMSU JENKINS

The study suggests that the idea the internet is getting worse is all in our heads and directs blame away from social media companies and onto social media users. "On toxicity, the human tendency is stronger than platform design," says Walter Quattrociocchi, head of the Center of Data Science and Complexity for Society at Sapienza Università di Roma and one of the study's authors. Being rude to one another on the internet is "an inherent part of our behavior," he says.

But Quattrociocchi also says there are plenty of reasons the modern-day internet feels so bad. Research has shown that social media can lead to political polarization and push some people to compulsive use.

Social media is also becoming less interactive, with people scrolling passively instead of posting, a shift resulting at least in part from fears about the consequences of saying anything. While Quattrociocchi's team observed people often staying in toxic conversations, he says it had no way of measuring how online toxicity scares people away from interacting at all.

In other words, there's justification for the feeling that online life isn't what it used to be. As for the question of who's to blame—the companies that designed the modern internet or the people who are using it—the answer seems to be both. Ⓑ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A Walk With

By Jaime Lowe

PHOTOGRAPH BY KAREEM BLACK FOR BLOOMBERG BUSINESSWEEK

Frederick Richard got famous on social media for his flips, but as he prepares for the Paris Olympics, there's one place you won't catch him: On his phone

Frederick Richard opens the door, welcoming me to the University of Michigan's Newt Loken Training Center as if it's his home, which for all intents and purposes it is. He's here at least six days a week, 10 hours a day. It's one of the first true spring days in Ann Arbor, and it feels hotter inside than it is outside—quite possibly a humid 90F. Although Richard lives half a mile away with five other gymnasts, the 20-year-old world-class athlete and social media star eats all his meals at the training facility. He's even contemplated spending the night here, depending on how practice is going.

By late afternoon, when we meet, he's been working out for six hours. (It's a light day.) Last year, Richard was third in the all-around event at the artistic gymnastics world championships in Belgium, and his jaw-dropping performance in the group competition secured a bronze for the US men's team, breaking its nine-year dry spell in team medals. He was also the youngest male gymnast ever to medal at the world games. Richard is so young, in fact, that he could compete at the next three Olympics.

Paris 2024 is top of mind at the moment, but so are his various moneymaking ventures. He's at the gym with Eddie Lee, his 23-year-old business partner, who just graduated from Michigan. They're transitioning into Richard's last task for the day, creating social media content and partnership advertisements. The training center also serves as the backdrop for many of Richard's posts, which go out to more than 1 million followers across Instagram, TikTok and YouTube. Yuan Xiao, Michigan's head coach, who's lingering after practice along with a few other college gymnasts, shakes his head in disapproval when the subject of a possible US ban on TikTok comes up. "Look what it's done for gymnastics, for Fred," he says.

Richard is one of the most prominent male gymnast influencers in the world—maybe the only one. Leveraging his endearing personality (and film and media major) into a thriving business since college athletic moneymaking rules changed in 2021, he brings in roughly $6,000 a month from social media platforms and an additional mid-six figures a year through deals with Celsius Energy Drink, Crocs, Marriott and Peloton.

Like many from his generation, Richard grew up with an awareness of digital economics—how you can make money by getting attention. As a 16-year-old in Boston, frustrated by pandemic restrictions that prevented him from training or competing, he turned to TikTok. The first clip he posted that gained traction demonstrated how many back-flip, front-tuck-half-twists he could do in a row. It hit 10,000 views.

While describing the post, he stops to show me the skill and looks like a cartoon human, flipping effortlessly and with casual delight. Back and forth, back and forth, like an airborne Slinky on speed. He does this three or four times, defying gravity, and says he did more than 15 in the video.

Richard's social media enterprise was born from a simple realization: He wanted to be a professional gymnast, and professional male gymnasts don't make much money. "Before me, most pro male gymnasts weren't making six figures a year. I wanted to be rich, like millions, like other pro athletes," he says. "When I was 16, I was told, 'You're going to go to college, then you're going to get a job. Do this job for 15, 30, 40 years.'" He smiles and shakes his head, disagreeing with this notion all over again. "There's not one thing I could do for 40, 50 years, and I don't really have to. I figured if I'm creating businesses, I can create as many businesses as I want and go that route, and I'm free."

In September 2020, when Richard was a junior in high school, he and a friend founded a direct-to-consumer LED light company that generated $25,000 in revenue in a year. "We were obsessed with this business," he tells me. "I put in five to seven hours a day. I could do it and school because this was during Covid." He says they broke even in the first year of operations, which was fine, but not enough to warrant continuing.

It's hard to pinpoint exactly why or how Richard developed a rabid following, but from the beginning he's had a knack for coming across as a mere mortal while executing superhuman feats. "Authenticity" is, after all, the coin of the social realm. He'll do several flips and land on his face; he won't stick a landing; he'll have a bad day and post about it. Then he'll flip feet first into a pair of shorts, as he did recently, live, on *Good Morning America*. He's known for trying radical tricks, skills that are part of his gymnastics routine and things that are just fun. How many flips can he do in a row? How high can he jump? How many foam blocks can he leap over? How many people can he flip over? "Do you know how many times people have said what you're doing is stupid?" he asks, referencing the risk of injury in all his various stunts and skits. "But I do it anyway." (TikTok has applied some danger warnings to his gravity-defying videos.)

He's also collaborated with other famous athletes, like Olympic champion Simone Biles. He met with basketball legend Carmelo Anthony this past April for guidance on how to structure a production company. "A lot of these guys are trying to help Black kids like me," he says. "My whole life, I've wished there were more Black kids in the gym. I've always wanted that to change, and now I feel like it's my responsibility."

Inside a now-empty gym and with exhaustion setting in, Richard and Lee are focused simply on creating content. They've devised a video: Richard will act out the difference between two kinds of athletes. There's the "overworker," who stresses out about every last move, and the "lazy athlete," who coasts through training. We wander around the gym as Lee peppers Richard with different prompts and Richard reacts in character.

For all Richard's insight into social media—he can tell you that Instagram posts are best suited to showy gymnastics; TikToks should be less than 40 seconds; YouTube can be a whole 20-minute episodic show—he's rarely on it himself. He spends less than a half-hour a day on any platform. Although he may have a career to plan and content to produce, there's still the small matter of the billion or so viewers he hopes will see him perform on the Olympic stage this summer. Scrolling through endless content would mean standing still. Ⓑ


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In View

Our contributing writers' guide to a changing landscape

Corporate women are getting stuck again

Beth Kowitt on why anti-DEI attacks may be to blame

■ PHOTOGRAPH BY CHELSIE CRAIG FOR BLOOMBERG BUSINESSWEEK ■ PROP STYLING BY HEATHER GREENE

When Walgreens Boots Alliance Inc. named Rosalind Brewer chief executive officer in 2021, corporate America celebrated her appointment as a sign of just how far women in business had come. The former Starbucks Corp. and Walmart Inc. executive was a highly respected and sought-after leader whose new job put her in an exclusive club: the small but record number of female CEOs running a Fortune 500 company—and at the time, the only Black woman among them.

Less than two-and-a-half years later, Brewer was out. With the company's stock down about 50% during her tenure, the Walgreens board decided it had given her enough time to try to turn around the company.

Only now is it clear that Brewer's departure was part of a worrisome trend. Her job was one of about 60 C-suite roles that women lost at companies in the S&P Global Total Market Index in 2023, marking the first time the number of female executives at the very highest level of business dropped during the almost 20-year period tracked by S&P Global Market Intelligence.

It's long been called the "stalled gender revolution" for a reason: Advancement has always come in fits and starts, with plenty of backslides and backlashes. And right now, progress for women in corporate America looks far more like a stall than a revolution.

The data out there is bleak. Because of last year's setback, S&P Global Market Intelligence now projects women won't reach parity with men in the C-suite until 2055 at the earliest, at least five years later than previously estimated. When women do manage to claw their way to the top, they lose their jobs faster than their male counterparts. A new report from executive search firm Russell Reynolds Associates found female CEOs are more than twice as likely to leave their roles within two years and four times more likely to last fewer than 12 months. The boardroom is also regressing, with women in the first quarter of 2024 filling the lowest percentage of new director positions since 2017, according to an analysis from the nonprofit 50/50 Women on Boards. The compensation divide is just as alarming. The US Bureau of Labor Statistics released data in January that showed the gender pay gap for all working women has barely budged in a decade.

It's a clear reminder—as if women really needed one—that progress is far from inevitable. You can draw a direct line between the gains women have experienced over the past half-decade or so and the ways that diversity, equity and inclusion efforts moved from the fringes of corporate America to the mainstream: The biggest and most powerful tech companies in Silicon Valley started publishing their gender pay data; Nasdaq required that the boards of its listed companies have at least two diverse board members or at least explain why they didn't; Goldman Sachs announced it would only take a company public if it had at least one female or non-White director; and asset management behemoth BlackRock Inc. said it wanted its portfolio companies to work toward 30% diversity on their boards. "I definitely think DEI was helping," says Jane Stevenson, vice chair of board and CEO services at executive search firm Korn Ferry. "It created positive peer pressure."

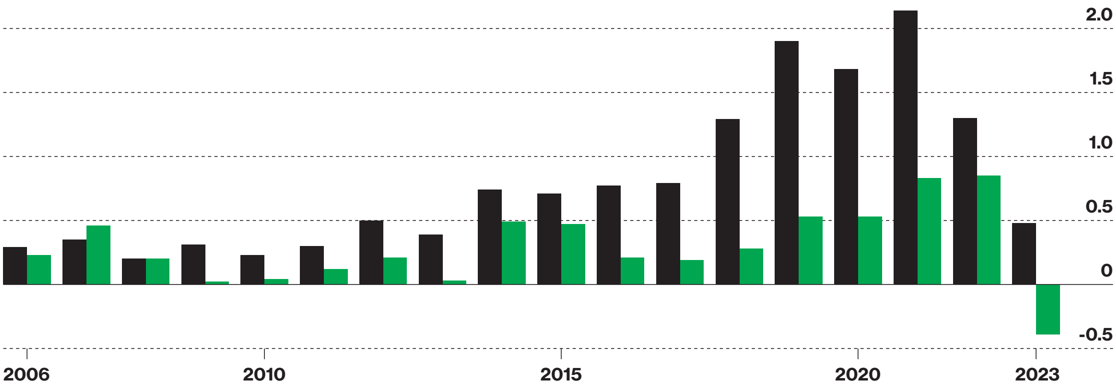
Women won't reach parity with men in the C-suite until 2055 at the earliest, at least five years later than previously estimated

It tracks, then, that the setbacks have come at the same time DEI has not only fallen out of favor but also become the bogeyman of the business world—a victim of the political right's successful attack on "woke capitalism." "It's made it OK to discriminate against women again," says Erin Reid, a professor at McMaster University's business school who studies gender in the workplace. The likes of Elon Musk and Pershing Square's Bill Ackman have only ratcheted up the rhetoric with posts on social media claiming DEI is racist and illegal.

We've now returned not to the status quo but to something far worse. Many companies won't even mention the "DEI" acronym anymore on their

Shift in Women's Representation at S&P Global Total Market Index Companies

Year-over-year change in share of women, in percentage points



conference calls—references to "diversity" and "inclusion" last year fell to their lowest level since 2012, according to S&P Global Market Intelligence. Teams focusing on diversity have been among the prime targets in the most recent spate of corporate layoffs at companies including Zoom and X (formerly Twitter). Meanwhile, some legal departments have cautioned their managers against talking about race or gender in their recruitment programs or even holding events for groups such as women or people of color.

Women have lost more than just C-suite jobs. Companies and their boards have once again been given permission to ignore the systemic issues that have always held women back: the glass cliff, the glass ceiling, the motherhood penalty, unconscious bias, etc. It's not simply enough to hire women into high-powered jobs and expect them to be successful if corporate boards and company executives fail to acknowledge and address the forces undermining them.

We need only return to Brewer to see how this can play out. Yes, she finally got the big job at Walgreens, but it was a struggling company where her risk of failure was high—a classic glass-cliff scenario. The board expected her to turn around the ailing pharmacy chain plagued by intense competition and labor shortages but appeared to give her neither the authority nor the time to do it. Her strategy diverged from the one laid out by her predecessor, Stefano Pessina, who remained executive chairman and one of the company's largest individual investors. He apparently had assumed his handpicked successor would happily follow his marching orders, preferring the company expand into health care through partnerships rather than the acquisitions Brewer was pursuing. When she left, Pessina said the company wanted a "successor with deep health-care experience"—the suggestion being that Brewer didn't have it. But that's his failure, not hers. Pessina knew Brewer's background when he hired her, saying at the time that the company needed her digital and retail expertise.

In the end, Brewer's 2.5-year term clocked in even shorter than the average 4.5-year tenure for female Fortune 500 CEOs, which compares with 7.2 years for men, according to Equilar. It's another piece of evidence showing that boards give their female CEOs little margin for error.

Not all companies have capitulated to the anti-woke movement. Jamie Dimon at JPMorgan Chase & Co. continues to be one of the few CEOs who talks unapologetically about his company's diversity efforts, this year dedicating a substantial chunk of his almost 28,000-word annual shareholder letter to laying out their importance and why they're good for the bank's business. It's more than just lip service; two of his potential successors are women, despite finance being an industry that's notoriously male and White.

The rise in DEI efforts raised the collective consciousness about the challenges women face in the workplace. But it also showed women what was possible when their companies finally recognized those hurdles and at least attempted to do something about them. Now women are unwilling to just compliantly return to how things used to be. "A lot of women want something different in their workplaces," says Marianne Cooper, a sociologist at Stanford University's VMware Women's Leadership Innovation Lab. "They want them to be flexible, fair and inclusive and are willing to vote with their feet. That might not be a bad thing."

In fact, it might even be a little bit revolutionary. Ⓑ

DATA: S&P GLOBAL MARKET INTELLIGENCE

The inflation nightmare is almost over. Now it's time to learn the lessons, says Tom Orlik

Imagine you discover the mechanic who's been servicing your car for years has only a hazy understanding of how the engine works. You thought they were doing a bang-up job. In fact, they were just lucky. The first time something major goes wrong, they have no idea what to do. Next thing, you're hailing an Uber to get to work and wondering if used-car prices have come down yet.

Something similar has happened in the world's inflation repair shops—otherwise known as central banks. For 30 years, the Federal Reserve, Bank of England, and European Central Bank and its predecessors oversaw low and stable inflation. In return, policymakers were lavished with praise for marshaling technical expertise and wise judgment for the common good.

The post-pandemic price surge has cast the money mandarins in a less flattering light. Central banks didn't see inflation coming. After it arrived, they said it was "transitory." When it proved intransigent, they attacked it with tools that were ill-suited for the job, letting loose a barrage of interest-rate hikes that risked precipitating recession, financial crisis or both.

Along the way, the Fed dreamed up a new long-term framework for monetary policy, only to abandon it when its emphasis on allowing inflation to overshoot its 2% target proved unwise. Oh, yes, and three of the Fed's top officials exited after revelations about their trading activity sparked ethics concerns.

Those failures had real costs. Across the US and Europe, households saw price increases outstripping gains in wages—an inflation tax that eroded standards of living.

Now, with inflation finally slouching toward target, Fed Chair Jerome Powell and his peers are ready to declare "mission accomplished" and move on. What they—and we—should be doing is taking stock of what went wrong, so we can keep it from happening again.

In our current system, independent central banks are the lone inflation fighters, and their weapon of choice is interest rates. Why independent? Because when politicians are calling the shots, they face pressure to juice growth ahead of elections. As a result, they make shortsighted decisions—such as cutting interest rates when they should be raising them, resulting in higher and more volatile prices.

Insulated from political meddling, independent central banks can stay focused on their pursuit of price stability. Once they establish a record of success, a virtuous cycle takes hold. Expecting inflation to stay low, workers moderate wage demands, and companies keep a lid on price hikes. In central-bank-speak: Inflation expectations are well anchored.

Why interest rates? Because controlling the cost of borrowing—higher to curb inflation, lower to stoke growth—is an efficient way of getting into all the cracks of an economy. Unlike shifting taxes and spending, it doesn't require a lengthy legislative process. And unlike price controls, it treats the causes rather than the symptoms of overheating and avoids heavy-handed intervention in markets.

■ PHOTOGRAPH BY HUGO YU FOR BLOOMBERG BUSINESSWEEK

Central bankers will tell you this beneficent design explains the unprecedented 30-year streak of price stability that came to an abrupt end with the pandemic. But they would, wouldn't they? A dispassionate observer might note that other forces were also at work. Yes, the 1990s marked the birth of independent central banks. But they also ushered in the end of the Cold War, China's transformation into the world's low-cost assembly line, the widespread adoption of information technology and robotics, and the continued collapse of union power.

So, who or what was responsible for taming inflation? Was it central bankers, with their supposed magical powers to shape inflation expectations, which (trade secret—don't tell anyone) economists can't even agree on how to measure? Or was it globalization on steroids, the rise of the robots and the erosion of blue-collar bargaining power as factories offshored and automated?

The answer is all of the above, but the bout of Covid-19-induced inflation suggests central banks have been getting more than their fair share of the credit. After all, if monetary policymakers are in fact controlling inflation, it seems reasonable to assume they understand what causes it. Their failure to anticipate the almost 10% climb in prices from 2021 to 2022 suggests they don't.

The role that fractured supply chains played in fueling inflation raises another question: Do central banks have the right tools to do the job? Interest rates are a powerful instrument for managing demand. They aren't very effective, however, when dealing with supply shocks, which were the main reason prices shot up in 2021-22. At first it was a shortage of semiconductors. Then, after Russia's tanks rolled across the border into Ukraine, it was oil and gas. Raising rates doesn't do anything to boost the supply of either. If anything, by making investment in increasing production more expensive, it does the opposite.

What is to be done? Before grabbing the pitchforks and igniting the effigies, it's worth noting that the circumstances of the past four years—war coming hard on the heels of a plague—have been extreme. That's both an explanation for the failures of central banks and a reason not to rush into a redesign.

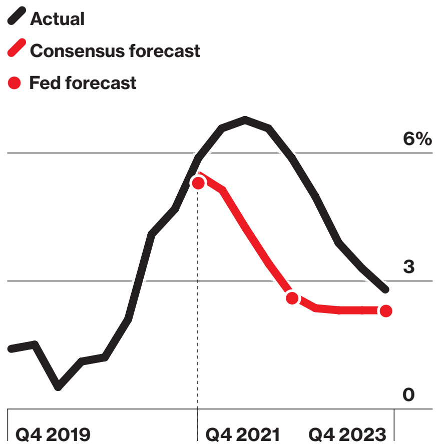
Nevertheless, as Nobel Prize-winning economist Paul Romer once said, a crisis is a terrible thing to waste. For starters, policymakers should acknowledge the mistakes and commit to learning the lessons. Central banks didn't do any worse than Wall Street banks at forecasting the trajectory of prices. Then again, Wall Street banks don't have controlling inflation in their job description, and they don't employ hundreds of economists with Ph.D.s to work on the task.

The Bank of England has already concluded an independent review—albeit one narrowly focused on its forecasting process. The Fed and the ECB should do the same, though with a broader mandate. High on the list of fixes should be guarding against groupthink by including more dissenting voices in the policy process.

Also, accountability has to be amped up. If a chief executive officer, a portfolio manager or, for that matter, a car mechanic missed their performance target by as wide a margin as central bankers missed theirs, heads would roll. President Joe Biden might well lose his bid for a second term because Americans blame him for the surge in prices; Powell, meanwhile, has yet to face any calls to step down.

Forecasting Errors

Post-pandemic inflation, year over year



■ DATA: BLOOMBERG, FEDERAL RESERVE

Perhaps telling Powell "You're fired"—to borrow a signature phrase from another White House hopeful—is a bit much. Still, the current "heads we controlled inflation, tails it's forces outside our control" accountability framework doesn't appear to be sharpening incentives to perform.

Finally, economic policy needs to become more of a team sport. When inflation comes from breakdowns in supply—an increasingly common scenario with the rise of temperatures, both geopolitical and actual—rate hikes aren't an effective way to control it. It's time governments stepped up to the challenge. Bidenomics—with its investment in supply-chain resilience, oil releases from the Strategic Petroleum Reserve and action against price-gouging monopolies—contains the seeds of a supply-side inflation-fighting strategy.

Across the Atlantic, the fact that inflation in France peaked at 7% while in Italy it went to 12%—even though interest rates for both are set by the ECB—demonstrates that government policies can make a difference.

More is required. In the US, charging the director of the National Economic Council with oversight and expansion of non-central-bank tools to fight inflation would be a symbolic and substantial step in the right direction. Because when your car breaks and your regular repair shop can't fix it, you need to try out some new mechanics. Ⓑ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Online shopping is getting weirder. Amanda Mull goes down the rabbit hole

In my bathroom, I have a bottle of snail slime I apply to my face every day. It's not as weird as it sounds. The snail slime has been formulated into a widely beloved skin-care serum made by the Korean beauty brand COSRX. It was a cult favorite among American skin-care enthusiasts for years before becoming a viral hit in 2023. But what is weird: I have no idea if the product I'm using is real.

Along with the serum's sudden internet fame came a huge spike in demand. While COSRX worked to ramp up production and distribution to keep the real thing in stock, a flood of counterfeiters rushed in with products in almost identical packaging that claimed to be the real thing. I bought the serum from Amazon twice in the second half of 2023, around the time—unbeknownst to me, a devout user of the product—that the brand was warning the public to be wary of offerings on marketplaces such as Amazon and TikTok Shop, which allow third-party sellers to bring their own inventory and list their own products.

Finding out about this turn of events was mildly upsetting on a practical level—*what, exactly, had I been putting on my face?*—as well as a philosophical one—*what, exactly, did I think this product was doing for me, if I couldn't even tell if it was real?* It's also at this point just a classic experience of modern commerce: I bought a familiar product, made by a well-known brand, from the world's most powerful retailer, which says it spent more than $1 billion in 2023 to try to prevent fakes from reaching consumers. And yet they did.

Snail slime ended up becoming an unexpected tour guide to the hall of mirrors that is online shopping. My journey began, as many things do these days, with the product's meteoric rise on TikTok. Snail mucin has had moments of internet popularity in the past, but no platform can rival TikTok for the speed at which it can propel a cult favorite to worldwide bestseller. It had done so with blush from Selena Gomez's makeup line, pink kitchen-cleaning goo and a series of unusual hairstyling tools—and now it was happening with COSRX's serum, which is officially named the Advanced Snail 96 Mucin Power Essence. In early 2023 the clear, watery goop, which now retails for $25, became Amazon's top-selling beauty product, eventually selling out both there and on TikTok Shop. When the brand was finally able to restock with Amazon in May, it celebrated with a lengthy press release.

For most products, it doesn't take much in the way of sudden online hype to drain available inventory, at which point the opportunists show up. In the past, this has usually meant flippers—people who gobble up products at retail prices, then sell their stockpile on resale platforms such as eBay, Poshmark or StockX at a significant markup. Although that still occurred with the snail slime, something more novel for a relatively inexpensive product did, too. Counterfeiters took note, flooding Amazon, TikTok Shop and other platforms with replicas of the serum, priced for as little as $9. In some situations, this ultralow price would be a tell that you're looking at a knockoff. But on large marketplace platforms, prices fluctuate according to opaque algorithmic logic—a type of "dynamic" pricing that's only becoming more common among retailers. Was it a fake, or was it just a good deal?

Counterfeiting has long been an issue with luxury goods, whose high prices, fat margins and huge markets make the risk of producing a knockoff worth it. For lower-ticket products, the math, historically, just hasn't added up. Now Amazon, TikTok Shop and other marketplaces offer a wealth of data to third-party manufacturers and sellers, essentially signaling to them the best time to seize on a product's nascent virality. The TikTok girlies aren't simply telling the general public what to buy; they're also telling the consumer-products manufacturing sector what to make and sellers what to list.

Navigating legitimate retailers' listings of maybe-fake products becomes even more difficult when they're then subsumed into the internet's kaleidoscopic infrastructure. Affiliate marketing, which allows internet users to make a kickback on products they goad people into buying, began decades ago as a way for sellers to encourage others to link to their websites. Today, the scheme has been unleashed as a major revenue stream for twentysomething TikTok and Instagram influencers, as well as lots of major media companies. When products go as viral as COSRX's serum did, pretty much everyone gets in on the search-engine gold rush, assembling lists of trendy, affiliate-linked product recommendations that tend to sound as if they're the result of extensive in-person testing but are sometimes merely a composite of other online reviews. In some cases, as a recent investigation by the technology website *Futurism* found, some big publications, including the *Miami Herald* and *USA Today*, even appear to be using AI to generate these kinds of buying guides. (*Miami Herald* owner McClatchy says it terminated its relationship with an AI firm before the report came out; *USA Today* owner Gannett didn't respond to *Bloomberg Businessweek* but told *Futurism* the content was "arbitrage marketing efforts.")

■ PHOTOGRAPH BY RYAN DUFFIN FOR BLOOMBERG BUSINESSWEEK ■ PROP STYLING BY URSULA BARKER

Shoppers looking for deals on designer goods have long understood that fake products abound, and they've developed methods of authentication as a result: counting stitches on a leather logo, scrutinizing the markings on a zipper, consulting crowdsourced color catalogs from seasons past. Now everyone has to be an authenticator, whether it's for Stanley cups or children's car seats. Brands and retailers are fighting back, too: COSRX has tried to circulate information about how to tell real snail serum from counterfeit. TikTok Shop, which began in 2023 with hundreds of thousands of sellers and an immediate problem with fakes, says it blocks or removes millions of suspected counterfeit products a year. And Amazon is still playing whack-a-mole. (Amazon says it removed "the product listings in question"; TikTok declined to specifically comment on COSRX's snail mucin.) Still, sometimes listings for fake products just don't have any red flags; sellers use photos of the real thing, or they conveniently obscure the tiny detail or two that might give them away.

In the end, perhaps most parties aren't incentivized to root them out. Marketplaces collect their fees from sellers no matter the provenance of the product. Influencers and recommenders need links to get their commission. And then there's the next layer of players in the virality commerce machine: budding Nancy Drews on TikTok and YouTube trying to suss out the fakes. Online shopping has become a feeding frenzy where everyone—whether scammers or sleuths—is rewarded. B

The Four-Day Workweek

● **By Matthew Boyle**

❶ The Predicament

Is a four-day workweek coming? A recent KPMG survey of 100 big-company chief executive officers found almost 1 in 3 were exploring such a shift. Pre-pandemic experiments with condensed workweeks in Iceland, Japan, Sweden and other places have lent support to the notion that employees and employers could benefit. Governments including Belgium and the Dominican Republic have sponsored four-day trials. Many bosses still consider a four-day workweek without a reduction in pay as a productivity killer.

With opinions hardening on both sides, can employers find common ground?

❷ The Case For

Four-day boosters point to the success of experiments involving dozens of companies in the UK, US and other countries. In a 2022 test, 54 of the 61 participating organizations were still doing a four-day workweek one year later, and half of them made it permanent. Most reported improved staff well-being, half said it reduced quitting, and one-third said it helped recruiting efforts.

"We're getting more of a realistic picture," says Dale Whelehan, chief executive officer of 4 Day Week Global, the New Zealand group that helped organize the trials. "We also know there are a lot of experiments happening inside large organizations." Dove soap maker Unilever Plc, for instance, has expanded a trial from New Zealand to its Australian operations.

❸ The Case Against

Kevin Rockmann, a professor of management at the Costello College of Business at George Mason University, says deploying a four-day week broadly in the white-collar world won't take hold unless there's an overhaul of corporate culture, particularly in the US. Many American workers are glued to their email and Slack messages all day, even while on vacation, and these habits won't go away overnight. The biggest workaholics are often senior leaders, who set the tone for the rank and file.

"Unless you train managers to make sure people are shutting off, it's unclear how this would improve things—and might actually make things worse," Rockmann says.

Simply working longer days on Monday through Thursday, with Zoom calls starting as early as 7 a.m., could produce even more stress, particularly on parents.

❹ The Common Ground

One idea is the nine-day fortnight, where work shuts down every other Friday, an approach that companies such as human resources software maker Dayforce Inc. and accounting firm Grant Thornton have taken in some regions.

Having a well-thought-out plan is essential. "You need to know why you want to do this," says Natalie Breece, chief people and diversity officer at ThredUp, an online apparel resale marketplace. "If you just start by saying 'I want four days' and then back into the other things, it's much harder."

Coming up with better ways to gauge employee productivity is crucial. Whelehan says many organizations he works with in the four-day trials don't know how they'll judge productivity during the test. Develop smarter metrics, he says, and even if your organization doesn't adopt the four-day workweek, "you will end up in a better place than where you started." Ⓑ

■ PHOTOGRAPH BY RYAN DUFFIN FOR BLOOMBERG BUSINESSWEEK ■ PROP STYLING BY URSULA BARKER

In Depth

How cities are adapting to a warming climate

ILLUSTRATION BY CALLUM ROWLAND

CONCRETE DREAMS

From streets that flood on sunny days to homes that swelter during bouts of intense heat, the world's cities are under rising stress from climate change. But they're also finding ways to live with—and brace for—its impacts. Adaptation varies by place and by problem. Fire-prone Boulder, Colorado, is cutting its combustible juniper trees, while flood-weary São Paulo is planting gardens to absorb more rainwater. Whatever the strategy, it has to be locally tailored to work, says Pete Masters, an adviser at Humanitarian OpenStreetMap Team: "If you don't understand the reality of the community, you're not going to fix the problem properly."

FIGHTING FIRE BEFORE IT COMES

As wildfires become a bigger threat, US communities are scrambling for home protection solutions. In Boulder, Colorado, trees are getting torn out and mushroom spores are being scattered around town

● By Kyle Stock

Juniper trees are ecological marvels. They can live for a millennium and have been growing in Boulder for about 40 million years. Birds nest in them and eat the berries, as do rabbits, raccoons and coyotes. Mountain lions hide in junipers when stalking prey, and porcupines love to nap in them. Landscapers are fond of them, too. Not only are junipers dense enough for privacy, but they're also drought-resistant, with oily leaves that look more like miniature clusters of ocean coral than evergreen needles.

It is, however, time for them to go.

All the features that make junipers hardy also make them an economic and safety hazard in our warmed-up world. Junipers don't just catch fire, they essentially explode, jettisoning embers that can travel for miles on a windy day. "We call them 'green gasoline,'" says Steve Orr, a community risk reduction specialist with Boulder Fire-Rescue. "It's basically a perfect campfire."

Junipers blanket Canada, but thick fingers of them extend south at high elevations in the American West, and they thrive in Boulder, a crunchy college town tucked up against the Rocky Mountains about 40 minutes northwest of Denver. These days, Boulder is pushing a new agenda: Junk your junipers. As climate change exacerbates wildfire conditions in the western US, thousands of communities are going to extreme and expensive ends in hopes of avoiding catastrophic conflagrations. Last year, Boulder increased its spending on climate resilience from $4 million a year to $6.5 million; that's almost 2% of the city's operating budget, and one-quarter of the money is aimed at wildfire mitigation.

← For Ryan O'Malley, thinning his 35 acres has been almost a full-time job for about six years

The city can trace its angst to Dec. 30, 2021, when the Marshall Fire—the most destructive in state history—sparked to life. It had been a wet spring, so weeds and grasses grew tall and dense before the rain all but disappeared for six months. Typically, snow snuffs out fire season in late fall, but that hadn't showed up either.

By the time the Marshall blaze was contained six days later, it had destroyed 6,026 acres and 1,084 homes, mostly in Boulder County just southeast of the city's border. In the same period, the city was inundated with about 500 requests for home assessments: detailed reports on what residents can do to lower fire risk—cleaning gutters, for example, or removing trees near buildings and fences.

"We've been talking about this stuff for decades," says Brian Oliver, chief of the Division of Wildland for Boulder Fire-Rescue, "and then all of a sudden overnight it's like, 'Can this happen here?'"

Alisa Koenigsberg has only recently finished rebuilding after her home was lost to the Marshall Fire. "The entire community has PTSD," she says. "On high wind days, our anxiety is through the roof."

The refrain from public officials is brutally straightforward: A catastrophic wildfire will be costly, both ecologically and financially. "This is a crisis, and we're going to have to do some pretty extreme things to address it," says Victoria Amato, an environmental consultant working on Boulder's plan. "Sometimes it's not going to be very palatable, ▶

↓ Juniper trees are drought-resistant, though in a wildfire they essentially explode

■ PHOTOGRAPHS BY TRENT DAVIS BAILEY FOR BLOOMBERG BUSINESSWEEK (2)

◀ but it's going to help prevent the really catastrophic impacts."

In addition to scrubbing junipers, fire crews are burning open space whenever possible and thinning deadwood and forest canopies that have grown unchecked for decades. Meanwhile, the danger is catalyzing a cottage industry of fire mitigation services—both traditional and experimental—catering to increasingly wealthy residents eager for new solutions.

Trouble is, while mitigation programs reduce risk, even the most aggressive of them is unlikely to cancel the rising threat of wildfire in a warming climate.

The federal government estimates that about 72,000 communities bump up against fields and forests at risk of burning, the so-called wildland-urban interface. Many of these towns are rushing to update decades-old fire mitigation plans.

SWCA, an international environmental consulting firm, is helping to update Boulder's Community Wildfire Protection Plan, a 100-plus-page playbook for public officials and residents. In its 43 years, the company has worked on 100 such programs; at the moment, it has 10 underway.

"It's not even just the western US anymore," says Amato, a principal fire planner at SWCA. "We're getting calls from Maine, Pennsylvania, the Upper Peninsula of Michigan."

When it comes to trees, Boulder has traditionally been more on the hugging side than the cutting. It attracts climbers, skiers and cyclists who've geared their life around the outdoors. In 2007 the city levied the first carbon tax in the country, and at Naropa University in town, students can get graduate degrees in ecopsychology.

The same things that make Boulder such a heaven for neo-hippies—miles of open space and pristine mountain forests and a relatively sparse population—have made it a mecca for tech refugees and other affluent newcomers. Google has about 1,500 employees in the area who flex their expense accounts at restaurants owned by Kimbal Musk, Elon's brother.

The median household income in Boulder County has climbed to $97,000, almost one-third higher than that of the nation at large. And property values have surged. In the past five years, the average home price has increased 39%, according to the Federal Reserve. The median list price on Zillow is $1.24 million.

The mitigation efforts haven't been met with protests, as they might have been a decade ago. Home equity and fire anxiety go hand in hand, as residents consider the cost of properly insuring their property and, possibly, rebuilding. But it takes more than money to prepare: Commitment and time are required. Ryan O'Malley and Maya Ward-Karet's 35 acres, a 12-minute drive from downtown, are a showcase for how labor intensive wildfire mitigation can be.

The couple's cabin, which they built, sits on a cleared hill, swooning into steep ravines where meticulously spaced trees are, for the most part, free of deadwood. Hundreds of small stumps are peppered throughout, a testament to how dense it used to be.

O'Malley spends most of his waking hours tending to the land: felling trees, limbing trees, hauling and winching and whacking and chipping and burning. He's been at it for almost six years and has only begun to feel as if he's getting to a good place.

"It's literally a lifetime of work, and it doesn't end," he says.

Boulder kicked off its junk your junipers campaign about a year ago and in May began to mow borders around much of the city's open space. Public officials have set an aggressive schedule of prescribed burns and hired a team to assess the fire risk of the town's homes and businesses. So far they've inspected about one-third of the buildings in town. When they finish, they'll start over.

The danger has also catalyzed entrepreneurship in the private sector, creating alternatives to simply cutting and burning. Jacob Austin was a senior at the University of Colorado's Boulder campus when the Marshall Fire raged; his Flatiron Fire Defense grew out of a business class assignment. This year his crews will provide mitigation to about 100 Boulder-area homes, a service that executes many of the city's recommendations, including tree removal, gravel barriers, and the installation of metal siding and guards over vents and gutters. The average Flatiron mitigation service runs about $2,500, though Austin says many of his customers are willing to pay far more.

← Hedstrom's Boulder Mushroom sprays fungi spores on wood chips, helping them retain moisture

Tom Pietrykowski, a chemist who owns two homes west of Boulder, is on the waitlist for Flatiron's Ember Defense System, which is a network of sprinklers that douse a home in water and foam if a blaze gets close. Each deployment will cost between $25,000 and $50,000, plus an annual fee.

Most of the homes destroyed in a wildfire aren't engulfed in flames. Rather, they succumb to small, smoldering embers. Gutters, baseboards and vents in the roofs and eaves are particular weak points. "What you can do in the zero to 5 feet around your home can absolutely save your property," says Amato, the environmental consultant.

If all those things are soaked to begin with, Flatiron figures, the embers will find no purchase. "It certainly can't hurt," Pietrykowski says. "If your roof and eaves are wetted down, it gives you a chance."

Zach Hedstrom, meanwhile, has an organic solution. He started Boulder Mushroom in 2020, selling fungi to restaurants, but the business plan morphed when the Marshall blaze broke out a year later.

"The 'aha' moment was realizing, How would nature get rid of all this wood?" Hedstrom says. "There are two ways: fire and fungi."

He started treating wood chips with mycelium, a network of fungal threads that are more or less mushroom roots. The fungus spreads through the biomass like a dense spiderweb, sucks up moisture and slowly releases it. "You can think of it almost like a biological sponge," he says. The treated wood chips retain as much as four times more moisture than they would otherwise and decompose in less than two years, rather than the 50 or so that's typical in Boulder's arid environment.

In a small warehouse north of town, Hedstrom is brewing huge vats of mycelium—essentially mushroom soup—that can be sprayed on wood chips, ideally at a municipal depot where homeowners may fill a truck to get enough to spread around their property. If there's enough rain, the chips will "fruit" edible mushrooms, an unintentional upside.

↑ Austin's Flatiron Fire Defense is developing an automated sprinkler system that can coat a house in wet foam

■ PHOTOGRAPHS BY TRENT DAVIS BAILEY FOR BLOOMBERG BUSINESSWEEK (2)

The solution is still very much in beta mode. Among other things, Hedstrom is trying to dial in which fungi strains work best on which types of wood. But public officials are optimistic. To help scale up this operation, Boulder County gave Hedstrom a $100,000 grant.

Still, all this hustling—whether by public officials and homeowners or environmental consultants and entrepreneurs such as Austin and Hedstrom—may be a bit of a Hail Mary in an environment that's growing drastically hotter and drier. In the past eight years, wildfires have burned more than 10 million US acres a year three times, a threshold that wasn't reached in three prior decades, according to the National Interagency Fire Center.

Brett KenCairn, the city's senior policy adviser for climate, says the best research suggests Boulder's wildfire risk will rise sixfold in the years ahead. Although Oliver, of Boulder Fire-Rescue, says the town's urban center is finally in "a pretty good place" with mitigation, the vast forests stretching into the mountains to the west are a different story. For most of the past 100 years, the official response to wildfire was to snuff it out quickly. Consequently, the forests are 10 to 100 times denser than they should be, according to the county.

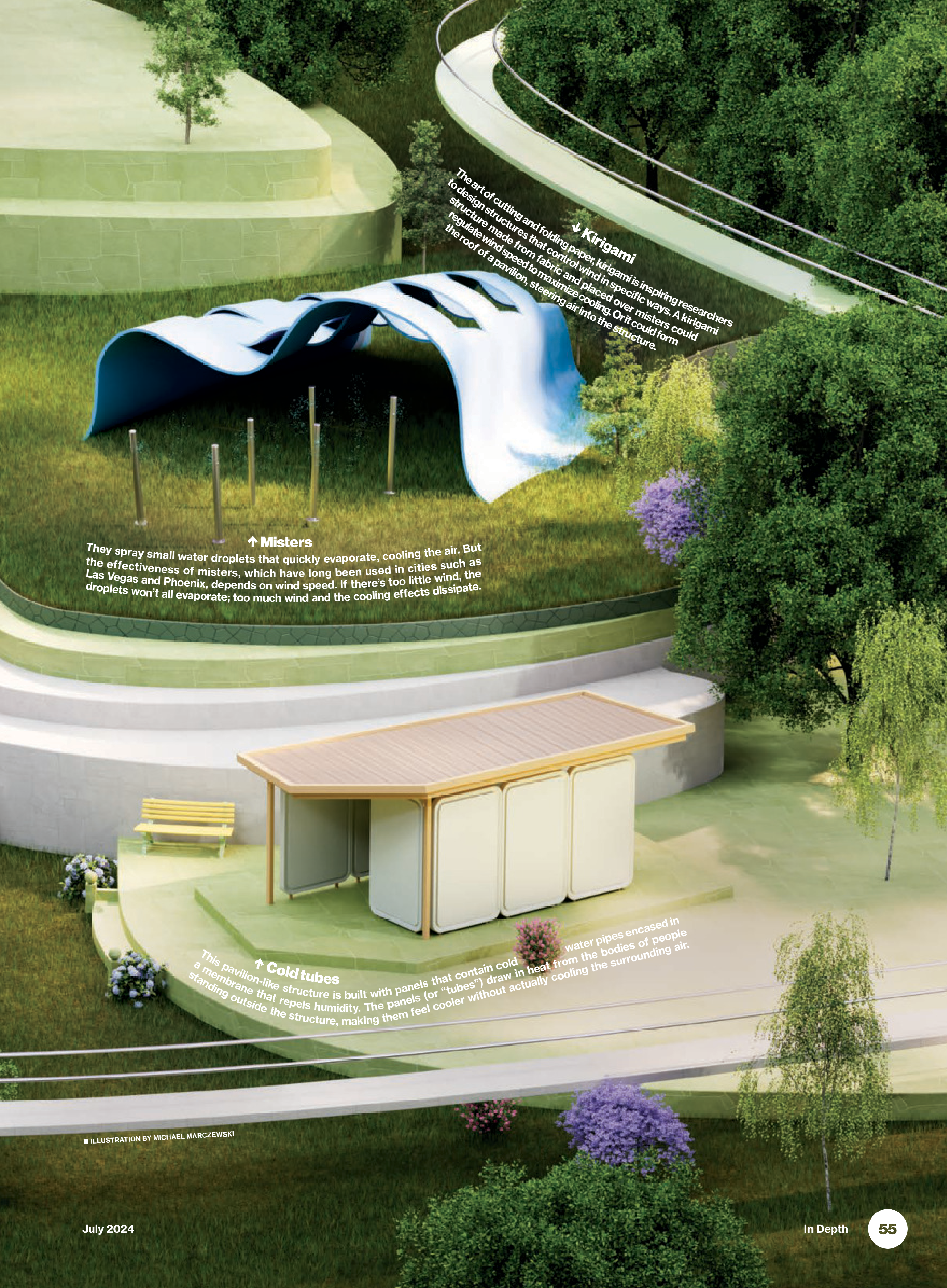
Up on his sprawling property, O'Malley is rigging a wood chipper onto the tracks of a deconstructed snowblower. He's worried about the thick national forest to the west. The US Forest Service and his neighbors in that direction aren't as diligent as he is, and he still has more to do. "The fire's coming. We know that," he says. "It could be tomorrow or could be years from now. I just hope it doesn't come until I get most of this done." Ⓑ

PARKS TO COOL YOU DOWN

With heat waves becoming more frequent, intense and deadly, researchers at Princeton University are devising ways to transform green spaces into outdoor cooling centers

● By Todd Woody

The drive to be outside, even in hot weather, is hard to overcome. People without air conditioning would be more likely to seek relief at their local park, according to Elie Bou-Zeid, a professor of environmental engineering at Princeton, than at a government building where they can feel like climate refugees. "It'll certainly be more pleasant to be in a park than in some indoor stadium where nobody wants to go," he says. The scientists are combining inexpensive technologies, some novel, some already in use, that they plan to test first in New Jersey for deployment in hot spots like Phoenix.



↓ **Kirigami**

The art of cutting and folding paper, kirigami is inspiring researchers to design structures that control wind in specific ways. A kirigami structure made from fabric and placed over misters could regulate wind speed to maximize cooling. Or it could form the roof of a pavilion, steering air into the structure.

↑ **Misters**

They spray small water droplets that quickly evaporate, cooling the air. But the effectiveness of misters, which have long been used in cities such as Las Vegas and Phoenix, depends on wind speed. If there's too little wind, the droplets won't all evaporate; too much wind and the cooling effects dissipate.

↑ **Cold tubes**

This pavilion-like structure is built with panels that contain cold water pipes encased in a membrane that repels humidity. The panels (or “tubes”) draw in heat from the bodies of people standing outside the structure, making them feel cooler without actually cooling the surrounding air.

■ ILLUSTRATION BY MICHAEL MARCZEWSKI

SÃO PAULO GOES SPONGY

The megacity is planting hundreds of absorbent rain gardens in parks and along roadsides as it braces for a wetter, warmer future

● By Andrew Rosati and Laura Millan

Clipboard in hand, architect Lara Freitas surveys a line of car-size cavities dug into a street in southern São Paulo. Every square meter in this high-rise megacity is valuable real estate, but Freitas isn't planning to raise another glass-and-steel tower. Rather, she's gouging the concrete to make space for shrubbery—a green palisade to guard against the ravages of climate change.

"What we are creating is sponges for the neighborhood," says Freitas, who's also an elected councilor in one of the city's 32 districts. "We take these spaces and return them back to nature."

The "sponges" are more widely known as rain gardens, areas of greenery that soak up and filter stormwater runoff, relieving pressure on sewer systems. As cities in Brazil and around the world are pummeled by more intense downpours and beset by more frequent flooding, rain gardens have become part of the answer to an increasingly common urban problem: how to deal with all that water.

In São Paulo, which sprawls over an area twice the size of New York City, curbside gardens with leafy bushes have been built on side streets to stop water pooling. They've been installed along busy corridors, including the 23 of May Avenue, where the median now has prairie grass poking over its barriers. Existing parks on slopes and at the bottom of hills are being revamped, dug deeper and replanted with flora that can absorb more of the water flowing down from higher ground.

← Freitas (second from right) and volunteers install a rain garden in the Vila Mariana district

Gardens have also been squeezed into cramped spaces prone to flooding—such as concrete stairwells, where they're often staggered next to steps—and wedged into car-crammed streets in the form of *vagas verdes*, or green parking spaces, which may feature a small tree or a few bushes.

Well before it became Brazil's financial capital, São Paulo was known as *terra da garoa*, or the land of drizzle. An explosion of concrete and people in the second half of the 20th century—residents now total about 12 million—raised urban temperatures, and as the atmosphere has warmed, a local climate once characterized by light rains has shifted. Powerful storms ripped through the region in March and last November, pounding it with rain and causing blackouts and several deaths.

The number of days of rainfall in São Paulo is expected to double by the end of the century if, as projected, global temperatures increase by 2C or more from preindustrial times. Rainfall of about 30 millimeters per square meter per day can lead to flooding. Before 1950 there was no record of rainfall of 50mm or more in a single day, according to Brazil's National Institute for Space Research; now that happens two to five times a year. "This is how climate change manifests in São Paulo," says Lincoln Alves, a researcher at the institute.

The struggle to manage water is as old as the city itself. Cutting through São Paulo are several hundred waterways, ranging from large rivers such as the Tietê and Pinheiros—both of which were redirected to help generate electricity—to small canals. Many have been paved over to make way for infrastructure, while formal and informal housing settlements have sprung up on flood plains.

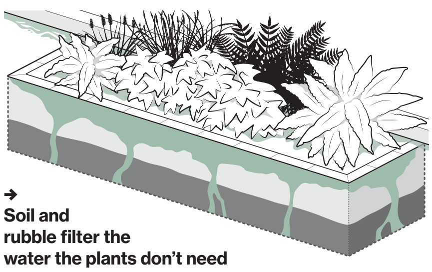
Grassroots activists started to install rain gardens about a decade ago, when a drought in southeast Brazil left reservoirs at critically low levels, leading to restrictions on water use. When storms brought torrential rains, the city's channels and waterways were overwhelmed, resulting in a contradictory situation in which *paulistanos* had no running water even as their homes and streets flooded.

Taking a cue from New York City, which has installed thousands of rain gardens, São Paulo's city hall launched its own official program and turbocharged it. There were just 23 gardens in 2017; now the number has risen to 337, and it's expected to reach 400 by yearend.

Plots are dug about 1.2 meters (3.9 feet) deep into streets or sidewalks, then filled with rubble and compost-rich soil, along with plants that sit just below the surrounding pavement. The mini-gardens can help cool local air temperatures, while the porous layers of soil and rock make the gardens highly absorbent. City planners are quick to cite other positive, harder-to-measure effects a dose of green can bring to an urban community, such as improved mental health.

Rain gardens alone can't soak up the water brought on by extreme weather. For massive flooding, "there really is no silver bullet," says Thaddeus Pawlowski, managing director of the Center for Resilient Cities and Landscapes at Columbia University. The danger of intense rain became acute in late April and May, when Brazil's Rio Grande do Sul state was lashed by record precipitation, causing flooding that left more than 170 people dead and over half a million displaced. That's raised concerns across the nation about cities' ability to cope with climate disasters.

↓ Plants absorb water and carbon dioxide while providing greenery



→ Soil and rubble filter the water the plants don't need before releasing it into the water table

← Storm runoff flows over hard surfaces into the garden bed

But even less severe floods can make streets impassable and close subway stations, upending the daily routines of millions and threatening homes. As floods become increasingly common, "rain gardens are part of a whole system of actions that will make a city more able to cope," Pawlowski says.

Costs of installation vary depending on the site and size, but a garden of up to 100 square meters costs about 87,000 reais ($16,500) to build, says Luiz Jamil Akel, an architect who advises the mayor's office on rain gardens. Carolina Lafemina, the deputy secretary of city districts, whose office is in charge of the gardens, says they pose virtually no additional cost to the city, given that many of the personnel needed for their upkeep have already been contracted for other duties. "We already had the resources. It was just a matter of training our people," she says.

That's helped the rain garden initiative to grow quickly. The city is also teaming up with activists and local leaders such as Freitas, who's overseeing a project to install gardens across a seven-block area in the Vila Mariana neighborhood.

The rollout hasn't been seamless. As in New York, some residents complain that the gardens are magnets for trash. They also doubt their long-term viability in a city plagued by crime, homelessness and a seemingly endless list of other problems. Officials concede that keeping up with maintenance has been a challenge. In Pinheiros, an affluent district of west São Paulo, one of the city's first rain gardens, a gas station turned public plaza, is now strewn with plastic bottles and cups. Palm trees overlook graffiti-covered benches and unkempt bushes. Squatters have set up camp nearby, which locals say scares people off. "It's basically a port-a-potty," says Ivan de Abreu, who works in a shoe repair shop close to the garden.

Even so, rain gardens are catching on across Brazil. Belo Horizonte, the country's third-largest city, and Curitiba, the capital of Paraná state, have begun installing them.

For city dwellers such as Rosana Santos, a nurse who lives near the rain gardens going up in Vila Mariana, they offer a respite to the encroaching gray. "Every day there are more and more buildings going up. What's left for the rest of us?" she asks. "This is at least a breath of fresh air." B

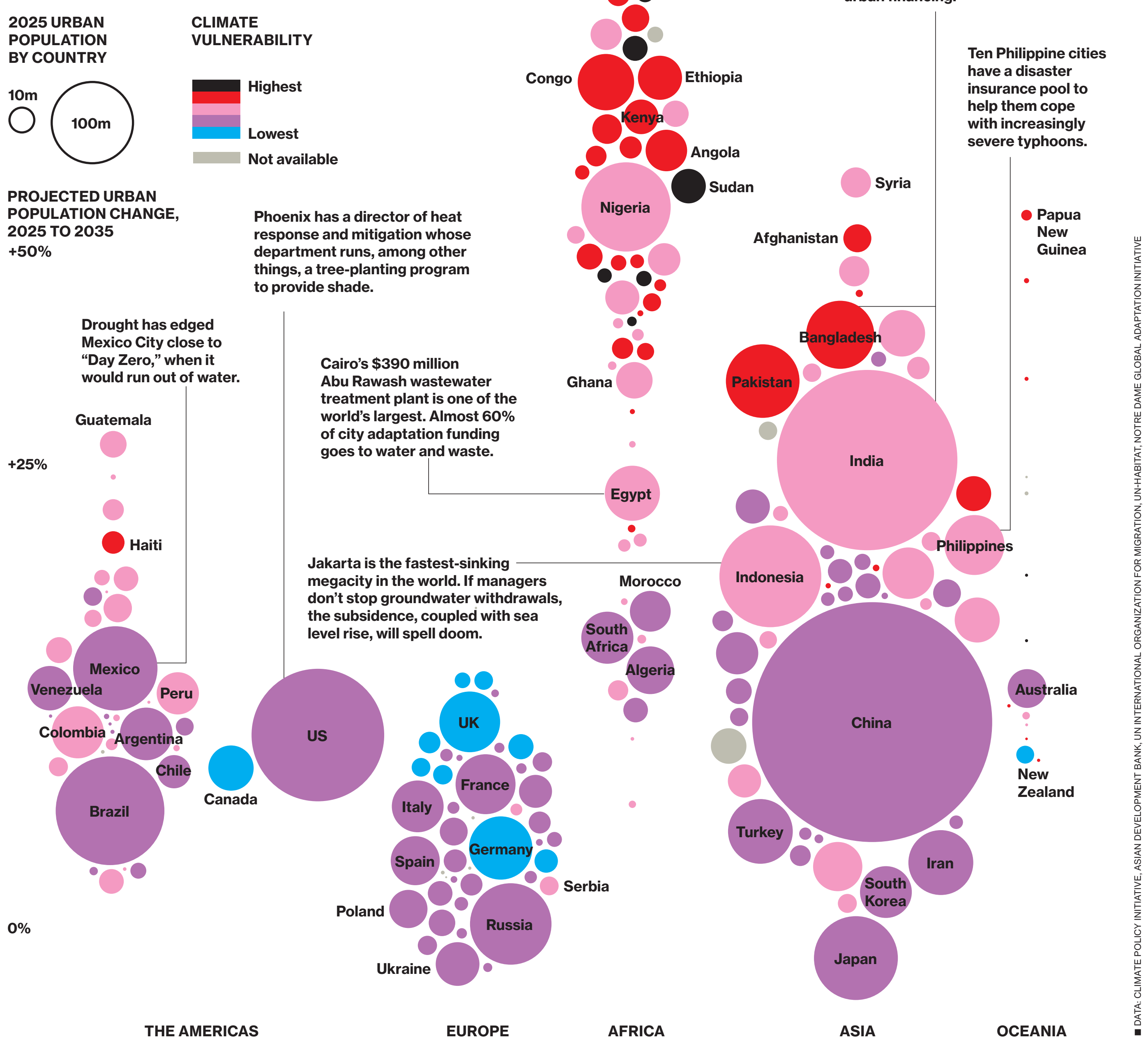
■ PHOTOGRAPH BY LARISSA ZAIDAN FOR BLOOMBERG BUSINESSWEEK ■ ILLUSTRATION BY BROWN BIRD DESIGN

Growing Exposure

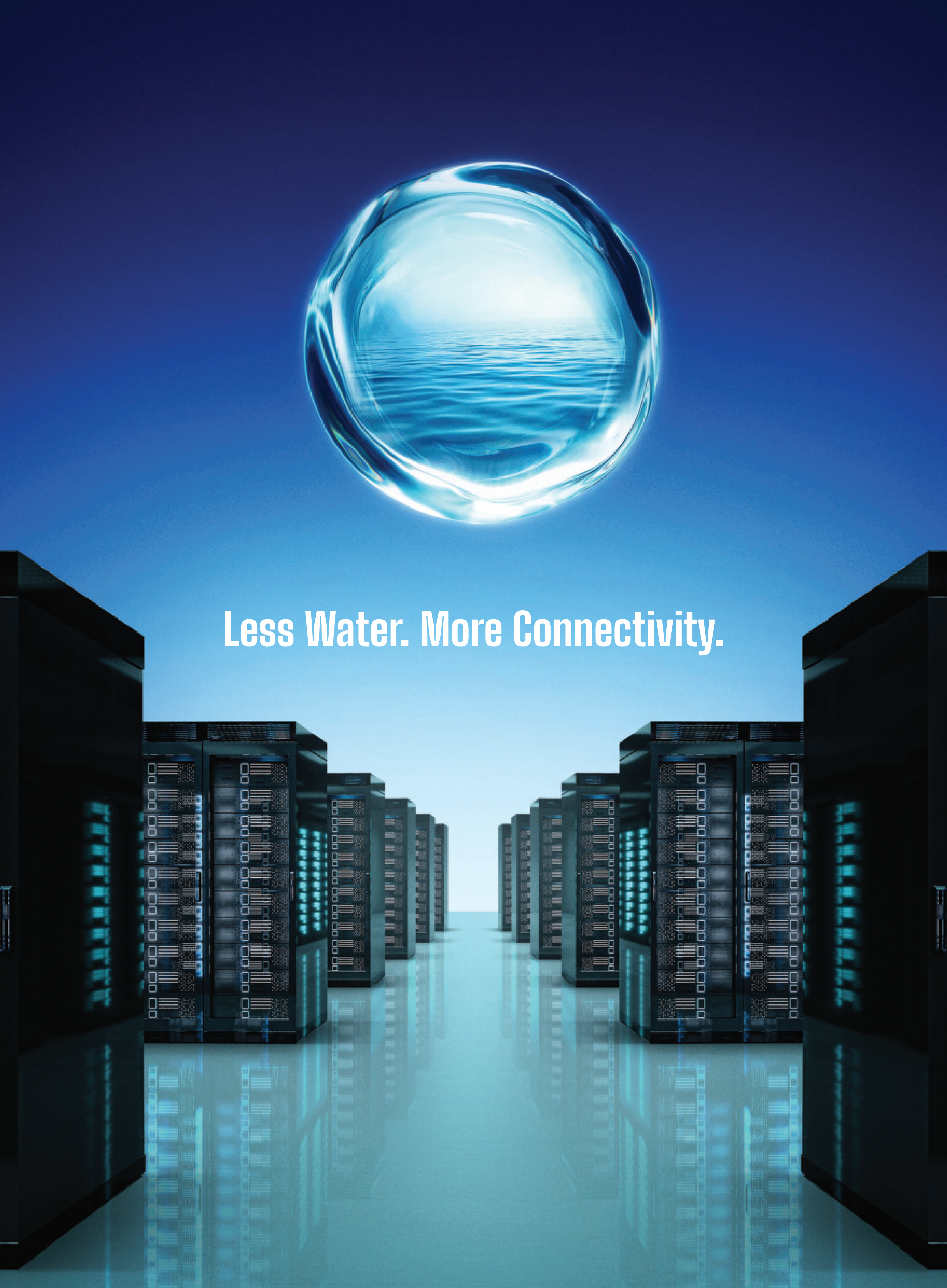
Countries with surging urban populations are also the most vulnerable to climate change

● **By Dorothy Gambrell and Brian Kahn**

A warming world is putting Niger, Tanzania, Afghanistan and other countries more at risk for extreme weather—and urban areas in these places are also projected to gain the greatest number of new inhabitants. In the world's largest cities, governments will have to do more to protect the millions of people in danger from a hot planet.



■ DATA: CLIMATE POLICY INITIATIVE, ASIAN DEVELOPMENT BANK, UN INTERNATIONAL ORGANIZATION FOR MIGRATION, UN-HABITAT, NOTRE DAME GLOBAL ADAPTATION INITIATIVE


Less Water. More Connectivity.

HOW TO CLOSE THE MAP GAP

More data on the topography of slums can help rescue workers respond to flooding and other natural disasters

● By Coco Liu and Festus Poquie

On a cloudy morning in early May, Charles Gamys sends his drone skyward. Once it's about 120 meters (390 feet) in the air, he starts to take photos of the landscape below: rows upon rows of shacks, connected by unpaved alleys and dotted with oil palm trees.

These are no casual snapshots. Gamys, 30, is helping create the first map of Blamo Town, an informal settlement outside Monrovia, Liberia's capital. Blamo Town has been around for almost 70 years and is home to about 20,000 people. On official maps, though, it's depicted with scant detail. On Google Maps, you can't see it at all.

↓ An image of Blamo Town taken by Gamys' drone

Globally, more than 1 billion people—about 1 in 4 urban dwellers—live in informal settlements such as Blamo Town, defined as slums by the United Nations. Day to day, residents of Monrovia's slums cook, clean, work and gather in tightly packed lean-tos resourcefully built out of mud and scrap metal.

When natural disasters strike, everything about these settlements becomes a liability, including the lack of mapping. Flooding happens quickly. Structures deteriorate easily. Rescuers don't know where to go. When the city government works on climate-resilience planning, slums are out of sight, out of mind.

"Slums can be more vulnerable to the effects of climate change than other types of neighborhoods," says Caroline Gevaert, an associate professor at the Faculty of Geo-Information Science and Earth Observation at the University of Twente in the Netherlands. "It is really crucial to do the mapping."

That's where the Humanitarian OpenStreetMap Team (HOT) comes in. With a staff of 105, the Washington-based nongovernmental organization joins forces with local aid groups and residents of slums to put places like Blamo Town on the map, literally. They use drones to create aerial imagery of each settlement and local mappers to interview residents and document every road and structure.

The information can be used in a variety of ways: Detailed maps can serve as the baseline for assessing damage from disasters, for example, while counting the number of structures might inform how much white paint is needed for heat-reducing reflective roofs.

Since its 2010 founding, HOT has participated in slum-mapping projects in more than a dozen cities in 10 countries, including Dar es Salaam in Tanzania and Dhaka in Bangladesh. Similar projects are on the rise globally. The NGO and its partners have mapped 21 of the 100-plus unmapped settlements in and around Monrovia, an endeavor funded by the Global Center on Adaptation, and expect to cover 31 more by September.

→ Mappers leave a Monrovia slum after gathering information that can help with crisis intervention

About 5 miles north of Gamys' drone, Tetee Nyewan, a mapper from the ▶

■ PHOTOGRAPHS BY CARIELLE DOE FOR BLOOMBERG BUSINESSWEEK (2)

↑ Gamys, in Blamo Town, grabs his drone after it's done a circuit

◀ Federation of Liberia Urban Poor Savers (Folups), one of HOT's NGO partners in Monrovia, knocks on a family's door in an informal settlement known as Duala. She takes note of the house's condition and tells its inhabitants she's there to collect data about the flooding risk in low-lying neighborhoods. Over the next 20 minutes, Nyewan asks them dozens of questions, while three other Duala residents, in training to become mappers themselves, look on.

"The information helps us advocate for our community," says Nyewan, 34, who grew up in a nearby settlement. In 2016 her family's hut was a 40-minute walk from the closest beach; that distance has been cut in half as worsening storm surges wash away coastal land.

↓ A Folups mapper with a resident; the bags are to keep floodwaters from entering her home

When she's done with the interview, Nyewan uploads the digital questionnaires to a database that NGOs and the government can access. In Monrovia, Folups and its partners offer local mappers $15 a day and a week's worth of free mobile data for their services—compelling perks in a country where the per capita gross domestic product was less than $800 in 2022.

"Our goal is to mobilize a critical mass of the urban poor and bring their voices to the table," says George Gleh, a data coordinator at Folups.

Abijay Williams, 32, who helped map Logan Town, the informal settlement where she lives, has already seen positive results. After mappers shared tips on how to mitigate local flooding risk, members of the community were able to dredge problematic drainages blocked by trash. During last year's rainy season, knee-deep floodwaters forced Williams and her family to abandon their home for months.

"Community engagement is fundamental to good adaptation," says Pete Masters, a HOT project adviser. "If you don't understand the reality of the community, you're not going to fix the problem properly." Ⓑ

■ PHOTOGRAPHS BY CARIELLE DOE FOR BLOOMBERG BUSINESSWEEK (2)

ONES TO WATCH

The 13 investors, policymakers, scientists and activists who are improving the world's understanding of climate risks and developing solutions that can help reduce emissions, clean up industries and rally humanity to the cause

Ben Eidelson

General partner, Stepchange

After founding fintech startups that were acquired by Google and Stripe, Eidelson pivoted to climate change. Stepchange is investing $5 million in 30-plus companies bridging the gap between green tech and the people and companies that need it. —*Olivia Rudgard*

Caroline Alden

Co-founder and chief scientist, LongPath Technologies

Alden helped develop what may be the cheapest path to deep emissions cuts for oil and gas companies: geo-fencing their wells using lasers and mirrors to detect even the tiniest methane leaks at the speed of light. —*Aaron Clark*

Tom Chi

Founding partner, At One Ventures

A founding member of X, Alphabet's moonshot factory, Chi decided to focus on climate change after he witnessed a coral reef near his Hawaii home bleach in two months. With $525 million across two funds, At One invests in startups working in air, water, soil and biodiversity. —*Michelle Ma*

Xiye Bastida

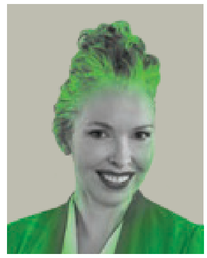
Co-founder, Re-Earth Initiative

At 22, Bastida is already an activist, founder, speaker and writer. This year she adds "film producer" to the list, as she embarks on a tour to promote *The Way of the Whale* (working title), a documentary in which she appears as a narrator and is credited as a co-writer and executive producer. —*Olivia Rudgard*

Alex Gagnon & Julian Sachs

Co-founders and CEO/CTO, Banyu Carbon

Banyu aims to extract millions of tons of atmospheric carbon dioxide with a process that uses sunlight and seawater to avoid the astronomical energy demands and cost of other carbon capture approaches. This summer marks its first field trial. —*Todd Woody*



Julie Pullen

Chief scientist and partner, Propeller

Armed with $117 million, Pullen is helping build a network of companies that treat the ocean as a fix for global warming and not just a victim of it. Ocean activities can provide nearly a third of the carbon reductions the climate needs, she says: "The blue economy is huge." —*Brian Kahn*

Kim van der Weerd

Intelligence director, Transformers Foundation

Financed by the denim supply chain, the nonprofit Transformers Foundation represents everyone from cotton farmers to jeans factories. Van der Weerd is pushing apparel makers to pay for decarbonization. —*Ben Elgin*

Bessie Schwarz

Co-founder and CEO, Floodbase

Schwarz and the public benefit corporation she co-founded are pioneering ways to use satellites to track flood risk. Governments turn to Floodbase to inform forecasting and aid distribution, but the startup also provides insurance products for flood risk that isn't traditionally covered. —*Leslie Kaufman*

Ben Schuler

Founder and CEO, Infinitum

Where most motors rely on wound copper wires and iron, Infinitum prints copper onto circuit boards. It reduces the metal needed, cuts motor weight and improves efficiency. The company is targeting electric cars and heat pumps and has installed its motors in more than a dozen data centers. —*Brian Kahn*

Avinash Persaud

Special adviser on climate change, Inter-American Development Bank

Persaud wants to make more money available for climate projects in the developing world. In Barbados he secured a clause that lets the country suspend loan repayments after a hurricane. —*Akshat Rathi*

Kate Marvel

Research physical scientist, NASA's Goddard Institute for Space Studies

A lead author of the fifth US National Climate Assessment, Marvel has contributed to work on how fast the world may warm and why some models are more "hot" than others. She's working on a book, *Human Nature*, that's due out next year. —*Eric Roston*

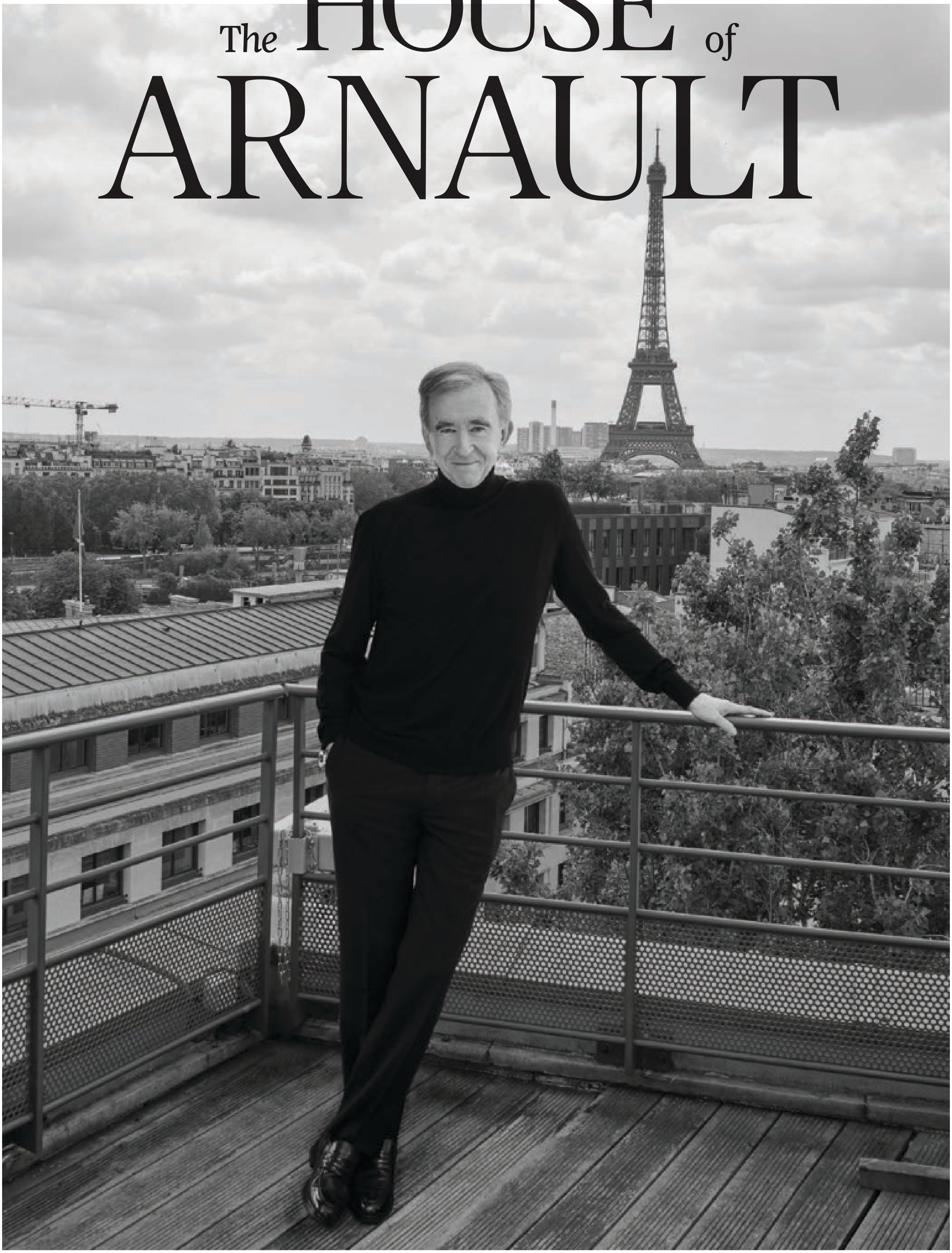
Vanessa Nakate

Founder of Youth for Future Africa and the Rise Up Movement

In 2019, Nakate brought Greta Thunberg's Fridays for Future campaign to Uganda. Now she's heading to Georgia as part of the Mandela Washington Fellowship, while she juggles activism with the Rise Up Movement and the Tard Foundation. —*Olivia Rudgard* ■

PHOTO ILLUSTRATION: 731; PORTRAITS: COURTESY SUBJECTS (13)

The HOUSE of ARNAULT



His company, LVMH, bought up many of the world's major luxury brands. And he's not finished shopping

By BRAD STONE *and* ANGELINA RASCOUET   *Photographs by* RUVEN AFANADOR

Every Saturday morning, accompanied by a rotating entourage of deputies, bodyguards and offspring, Bernard Arnault spends a few hours checking in on his temples devoted to handbags, couture, jewelry and exorbitantly priced watches.

The 75-year-old chairman and chief executive officer of LVMH Moët Hennessy Louis Vuitton SE is not there to shop. With a strict sensibility refined over decades of sitting front row at fashion shows as he developed Christian Dior, Bulgari, Celine, Fendi and Louis Vuitton stores, Arnault spots any incongruities that might disrupt the aura of opulence he has carefully constructed. Then he reels off texts and emails to his senior executives describing any perceived deficiencies in bullet points of obsessive detail.

Antoine Arnault, his eldest son and the head of communications and image at LVMH, recalls one such missive from his father in April, critiquing a counter at a Berluti store in Tokyo. "He loved the first concept I did at Berluti with an architect 12 years ago," Antoine says. "He comes back to me with, 'Do you remember the patinated bar you had in that store? Try to put it in here.'"

Alexandre, Antoine's younger half-brother, and the executive vice president for product and communications at another LVMH house, Tiffany & Co., has a similar story from his father's recent visit to Dubai. "He made a bunch of comments that were very, very detail-oriented," Alexandre says, about "the chairs in the store and the shoes the salespeople were wearing. Things that you wouldn't typically notice, but once you've seen tens of thousands of stores over the years, I think it's what comes to your mind immediately."

Hang on—their shoes? When asked, Bernard Arnault recalls the complaint immediately. "The guy had, I don't know, Nike shoes or something," he explains with an unapologetic smile, noting that they were not the Air Force 1s produced in a collaboration between Nike and Tiffany, which sold for $400. "Our sales attendants should be wearing [LVMH] clothes."

Over the past 40 years, Arnault has assembled the world's largest luxury conglomerate and globalized a sector once constrained by the limited ambitions of family-owned European companies encrusted in tradition. He didn't invent conspicuous consumption, of course. But thanks almost exclusively to him, luxury is now the universal obsession of shoppers on Shanghai's Nanjing Road, Milan's Via Monte Napoleone and Rodeo Drive in Beverly Hills and of the tourists who flock to LVMH stores on the Champs-Élysées in Paris and Fifth Avenue in New York City. Arnault has dressed royals and presidents, supermodels and celebrities. Perhaps more than anyone else, he's made the clothes and accessories that signify status among the global elite—and project a bit of their insecurity, too.

For that, he's the wealthiest person in the world. Or very close to it, depending on the day. (And on French politics, which lately has been turbulent and deleterious to LVMH's share price.) As of mid-June he has a net worth of around $200 billion, as estimated by the Bloomberg Billionaires Index. His fortune, built on the most analog of industries, is only comparable to the digital riches of a few titans who built their affluence on expanding access to things like software, cloud computing and electric vehicles. Jeff Bezos, Elon Musk and Bill Gates, often criticized for their social and sartorial tastes, have invented our future. Arnault, the embodiment of taste, yoked together the nouveau-riche brands that symbolized Europe's postwar influence and exported them all around the world.

Which makes it even more remarkable that this is more Arnault's moment than those other centibillionaires'. In July the world's attention will alight on Paris for the Summer Olympics. After cutting a check for €150 million (about $160 million), LVMH is one of the Games' premium sponsors. Visitors to Paris will find that Arnault and his 75 luxury houses, spanning fashion, jewelry, handbags, Champagne, spirits and high-end hotels, are everywhere. LVMH billboards, stores and Arnault-backed museums dot the French capital, including the Frank Gehry-designed Fondation Louis Vuitton on the city's western edge. Even Notre-Dame cathedral, hollowed out by fire in 2019, is on track to reopen later this year thanks in large part to a €200 million donation from Arnault and LVMH.

Arnault greets reporters from *Bloomberg Businessweek* in the conference room adjoining his office at LVMH headquarters on Avenue Montaigne, a block from the Seine. He's tall (6-foot-1) and slim, impeccably dressed in a Dior navy blazer, a black turtleneck, dark slacks and Berluti loafers and wearing a silver Louis Vuitton Tambour watch, for which he easily recites the price (€18,500). On the walls are three paintings by Andy Warhol; a framed Picasso leans in the corner, waiting to be hung. Outside: the spires and clustered rooftops of the 8th arrondissement.

In luxury and fashion circles, Arnault has a reputation as a bully; an aggressive warrior-capitalist who laid off thousands of workers after acquisitions, then tried and failed to snap up rivals Gucci and Hermès through hostile takeovers considered *trop américaines* in the gentlemanly world of European business. "The wolf in cashmere," a member of the Hermès family once memorably called him.

In person, Arnault is affable and speaks in heavily accented English. He talks of family, of LVMH as a company that's welcoming to its employees, and hints at the highly public succession drama over who will ultimately take his place at the helm of the conglomerate. The candidates include his own five adult ▶

◀ children from two marriages: Delphine, 49, CEO of Christian Dior Couture; her brother Antoine, 47; and the three children from Arnault's second marriage to concert pianist Hélène Mercier: Alexandre, 32; Frédéric, 29, CEO of LVMH's watch brands; and Jean, 25, the director of watches at Louis Vuitton.

Arnault brings up that subject unprompted and frames it almost like a French version of *Succession*: "As for the future, I have five members of the family working in the group. Let's see if one of them has the capacity to take over," he says merrily. He also gives the impression that he's not even close to being done and is untroubled by the recent decline in spending on luxury products. "Maybe the economy will be not as good in '24 than it was in '23," he says. "What I have in mind is 2030. Every one of our plans are aimed to this."

"I have five members of the family working in the group. Let's see if one of them has the capacity to take over"

Arnault starts workdays at 8 a.m. and ends them at 8:30 p.m., sticking to that schedule not because of residual ambition from his decades-long romp through the luxury industry but because, he claims, "every morning I have fun when I arrive."

Fun is not a word many of his underlings use. Meetings begin punctually, perhaps befitting the owner of Tag Heuer and Hublot. Deputies say they must prepare thoroughly and show consistency in their positions, as the boss has a preternatural ability to recall past decisions. He's willing to speak English to his foreign executives but insists they learn French, the sooner the better. He sends so many emails, all day and every day, that his staff shares triage tips.

Many longtime and former employees as well as outsiders who've worked with him over the years seem both awed by and afraid of him. One remarks that when Arnault enters the room, the temperature drops about 8 degrees. Another says that he abhors complacency so much, the worst way to start a meeting is to tell him that sales are robust: "That would get you killed." Arnault occasionally plays off this reputation for aloofness. "Maybe I'm a bit less, how would I say, warm," he said in April at the annual shareholders' meeting, in the presence of his now former deputy, the amiable Antonio Belloni.

To explain his serious demeanor, colleagues point to Arnault's upbringing in Roubaix, a northern provincial town. Locals are known as diligent, industrious and private. Arnault's mother, a pharmacist, wore a fragrance, Diorissimo, from the brand founded in 1946 that started postwar fashion's New Look. His father ran a construction company that belonged to his wife's family.

Arnault trained as a classical pianist but determined he wasn't good enough to make it a career. He got an engineering degree at the École Polytechnique, then joined the family business and persuaded his father to focus on real estate. At first the company developed vacation homes in the south of France and Florida condos. But he credits a random conversation in the US with sparking his curiosity about France's historic luxury brands. When Arnault asked a New York cab driver in the early '70s if he knew the current French president, the driver said he only knew one French name: Christian Dior.

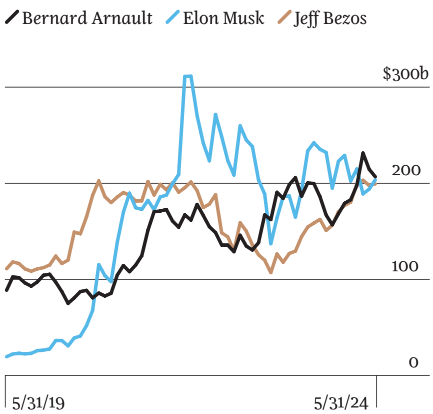
By 1984 the consumer goods and manufacturing conglomerate that owned Dior was bankrupt. With the backing of the investment bank Lazard Frères, Arnault persuaded France's socialist government to sell it to him, then he pared away almost everything and kept Dior and the Left Bank department store Le Bon Marché, firing thousands of workers. France was not prepared for this bare-knuckle, American-style capitalism; the French press called him "the terminator." But Dior had three stores and the equivalent of €90 million in sales back then; it has 439 stores and had about €9.5 billion in sales last year.

A few years after the Dior acquisition, Arnault again exploited circumstance—a struggle for control between factions in the newly formed suitcase and spirits group, LVMH. Using cash from the Dior operation and again with the support of Lazard as well as another French bank, Arnault acquired a decisive block of shares. Then he ousted his putative ally in the struggle, Henry Racamier, head of Louis Vuitton, and eventually maneuvered to get himself elected chairman and CEO. The corporate brawl transfixed the fussy world of old luxury, which had never seen anything quite like it.

Arnault believed that luxury brands could be larger than anyone at the time imagined. He also understood that this was a business of selling not just physical things—monogrammed trunks, gold pendants, alligator-skin purses—but names and logos ornamented with history, as well as an implicit promise that the buyer is gaining access to an exclusive club. A €1,500 Louis Vuitton canvas handbag sells for about 10 times the cost of making it. Even after renting the store, paying sales associates (who are presumably wearing company shoes and not Nikes) and generating buzz with ads and events, that still leaves a generous profit. A hit can take years, and the only thing worse than a dud is being so successful that you saturate the market and your brand becomes *démodée*.

But if you put various luxury brands together, Arnault reasoned, they can reinforce one another. The stronger brands compensate for the weaker ones and give them time to establish an identity and grow, while the entire group shares back-end office functions and becomes

Net Worth

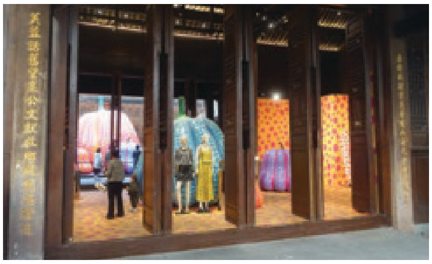


a magnet for attracting and keeping talented executives. It was "an idea I had after having bought Dior," he says. "I saw how the luxury market was made up of many medium-sized companies that, taken together, could be much stronger in a group composed of several brands." Combining these divisions—which LVMH execs solemnly refer to as *maisons*, or houses—would "let them be completely autonomous and independent when it came to crafting their image, designing their products and having their own management, but it would provide them with scale benefits such as when buying ad space and finding a good retail location."

Acquisitions tend to be disruptive. At LVMH, Arnault more often than not made them work, spotting family-owned European brands with potential. Sometimes they were public companies strangled by the quarterly demands of their investors. Arnault pulled them into the safe embrace of LVMH's ample balance sheet. He bought French perfume and cosmetics brand Guerlain in 1994, ready-to-wear fashion and leather goods maker Celine in 1996 and beauty retailer Sephora in 1997—among many others. "His ambition was concentrating in his portfolio all the crown jewels of the luxury market in a variety of industries," says Thomai Serdari, director of the Fashion & Luxury MBA at NYU's Leonard N. Stern School of Business.

At Dior, Arnault decided to go after Chanel with a new upscale handbag. On a visit to Argentina in 1995, Princess Diana was photographed carrying a Dior black lambskin purse with metallic charms dangling from the straps. Arnault exploited the ensuing frenzy, renaming it Lady Dior and selling hundreds of thousands of bags. The geysers of cash put Dior on firmer financial footing and allowed Arnault to cancel its licenses with third parties that churned out products like Dior-labeled purses and dresses at discounted prices, which were diluting the brand. That let him control quality and raise prices, making his products slightly less obtainable but more desirable, and claim more profit for himself.

He also persuaded reluctant executives at Louis Vuitton, then just a bag and



From top: Arnault in 1995; Princess Diana with a Dior purse in Argentina; photographer Steven Meisel with Naomi Campbell and Marc Jacobs at the Louis Vuitton opening in New York in 1998; Pharrell; the Louis Vuitton store in Chengdu, China

luggage brand, to add a ready-to-wear line, handpicking American designer Marc Jacobs to develop it. Ready-to-wear now generates 10% of sales at Vuitton, but the perpetually debuting seasonal collections, fashion shows and ad campaigns create a drumbeat of attention for the entire brand, which is now responsible for about a quarter of LVMH's overall revenue and half its profit.

In the early '90s, over the concerns of his senior executives, Arnault hired British designer John Galliano, first as creative director of Givenchy and then of Dior. "I understood the guy was incredible when I spoke to him," Arnault says. "He was in my office, hair almost to the knees, with dreadlocks. He took a block of paper and, in an hour, designed 30 or 40 dresses."

Galliano was a magnet for press and the affections of younger shoppers, with designs that mixed classic feminine elegance with avant-garde risk. "His intuition was that these ladies needed to rock a little," Antoine Arnault says of his father gambling on the erratic designer. "You could not do again what you did the season before with just a little bit different, especially not in fashion brands. These maisons needed to have a little twist."

The bet paid off until 2011, when Galliano, beset by drug problems, was fired from Dior following an antisemitic rant that was caught on video. LVMH execs still bring it up today, perhaps as a cautionary tale. "Unfortunately, he became a little crazy and said unacceptable things about Hitler," Arnault says. But the Galliano years reinforced for Arnault the potential of harnessing those few artists and celebrities who push boundaries while tapping into the zeitgeist. Rapper-songwriter Pharrell Williams, now the men's creative director of Louis Vuitton, has brought camouflaged shirts, monogrammed biker jackets and a flood of curious customers into Vuitton stores. Arnault is "clever enough to realize when someone is an extremely creative personality that you need to give the horse room to run, and then back up that talent with strong LVMH management," says architect Peter Marino, a longtime Arnault collaborator who's designed many of ▶

■ ARNAULT: GUIS PATRICK PRODUCTIONS/GAMMA. DIANA: TIM GRAHAM PHOTO LIBRARY/GETTY IMAGES. TRIO: ROSE HARTMAN/ARCHIVE PHOTOS/GETTY IMAGES. PHARRELL: ARNOLD JEROCKI/GETTY IMAGES. CHENGDU: YUAN KEJIA/VCG/GETTY IMAGES ■ DATA: BLOOMBERG BILLIONAIRES INDEX

◀ the company's flagship stores. "It all seems obvious, but it's really not."

Today scores of celebrities shill for Arnault's companies. Charlize Theron, Zendaya, Natalie Portman, Anya Taylor-Joy and many others bathe their personal brands, and social media accounts, in the Arnault ethos of elegance and exclusivity. LVMH ads often strive to inject products right into the cultural bloodstream. Rafael Nadal and his longtime tennis rival Roger Federer recently climbed the snow-capped Dolomites for a Vuitton campaign. Even Mikhail Gorbachev, the last leader of the Soviet Union, once appeared in an ad, sitting in the back of a car passing the ruins of the Berlin Wall, a monogrammed Louis Vuitton bag on the seat beside him.

Arnault visited another communist country, China, for the first time in 1992, for the opening of a Louis Vuitton store in the basement of what was then Beijing's Palace Hotel. "When I arrived, there were no cars, no buildings," he recalls. "There wasn't even hot water in the hotel." He observed that most people on the street were dressed identically in Mao suits. "I remember calling the CEO of Vuitton and saying, 'Are you sure we're going to sell something?'"

The answer was a resounding yes, which is another reason Arnault looms over the business landscape: He harnessed the world's biggest economic success story of the past 100 years. LVMH was early among its peers to obtain a retail license to own its stores in China, and it rode the country's historic economic growth and wealth creation into the subsequent demand for European luxury. It was also quick to hire Chinese musicians and actors as brand ambassadors, stage fashion shows in places like the Great Wall and absorb elements from contemporary local artists into the designs of new collections. It developed stores with local touches. The giant Louis Vuitton flagship that opened in Chengdu in 2022—the Year of the Tiger—featured a giant fabric tiger tail spiraling through the store.

China, according to an estimate by HSBC, was LVMH's second-largest country by sales last year, behind the US. There are 54 Louis Vuitton stores alone on the mainland, and 23 different LVMH brands opened 58 stores in 2023—a staggering rate of expansion. When Arnault visited the country again last year and toured stores with an entourage that included Delphine and Jean, throngs of people turned out to see him. Local social media was filled with details about what he ordered at a Cantonese restaurant in Shanghai and photos of him walking with local executives, whose own style choices were endlessly parsed. A few people asked him to bless their babies. "It was a little strange for me," he says.

The rise of China wasn't the only economic force that lifted LVMH. There were more than 2,500 billionaires on Earth last year, versus 420 in 1995, according to UBS, plus scads of new millionaires. The continued enrichment of the global elite—and the widening gap between the haves and have-nots—sells a lot of pricey watches and monogrammed bags. "You have people all over the world, in countries plugging into the global economy, making a lot of money, getting significantly richer and needing reassurances that they are now in a better position," says Luca Solca, an analyst at Bernstein. "This is the deep-seated insecurity that luxury is trying to address."

Social media has also propelled Arnault. TikTok makeup tutorials have sent countless teenagers through the doors of the beauty retailer Sephora, LVMH's second-largest brand by sales. As for the Arnault family's own use of social media, all the children, save for Delphine, have public Instagram accounts chronicling their accomplishments, adventures and celebrity encounters. The paterfamilias, however, is reluctant. They almost persuaded him to start a Twitter account before the pandemic snuffed out the idea, Antoine says, adding that his father nevertheless "knows all the platforms by heart and uses them."

In other words, Arnault is a lurker.

Over the past few years, LVMH has deployed all the moves in the Arnault playbook—combative acquisition, counterintuitive pricing, celebrity alliances—in its takeover of the oldest and largest luxury brand in the US.

Tiffany & Co. is an American icon. Founded in 1837 as a stationery maker, it has counted nearly every US president since Lincoln as a customer. It redesigned the Great Seal of the United States, which is on the dollar bill, and its turquoise blue boxes convey a good portion of the country's engagement, wedding and anniversary gifts.

Arnault long wanted to bolster his jewelry division, one of the few weaknesses in his portfolio, and lamented the success of Cartier, owned by the Swiss luxury group Cie Financière Richemont SA. Absorbing Tiffany, an independent, public company with global reach, could help close the gap. He presented a surprise takeover offer in 2019. But after months of talks, Covid appeared, luxury sales fell, and he tried to back out of the deal.

Tiffany sued, accusing LVMH of trying to "run out the clock" on the merger agreement, according to court documents. Arnault countersued, accusing Tiffany executives of rewarding themselves with generous dividends despite the economic gloom. Like his unsolicited attempt to buy Gucci in the late '90s and Hermès in the early 2010s, the acquisition played out daily in the pages of the fashion and business press. A curious letter from the French foreign minister argued the deal would interfere with French-US trade negotiations. Observers speculated that the politically connected Arnault, close to French President Emmanuel Macron, encouraged the ministry to intervene, something LVMH denied.

After that initial legal volley, LVMH negotiated a roughly

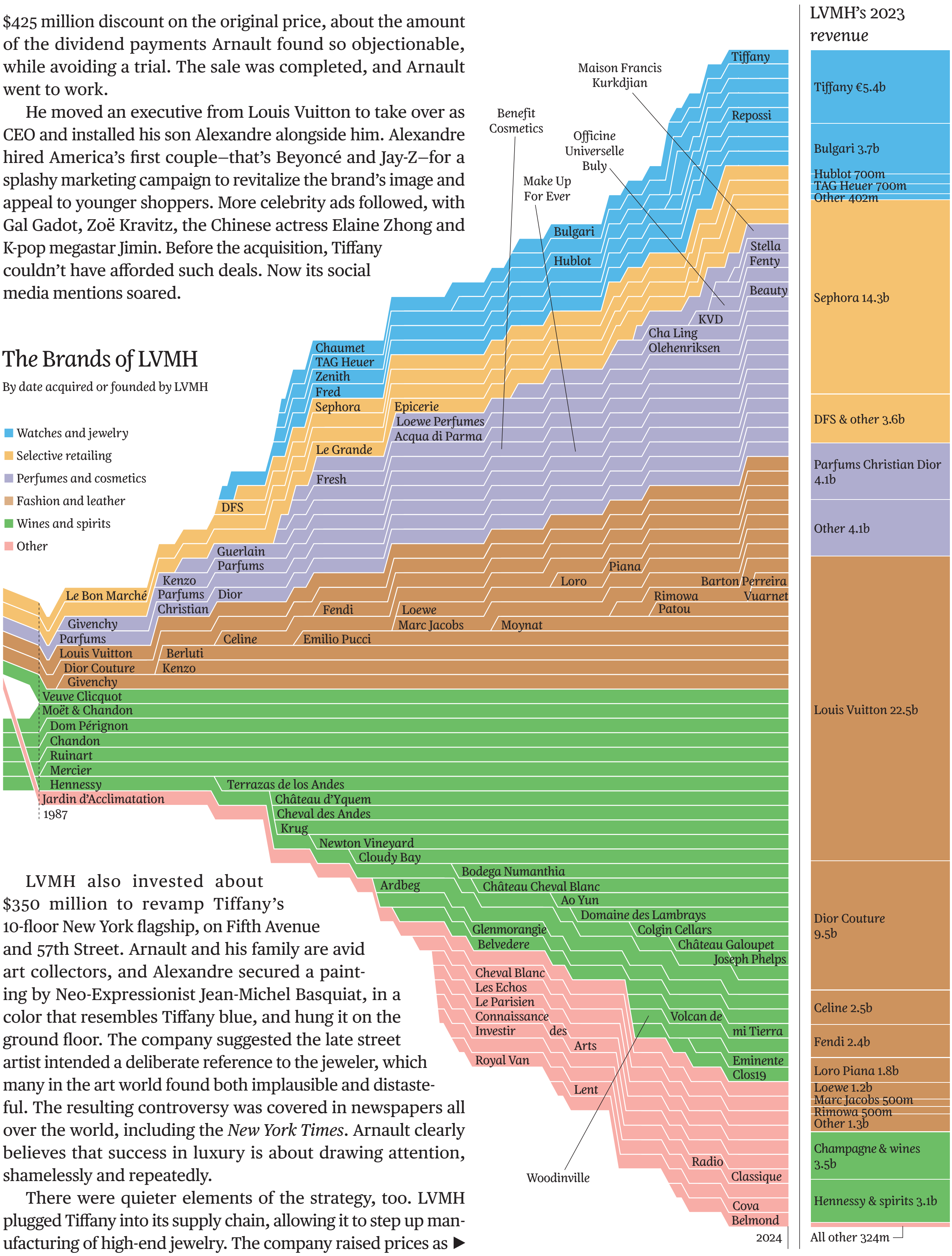
Frédéric, Delphine, Antoine, Bernard, Hélène and Alexandre

$425 million discount on the original price, about the amount of the dividend payments Arnault found so objectionable, while avoiding a trial. The sale was completed, and Arnault went to work.

He moved an executive from Louis Vuitton to take over as CEO and installed his son Alexandre alongside him. Alexandre hired America's first couple—that's Beyoncé and Jay-Z—for a splashy marketing campaign to revitalize the brand's image and appeal to younger shoppers. More celebrity ads followed, with Gal Gadot, Zoë Kravitz, the Chinese actress Elaine Zhong and K-pop megastar Jimin. Before the acquisition, Tiffany couldn't have afforded such deals. Now its social media mentions soared.

The Brands of LVMH

By date acquired or founded by LVMH



LVMH also invested about $350 million to revamp Tiffany's 10-floor New York flagship, on Fifth Avenue and 57th Street. Arnault and his family are avid art collectors, and Alexandre secured a painting by Neo-Expressionist Jean-Michel Basquiat, in a color that resembles Tiffany blue, and hung it on the ground floor. The company suggested the late street artist intended a deliberate reference to the jeweler, which many in the art world found both implausible and distasteful. The resulting controversy was covered in newspapers all over the world, including the *New York Times*. Arnault clearly believes that success in luxury is about drawing attention, shamelessly and repeatedly.

There were quieter elements of the strategy, too. LVMH plugged Tiffany into its supply chain, allowing it to step up manufacturing of high-end jewelry. The company raised prices as ▶

■ FAMILY: CHRISTOPHE ARCHAMBAULT/AFP/GETTY IMAGES ■ DATA: BLOOMBERG, LVMH, NEWS REPORTS, STIFEL ANALYST ROGERIO FUJIMORI

◀ usual. A small pendant in the shape of a bean, a Tiffany classic, has nearly doubled in price, to $290. The gold T wire bracelet increased from $2,100 to $2,700. The company added other expensive products–more of them in gold than in cheaper silver–including complex pieces loaded with gemstones. And Tiffany hired Cartier's longtime head jewelry designer, known for "high jewelry," pieces priced from $75,000 and up into the millions.

According to internal estimates shared with staff, Tiffany's US customers now spend $2,000 on average, versus around $500 before the acquisition. But analysts remain divided over whether the deal can yet be declared a success. Some see higher sales, profitability and increased attention from young consumers, particularly in the US and South Korea. Others say inflation and economic fears are hurting the brand, which is still exposed to middle-class discretionary spending and is growing more slowly than its rivals Cartier and Van Cleef & Arpels. They wonder if the vaunted Arnault playbook really works with jewelry, where it's much harder to display a logo that lets customers humblebrag.

Either way, only one opinion really matters. "What's key is that we attract high-end consumers and sell a lot of high-end jewelry, which was not the case before we bought the company," Arnault says. "I'm very confident about Tiffany, but it takes time. You cannot do things instantly, you know?"

Arnault once competed on even ground with peers like François Pinault, Kering's retired founder, who famously outmaneuvered him to buy Gucci 23 years ago. Their rivalry was so intense it could apparently drive Arnault to distraction. One banker who regularly played tennis with him says the only way to get him off his game for a few points was to mention the name Pinault.

Now LVMH dwarfs its peers. It had 213,000 employees at the end of last year (for contrast: Apple Inc. had about 160,000), and its market value touched €368 billion–more than seven times the size of Kering, which owns Gucci, Yves Saint Laurent and other labels, and five times the size of Richemont. Only Hermès International SCA, the French maker of the wildly popular Birkin bag, comes close to LVMH's size.

Arnault exploits this imbalance in a few ways, namely through real estate. His private equity arm, L Catterton, owns properties worth billions of dollars, including premier retail locations and office buildings in most major cities, and it's taken advantage of cheap borrowing costs to accelerate the pace of acquisitions. Last year, LVMH spent €2.45 billion on real estate acquisitions, a record for Arnault's group. He makes money from his own stores, from leasing space to rivals–and from the appreciation of premium real estate.

When LVMH buys a building, it takes the best storefronts for its own brands and often asks rivals to move out when their leases expire. Companies such as Kering and Prada have tried to keep up, buying their own properties. Kering's recent €1.3 billion building purchase in Milan, coupled with the struggles at its main label, Gucci, even hurt its credit rating. "It's just a clever way to distract competitors and make them sweat more," says Solca, the Bernstein analyst. "It's very difficult for anyone to keep pace."

Arnault has gradually become even more ambitious with real estate. In Miami, L Catterton teamed up with a developer to transform an area of empty warehouses and litter-strewn lots into a new luxury shopping neighborhood called the Design District. Arnault waded into the details, including decisions about architecture, landscaping and which tenants could move in. With its latest project, called Royalmount, L Catterton is rehabbing a light industrial district in Montreal. A luxury retail and dining destination with various LVMH brands will anchor the $5.1 billion development, which will be connected to a metro station by a $37 million pedestrian walkway.

For rivals, all this creates an intolerable imbalance of power. They are either at the whim of property owners desperate to score a Dior or Vuitton store–or LVMH itself is their landlord. Either way, they're likely to get bumped from the best locations. One rival luxury brand CEO, who asked not to be identified because he works with LVMH in multiple ways, was apoplectic. "Luxury is a disaster. There is no competition. It's not a game for everyone, it's just them," this person says. "Everywhere you go, they try to kick you out."

Arnault does not have a lot of sympathy for that sentiment. "We have good and efficient competitors, and you see the result, and we have competitors that are not as good. Usually, the ones who complain are the ones who are not the best," he says. "They need excuses."

There are signs that governments are starting to look at consolidated power in the industry. In April the US Federal Trade Commission sued to block the acquisition of Capri, the owner of Versace and Jimmy Choo, by Tapestry, which owns Kate Spade and Coach, a downstream segment of the market known in the retail trade as "affordable luxury."

A more serious danger to Arnault's empire would be a widespread rejection of luxury–a moral shift away from ostentatious handbags, designer dresses and hundred-thousand-dollar watches. On the afternoon after his interview with *Businessweek*, Arnault flew to Barcelona with his son Frédéric for a tour of his stores there and to mingle with celebrities like Ana de Armas and Pharrell at the Louis Vuitton Cruise fashion show in the city's famous Park Güell. A few blocks away, angry residents gathered to protest the company's use of the park, carrying signs with phrases like "your luxury is our misery." A scuffle ensued; police said seven officers were injured.

Avoiding such condemnation and fostering good will is one reason Arnault is sponsoring the Olympics. It's not altruism. LVMH is France's most visible company, and Arnault says he feels like an ambassador whenever he's abroad. LVMH

"I'm very confident about Tiffany, but it takes time. You cannot do things instantly, you know?"

At the LVMH offices in Paris

brands are designing the medals, dressing French athletes for the opening ceremony and supplying Moët & Chandon at victory celebrations.

Antoine says his father was initially reluctant to write the check before warming to the idea that LVMH, the standard bearer for French culture around the world, had a responsibility to make the Games a success. Now Arnault is asking his children what events he should attend in person and apparently drawing parallels between his endurance and that of world-class competitors. "Managing a startup or even a bigger company is not very different than the life of athletes at the highest level," he says.

Arnault says he has no plans to retire and intends to keep visiting stores every Saturday as long as he can. Alexandre, who's based in New York, says his father calls him at all hours to discuss business; Antoine says flatly, "I don't think he'll ever stop." Sidney Toledano, a longtime executive, says, "I don't think it's for money. He has a responsibility now that he built something, and he wants to transmit it. The next step for him is to make the right decisions for his family and the new executives, so that LVMH will continue."

Speculation over the succession could last a while. Arnault himself notes that he recently raised the CEO retirement age at LVMH from 75 to 80. Afterward he got a letter from Warren Buffett, a nonagenarian, telling him he made a mistake by setting the new age limit so low. Arnault recently nominated Frédéric to be the No. 2 at one of his holding companies, which some observers interpreted as an endorsement of that son's prospects. Arnault's daughter Delphine is the only other family member on LVMH's executive committee, which suggests that Arnault is still assessing whether the rest of his offspring are truly up to the task.

And when asked if he's done buying up maisons, whether the wolf in cashmere still hunts, Arnault can't help himself. "We have ideas for the future, but obviously I cannot tell you," he answers. "We don't need to do it. But I know several brands would fit very well, and I know that the owners would be very happy."

He offers no more clues. But people familiar with LVMH's strategy say the conglomerate would definitely take a look if these companies came up for sale: Richemont, Armani or Prada, as well as watchmakers Patek Philippe and Audemars Piguet. Not that there's any indication their owners are willing sellers now. A spokesperson for LVMH declined to comment. But Arnault has said he admires the South African billionaire Johann Rupert, who controls Richemont; and people close to Arnault say he's built a small personal stake in Richemont. In January, Arnault also publicly said that if Rupert "needs support to maintain his independence, I will be there." In other words: Let the games begin. Ⓑ —*With Jeannette Neumann, Natalie Wong, Daniela Wei and Shirley Zhao*

THE DIRTY, DEADLY FORGES OF SULAWESI

Nickel is pouring into the EV supply chain from an Indonesian industrial park with a history of fatal accidents

By Matthew Campbell and Annie Lee
Photographs by Muhammad Fadli
Illustrations by Kaitlin Brito

EARLY IN THE MORNING

last Christmas Eve, Chinese and Indonesian workers prepared for a maintenance operation at the Indonesia Morowali Industrial Park. A complex of factories, smelters and power plants on the island of Sulawesi, IMIP erupts in a tangle of pipelines and smokestacks that belch particulates into the tropical air. The bulk of the tens of thousands of employees live just outside its walls, migrants to a city of plywood and sheet metal shanties that shelter motorbike shops and dingy rooming houses.

The workers had been tasked with fixing a submerged arc furnace, which melts nickel ore at temperatures around 1,400C (2,552F). Over time the residue of this process, known as slag, can build up, and the furnace overheats. On this day the plan was to replace heat-damaged bricks in the inner chamber and remove slag. With the furnace turned off, a technician began slicing into its steel shell with a flame cutter, to allow access to the interior. But someone had miscalculated: The slag inside hadn't cooled enough. In fact, it was still molten.

The slag surged out from the cut, and the wall of the furnace collapsed. According to people familiar with the incident, who asked not to be identified discussing nonpublic information, acetylene canisters left nearby—used to fuel the flame cutters—started to explode from the surging temperature. The workers trying to contain the damage were hamstrung by communication difficulties, with virtually none of the Chinese staff able to speak fluent Indonesian, and vice versa.

As the sun rose, flames licked at the exterior of the factory building, which billowed with dark smoke. Workers tried frantically to aid their colleagues, many of whom had severe burns. Screaming for help, one group hoisted a blood-covered man into the bed of a pickup truck, which was already crowded with other victims. The on-site medical clinic was overwhelmed: Still in their tan uniforms, injured men lay on the floor, crying out in pain as nurses attended to those they could. By early afternoon, a dozen employees were confirmed dead, with many more in need of intensive care. The toll would soon rise to 21 men: 8 of them Chinese, 13 Indonesian.

One of the dead was Taufik, a 40-year-old mechanic from another part of Sulawesi. (Like many Indonesians, he used only one name.) Quiet and serious, he'd worked at IMIP for six years; with overtime, he could earn 8 million rupiah (about $500) a month—a respectable wage in rural Indonesia. But he found the job exhausting and had been thinking about quitting to return to his wife, Ice Firawati, and their children, who'd stayed behind in his home village. On Christmas Eve, Ice had set out to visit him, a 15-hour journey. She was on the road when one of his friends called to tell her that Taufik was among the victims.

He and the others killed in the fire died in the service of one of the greatest industrial transitions in modern history. Over the past decade, Sulawesi and other Indonesian islands have been transformed into hubs for mining and processing nickel. The metal is a crucial component for making stainless steel, the purpose of the facility where the explosion occurred. It's also essential to many electric-vehicle batteries. The government of outgoing President Joko Widodo, who's better known as Jokowi, has enthusiastically promoted the nickel industry's growth, seeing a chance to put Indonesia at the center of global supply

Workers on their way to IMIP

chains—and to create employment for the country's roughly 280 million people.

Controlled by Chinese metals giant Tsingshan Holding Group Co., IMIP is the product of more than $30 billion in investment. Sprawling across what was once a plain of farmers' fields and fishing hamlets on Sulawesi's eastern shore, a short distance from nickel-mining concessions that dot the surrounding hillsides, it boasts its own seaport and airport, along with a resort-style hotel for visiting executives. IMIP has created immense numbers of jobs, with more than 100,000 employees and contractors, and accounts on its own for a major percentage of Indonesia's exports of nickel suitable for batteries. Overall, the nickel industry has helped deliver rapid growth for Indonesia's economy, the largest in Southeast Asia.

That success has a dark side. December's fire was the worst in a long series of fatal accidents at IMIP and other Indonesian nickel sites. Workers have been buried under slag, crushed by heavy equipment and killed in falls. In surrounding ▶

A nickel mine in Sulawesi

◀ communities, residents complain of respiratory ailments they blame on pollution from smelters and the coal-fired power plants that sustain them. And environmentalists accuse the nickel industry of flouting regulations intended to protect ecologically sensitive islands such as Sulawesi—while expanding production of a material critical to the EVs Western governments are promoting on environmental grounds.

In most cases, auto manufacturers don't directly source battery materials, and it's difficult if not impossible to trace the metal in a given car to a specific nickel facility. But an extensive review of Chinese, Indonesian, South Korean and US corporate filings by *Bloomberg Businessweek*, as well as interviews with industry experts, shows that nickel from IMIP is present in the supply chain that feeds virtually every major seller of EVs.

Notably, companies processing nickel there have direct or indirect supply relationships with many of the world's largest manufacturers of batteries and battery materials, including South Korea's LG Chem, Samsung SDI and SK Innovation. There's a strong chance that metal is being used, or soon will be, in at least some cars manufactured by Tesla, as well as BMW, Ford, General Motors, Hyundai, Stellantis and Toyota, among others.

Each of these companies has adopted extensive pledges on responsible sourcing and markets its electric offerings as better for the planet than traditional gas guzzlers. They nonetheless depend on workers who perform dirty, dangerous jobs with few safeguards.

In a statement on behalf of itself and Tsingshan, IMIP said that "safety is always our priority," and that it "quickly required all enterprises to carry out safety risk screening and rectification" after the Christmas Eve accident. It added that companies operating in the complex "must comply with all local environmental laws and regulations," as well as internal pollution guidelines.

LG Chem Ltd. and SK Innovation Co. didn't respond to requests for comment about their links to IMIP; Samsung SDI Co. declined to comment. Tesla and Hyundai didn't respond to requests for comment. Other carmakers contacted by *Businessweek* emphasized that they don't have direct business relationships with IMIP, but said they expect companies in their supply chains to comply with labor and environmental standards. Indonesia's Ministry of Energy and Mineral Resources said it "diligently supervises" safety at nickel sites and is working to address health concerns.

The December explosion brought considerable scrutiny to IMIP, with Indonesian politicians declaring that nothing like it should be allowed to happen again. But no one in power in Indonesia is seriously proposing curtailing the expansion of the nickel industry, which would jeopardize the investment and jobs it brings. Nor do international carmakers have much of an alternative to it if they're to meet their electrification goals profitably. With its cheap workers and cheap coal, Indonesia offers a dramatic cost advantage compared with other sources of nickel, which include Australia and Canada.

That's especially important as growth in demand for EVs slows, pressuring manufacturers to make them more affordable. Tesla reported a slump in deliveries in the first quarter, missing analysts' estimates by the largest margin on record; Ford Motor Co. has slashed production of its flagship electric pickup, the F-150 Lightning; and companies including General Motors Co. and Volkswagen AG have delayed or shelved EV plans.

At the same time, the massive expansion of the industry in Indonesia has led to a slump in global nickel prices, forcing the shutdown of mines in Australia and destroying the business case for new ones there and in other higher-cost locations. By 2030, Indonesia may account for nearly two-thirds of the global nickel supply, according to forecasts from BloombergNEF, up from about 47% last year.

That reality alarms the Indonesians trying to stop the nickel sector from leaving a trail of destroyed ecosystems and dead workers. "With every concession sold, more destruction and damage will also follow," says Imam Shofwan, head of research at Jatam, a Jakarta-based environmental group. "We are very afraid of the future of this nickel industry."

NICKEL INCREASES THE ENERGY density of battery cells, allowing a car to drive farther on a single charge. There's an alternative, lithium iron-phosphate batteries—known as LFP, because of the chemical symbol for iron—which don't use nickel at all. But their energy density is typically lower, and carmakers have hesitated to use them in higher-end vehicles.

Indonesia's nickel reserves are the world's largest, but they were long considered to be too low-grade for use in batteries. Indonesians themselves received little of the benefit. With its poor infrastructure and modest industrial base, the country shipped its nickel ore overseas for processing, largely to China.

Two factors combined to change this. The first was a 2014 decision by then-President Susilo Bambang Yudhoyono to ban exports of unprocessed nickel ore. The initial goal was to force companies to invest in domestic processing plants, where nickel ore would be smelted in blast furnaces to separate the valuable metal. Under Jokowi, who took office later that year, the effort became more ambitious, with the government pushing for Indonesia to participate at every level of the EV industry, from mining nickel to fabricating batteries and assembling finished cars.

The second development was a series of breakthroughs by Chinese companies in a technology called high-pressure acid leaching. In HPAL plants, low-grade nickel ore is placed into pressure vessels, where it's treated with sulfuric acid and heated. After that, the nickel that separates out will be suitable for batteries, once it's refined. HPAL requires less energy than other types of nickel processing. The downside is that it generates huge amounts of waste, known as tailings.

Indonesian nickel processors use a disposal system known as dry stacking, where tailings are dried until they can, in theory, be compacted and piled up for storage outdoors. But nothing stays dry for long in a humid tropical archipelago, and environmentalists worry that stacked tailings could leach chemicals into the soil. Earthquakes and landslides, both common in Indonesia, could tip tailings down slopes or into waterways. (IMIP said in its statement that tailings are disposed of with tools such as "anti-seepage membranes" to prevent leaks, and that groundwater is monitored for contamination.) ▶

The Car Companies Respond

Here's what the automakers mentioned in our story had to say about IMIP, worker safety and environmental protection.

BMW: "The BMW Group does not have any direct supply relationships or cooperations with nickel suppliers in Indonesia." Direct suppliers "are obligated to comply with legal requirements and extensive environmental and social standards and must also pass these on to their sub-suppliers."

Ford: "Ford works closely with suppliers, collaborators and partners—and third-party validators—to identify and immediately address any human-rights issues in our supply chain.… We are committed to our ESG standards."

General Motors: "GM does not have a direct supply relationship with IMIP."

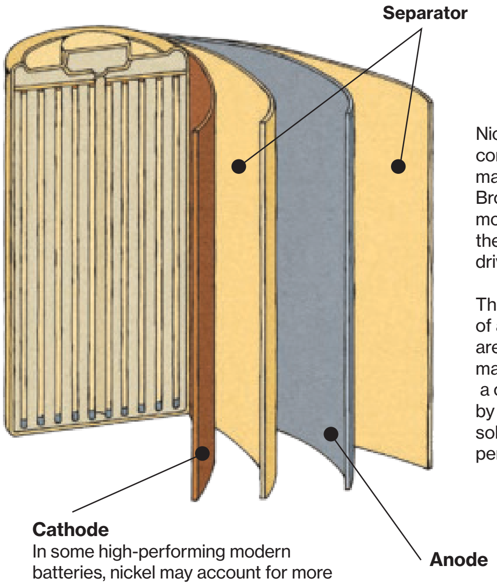
Mercedes-Benz: "Mercedes-Benz seeks to ensure that its products contain only materials that have been mined and produced without violating human rights and environmental standards." The company "requires its direct suppliers to comply with our Responsible Sourcing Standards, to integrate them into their upstream value chains and to monitor compliance with them."

Stellantis: "We have not identified nickel being sourced for our batteries from the IMIP area. We continue to investigate our supply chain in this matter." Suppliers "are expected to adhere to laws, regulations, and global standards concerning environmental impacts, human rights, labor practices and occupational health and safety."

Toyota: The company says it expects its suppliers to "undertake sustainability activities." Additionally, "what we expect of our suppliers in regards to various aspects of their business practices and that of their own suppliers, including fair labor practices, is clearly communicated to them."

Volkswagen: "We are not currently pursuing any projects with IMIP and with our current knowledge therefore do not purchase any nickel from IMIP." In general, "only suppliers that accept our sustainability requirements and commit to fulfilling them may enter into a business relationship with the Volkswagen Group," and they "are expected to pass on these sustainability requirements to their business partners throughout the supply chain."

Inside an EV Battery



Nickel is a crucial component of many EV batteries. Broadly speaking, the more nickel is used, the farther a car can drive on each charge.

The basic components of a lithium-ion battery are an anode, mostly made of graphite, and a cathode—divided by an electrolyte solution and a permeable separator.

Cathode
In some high-performing modern batteries, nickel may account for more than half of the cathode material.

◀ Indonesia nonetheless permitted dry stacking. To powerful Chinese metals producers, the nation had it all: enormous supplies of nickel ore, workers and coal, as well as generous government incentives. Research provider Wood Mackenzie estimated last year that the capital cost of an HPAL plant in Indonesia works out to about $30,000 for each metric ton of nickel produced annually, compared with "closer to $100,000" elsewhere.

The Chinese company that most aggressively took advantage of this new opportunity was Tsingshan. Based in the eastern city of Wenzhou, it's the top producer of nickel globally. Tsingshan had first agreed to build IMIP, in a remote but nickel-rich district called Morowali, in 2013. (An Indonesian conglomerate, BintangDelapan Group, is also a minority investor in the complex.) But advances in HPAL, as well as another breakthrough by Tsingshan, which developed a method for upgrading a low-end product called nickel pig iron, supercharged its growth. In 2020, IMIP hosted 19 separate enterprises, covering an area of about 2,000 hectares (just under 8 square miles). By the middle of last year, the number of tenants had ballooned to 52, while its physical dimensions had grown more than 50%; it's now about 10 times the size of Manhattan's Central Park.

IMIP is a self-contained industrial city. Much of the nickel ore it requires is mined in the immediate area, then trucked down hauling roads to smelting facilities. Once it's been transformed into "intermediate" nickel products, the material is loaded onto bulk carrier vessels at IMIP's own port jetties and sent to China for further processing. Coal for its on-site generating plants comes the other way, shipped in from other parts of Indonesia. Such "captive" plants, which serve a specific industrial site rather than the regional grid, now make up about a fifth of Indonesia's coal power capacity.

At IMIP, Tsingshan functions in part as a landlord and contractor, supplying shared services such as power and port access. But it also operates its own smelters and other industrial facilities and has minority ownership positions in those operated by others. Workers are often hired through subcontractors or third-party staffing agencies, which may have their own ties to Tsingshan or other IMIP investors. The upshot is that it's hard to financially disentangle any one entity operating in IMIP from Tsingshan, or from the overall operations of the complex. (IMIP said each tenant company "is an independent legal entity" that's "responsible for its own business activities.")

The model has worked well enough that Tsingshan is replicating it about 450 miles away on the island of Halmahera, in a development called Indonesia Weda Bay Industrial Park. Other companies are developing nickel facilities across the country. According to Project Blue, a provider of data on clean-energy raw materials, 20 HPAL projects are under development in Indonesia, dwarfing the number in every other nation combined.

LONG BEFORE ARRIVING AT IMIP, along the narrow highway that traces the shore of the Banda Sea, you see the haze—a soup of emissions from smelters and power plants, as well as dust from mine sites and coal depots. Sometimes tinted brown, sometimes a thick gray, it shrouds the nearby mountains and hovers over the water, lending the landscape the pallor of Delhi. Squint through it and you can spot the mining concessions: broad swaths of hillside where trees and soil have been torn away to access the nickel ore beneath. Downslope, waterways are rusty red from the runoff.

Closer to the complex the traffic thickens with uncountable motorbikes, their drivers wearing the yellow safety helmets that mark them as IMIP employees, heading to or from their shifts. Piles of trash line the roadside; a small stream that passes underneath is so choked with water bottles, plastic bags and takeout containers that the water can barely flow. Closer still, a maze of ramps and catwalks appears overhead, connecting the smelters, which are sited on a plateau flattened to industry-friendly dimensions, to the port. A constant procession of red dump trucks carries coal uphill from arriving ships.

Before Tsingshan invested here, this area was desperately poor. Twenty-four-hour electricity arrived only in 2011. Some residents recall that when they were children, their families couldn't afford rice; their staple food instead was sago, a low-nutrient starch extracted from the trunks of palm trees. The region has since undergone a boom. Government statistics show that Morowali's economy grew almost 600% from 2015 to 2022, and IMIP has attracted workers from all over Indonesia. Thousands of Chinese staff have also arrived, often taking more specialized engineering and technical roles. Paid several times more than their Indonesian counterparts, they live on-site and rarely, if ever, go outside the IMIP perimeter.

Very little of the money invested in IMIP has filtered into the community. The main road devolves in places into tire-swallowing, water-filled potholes. Beyond that, the streets are mostly unpaved and turn to mud when it rains. IMIP's power plants have a combined current capacity of over 5,300 megawatts—more than the largest nuclear facilities in the US—and huge piles of coal are stored in plain sight. But outside its perimeter the grid can't meet demand, and businesses use generators to keep their lights on through frequent blackouts. They're a luxury beyond the budget of most local workers, who crowd into closet-size rooms in makeshift dormitories and take their meals in roadside stalls selling fried chicken or offal stew.

Even then, many struggle to earn a living that allows for more than day-to-day subsistence. Annisa, a 36-year-old single mother who works in IMIP's catering department, explained that she makes around 6 million rupiah per month—about $370. (Like other nickel industry employees interviewed for this story, her name has been changed to protect her from repercussions for speaking to reporters.) "How to survive, trying to fulfill our needs with that number?" she asked. An unfurnished room costs up to 1.5 million rupiah per month, and daily essentials in the remote region are far more expensive than in other parts of Indonesia. A canister of cooking gas can cost 55,000 rupiah, more than double the price charged in Makassar, a city of about 1.5 million that's Sulawesi's largest.

Annisa said she worries that her income is coming at the expense of her health. When pollution is severe, she said, "it can be hard to breathe…the dust is the worst. It affects the face, the eyes." But she sees little alternative to her current situation: Away from IMIP, there aren't many jobs in rural Sulawesi. "There is no other choice," she said. (IMIP said its wages are "much higher" than those of other local employers.)

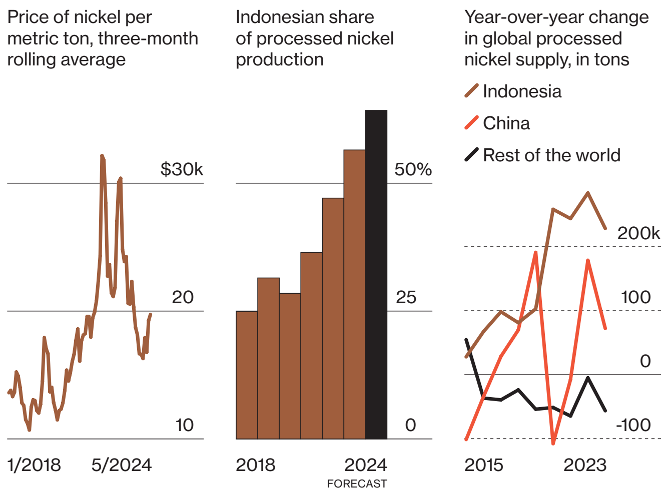
While the long-term effects of exposure to the pollutants at IMIP are unclear, the information available suggests residents are at risk. "The greatest impact on air quality is from the coal power plants, especially on the community around the facility…and all the communities see the dust in their homes," said Abdul Malik, head of the community health center in Bahodopi, a town immediately adjacent to IMIP. In the lobby, families crowded into the waiting area seeking attention; respiratory illnesses are the most common complaint. Outside, a sign urged residents to "get used to wearing a mask when leaving the house" to protect from pollution.

As Malik spoke, an assistant with a laptop pulled up statistics on respiratory diseases such as tuberculosis. "TB is quite common in Indonesia, but the concern is the number" of local infections, Malik said. Based on national and regional trends, the center expected to see around 74 cases in 2022. Instead, it logged 117—58% above the estimate. While TB is caused by a bacterial infection, medical researchers have observed that it's more common among people exposed to significant air pollution.

Still, daily life continues, albeit at a proximity to heavy industry that would be unimaginable in much of the developed world. Farther down the shore, where IMIP is aggressively expanding into a town called Labota, the gray tower of one of its coal plants hovers over an elementary school. The schoolyard, an expanse of bare rocks and dirt with a forlorn volleyball net, lies directly in the smokestack's shadow. "Of course there are effects from the plant. It's hard to breathe, you cough," said Hasrawati, a 31-year-old English teacher. "If we don't wear glasses, you feel the dust in your eyes." Sometimes, she said, so much blows into the school that "if we walk on the floor, we can see our footprints."

With the government strongly supportive of IMIP's growth, some of its critics are trying to appeal to international audiences. When *Businessweek* visited late last year, there were large posters, printed in English, above the main road in Labota. Their headings indicated they were addressed, somewhat optimistically, to the United Nations' high commissioner for human rights and the executive director of the UN Environment Programme. "COME & HELP US," they said in red capitals.

The owner of the motorcycle shop next door, Bahar, explained that the posters had been put up by an activist from Makassar. Bahar said he had no expectation that the situation would improve: "We feel like we're alone. No one is trying to help or to hear our voice." Between drags on a cigarette, he hiked up the leg of his trousers to reveal pink, ulcer-like sores, each surrounded by a circle of darkened skin; a local medical clinic, he said, had told him they were caused by exposure to coal residue. Despite the tens of billions of dollars spent on Morowali's nickel industry, Bahar said, there's "no benefit for us at all. We just get sick."



■ DATA: LONDON METAL EXCHANGE COMPILED BY BLOOMBERG, MACQUARIE

Nickel industry managers say they're mitigating, and compensating for, their social and environmental impacts. IMIP said it shares electricity with the community and monitors air pollution to ensure compliance with Indonesian rules; in 2023 "all air quality tests met the standards." The complex funds local schools and buys ambulances for nearby villages. It's also installing solar panels, though they'll provide only a fraction of the electricity needed for nickel smelting. Indeed, IMIP isn't done building coal plants. Plans call for it to ultimately operate perhaps 6,000 megawatts of coal power, enough to meet the electricity demand of about 5 million US homes.

To Hamid Mina, IMIP's managing director, this choice of energy source, and everything else, comes down to the cost to the ultimate end users: carmakers and their customers. "Now everyone is concerned about the environment," Mina said in an interview in Singapore. "OK, I use solar panels. Are you willing to buy a car with two times the price?" Mina said he resented being lectured by citizens of rich countries that had engaged in their own environmental despoliation. "Europe, United ▶

An elementary school in Labota

◀ States, Canada—you already cut everything down," he said. "Now you're blaming us."

Over time, Mina explained, IMIP would use its cost advantage to move up the EV value chain, taking over processing that now occurs in China—and on a site that he said could still substantially expand in size. He argued that it could do so while reducing its environmental impact, thanks to future improvements such as better pollution filtering in coal plants—and that much of the responsibility for conditions beyond its walls lies with the government, to which "we pay a lot of tax." Mina also asked critics to consider the trade-offs. Before IMIP came to Morowali, "there were trees, forest, nothing. But sometimes they ate only once a day. Today we have industry, dust, smoke…but I give them jobs."

EVEN BEFORE THE FIRE on Christmas Eve, fatal accidents were common in Indonesian nickel facilities. Trend Asia, a nongovernmental organization based in Jakarta, compiles statistics on such deaths based on media reports. From 2015 to 2022, it logged 53 fatalities; in the first 11 months of 2023, it recorded 17. (These figures aren't necessarily comprehensive, since not all accidents make the news.)

In interviews with *Businessweek*, more than a dozen current and former IMIP workers expressed worry about safety conditions, or said they had personally witnessed or been affected by workplace accidents. While some said that managers had attempted to improve their conditions, the workers described an environment rife with danger—from construction sites where a moment of inattention can be fatal to growling, temperamental smelters, capable of immolating their attendants if mishandled. Among huge, sometimes ill-maintained machines and chemical processes conducted at incinerating temperatures, disaster is always possible.

One employee described an incident in which a machine operator fell into a pool of molten slag, killing him instantly; another was familiar with accidents in which workers' hands had been crushed by machinery; another, an occasion when a worker was fatally run over by a forklift. In yet another instance, a young employee was struck and killed by a falling piece of metal. Virtually all the workers confirmed the contents of a standard policy imposed by IMIP and its tenant companies: When a serious accident occurs, employees are told not to discuss it publicly or share photos on social media, with penalties that can include termination. (IMIP said employees can "send, forward and share any information.")

The families bereaved by accidents in nickel facilities aren't just in Indonesia: A substantial number of workers killed over the years have been Chinese, including some of the December victims. Last year a group of Chinese men who said they'd been employed at IMIP filed a formal complaint with Indonesian authorities, alleging they'd been forced to work excessive hours without protective equipment.

While they face the same dangers, relations between Chinese and Indonesian staff can be tense, and some IMIP workers attribute safety failures partly to a culture clash. Chinese managers "sometimes break the Indonesian safety rules," says Hasri Sonna, an official with FPE, a union representing IMIP staff. "There are a lot of injuries—and more injuries without data, that are not recorded." Other issues are more practical: Until recently, according to Arnold Firdaus Bandu, the head of the government Manpower Office for the province that includes Morowali, some equipment manuals were in Mandarin, with no translations available. (IMIP said it investigates employee complaints and records all injuries; meanwhile, it said, "all documents must be bilingual in Chinese and Indonesian.")

Agus, a safety manager at a Tsingshan-controlled company within IMIP, described a dispute with his Chinese superiors over the operation of dump trucks, which are used in huge numbers to move coal and nickel ore around the complex. The trucks sometimes developed leaks in their air brake systems, risking a malfunction if the vehicles weren't repaired. Agus said that when he objected, "because of the pressure of production, they would say, 'Keep using it.'" Another employee, a dump truck operator, said workers are sometimes instructed to drive vehicles with broken suspensions.

Agus had also worked on a conveyor belt that moves coal toward a power plant. There, he said, workers each received 15 respirator masks per month. But in an environment thick with coal dust, each mask would become saturated after four or five hours. By the end of a shift, Agus said, workers would often find coal residue around their mouths, suggesting they'd been inhaling it.

Other risks are more acute. Agus and a worker, Arif, from another IMIP-based company, said they're sometimes told to perform cleaning and maintenance around conveyors while the belts are still running to avoid slowing production by shutting them down. "It's only a few centimeters from the conveyor," Arif said, which could result in a serious accident if, for example, clothes get caught in the machinery. The risks are compounded by a consuming pressure to move fast. "Welding or any other repairs should not be done in a hurry," Arif said. "Everything about safety should be improved."

In its statement, IMIP said "faulty or abnormal equipment," including vehicles, "is strictly prohibited from participating in production," and workers must be provided with protective equipment that "meets the requirements of laws and standards." Moreover, "it is strictly prohibited to perform surrounding cleaning or maintenance tasks when the conveyor belt is running."

Despite the danger, many workers told *Businessweek* they were grateful for their jobs. But even some of those who said they were generally happy at IMIP shared harrowing stories. Henry, a mechanic in a smelter, said that a few years earlier he was working around a piece of equipment called a mud gun, which is used to close the outflow hole of a furnace. Apparently unaware that Henry was there, a colleague activated the hydraulics without warning. The machine slammed into Henry's chest, pinning him. For a month, he struggled to sleep because of the pain.

IN 2022, ACCORDING TO a person with direct knowledge of the matter, Tesla's battery supply chain team brought a report to Chief Executive Officer Elon Musk on making a major investment in nickel production in Indonesia. But Musk turned them down, the person says. He'd always resisted joint ventures, which would be the only practical strategy.

Despite Musk's refusal, Tesla uses large volumes of nickel from Indonesia for its higher-end models. (Some of its entry-level cars use LFP batteries.) In 2022, Tesla entered long-term supply contracts for battery materials with two Chinese companies, Zhejiang Huayou Cobalt Co. and CNGR Advanced Material Co. In its most recent sustainability report, Tesla identified both companies as nickel suppliers, with China and Indonesia listed as source countries.

A substantial proportion of that material is likely coming from IMIP, or will soon. Huayou is the majority owner of an Indonesian entity called PT Huayue Nickel Cobalt, which operates a major smelter in the facility; filings show it accounts for at least 23% of Huayou's current operating capacity in Indonesia. CNGR is the lead investor in another IMIP smelter, PT Zhongtsing New Energy, which represents about 31% of CNGR's planned nickel capacity in the country. Tsingshan, IMIP's parent company, has financial connections to both: A Singapore entity it controls is an investor in PT Zhongtsing, while an Australian company with which it's affiliated has a stake in PT Huayue. (In its sustainability report, Tesla said it has "invested significant resources" to address environmental and safety risks in Indonesia, and that "the transition to EVs will not be possible by only relying on non-Indonesian nickel.")

Other EV manufacturers have similar connections to Morowali, through intermediaries. Huayou lists LG Chem as a key customer in filings, and the two companies have an extensive relationship, including plans for a shared nickel-smelting operation in Indonesia. Recently, LG Chem announced a roughly $19 billion supply contract with General Motors; a subsidiary, LG Energy Solution, is developing a joint battery plant with Hyundai Motor Co. and has deals to supply batteries to carmakers such as Toyota Motor Corp.

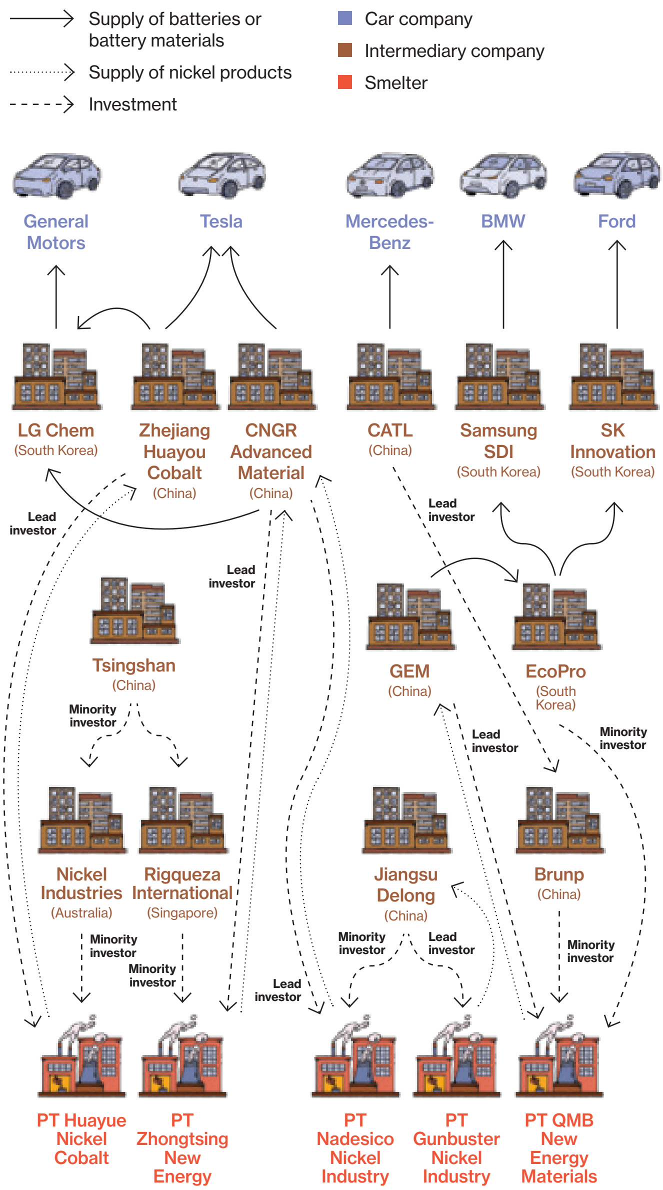
Another example begins with an IMIP smelter called PT QMB New Energy Materials, which is controlled by China's GEM Co. The Korean company EcoPro is an investor in PT QMB, and GEM identifies it in filings as a major customer. It or its affiliates supply materials to Samsung SDI and SK Innovation; the former has made batteries for cars such as the BMW i7 and is building a US battery-manufacturing complex with Stellantis. The latter has supplied batteries for Ford's F-150. (EcoPro declined to comment.) A unit of China's Contemporary Amperex Technology Co., whose batteries are in vehicles from Mercedes-Benz and Volkswagen, among others, also has a stake in PT QMB, though a spokesperson said "no CATL batteries include nickel from IMIP."

GEM didn't respond to a request for comment. In separate statements, Huayou and CNGR said they raised safety standards after the Dec. 24 explosion and view preventing workplace accidents as an overriding priority. Both companies also said they comply with relevant environmental standards.

Even if carmakers wanted to, it would be challenging to ensure their vehicles don't contain nickel from IMIP or any other specific mine or smelting complex; once it reaches processing plants in China, it can mingle with material from many sources. And for the moment, there aren't obvious alternatives. "To exclude Indonesia from the supply chain, it would be near ▶

From Earth to EV

An indicative selection of supply chain relationships tracing the path of Indonesian nickel, based on *Bloomberg Businessweek*'s review of corporate filings



◀ impossible to meet EV rollout targets," says Jack Anderson, a research director at Project Blue. "Simple as that."

INDONESIA'S NEXT PRESIDENT WILL be Prabowo Subianto, who won a decisive election victory in February. A former military commander and veteran of some of the country's bloodiest internal conflicts—he was for a time effectively banned from the US because of alleged involvement in human-rights abuses, which he's denied—Prabowo is a controversial figure. He nonetheless represents a degree of continuity, not least because Jokowi's son will serve as his vice president. (Jokowi himself was term-limited.)

On the campaign trail, Prabowo endorsed "downstreaming," as Jokowi calls his policy of expanding nickel production. The arguments of staying the course are strong. The median age of the population is around 30, and there's an urgent need for jobs. At the same time, tax revenue generated by the industry provides a resource for political patronage in a country with a rich tradition of graft: In Transparency International's most recent Corruption Perceptions Index, Indonesia ranked 115th, behind Belarus and Kazakhstan.

Some nickel industry figures have suggested that, eventually, carmakers may insist on higher safety and environmental standards. That could mean playing a direct role in mining and refining—which would also provide more control over the supply of a critical industrial input. Ford, for example, has partnered with Huayou and Vale SA to develop an HPAL project in Sulawesi; in a press release, a Ford executive said the plan would "better protect people and the planet." And companies have long sought to develop technology to help end users know the origins of their raw materials, though some tracing efforts have struggled. Either way, so-called green nickel will come at a premium to current prices, which manufacturers may not be willing to pay—or pass on to their customers.

And in even the most aggressive scenario, the introduction of such a separate supply chain is years away. For now, most carmakers will continue to get their nickel from the cheapest, most abundant sources available—with the costs borne by the mainly poor Indonesian and Chinese workers who operate mines and smelters.

In late December 2022, word circulated on social media of a fatal explosion at PT Gunbuster Nickel Industry, one of the main operators in a smelting complex about four hours' drive from IMIP. Two workers had been in the cab of a crane when coal dust caught fire below. Trapped, they burned to death. In another part of Sulawesi, Niluh Novi Barniarthi, 28, saw the news and was alarmed. Her 20-year-old brother, I Made Defri Hari Jonathan, had been working as a trainee at Gunbuster.

Jonathan had told Barniarthi he was enjoying the work; he'd talked about using his earnings to expand the family's small rice farm. Then a cousin called to tell her: Jonathan was one of the dead, along with a young female colleague, Nirwana Selle, who'd developed a following on TikTok for her cheerful videos about life at a nickel smelter.

Gunbuster arranged to drive Jonathan's body to the farm. He was laid to rest on Dec. 26—the birthday of his mother, Ni Ketut Sunarti. "Jonathan always gave me a cake for my birthday. Instead we had his funeral," she said in an interview in the family's home. The concrete-floored house was decorated with photos of her son: posing for a portrait in a shirt and tie, playing the keyboard at a church service. Gunbuster provided some compensation, but the family hadn't spent it. "The money is like Jonathan's body," said his father, I Ketut Bartolomius. "How could we use it?" They felt the same way about selling Jonathan's motorcycle, which sat in the garage unused.

The complex that hosts Gunbuster, set up by China's Jiangsu Delong Nickel Industry Co., is devoted primarily to producing lower-grade nickel for stainless steel. But it's becoming part of the EV supply chain: Tesla supplier CNGR has inaugurated a facility there to produce nickel matte, which can then be processed into material for batteries. Filings indicate that its capacity for such products will be greater than CNGR's operation at IMIP.

It's entering a site with a dismal safety record. After the accident that killed Jonathan and Selle, workers at Gunbuster staged protests over conditions. These soon turned violent, and two people were killed in the ensuing melee. Indonesia's national human-rights agency, Komnas HAM, investigated the clashes and the events that preceded them. In a report, the watchdog wrote that "unsafe working conditions, lack of protection for workers' health and welfare, and disregard for corporate responsibilities make this situation extremely serious and unacceptable."

In a cafe nearby, Gunbuster workers told *Businessweek* that they feared for their safety. Periodically the power went out, pitching the cafe into darkness for the few seconds it took for patrons to switch on their phone flashlights. Agung, a mechanic, explained that he wasn't provided with protective goggles; if he wanted them, he would have to buy them for as much as 1 million rupiah, out of his monthly salary of just 3.7 million rupiah. His large eyes were red and watery—the result, he said, of welding without eye protection. Some months earlier, a colleague had lost an eye when a splash of hot metal hit his face.

Gunbuster said in a statement that employee welfare is "our utmost concern" and that it complies with safety rules and is seeking to improve conditions. "However, work accidents are a risk that can occur in various industries and work situations, without exception." CNGR said it's committed to "continuous improvement" of safety in its new project.

Jonathan's parents in their home

As at IMIP, workers at Gunbuster are told not to share information after accidents. But such mandates can't match the speed of the internet, and photos circulate in employee WhatsApp groups. Agung shared an image dated June 26—the day of a deadly smelter explosion at Gunbuster that Indonesian media reported on. It showed two shirtless workers receiving medical attention. One, slumped on a plastic chair, had frayed bandages on both arms and his face. The other was sitting upright, with strips of bandages across his eyes, nose and cheeks, as well as on his left hand.

Chinese staff, working in an unfamiliar country, can be vulnerable in different ways. Zhou, a worker in his late 50s, came to Gunbuster in 2021 from Hunan province to work in construction. Soon after he arrived, he said, he was struck by a rock falling from an excavator. (Gunbuster said it had no comment on Zhou's account.) Bleeding, he took the day off work—and later learned that his pay had been docked. Zhou said that after he complained, three men woke him and began beating him until he passed out. He eventually went to a hospital; a medical report he shared with *Businessweek* indicated that he was diagnosed with a suspected skull fracture. But Zhou said that his superiors refused to let him stay for treatment. He eventually made it back to China, where he sent a letter to local officials describing his experience. He said he never received a response.

THE NICKEL PROCESSED AT Gunbuster, and by CNGR at the same site, is mined from high above the smelter complex, accessible by hauling roads that wind up the hillsides.

The extraction of lateritic nickel, the type that's available in Sulawesi, looks nothing like what most people picture when they think of a mine. The ore lies just below the surface, so there's no need for a deep pit, let alone a tunnel descending to underground deposits. Instead, crews clear-cut broad areas of forest and remove the top layers of earth, exposing nickel-containing material that can then be carried out. New concessions are appearing up and down the coast of Sulawesi as the smelters expand, leaving jagged gaps in the tree cover. Mining companies are supposed to restore the forest when they're done, but environmental groups are skeptical that this will ever make up for the losses.

On a recent morning at a mine site near Gunbuster, an orange excavator chewed away at a mound of dirt as a dump truck waited nearby. The sun was punishing, and a pair of workers on a break sat under a crude shelter, erected from sticks and a tarp. Just down the slope, it was possible to make out the smelters in the hazy distance, accessible by an unpaved hauling road. Columns of trucks flowed toward it and away, throwing up clouds of dust. Beyond, on the Banda Sea, the nickel ships were waiting for their cargo. Ⓑ *—With Mohammad Jafar Bua, Alfred Cang, Regif Asri Ibrahim, Eko Listiyorini and David Stringer*

Jeff Yass built Susquehanna into one of Wall Street's most powerful trading firms. He's also the libertarian billionaire enmeshed with TikTok—and betting on Trump

The Yass Man

By Annie Massa
Illustration by Pol-Edouard

The commute from Mar-a-Lago to the Breakers is about 10 minutes. In early March, Donald Trump ventured over to his Palm Beach club's venerable counterpart for an awkward peacemaking mission aimed at the Club for Growth, an anti-tax political advocacy group. The year before, the group had shunned Trump, leaving him off the invite list to its annual economic retreat while welcoming almost every Republican presidential hopeful: Nikki Haley, Ron DeSantis, Mike Pence, Vivek Ramaswamy. But in 2024, with those candidacies reduced to distant memory, Trump had the spotlight to himself.

One attendee who might have been able to explain the Club's about-face was Jeff Yass, who's among the group's largest backers. A former Never Trumper who's recently softened to become an OK-Fine-Might-As-Well-Be Trumper, Yass has lavished more than $60 million on the organization since 2016. In keeping with his background as a Wall Street veteran and obsessive poker player, he's organized most of his life around principles of rational bets, always weighing the "expected value," or potential payoff, of everything from securities pricing to fantasy football drafting. The expected value of a second Trump term was starting to look greater than zero. The calculation wasn't insignificant–Yass is the largest individual donor in this presidential election cycle.

By day, Yass, who has a personal fortune of $47 billion, oversees Susquehanna International Group LLP, a trading firm burrowed deep in the machinery of modern finance. It's a giant force in options, stocks, energy, bonds and foreign exchange–and also in more esoteric stuff. It runs a Bermudan subsidiary that sells niche insurance for lottery payouts and natural disasters, a Bahamian cryptocurrency operation and an Irish sports-betting group. It backs startups around the world, including in China and Israel. And it arrived ▶


BALA VILLAGE
TikTok

◀ relatively early to Bitcoin—Yass purchased some from a US marshals auction following their seizure from the illegal marketplace Silk Road, according to a person familiar with the matter.

A registered Libertarian since 1996, Yass has in the past decade spent tens of millions of dollars funding politicians focused on limiting government intervention in every area that matters to him, notably taxes, trading, education and gaming. He personally champions a controversial overhaul of public schools favored by Betsy DeVos, Trump's former secretary of education. But more recently he's found himself at the center of attention for another reason: his roughly $15 billion stake in ByteDance Ltd., the corporate parent of TikTok.

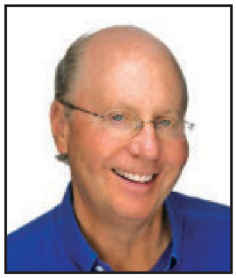
This detail appeared not to be lost on Trump, who, during his presidency, had attempted to ban the Chinese-owned video-sharing app with an executive order. As Yass expressed approval of Trump—who was desperately in need of cash for his presidential bid and his deluge of legal bills—the former president has reversed his position on TikTok, declaring after the Breakers event that Americans would "go crazy" without it. "If you get rid of TikTok, Facebook and Zuckerschmuck will double their business," Trump wrote on his social media platform, Truth Social. "I don't want Facebook, who cheated in the last Election, doing better. They are a true Enemy of the People!" (A Susquehanna spokesman says Yass and Trump have never discussed TikTok.) By early June, days after becoming a convicted felon, Trump was officially on TikTok, gaining 1.1 million followers in a few hours.

A billionaire flip-flopping for Trump is nothing new. Yass, a pragmatist more than a Trump ideologue, has kept his views on the former president equivocal and hedged. But Yass is in deep with the Republican camp, his donations to outside spending groups in the 2024 election cycle as of early June totaling $70 million, almost entirely to conservatives. Some of his money is being deployed to exert his sway in local elections wherever possible, especially in Pennsylvania, where he's the richest man in a swing state with a rare split legislature. A coalition of Pennsylvania nonprofits called AllEyesonYass, unhappy with his growing influence, started pressuring politicians to reject his money and protesting outside his office and events. After amassing a fortune with approximately no eyes on Yass, he's in new territory.

Yass declined to speak to *Bloomberg Businessweek*, but interviews with more than two dozen of his business associates, former colleagues, friends and detractors, most of whom spoke on condition of anonymity to avoid retaliation, reveal someone who built one of Wall Street's stealthiest yet most powerful trading operations and whose network of foundations, political donation groups and companies reaches further than even some of his harshest critics realize. In Yass' idealized version of the future, America looks like a perpetual Texas Hold 'em tournament with 333 million players. The gambler in the best position at the table—and perhaps with the biggest bankroll—wins.

Yass wrote his undergraduate thesis about the ethics of options trading. After growing up in Queens, New York, he'd become a "typical socialist"-minded student at SUNY Binghamton in the mid-1970s, as he described himself in a 2021 interview with the Adam Smith Society. He studied economics and math and spent plenty of time playing poker, backgammon and bridge. Although options trading had been around in some form for centuries—Greek olive harvests, Dutch tulip bulbs—the modern incarnation didn't appear until 1973, when a new options exchange opened in Chicago.

Yass in an undated company photo



Unlike buying a company's stock, an option is a purer betting tool. An option contract is a wager that the price of something—like shares of a company, or barrels of oil—will rise or fall to a specific price by a certain date. The appeal is that it's cheaper to buy an option than stock for a single company, but it can also be riskier. If the underlying thing doesn't hit a specified price by an appointed date, the option contract can expire worthless. In his college thesis, Yass wrestled with whether this new kind of trading delivered any benefit to society or was effectively a casino. "I concluded it should exist," he later said. "I got a B." (Binghamton's economics department was unable to locate a copy of Yass' thesis in an archive.)

Yass hatched Susquehanna in 1987 with a group of college poker buddies: Arthur Dantchik, Steve Bloom, Eric Brooks, Andrew Frost and Joel Greenberg. The company's name refers to the river that runs from New York, where they met, through Pennsylvania, where they started the firm. Susquehanna got into options trading relatively early, and its mathematical approach to what would become a lucrative corner of Wall Street paid off. Over the ensuing decades, it established itself as a huge player.

Whereas investment banks service outside clients, and public companies answer to shareholders, Yass and his partners set up a proprietary trading firm where they put their own cash on the table. Its traders would gather every available shred of data and fine-tune algorithms to figure out when to buy or sell all kinds of things—think silver, Swiss francs, crude oil, Bitcoin, sugar, contracts tied to average temperatures in Sacramento. If you can trade it, Susquehanna will likely name a price.

The firm operates largely outside the public eye, but there are clues to how much money it generates. Regulatory filings show that a single one of its portfolios, covering publicly traded US stocks, was worth almost $67 billion at the end of March. And when Susquehanna wins big, the spoils accrue to Yass—the firm's majority owner—and his partners. Dantchik also ranks among the world's richest people, with a net worth of $11 billion, according to the Bloomberg Billionaires Index.

Unlike its competitors, which reside in some of the most expensive New York City real estate, Susquehanna located its global headquarters in a squat building in a Philadelphia suburb more befitting an accountant or dentist office. Yass still arrives at this office before markets open in New York at 9:30 a.m., and sits in jeans and a polo shirt in the middle of the trading floor with the rest of his employees, riffling poker chips. Every day

■ COURTESY SUSQUEHANNA

“All of sports betting, all of playing poker and all of options trading is making sure you’re betting against someone you’re smarter than”

he reviews the performance of Susquehanna’s various divisions that, in addition to options, cover energy, bonds, foreign exchange and virtual assets and are staffed by roughly 3,000 employees. Yass prefers to rely on information from within his own company rather than from external sources, such as Susquehanna’s in-house meteorologist, who helps inform his energy traders’ decisions. The point is to leave as little as possible to chance.

New hires complete a training program where they learn to think about markets through the lens of poker and probabilities. They play hand after hand of Texas Hold ’em in a game room on the seventh floor, equipped with blue felt tables and decks of cards. Three World Series of Poker bracelet winners work for Susquehanna; Brooks, a co-founder, won the seven-card stud championship in 2008. For big sporting events such as the Kentucky Derby, Yass runs contests with thousands of dollars in prizes. In 2023, when the Philadelphia Eagles were in the Super Bowl, he flew 50 randomly selected employees to Arizona for the game. (On at least one occasion, Yass, a friend of Eagles owner Jeff Lurie, has tried to impart a few probabilistic principles concerning when they should attempt to run the ball on fourth down, according to a person familiar with the matter.) And when Todd Simkin, an associate director at Susquehanna, was preparing for an appearance on *Jeopardy!*, Yass came into his office for a pep talk of sorts. “He said, ‘Todd, nobody cares if you know anything about American history, but if you screw up the betting on the Final Jeopardy and Daily Doubles, don’t even bother coming back,’ ” Simkin told the *Knowledge Project* podcast.

Yass summed up his worldview in a 2008 *Barron’s*-led roundtable: “All decisions in business or life have some element of optionality,” he said. “If you aren’t an expert on option theory, it’s very difficult to be an expert in decision-making.”

Which helps explain why, by the early 2000s, he and his colleagues had realized that keeping all their investments centered on US markets carried its own kind of risk. They opened an outpost in Beijing and began investing in early-stage companies in the booming Chinese economy, resulting in what would become one of Susquehanna’s most prescient wagers: a little-known tech company called ByteDance. Today, Susquehanna owns an estimated 15% of the company, worth more than $30 billion. Yass’ ByteDance stake makes up about one-third of his net worth, according to the Bloomberg Billionaires Index.

Earlier this year, as US concern about TikTok’s Chinese ownership and whether it posed a national security risk intensified, the US House of Representatives approved a bill that would force ByteDance’s Chinese owners to divest from TikTok’s US arm, or else the app would be banned. Yass, meanwhile, was reevaluating his position on the politicians he was backing. He’d given Club for Growth $10 million the prior year when the super PAC was paying for attack ads against Trump. But as Trump became the presumptive nominee, Yass seemed to engage in some Susquehanna-style Bayesian updating—that is, recalculating the probabilities as new information came to light.

At the Breakers, Yass greeted Trump and thanked him for supporting candidates favorable to his pet issue, education, in Texas, according to a spokesman for Yass. In the following weeks, Trump reversed his position on TikTok, and Yass penned a *Wall Street Journal* op-ed supporting Trump over President Joe Biden when it came to education. It was with a hedge—“I’ve never given financial support to Mr. Trump’s campaign, and I don’t plan to”—but it was something of a moot point, since he’d sent millions to Club for Growth’s super PAC this year, and the group’s rapprochement with Trump was underway.

With Yass’ name increasingly accompanying Trump’s in headlines, an entire subgenre of TikTok videos emerged to explain the mysterious Pennsylvania financier. One called Yass, who doesn’t have a verified TikTok account, the “Billionaire Who’s Saving TikTok.” Others were more suspicious. “You, using this app, listen up,” said one user in a post hashtagged #yassification. “We all deserve to know who Jeff Yass is.”

When Yass was 13, his father, Gerald, a certified public accountant, was working at an early computer services company called Datatab. A couple of years earlier, Yass had persuaded his dad to buy him 10 shares of Campbell Soup Co., which made his favorite Swanson TV dinners, but the stock didn’t move much. Now Datatab was going public, and the company gave its employees warrants—an instrument akin to options—which Gerald explained to his son. For Jeff, the idea that you could bet relatively little for the chance to win a lot held more allure than a stock. “You could buy something at a dollar and have it go to 10, if you got it right,” Yass said at the *Barron’s*-led roundtable years later. “That really excited me.”

After graduating from Binghamton in 1979, Yass interviewed at an investment firm, where he realized he was thinking differently about trading than even the most senior financiers. During the interview, according to an account in *The New Market Wizards*, a book by Jack Schwager, he started telling the company’s head of options what he thought was crucial to earning money in derivatives. But the executive interrupted him, asking for IBM’s high and low stock price for the year. Yass replied with a guess, adding, “if you’re wasting your time thinking about that, you’re on the wrong track ▶

◀ completely." He didn't get the job. Instead he moved to Las Vegas with Dantchik to play poker professionally.

At the time, authors including David Sklansky were popularizing a mathematical approach to the game, applying probabilities to assess when and how much to wager. Yass and Dantchik spent their days at separate tables, then convened in the evening to talk through their choices to bet, check or fold. They could tell that the skill level of their opponents mattered. Yass concluded that an eight-player Vegas poker game typically broke down to three professionals, three semipros and two "tourists," according to his interview with Schwager. Your odds of winning depended on where you fell along that spectrum. Yass estimated that he won about 55% of the time, on average. (He has a careful, conservative poker style, according to people who've played against him more recently.)

In his early 20s, Yass published a paper in the *Gambling Times* about why the average bettor loses money at the horse track, noting that trainers, owners and professional handicappers were all wagering with superior information. As he put it in a 2020 *Bet the Process* podcast interview: "All of sports betting, all of playing poker and all of options trading is making sure you're betting against someone you're smarter than."

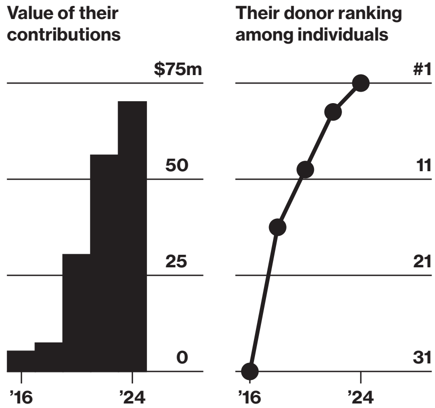
Yass and his Binghamton friends set up a betting syndicate called RAMJAC, named after Kurt Vonnegut's fictional mega-conglomerate. They bet on dog races, horse races and a ball sport called jai alai. A horse track in Chicago banned Yass' group in 1985 after they identified a loophole in a certain contest called the Super Bet that allowed them to win about $600,000 on a $60,000 bet.

By then, Yass was already trading options. He decided that doing it at scale would be the most lucrative path forward, and he got the backing to do it from his father and Israel Englander, founder of the hedge fund Millennium Management, who helped him secure a seat on the Philadelphia Stock Exchange. From there he enlisted his buddies and created the firm that became Susquehanna. Its arrival couldn't have been better timed. In an early coup, they placed positions anticipating declining stock prices prior to what would become the Black Monday crash, bringing in $30 million in its first year, according to the *Washington Post*.

Yet Yass felt conflicted after the 1987 crash. A strategy Susquehanna was using, called program trading—an early iteration of the algorithmic trading that dominates today's markets—was blamed for increasing uncertainty during a moment of market turmoil. As Yass grappled with the ethics of earning money this way, a friend helped him secure a five-minute phone call with Milton Friedman, the high priest of free markets, to get a second opinion. When Yass was younger, he explained in the Adam Smith Society interview, he'd distrusted financial middlemen, but after gobbling up the economist's works, he'd begun to see those intermediaries as paving the way for human progress. His conclusion after the conversation with Friedman: "I should have no moral qualms about doing it. So we kept on doing it."

Follow the Money

Political funding to outside spending groups by Jeff and Janine Yass, by election cycle



Susquehanna began hiring recruits straight out of college and taught them principles from *Getting the Best of It*, Sklansky's 1982 guide to mathematics and gambling. Yass cultivated loyalty by offering free trips, putting up staff and their plus-ones at the brand-new Renaissance-themed Venetian in Las Vegas around the time of the dot-com boom. In other years, Susquehanna sent employees on long weekends to Fort Lauderdale and Boca Raton, Florida, staggering departure dates so a portion of the team was always back at work to monitor the markets. And if the vacations didn't inspire fealty, Susquehanna also had legendary noncompetes, former staffers say. (A spokesman for the firm says its noncompetes are in line with industry standards.)

In September 2000, Yass and his partners were eating lunch at the office when an employee burst in with the news that Goldman Sachs Group Inc. had just bought out one of Susquehanna's big rivals, Spear, Leeds & Kellogg, for $6.5 billion. Assuming Susquehanna was similarly valuable, its partners were all billionaires on paper. Although this realization may have been affirming for the co-founders, its traders weren't uniformly happy. Markets had gone wild, and not everyone felt they'd been compensated as generously as they deserved.

One of the most notable ruptures in the company's history happened that year, when a group of employees left to create what would become one of its biggest rivals, Jane Street Group LLC. Adopting some of the same principles as Susquehanna's, Jane Street runs on game theory, math puzzles and a staff of quants often hired fresh from college. (Lately it's become best known for being the former employer of crypto fraudster Sam Bankman-Fried.) Important executives at many of its direct competitors, including Old Mission Capital, HAP Trading, Marathon Trading, Hard Eight Trading and Citadel Securities, got their start at Susquehanna.

Yass kept on gaining power and influence, getting in early as technology changed and rules loosened. He was there when cryptocurrency markets went from a single, obscure token called Bitcoin to thousands of instruments worth billions of dollars and when a 2018 Supreme Court ruling ended a federal ban on sports gambling, paving the way for state-by-state legalization. Doug, one of his four children, became an early employee of Susquehanna's sports-betting arm in Ireland, which started in 2016. By 2018, Susquehanna was buying and selling millions of dollars' worth of virtual assets, according to a *New York Times* story that year.

■ DATA: OPENSECRETS. FIGURES REFLECT DISCLOSED DONATIONS TO OUTSIDE SPENDING GROUPS THAT CAN ACCEPT UNLIMITED CONTRIBUTIONS. DONATIONS IN THE 2016, 2018 AND 2020 CYCLES ARE ATTRIBUTED ONLY TO JEFF YASS

As for Yass' first love, options, that market changed, too. Once confined to physical exchange floors, options trading is now as easy as opening an account on Robinhood Markets, Webull Financial or eToro, a Susquehanna-backed Israeli trading app. Meme-stock ringleaders such as Roaring Kitty share snapshots of YOLO options trades. While more traditional contracts have expirations weeks or months out, newer options offer a shorter-term rush, expiring in less than a day. Susquehanna is now one of the three largest middlemen for retail options trades, behind Citadel Securities and IMC.

Of course, everyday investors who take a crack at options often wind up like the poker-table tourists Yass identified early in his career. Studies show that those traders on average lose money, not knowing that they're effectively wandering from a basement seven-card stud game to a table of World Series of Poker bracelet holders. Easy access makes options markets appear deceptively simple to a regular speculator, but the pros on the other side are the ones coming out ahead. "They may bet more money than they can afford to lose, which is what regulators always worry about," Yass said in the Adam Smith Society interview. "Of course that can happen. But that's what happens in a free society." He added: "It comes down to: Do you believe in liberty or not?"

Yass is 65. His friends and business associates often describe him in terms of what he doesn't do. He doesn't wear a flashy watch. He doesn't opine about the direction of the S&P 500 on television. He doesn't drive a Bentley, blab onstage at the biggest conferences, spirit himself away on a megayacht or buy luxury penthouses overlooking Central Park.

Another thing Yass doesn't do—at least, to the extent possible—is pay more taxes than absolutely necessary. The unassuming Susquehanna HQ in Bala Cynwyd long ago relocated from Philadelphia, avoiding city-specific tax. A ProPublica investigation found that Yass paid an average federal income tax rate far below what his Wall Street peers did, saving at least $1 billion over six years. (Yass' firm said the report contained "numerous misstatements" without specifying any alleged error, according to the outlet.) And Susquehanna repeatedly fought the Internal Revenue Service in court, including over a $60 million tax bill from 2012—a case in which the US argues that a Susquehanna entity designed some trades "solely to capture U.S. tax benefits," according to court filings.

Yass is unabashed about his distaste for wealth redistribution. America is approaching a point where "no one's hungry, no one's cold, no one doesn't have some basic health insurance," he told the Adam Smith Society. "What's the difference between a billionaire and a guy that's making $100,000 a year? They're both at home watching Netflix. And they're both on their iPhones." He and his partners fund a vast network of political donor groups and libertarian, free-market think tanks, including the Cato Institute Inc., where Yass sat on the board for decades and to which the Susquehanna Foundation gave $6 million in 2021 through 2022. (Cato has published commentary denouncing the TikTok ban.)

Entwined with taxes, Yass' other big project is reforming public education, a focus inspired by another encounter with his free-market hero, Friedman. Yass says that in the 1990s, he asked the Nobel laureate the best way to spend philanthropic money. Friedman suggested picking up the mantle of "school choice," an approach to overhauling education.

Today the school choice movement encompasses a variety of alternatives to assigned public schools, including charter schools, magnet schools, tuition tax credits and school vouchers. (Michael Bloomberg, the founder and majority owner of Bloomberg LP, the parent company of *Bloomberg Businessweek*, is a major donor to charter schools.) Friedman promoted, in particular, the modern concept of school vouchers, or ways of routing public funds to parents who can use the money to send their children to a school of their choosing, including private or religious schools. Yass favors vouchers, too, arguing that failing "government schools" entrap students and that tax dollars would be better spent empowering parents to decide where to educate their offspring. "You're not treated like a customer," Yass said of public schools at an event for an educational award, the Yass Prize, that he and his wife, Janine, created. "You're a slave."

Detractors say that such programs leave public schools to languish, particularly in rural areas, and that voucher programs can effectively reroute public funds to private schools that can exclude students based on socioeconomic status, English proficiency, disciplinary record or LGBTQ traits. This cause appeals "to a small but highly engaged group, with almost unlimited resources like Jeff Yass, Betsy DeVos and Charles Koch," says Josh Cowen, author of *The Privateers: How Billionaires Created a Culture War and Sold School Vouchers*.

Supporting school voucher programs can also be a shrewd financial maneuver. In Pennsylvania the tax credits for donating to eligible scholarship funds can amount to as much as 90% of the gift. (Tax experts have raised concerns about donors "double dipping" by combining state credits with federal deductions to recoup a risk-free profit on the ▶

"What's the difference between a billionaire and a guy that's making $100,000 a year? They're both at home watching Netflix. And they're both on their iPhones"

◀ original contribution.) One thing is clear: Pennsylvania's tax credits are well known to Yass and his colleagues, who've donated tens of millions of dollars for more than a decade. Since 2013, four entities tied to Susquehanna executives—Yass' Philadelphia Trading Inc., Greenberg's JKG Florida Business Corp., Dantchik's Artay Inc. and managing director Mark Dooley's MLD Trading Inc.—collected a total of more than $61 million in tax credits under two Pennsylvania school voucher programs, according to state data.

Yass backs political candidates who favor voucher programs both inside and outside Pennsylvania. In Kentucky he gave $6 million last year to a Rand Paul-affiliated group that supported Republican gubernatorial candidate Daniel Cameron. In Texas he made a $6 million donation to pro-voucher Governor Greg Abbott, whose campaign called it the largest political gift in the state's history. (Through a spokesman, Yass says he plans to "support pro-school choice candidates in any state.") Jessica Levin, litigation director at the Education Law Center, says the contributions bear scrutiny: "You have to ask yourself, why are some of the wealthiest people promoting these programs?"

If there's one place where Yass is prone to tilting—a poker term for digging in, sometimes emotionally, despite losses—it could be in his political giving. In 2010 he and his co-founders backed a failed Pennsylvania gubernatorial bid by Anthony Hardy Williams. Cameron lost last year in Kentucky. There have been other losses, including a primary challenger to Pennsylvania Representative Summer Lee, despite Yass-funded attack ads casting the incumbent as insufficiently Democratic. Carolyn Carluccio, a Republican contender for Pennsylvania's Supreme Court, also failed in her race last year despite about $4 million in funding from groups tied to Yass.

In Yass' home state, activists accuse him of trying to eviscerate public schools, so much so that when *Abbott Elementary*, an ABC comedy about a fictional Philadelphia public school, featured a plotline about charter schools last year, some viewers interpreted it as a swipe at Yass. (In early June, when Jay-Z's company Roc Nation announced a campaign supporting vouchers for Philadelphia's low-income students, critics quickly invoked Yass' role in the state's school choice skirmish.)

A patchwork quilt of groups protesting Yass' influence has been stitched together in the past three years in Pennsylvania. Jewish Voice for Peace arranged one rally in 2021 in which protesters assembled at Susquehanna headquarters, only to discover that they could simply enter the building, unhindered by security. "Folks just walked inside," says Arielle Klagsbrun, a deputy campaign director of the Action Center on Race and Economy who attended the event. "It spoke to how little attention he's gotten for someone who has such an increasingly large role in politics."

The protesters staged a sit-in, demanding a discussion with Yass, until security intervened. The following year, protesters found the driveway blocked off. Yass had arranged for a food truck to be waiting outside with doughnuts, a move Klagsbrun interprets as a "light troll." The activists huddled to discuss whether it would be ethical to accept the doughnuts. They decided it was not.

Options trading is about managing uncertainty, and for Yass, TikTok's fate is nothing but uncertain. Under the bill Biden signed into law, TikTok's US arm needs to be sold by early 2025, or else face a ban. It could find a buyer, which theoretically could be a payday for Yass, but with so many variables, it's a wildly complicated prospect. The Chinese government would need to approve a divestiture, which could cost a suitor $40 billion or more. In another version of events, a legal challenge ByteDance filed—in which the company says divesting is "simply not possible: not commercially, not technologically, not legally"—could result in repeated delays of the ban. If Trump is elected this fall, he could play a role in determining TikTok's fate.

First, though, Trump needs all the financial help he can muster. In recent months his campaign's fundraising badly trailed Biden's, though his felony conviction boosted donations. Wall Street and Silicon Valley doyens who once distanced themselves from Trump have lined up behind him, attracted by the prospect of lower taxes and looser regulation. Yass and Trump might make odd bedfellows: The former has a mind "like a calculator," according to a former Yass colleague, and Trump's is more like a random number generator. But Trump can't risk alienating anyone with money, and Yass has apparently made up his mind that Trump better suits his purposes.

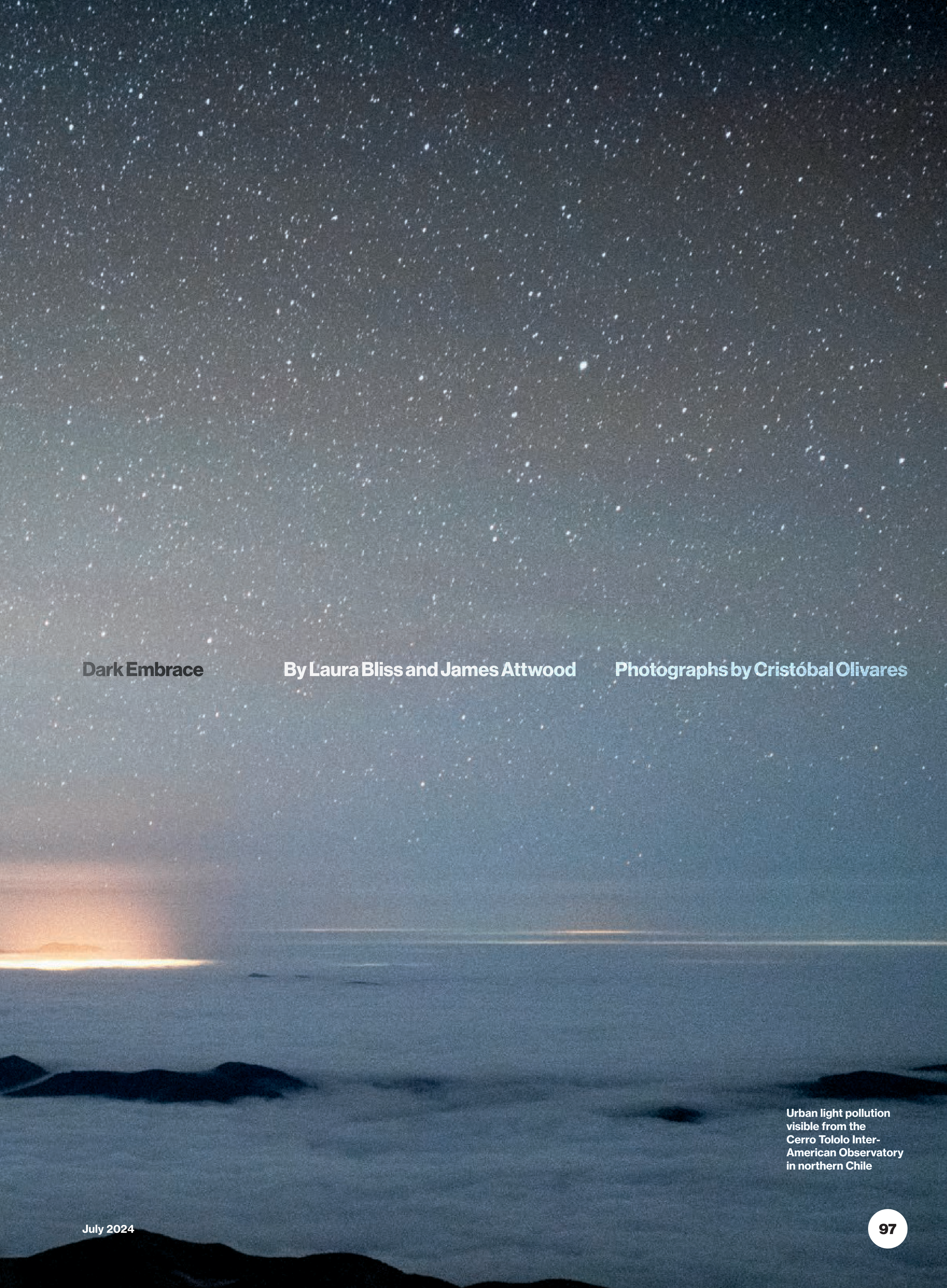
As the 2024 election approaches, Yass' other obsession is loosening the rules on sports betting. Even though some forecasts estimated the industry's volumes would reach about $250 billion in a mature market, Yass posited at a 2020 panel at the MIT Sloan Sports Analytics Conference that it could be much more. "If the sports-betting world goes the way options exchanges and stock exchanges went," with faster technology and low costs to trade, market volume could "easily go to $1 trillion," he said.

Yass is steering Susquehanna into prediction markets, a niche where traders bet on all kinds of eventualities in politics, economics and pop culture. These markets are still very small, approved in the US in minor and academic contexts. The federal agency that regulates derivatives has cracked down on this nascent industry, fearful political betting can threaten election integrity. In 2020, Susquehanna used licensed platforms in the UK to take the other side of bets, as much as $100 million, on the original Biden-versus-Trump election.

This year, Susquehanna started a trading desk on Kalshi, a rare regulated prediction market in the US, where users can wager on questions like: How high will Bitcoin go this month? How many weeks will Taylor Swift's new album spend at No. 1 on the charts? How many Biden-Trump debates will happen before the election? Will the US get rid of TikTok by May 2025?

Yass' firm is the first big trader there. Ⓑ —*With Tom Maloney, David Voreacos and Katherine Burton*

In Chile, a mining boom threatens the “eyes of the world”



Dark Embrace

By Laura Bliss and James Attwood

Photographs by Cristóbal Olivares

Urban light pollution visible from the Cerro Tololo Inter-American Observatory in northern Chile

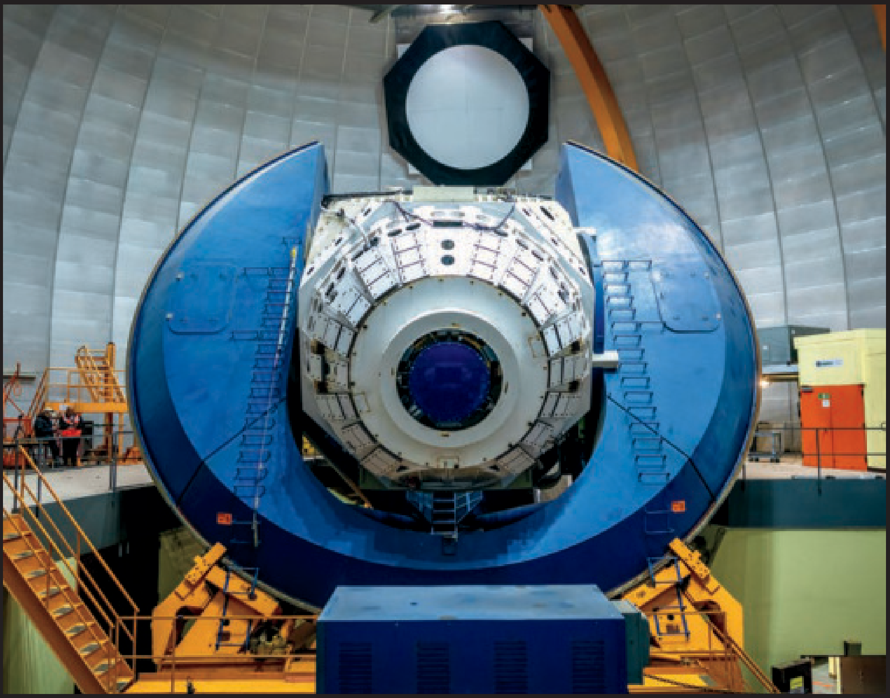
When Eduardo Unda-Sanzana arrived in Chile's Atacama Desert to teach astronomy, the darkness was disorienting. The remote location of the small observatory at Catholic University of the North made it an ideal vantage point from which to study variable stars and exoplanets. But without the telltale nighttime aura, Unda-Sanzana couldn't make out where the nearest city stood.

That was in 2005. Today, as director of the Ckoirama Observatory, also in the Atacama, Unda-Sanzana has no trouble discerning the location of Antofagasta, a city on the Pacific Coast that's logged a more than 50% population increase in the past two decades.

Cities aren't the only source of light pollution in the Atacama. Mines have also become a visible contributor. As extraction of copper and lithium ramps up to meet soaring global demand for minerals critical to the clean energy transition, Unda-Sanzana and other astronomers working in the area worry that the Chilean desert's status as the "eyes of the world" could be in jeopardy.

"We're all concerned that the current situation does not become worse than it is," Unda-Sanzana, who is also a professor at the University of Antofagasta, says. "You never know when they are going to announce a new stage of a large mining facility."

A mountainous region covering about 40,000 square miles and one of the most arid places on the planet, the Atacama has been luring astronomers for decades, thanks in part to generous tax breaks from the Chilean government. The area's exceptionally clear skies have revealed profound discoveries, including potentially hazardous asteroids drifting close to Earth and evidence that the ▶



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The Víctor M. Blanco 4-meter Telescope at the Cerro Tololo observatory

▼
Commissioned in 1974, the telescope is part of the Dark Energy Survey

One of the buildings at the Cerro Tololo complex, which hosts about 40 telescopes

A section of the Atacama Desert near Antofagasta

◀ universe's expansion is accelerating.

Two multibillion-dollar projects under construction—the Extremely Large Telescope and the Giant Magellan Telescope—may help establish whether there's life beyond our solar system. By the end of the decade, Chile will host more than half of the world's observation capacity, says Daniela González, executive director of the Skies of Chile Foundation, a nonprofit that advocates limiting light pollution.

But as science gazes up, industry is drilling down. Chile is the world's top producer of copper and No. 2 in lithium. The vast majority of this mineral wealth is buried in the Atacama.

Many of the mining installations run 24/7 and use LED lighting at night—an energy-efficient choice, but particularly harmful from a pollution standpoint because the unfiltered emissions of commonly used cool-white LEDs, with their shorter blue wavelengths, scatter more than amber and yellow lighting.

That's affecting skies shared with nearby observatories. Ckoirama, where Unda-Sanzana works, is less than 10 kilometers (6.2 miles) from Aguas Blancas, an iodine mine. Escondida, the largest copper mine in the world, and Zaldívar, another major copper deposit, are almost 100km away but still generate as much light pollution as a small city.

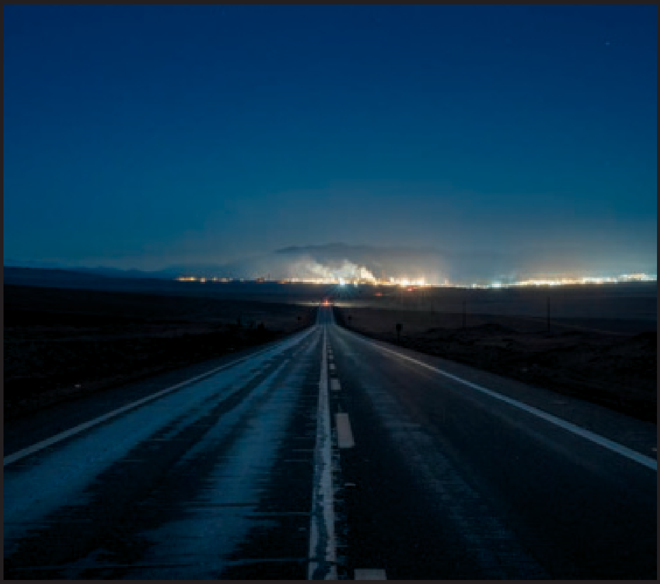
While actual cities are bigger emitters, the proximity of these facilities—particularly in the northern part of the desert—can be a problem for observatories, says Igor Valdebenito, head of the Chilean Ministry of the Environment's noise, light and odor department. "Scientists are contemplating the composition of the universe," he says. "In that type of endeavor, they are very sensitive to the glow of humans."

As the night brightens and so-called halos of light pollution rise closer to the celestial zenith, it's harder for astronomers to spot distant objects because of the weakening contrast with the sky.

Guillermo Blanc, an astronomer and researcher at the Carnegie Institution for Science based at the Las Campanas Observatory and president of the Skies ▶

▶ An aerial view of a mine in the Atacama

▶ The road to the La Negra Industrial District, a complex of mineral processing plants



▶ Nighttime illumination at La Negra

▲
Eduardo Unda-Sanzana (right) and colleague Juan Pablo Colque at the Ckoirama Observatory

▼
A telescope projects an image of the moon onto Unda-Sanzana's hand

◀ of Chile Foundation, likens the effect to hearing someone speak while there's heavy noise in the background: "You're trying to listen, but the louder it is, the harder it is to hear a faint sound. It's the same with visuals."

For now, the problem hasn't stopped scientists from doing their work. At most observatories in the Atacama, the skies are still less than 5% brighter than natural conditions, with sites in the urbanized southern part of the desert, such as the Cerro Tololo Inter-American Observatory, more affected than those in the north. That's far below light pollution levels at observatories in places such as Southern California, where explosive urban growth in the 20th century bleached out skies, rendering several major telescopes less effective.

Researchers have pressed the Chilean government to take a proactive stance. The South American nation first regulated light pollution in 1998 by setting an upper limit on blue light in outdoor illumination in the Atacama and surrounding regions. Two decades later, Unda-Sanzana and other stakeholders started lobbying lawmakers to set more stringent standards. In 2023 the Ministry of the Environment officially expanded the outdoor lighting norm so it applies to the entire country, joining a handful of European countries that have adopted similar measures.

In addition, the government formally recognized special "astronomical areas" where even tighter restrictions apply. To be approved by regulators, new developments will have to submit an environmental analysis with plans to mitigate lighting's impacts. The changes will come into full effect in October, though there'll be a compliance window of two to five years; Blanc says the policies should effectively mean more amber-colored lights.

While mining isn't the main target of the rule change, its threat could grow. The Chilean government estimates a $66 billion pipeline of projects over the next decade. The mining industry supports about 300,000 jobs in Chile and accounts for 12% of gross domestic product.

Chile's Mining Council, a trade group, declined to comment on the effects the stricter light rules would have on its members. Another industry association, Sonami, also declined to comment. None of the mining companies contacted directly by *Bloomberg Businessweek* provided comment on the measures or plans for reducing light pollution.

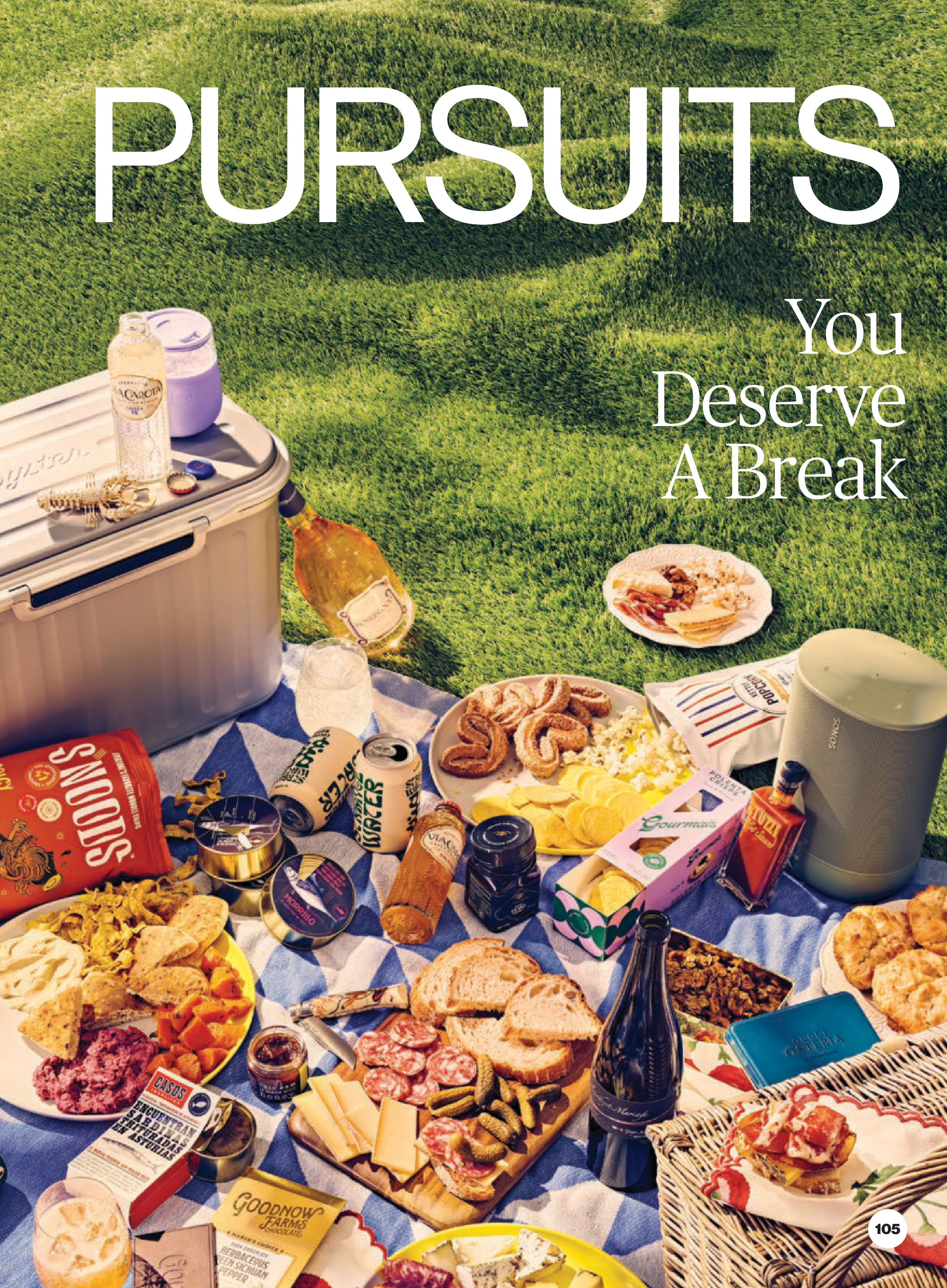
Astronomers hope the mines will comply with the new lighting standards. Cities, with so many different sources of illumination, will likely be the bigger challenge. While it's unlikely that the Atacama's skies will return to the pitch-black of 20 years ago, Unda-Sanzana is cautiously optimistic that light pollution levels will at least stabilize.

"If you're trying to attract new observatories, you need to give them the confidence to invest in the region, that things are not going to change for years to come," says the Chilean astronomer. "We are trying to send a strong signal that we are invested in protecting the sky." Ⓑ

The Atacama's skies are cloudless some 200 nights out of the year, making it an ideal spot for stargazing

PURSUITS

You Deserve A Break



SUMMER ENTERTAINING

THERE'S AN EASIER WAY TO DINE OUT

Photographs by Ted & Chelsea Cavanaugh
Illustrations by Beya Panicha
Prop styling by Julia Rose   Food styling by Drew Aichele

It takes more time, more money and more homework than ever to eat at a restaurant these days. Bots are snapping up prime slots in dining rooms across America, and if you do get a seat, inflation is making your meal more expensive. Restaurant prices in April were up 4.1% from a year earlier, according to the US Department of Agriculture, whereas groceries were only 1.1% higher.

So it's worth issuing a calming reminder: You can go out to eat without going to a restaurant. In fact, you can have world-class food on beautiful plates with nice cutlery—and surround yourself with all the best people—with a lot less hassle than dining out.

It's called a picnic.

The choices available for outdoor eating festivities are more far-ranging now. Williams Sonoma has almost quadrupled the number of picnic products it carries since 2021 to accommodate demand, says Kendall Coleman, vice president for public relations. The options for top-quality mail-order food and drink have soared, too, so you can still have the experts do all the prep work. Only a few years ago, you would've had to travel to Philadelphia to sample the sumptuous meze at chef Michael Solomonov's acclaimed Zahav; now anyone can go on Goldbelly and have it delivered. The Italian restaurant Via Carota, where New Yorkers routinely wait hours for a table, is likewise making it easier to get its drinks by shipping its sparkling Negroni sbagliato in handsome glass bottles.

It's not just food and beverages getting the picnic upgrade, either. Flourishes such as a crystal-studded lobster bottle opener, the latest Sonos speaker and colorful flower-embellished napkins will add personality to the standard blanket spread.

In the following pages, we've got the best snacks to source—from blackberry Swedish gummies to kimchi chips—as well as a playlist full of summer jams you've probably never heard before. There are even games to get people off their phone and on their feet. And if you're not the host? Even better! We've got you covered with gifts to ensure you'll be on the best-guest list. You deserve a break. Go outside and take it.
—Kate Krader and Kat Odell

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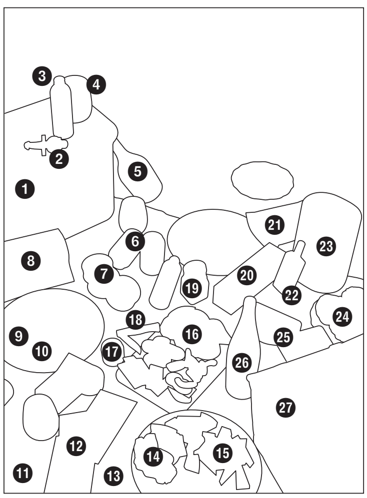


1 Oyster Tempo cooler ($500) 2 Joanna Buchanan lobster bottle opener ($78) 3 Via Carota sparkling cocktails ($69 for 10) 4 W&P portable wine glass ($25) 5 2022 Château d'Estoublon Roseblood rosé ($20) 6 Strange Water sparkling coconut water ($15 for four 11-oz cans) 7 Conservas Güeyu Mar canned seafood (from $20) 8 S'noods noodle chips ($13 for three 3-oz bags) 9 Zahav dips ($120) 10 Thomas Fuchs melamine plates ($75 for four) 11 Block Shop cotton throw ($175) 12 Goodnow Farms chocolate (from $64 for four) 13 Gisele napkins ($174 for four) 14 Texas Iberico jamón ($13 for 2 oz) 15 Good Mood cheese ($39 per lb) 16 Zingerman's French picnic basket (from $125) 17 V Smiley preserves ($8 for 2 oz) 18 Opinel corkscrew knife ($38) 19 Bee Ulmo raw honey ($75 for 8.8 oz) 20 Gourmais polenta crisps ($25 for three boxes) 21 Major's Project Pop OG kettle corn ($32) 22 Stuzzi hot sauce ($15 for a 3.4-oz bottle) 23 Sonos Move 2 speaker ($449) 24 Levain Bakery lemon cookies ($29 for four) 25 Gucci Osteria cardamom and orange granola ($35 for 125g) 26 Amethyst Dew nonalcoholic grape juice ($398 for five-bottle set) 27 Bridgerton picnic basket ($350)

Snack Culture Is Better Than Ever

Every picnic needs a formidable lineup of treats as fuel for playing games and dancing at dusk (next spread). Here are nine great salty and sweet options to munch on after you throw open the picnic baskets.
—K.K. and K.O.

THE MIX

Spiced, sour and ultracrunchy, this blend channels the bold flavors of chaat, the Indian snack mix. Doosra founder Kartik Das combines boondi (chickpea flour puffs) with roasted peanuts, then spices it with green mango powder, Kashmiri chili and cumin. Tiny caramelized white chocolate disks give the vibrant mix an unexpectedly sweet hit.

$10 for 6 oz

SOUR BLACKBERRY FISH

In summers past, BonBon founders Selim Adira, Leonard Schaltz and Robert Persson made jam in their native Sweden. These imported, naturally flavored sour candies have the waxy chew of the Swedish Fish you know but with the taste of fresh-picked berries, a tribute to the trio's childhood pastime.

$8 for 150g

HOUSE SMOKED OYSTERS

Earlier this year, the acclaimed West Coast purveyor Hog Island Oyster Co. decided to shuck and smoke all the misshapen shellfish that it couldn't sell to customers. The oysters are preserved in a mix of sake, mirin, white soy and koji for an umami-imbued snack that's excellent straight from the jar or on a cracker.

$28 for 8 oz

CHILI LIME MANGO

Erewhon, the Southern California chainlet, has an ever-growing cult following for its pricey, high-style products. Among its long list of options for wannabe healthy snackers are tangy-sweet and spicy organic dried mango slices packed in a Mason jar.

$23 for 8 oz

ARTICHOKE AND ALMOND TAPENADE

Northern California's McEvoy Ranch doesn't just bottle its exemplary olive oil, it also uses it in a slate of pantry products, including this buttery tapenade made with local artichokes and almonds. Tangy capers provide an extra-pungent hit. It would be great slathered on almost any toast and finished with Parmesan cheese.

$11 for 7 oz

PITA CHIPS

Brooklyn-born ZaZa has won fans for its extra-crunchy, heavily spiced za'atar pita chips. Responding to popular demand, the company now offers a straightforward sea salt version that's flavored with buttery, high-quality extra-virgin olive oil. Either is great straight from the bag or dunked into a dip—like McEvoy's tapenade, above.

$7 for 4 oz

KIMCHIPS

The popular late-night dish known as kimchijeon—a vibrant red-orange kimchi-laced pancake—is the inspiration for these thin rice-flour crisps from traditional Korean food brand Damum. The light-as-air chips, imbued with a radish kimchi broth and spiced with red pepper powder, come in three flavors: original, spicy and seafood kimchijeon.

$6 for 40g

UBE COOKIES

Cravory Cookies in San Diego makes intensely purple ube cookies—colored and flavored with the attention-getting yam, mixed with white chocolate chips and dusted with powdered sugar. Mail-order options don't lose their signature gooey center and crisp exterior.

$20 for 6

MOCHIDOKI

The bicoastal brand's Japanese confections have a chewy, glutinous rice dough surrounding an ice cream center. They come in the standard black sesame flavor as well as more imaginative choices like carrot cake and habanero chocolate.

$12 for 4


ELIA
OLIVE OIL
CAKE MIX
Dark Chocolate & Espresso
RANGER
S'mores
Kit
TIRRENA
SAUZ
Hot Honey
Marinara
Piña Coco
GELATIN DELIGHT
Gelée
LA LATA
WINE SPRITZ
VERMUJITO
SABA

Be the Guest Who Brings the Best

← Here's hoping the biggest problem you have this summer is finding the right gift to bring your host for a party or weekend stay. We can help. —*K.O.*

DRINKS

Bubbly, low-ABV and easy to drink, the wild-fermented Canadian beverage **Revel Soif** ($17 for a 750ml bottle) combines strawberries, cherries and red wine grape skins. **La Lata's Spanish spritzes** ($20 for four cans) are party perfect, too, with flavors including Basque cider, dry sherry and dry vermouth.

FOOD

Handsomely packaged **Pasta Tirrena** ($12 for 500g) is made from three varieties of Tuscan wheat for a nutty bite. Pair it with sweet and zingy **Sauz hot honey marinara** ($45 for four jars). **Elia olive oil cake mixes** ($30 each), in vanilla-lemon and chocolate-espresso flavors, allow you to assemble an elegant dessert in five minutes. Or bring some upscale Jell-O: You can now get tropical flavors ($24 for a three-pack) like **passion fruit and guava from Gelée**, a just-launched New York brand. The **Ranger Chocolate Co. s'mores kit** ($32) upgrades the campfire classic with marshmallow flavors such as root beer. And **Saba lime guava marmalade** ($18) is a delicious addition to vanilla ice cream.

DECOR

Corpus Naturals' cassis soy wax candle ($76) evokes the berry's sweet, dark flavor. Made from a reclaimed linen-cotton mix, **Atelier Saucier's Carnival Stripe napkins** ($88 for four) offer a contemporary take on classic picnic gingham. The **Acqua glasses from R+D Lab** ($248 for a set of four) are a collaboration with chef Elena Reygadas of the acclaimed Rosetta restaurant in Mexico City and reflect the old-world-meets-new-world aesthetic.

A Disco in Broad Daylight? You Bet

You can do better than the old Spotify Yacht Rock playlist! Delight your fellow revelers with new music, and dare to throw an outdoor dance party with this eclectic, uplifting summer playlist from Occupy the Disco, a queer New York-based DJ duo comprising RuBot & Tad Haes. Find it at *bloomberg.com/summerplaylist*.

- *Lucky* – Raveena
- *Bring Me Back* – Sita
- *Lover/Friend* – Kaytranada, Rochelle Jordan
- *Comin' Around Again* – Amber Mark
- *Good Luck, Babe!* – Chappell Roan
- *My Religion* – Amir Brandon
- *Cinderella* – Remi Wolf
- *A Vision* – Avalon Emerson
- *Honey* – Troye Sivan
- *Disco Boots* – Gavin Turek
- *Dance You Outta My Head* – Cat Janice
- *Fantasy (feat. Franc Moody)* – Cosmo's Midnight
- *Music on the Radio* – Empire of the Sun
- *Caught the Spirit* – Greg Osei
- *So Pretty* – Lion Babe
- *Good II Me* – Vincint
- *Let Go (Miss Toto Remix)* – Shea Couleé
- *Baddy on the Floor* – Jamie xx feat. Honey Dijon
- *Always Forever* – Romy

Next Round's on the Ground

Lawn sports always seem cheesy until you start playing and you realize that, since no one is actually good at them, they can't help but be fun. Kids, teens and tipsy adults alike find themselves on a level playing field. The following chic choices incorporate premium materials that add a level of elegance to any affair while coaxing out the competitor in us all. —*David Graver*

FRESCOBOL CARIOCA BEACH BATS

Although *frescobol*, or Brazilian paddleball, is popular along the sunny beaches of Rio de Janeiro, a shoreline isn't necessary to enjoy the sport. All that's required is a stretch of land, two players, two balls and two paddles. Here, the latter are handmade in Brazil from furniture industry offcuts, with water-resistant coating and hand-wrapped neoprene handles.

$295

PINETTI BOCCE

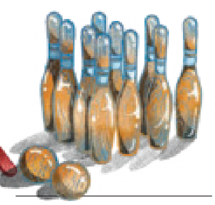
In the perennial battle over whether Italy's bocce or France's pétanque is the more classy, precision-oriented boules-style lawn game (both are derived from a game played in Roman times), this luxuriant metal, wood and leather set from Italian design studio Pinetti might just tip the balance. The bocce set, available at Artemest, includes enough balls for eight players and one wooden jack.

$1,475

HERMÈS DOMINOES

Made in France by Petit H, an Hermès division dedicated to putting leftover leather to use in playful ways, this 28-piece domino set comes in a carrying case crafted from calf- and goatskin. When you order online, the color of the 2.5-inch leather dominoes will be a surprise, based on the material available. No two sets are the same.

$4,875



ODIN PARKER WOODEN BOWLING

Transform your yard into a bowling alley with heirloom toymaker Odin Parker's 10 wooden pins, made in Poland using soft wood sourced from suppliers certified by the Forest Stewardship Council. The two bowling balls are finished with beeswax and polished with vegetable oil.

$80

VILAC CROQUET

The toy manufacturer Vilac began producing playful items from top-quality beechwood in Grenoble, France, in 1911. Its colorful croquet set, available at the MoMA Design Store, employs this wood for two stakes, all six balls and six mallets, which are at a length appropriate for anyone over the age of 5.

$110

ELAKAI RING TOSS

With one perpendicular acacia wood target, 10 sisal-rope rings and a durable carrying case, outdoor game maker Elakai's handmade ring toss is sharp and sturdy. It's also weather-resistant—and has a lifetime warranty.

$60

BADEN CHAMPIONS BADMINTON

Included in this portable package is a regulation-size badminton net (including 10 stakes, guylines and boundary lines), four tournament-quality rackets and three nylon shuttlecocks. The net's heavy-duty aluminum poles are easy to set up and adjust—and the rackets have excellent string tension.

$90

SCHILTE SJOELBAK

In this tabletop version of that cruise-ship classic, shuffleboard, you dispatch the pucks by hand. The 79-inch *sjoelbak* board from Schilte and the included 30 machine-tooled pucks are all crafted from European hardwood in the Netherlands.

$328

DÉJÀ VIEW

Anatomy Of a Sequel

By Mark Leydorf
Photo illustration by Javier Jaén

Desperate to get butts back into seats after the pandemic, Hollywood went all-in on established intellectual property, cementing the trend toward sure-thing spectacles that began with the rise of streaming. Since 2020, 16 of the 20 highest-grossing releases have been sequels, prequels or requels (aka reboots).

But when Joseph Campbell told us there was only one plot, the hero's journey, he didn't mean it had to be *the same hero on the same journey*. Screenwriters fear artificial intelligence, but will computer-crafted films be more derivative than what the studios are churning out now? Do we need more aliens, apes or kung fu pandas?

Trick question! In fact, some of the easy, formulaic escapes coming our way are great—and much appreciated, even by a critic like me. That's what summer is for, right? Popcorn now, politics later. Here are the best sequel strategies.

THE WORLD IS ENDING AGAIN

Many sequels that excel don't overthink it; they just give you more of what you loved the first time. You don't need to reinvent the wheel with Indiana Jones. Just find another ancient relic and throw some more Nazis at him. The story is more or less the same—but the stakes are probably a wee bit higher. James Bond has to catch an even more sinister master crook; Woody and Buzz get abandoned yet again; the drivers in *The Fast and the Furious* have to drive a bit faster and more furiously.

And another thing: Sequels are better when they can stand on their own. Each *Scream* is a scream even for people who've never screamed. There's no need to multiply the multiverse, forcing myriad versions of our heroes into endlessly convoluted and exponentially more dangerous encounters. (Ahem, Marvel.)

DEEPER AND DARKER

Really great sequels, however, dare to change it up. *Star Wars* enthralled us with a ragtag crew beating impossible odds; *The Empire Strikes Back* busted apart those archetypes to reveal a fraught, complicated family. *Terminator 2: Judgment Day* flipped the script entirely: The cyborg villain from the first film (Arnold Schwarzenegger) fights that creepy morphing-metal man alongside the film's human heroes.

Cineastes will tell you *The Dark Knight*, released in 2008, is the best sequel of all time. (Just don't tell *The Godfather Part II*.) Batman (Christian Bale) returns to battle the Joker, an agent of chaos brought to

Helen Hunt and Bill Paxton from Twister *are upcycled into Daisy Edgar-Jones and Glen Powell in* Twisters

LET'S TRY THIS AGAIN

Top-grossing releases worldwide since the onset of the pandemic

Sequel / Reboot

Avatar: The Way of Water (2022)	Sequel	$2.3b
Spider-Man: No Way Home (2021)	Sequel	1.9
Top Gun: Maverick (2022)	Sequel	1.5
Barbie (2023)		1.4
The Super Mario Bros. Movie (2023)	Reboot	1.4
Jurassic World Dominion (2022)	Sequel	1.0
Oppenheimer (2023)		975m
Doctor Strange in the Multiverse of Madness (2022)	Sequel	956
Minions: The Rise of Gru (2022)	Sequel	940
The Battle at Lake Changjin (2021)		903
Black Panther: Wakanda Forever (2022)	Sequel	859
Guardians of the Galaxy Vol. 3 (2023)	Sequel	846
Hi, Mom (2021)		822
No Time to Die (2021)	Sequel	774
The Batman (2022)	Reboot	772
Thor: Love and Thunder (2022)	Sequel	761
F9: The Fast Saga (2021)	Sequel	726
Dune: Part Two (2024)	Sequel	712
Fast X (2023)	Sequel	705
Spider-Man: Across the Spider-Verse (2023)	Sequel	691

horrifying life by Heath Ledger in his final role, but quickly falls into a moral quagmire of his own. Without ever mentioning the decade's current events, director Christopher Nolan managed a cutting critique of America's failing war on terror. It made a billion dollars worldwide.

START FROM SCRATCH

This is the highest-risk, highest-reward route. It could mean a genre shift: Ridley Scott's *Alien* was peak sci-fi horror; James Cameron's *Aliens* was peak sci-fi action. *Thor: Ragnarok*, the third in the series, remade the comic book god as deadpan comic. Denis Villeneuve's magnificent *Blade Runner 2049* drew more from Stanley Kubrick's *2001: A Space Odyssey* than from Scott's '82 original. (Although Harrison Ford does turn up. And it's awesome.)

George Miller, who conceived and directed the terrific 1980s *Mad Max* trilogy, departed from his playbook for 2015's *Mad Max: Fury Road*. The earlier films had an unsettling low-budget grit; the reboot went big and beautifully bad, featuring Charlize Theron and Tom Hardy in what's essentially a gripping two-hour chase. *Fury Road* made $380 million worldwide and won as many Oscars (six) as *Godfather II*.

How are 2024's many sequels shaping up? *Dune: Part Two* continued where Villeneuve left off in his mesmerizing *Dune* (itself a "reboot" of David Lynch's 1984 camp disaster, wisely started from scratch). The sequel, charting the descent of Paul (Timothée Chalamet) into near madness, definitely goes deeper and darker. It's the biggest movie so far this year, grossing $712 million globally by the end of May. *Furiosa: A Mad Max Saga*, with Anya Taylor-Joy and Chris Hemsworth, made a disappointing $65 million worldwide in its first weekend. Still, Miller makes stunning action ballets, and this *Fury Road* prequel is deeper and darker—and also weirdly funny. Villeneuve and Miller are sci-fi auteurs; the first is a master of slow cinema, the second a genius of Grand Guignol. If you haven't yet seen these—in an honest-to-God theater—do.

Filmgoers craving comfort food have flocked to *Kung Fu Panda 4*, *Godzilla x Kong: The New Empire* and *Kingdom of the Planet of the Apes*. The latest *Ghostbusters*, excoriated by the critics, still earned $200 million globally in its opening weekend. And even jaded old me bought a ticket for *Inside Out 2*, the film Pixar Animation Studios is banking its rebirth on. What can I say? I can't resist these hypersaturated guides to living with schizophrenia (I mean, childhood in America). These films all follow the hallowed it-sold-tickets-last-time strategy.

Two others on my pre-release leaderboard: *A Quiet Place: Day One*, starring Oscar winner Lupita Nyong'o, is the third installment of John Krasinski's fabulous don't-make-a-sound horror series (opening on June 28, after we've gone to press). A prequel in a different setting (Manhattan) with a new director (Michael Sarnoski), *Day One* is almost starting from scratch. As long as they stick with the core concept—getting a few hundred people to sit in terrified silence for two hours—they'll score.

And then there's *MaXXXine* (opening on July 5), Ti West's *X* threequel. These gory, retro-slasher satires start from scratch every time, transporting the exquisitely sly Mia Goth into a new (yet connected) character in a new decade of film history. Each one has also been deeper and darker—and delightful.

Long live the sequel. Thanks to climate change, this is likely to be the hottest summer in history. Might as well spend a few cool hours with a hero we trust battling a villain who isn't real. Ⓑ

COMING (BACK) TO A THEATER NEAR YOU

Some terrific- and not-so-terrific-looking sequels on the way later this year

TWISTERS (July 19)

Helen Hunt, the storm-chasing star of *Twister* (1996), isn't back for a spin—but Daisy Edgar-Jones plays her storm-chasing daughter.

The trailer isn't blowing me away.

DEADPOOL & WOLVERINE (July 26)

Hugh Jackman squeezes into his Wolverine getup for the 10th time to join Ryan Reynolds in a violent, R-rated *@$#! fest.

Please don't screw this up, Disney.

TRAP (Aug. 9)

Rumor has it that M. Night Shyamalan's latest is a surprise sequel (sorry to spoil it?) to his one good film, *The Sixth Sense*.

I see bored people.

ALIEN: ROMULUS (Aug. 16)

Director Fede Álvarez, renowned for his *Evil Dead* requel, returns the *Alien* franchise to its horror roots, with an eerily empty space station and Cailee Spaeny as a badass heroine in the Ripley mold.

Bring on the slime!

THE CROW (Aug. 23)

Bill Skarsgård (Pennywise the clown in *It*) repaints his face for this rebooted tale of supernatural resurrection and retribution.

Meh. Save it for streaming?

BEETLEJUICE BEETLEJUICE (Sept. 6)

Tim Burton brings Michael Keaton, Winona Ryder and Catherine O'Hara back after a 36-year hiatus to raise his cult-classic ghost story from the dead.

There isn't enough popcorn on Earth.

JOKER: FOLIE À DEUX (Oct. 4)

Joaquin Phoenix returns for a second serving of clowning and nihilism from director Todd Phillips. With Lady Gaga on board, *Deux* is bound to be just as polarizing as *Joker*.

Fingers crossed she doesn't try an accent.

GLADIATOR 2 (Nov. 22)

Irish heartthrob Paul Mescal takes Russell Crowe's place in the Colosseum for Ridley Scott's long-delayed Roman revenge saga.

Did I mention Pedro Pascal and Denzel Washington?

■ PHOTO: TWISTER: ALAMY; TWISTERS: MELINDA SUE GORDON/UNIVERSAL PICTURES; WARNER BROS. PICTURES & AMBLIN ENTERTAINMENT ■ DATA: BOXOFFICEMOJO. FIGURES AS OF JUNE 11

FOLLOW YOUR GUT

THE LONG AND HUNGRY ROAD

By Kate Krader and Sarah Rappaport

Harold and Kumar eluded raccoons and rednecks on their late-night odyssey to White Castle. Ponce de Leon trekked to Florida, of all places, in search of the perfect drink. Like them, we believe the ultimate quest is the delicious kind.

This summer, why not plan a road trip based around that most wonderful reward, food? To give you a jump-start on this serious business, we've charted three different culinary pilgrimages. On these driving-based excursions, the point isn't the destination or even the journey—it's the eating.

Cruising Connecticut for Lobster Rolls

When it comes to lobster rolls—and what summer is complete without them?—Maine dominates the conversation. But some claim Connecticut served the first one, almost a century ago, at a place called Perry's in Milford. In the Constitution State, butter trumps mayo and sandwiches are typically served warm, almost always with water views. Here's a hit list, with a route that starts in Norwalk and heads east toward Westerly.

1 KNOT NORM'S, NORWALK

This spot in Fairfield County has an upscale diner vibe and offers various rolls featuring fried Copp's Island oysters or pork belly with soy ginger caramel sauce. The lobster-infused butter on the marquee roll (market price) intensifies the seafood's sweetness.

2 GUILFORD LOBSTER POUND, GUILFORD

Picnic tables jammed with families extend down the pier to Guilford Harbor at this picturesque shack. Owner Bart Mansi personally catches the lobsters early each morning. By lunchtime, griddled buns are overflowing with a quarter pound of bright red tail and claw.

3 LOBSTER LANDING, CLINTON

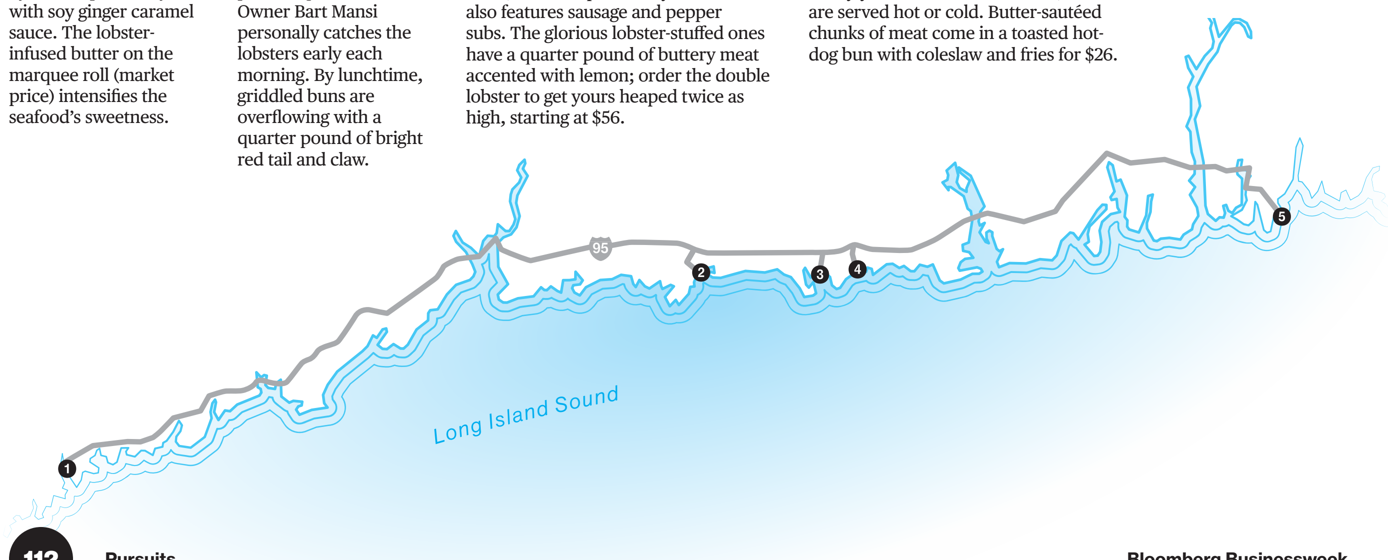
Look for the red sign with an off-kilter "O" to find this white-shingled shack. It was opened by Italian-born Enea Bacci, which explains why the menu also features sausage and pepper subs. The glorious lobster-stuffed ones have a quarter pound of buttery meat accented with lemon; order the double lobster to get yours heaped twice as high, starting at $56.

4 LENNY & JOE'S FISH TALE, WESTBROOK (AND MADISON

Lenny & Joe's also slings stacked plates of fried clam strips and fish tacos, but surely you want the lobster rolls, which are served hot or cold. Butter-sautéed chunks of meat come in a toasted hot-dog bun with coleslaw and fries for $26.

5 ABBOTT'S LOBSTER IN THE ROUGH, NOANK

Get here before the clock runs out, literally: Abbott's website counts down to the end of the lobster season, happily more than four months away. A 15-minute drive from New London, the grounds have picnic tables strewn across the grassy waterfront. The famous LOL roll has a pound of meat, with all the butter you want. If you want beer or wine, bring your own.

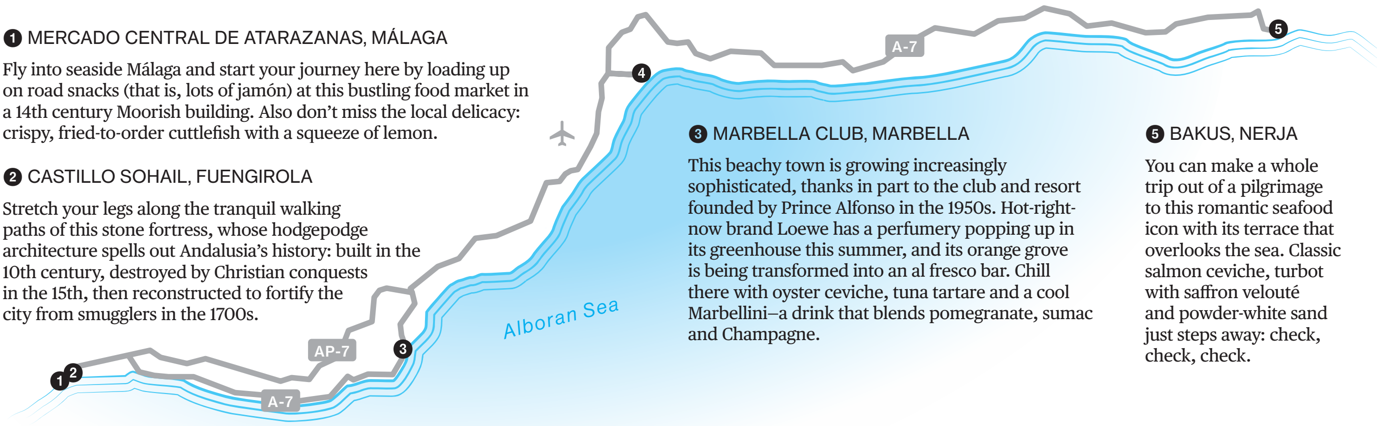


Ceviche and Cerveza on Spain's Costa del Sol

Sure, you can join the masses for cacio e pepe in Rome and pasta al limone in Amalfi, but there's no better summertime dining option in the Med than shrimp or cod bathed in lime and chased with a Cruzcampo beer. Unless, of course, you can add Andalusian cliffside views. The coastal route on the A7 between Málaga and Marbella delivers all that and more.

❹ PUENTE ROMANO BEACH RESORT, MARBELLA

Loewe there, Fendi here. The latter is taking over one of Puente Romano's 23 restaurants, La Plaza, where the mille-feuille dessert is dusted with interlocking cocoa "F's." (Paella and yellowtail tiradito will be unbranded.) Prefer recipes from a big-name chef rather than a fashion house? Andalusian gastro-wizard Dani García and Nobu both have venues on-site.



❶ MERCADO CENTRAL DE ATARAZANAS, MÁLAGA

Fly into seaside Málaga and start your journey here by loading up on road snacks (that is, lots of jamón) at this bustling food market in a 14th century Moorish building. Also don't miss the local delicacy: crispy, fried-to-order cuttlefish with a squeeze of lemon.

❷ CASTILLO SOHAIL, FUENGIROLA

Stretch your legs along the tranquil walking paths of this stone fortress, whose hodgepodge architecture spells out Andalusia's history: built in the 10th century, destroyed by Christian conquests in the 15th, then reconstructed to fortify the city from smugglers in the 1700s.

❸ MARBELLA CLUB, MARBELLA

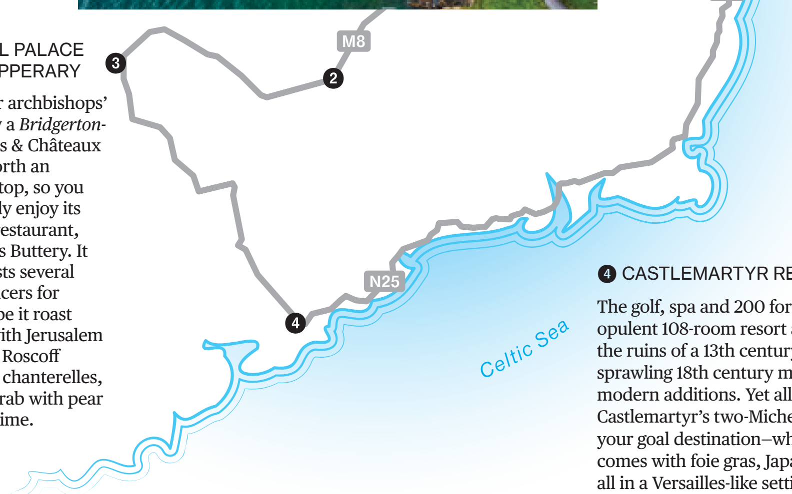
This beachy town is growing increasingly sophisticated, thanks in part to the club and resort founded by Prince Alfonso in the 1950s. Hot-right-now brand Loewe has a perfumery popping up in its greenhouse this summer, and its orange grove is being transformed into an al fresco bar. Chill there with oyster ceviche, tuna tartare and a cool Marbellini—a drink that blends pomegranate, sumac and Champagne.

❺ BAKUS, NERJA

You can make a whole trip out of a pilgrimage to this romantic seafood icon with its terrace that overlooks the sea. Classic salmon ceviche, turbot with saffron velouté and powder-white sand just steps away: check, check, check.

A Two-Day Drive to Dinner in an Irish Castle

The scenic route down Ireland's eastern coast traverses emerald hills and craggy shorelines—a great way to get from Dublin to Castlemartyr, a 300-year-old manor house with a buzzy restaurant. But we suggest taking the inland route there: What it lacks in views it makes up for in flavor. Then hug the lovely cliffs on the ride back.



❶ THE CLUB AT GOFFS, KILDARE

Just a 40-minute drive from Dublin is this rural fantasy: 50 balconied hotel rooms in horse country, surrounded by grazing thoroughbreds, canals and walking trails leading to the charming town of Kildare. All-day dining is courtesy of chef Derry Clarke—Ireland's Gordon Ramsay—who focuses here on Irish comforts like Dubliner cheddar-topped burgers, combined with inventions such as roast Feighcullen duck with beets and blood orange.

❷ CASHEL PALACE HOTEL, TIPPERARY

This former archbishops' home—now a *Bridgerton*-esque Relais & Châteaux hotel—is worth an overnight stop, so you can properly enjoy its ambitious restaurant, the Bishop's Buttery. It faithfully lists several local producers for each dish, be it roast pheasant with Jerusalem artichokes, Roscoff onions and chanterelles, or Kilkeel crab with pear and finger lime.

❸ ADARE MANOR, LIMERICK

This stone-walled castle is best known for golf—it will host the Ryder Cup in 2027—but a meal at its Oak Room restaurant is just as grand. Chef Mike Tweedie pulls out all the stops: Doonbeg crab with caviar, barbecue turbot with wild garlic and mussels, and a regal wooden trolley bearing Irish cheeses at dessert.

❹ CASTLEMARTYR RESORT, CORK

The golf, spa and 200 forested acres at this opulent 108-room resort all befit a fairy tale, where the ruins of a 13th century castle merge with a sprawling 18th century manor house and sleek modern additions. Yet all of it plays second fiddle to Castlemartyr's two-Michelin-starred Terre restaurant—your goal destination—where Irish deer, for example, comes with foie gras, Japanese pepper and plum jus, all in a Versailles-like setting.

■ MAPS BY CHRIS PHILPOT ■ PHOTO: LOBSTER ROLL: ALAMY. SPAIN FOOD: COURTESY COYA. IRELAND FOOD: COURTESY CASHEL PLACE. BACKGROUNDS: GETTY IMAGES

SO FRESH, SO CLEAN

THE AUDACITY OF SOAP

By Monica Khemsurov
Photograph by Janelle Jones   Prop styling by Charles Sammann

Notable decor stores and design studios are offering bold dishes that will elevate your modest bars of Ivory to veritable works of art.

❶ PAN AFTER

The popular Australian shop worked on this Chunky series with artisans from Tabaka, Kenya, who hand-carved it out of white soapstone from their region.

$51

❷ METTE DITMER

The Attitude soap dish from this Denmark interiors expert is an elegant bowl made with stone powder resin atop a narrow base, so it appears to be floating.

€38 ($41)

❸ ENSEMBLE

London duo Silo Studio calls their I-Beam dish a “clever readymade.” It’s simply a section of aluminum often used in construction. A sizable hole in the middle gives drainage a boost.

£48 ($60)

❹ VIRGINIA SIN

For her Peb stoneware soap dish, the designer in Brooklyn, New York, includes a round plate that can serve as a lid or, as seen here, a snug base to catch water as it seeps through.

$42

❺ FERM LIVING

This ceramic soap tray from the Copenhagen retailer is a woven piece of glazed clay. The small piece fits most tight countertop corners.

$25

❻ SALVATORI

Gentle, sinuous curves are the hallmarks of Yabu Pushelberg’s Anima tray, created from Carrara marble for the Italian bath brand.

$325

❼ SOFT SERVICES

The aptly named Soap Home treats your bar as if it’s a stick of butter. Raised ridges prevent sop and sog, while an aluminum cover guards against shower spray.

$36

❽ SOUNDS

Soap Dish in Brick, a collaboration between New York designers Sounds and Studio Den Den, consists of 12 interconnected pillars made from concrete terrazzo that allow it to always be draining.

$60

❾ OBJECT & TOTEM

The Ko soap dish by Brooklyn designer Julianne Ahn uses a wave-shaped surface to keep bars dry.

$30

❿ AREAWARE

A barely noticeable indentation in the Corduroy sink tray, made by Helen Levi in Queens, New York, holds the bar in place.

$28

⓫ ARTEMEST

Matteo Cibic’s Domenico White Michelangelo soap dish is a rarity because it has handgrips, here rendered as “ears” in black Marquina marble.

$525

⓬ KALINKO

Handmade from heavy recycled glass in a gorgeous light-catching green, the Zomi soap dish helps support artisans in Myanmar.

£20

⓭ LOEWE

The symmetrical ribbing of this large 6-inch terra-cotta soap base evokes a traditional washboard.

$85

⓮ POST SUPPLY

Aimee McLaughlin of Portland, Maine, shaped this Onde dish in an emerald glaze with scalloped edges above a raised pedestal.

$58

⓯ RAQUEL CAYRE

The Scrub Bud soap dish by Studio Minko references 1970s shag carpet and lichens with glazed ceramic that looks like the fibers of a washcloth.

$210

⓰ HERMÈS

A series of alabaster ridges on the Ariane round soap holder serves as a moisture-free platform that raises bars with the reverence of a queen on a litter.

$550

⓱ OBA STUDIOS

Designed by the Berlin ceramicist Barbara Jenner, the Rocky M. (as in mountains) dish deters deterioration with jagged, aerating peaks.

€28

HATS OFF

Fun From the Top Down

By Hannah Elliott
Illustrations by Brindha Kumar

Convertible sales in the US are as predictable as mom's home cooking. They rise in spring, peak in summer, then fall as temperatures cool, reaching their low point in January. Most often purchased as a second or third vehicle rather than a primary driver, they represented a mere 0.56% of new cars sold last year, down from a high of 1.86% in 2007, according to data compiled for Bloomberg by Cars.com. (Blame the rise of electric vehicles and the advent of popular panoramic glass roofs.)

But it's different for high-end buyers, who like their cars without a top. Convertibles represent closer to 30% of all luxury sales, and prices are only going up. In 2018 consumers could choose from 41 convertible models on the market, offered by 15 manufacturers, with an average listing price of $57,000. This year, only 20 convertible models will be offered by 9 brands, with an average price of $75,000. "We'll likely continue to observe the trend we've seen over the past six years–consolidation toward the premium, luxury and sport car segments, while entry-level convertibles found on mainstream vehicles continue to disappear," says Rebecca Lindland, senior director of industry data and insights at Cars.com.

Call it a focus on quality rather than quantity–good news for the fun-haver in your life, especially if that fun-haver is you. Here are five of our favorite options.

MAZDA MX-5 MIATA GRAND TOURING

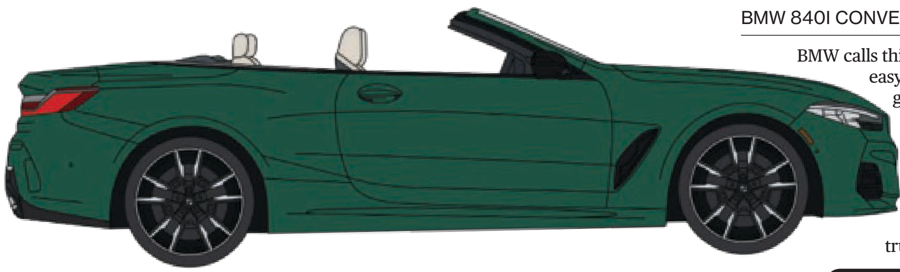
A cult classic, the Miata first appeared in 1989 as a tiny four-cylinder, rear-wheel-drive sports car that quickly adapts from weekday commuting to weekend holidays. With an established reputation, its bubbly driving personality and affordable pricing with strong resale value, the lightweight MX-5 offers some new options: remote engine start, updated power steering, adaptive front lighting, wireless Apple CarPlay and nine-speaker Bose surround sound. Better yet, Mazda still offers its famous roadster with a six-speed manual transmission—especially enjoyable with the Miata's balanced 50-50 weight distribution.

$34,285

MERCEDES-BENZ AMG SL 43 ROADSTER

Powered by a handcrafted 2.0-liter inline-four turbo engine with hybrid assist, and with the best infotainment and cabin comforts on the market, the SL Roadster combines thrilling performance and high-end finishes in a classically beautiful package. It's based on one of the most recognizable convertibles, the Mercedes-Benz SL, which had its debut in 1954, but now embraces more modern sensibilities. A lightweight aluminum-and-steel body is stiff around turns, rear-axle steering is agile, and active aerodynamics like the spoiler help it go from zero to 60 mph in 4.8 seconds. Driving aside, we're excited about the heated and cooled front seats with massage settings, and the "airscarf" function that gently billows warm air from the headrests to keep passengers cozy on cool days.

$111,800



BMW 840I CONVERTIBLE

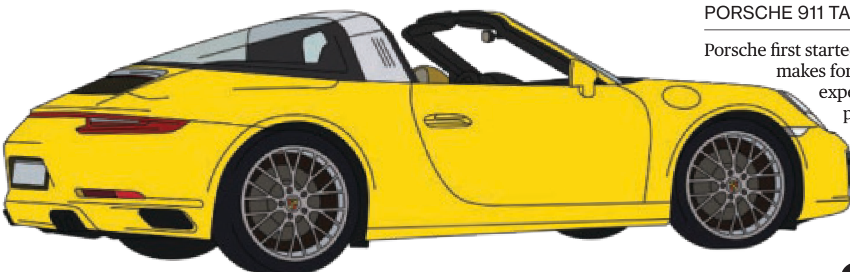
BMW calls this four-seat open-top "the exhibitionist," and it's easy to see why: With the carmaker's trademark kidney grilles, aggressive shark nose and long, sculpted sides, the 840i demands recognition. It comes with a 3.0-liter turbo inline six-cylinder engine that gets 335 horsepower and 369 pound-feet of torque—not quite as powerful or fast as the Mercedes Roadster. But at 16 feet long, the 840i has more room inside than most other convertibles, with a 12.4-cubic-foot trunk and expansive leg and shoulder room in the rear.

$100,500

2024 JEEP WRANGLER SPORT S

With the top down and the doors removed, the Jeep Wrangler is the most open of any vehicle on this list, promising fresh air and sunshine on full blast. The Sport S version delivers this simple joy without the larger engine and bulkier body of other Wrangler variants: A 3.6-liter V-6 engine, four-wheel drive and six-speed manual transmission combine for 285 hp and 260 pound-feet of rock-crawling torque, which is enough. The Jeep is undoubtedly bare-bones, with none of the napa leather, heated seats or other creature comforts of luxury convertibles. But if you're buying a Jeep, you're more interested in its total practicality, durability and long history of reliability under tough conditions. Who wants to worry about your car getting banged up while you're having fun?

$35,595



PORSCHE 911 TARGA 4

Porsche first started selling its Targa-style 911 in 1967, so this classic silhouette makes for a purchase that looks both distinctive and timeless. It's the most expensive vehicle of these five, but the 911 Targa is also the most powerful, with a 379-hp inline-six engine that goes to 60 mph in four seconds and hits a top speed of 179 mph. The front luggage compartment remains small (only 4.6 cubic feet), but the rest of the car is sublime, with a thoughtful and minimal interior that still manages to feel comfortable, not sparse, and confidence-inspiring handling and braking so dialed-in you won't want to stop driving.

$134,500

TOP SHELF

Your Next Bourbon Should Be a Brandy

By Christopher Ross
Illustration by Nico H. Brausch

Bourbon collectors, I feel your pain. What was once a niche hobby for booze geeks has become a forbiddingly expensive and competitive endeavor, what with the annual Pappy Van Winkle lotteries and secondary markets where a $2,000 bottle of 20-year Eagle Rare can leap to $14,000 in just five years.

Still, if you love the hunt for artisanal, rare spirits, have you considered pivoting from grains to grape? The warmth and woodsy flavors of single-barrel, full-strength cognac and Armagnac can closely resemble the taste of bourbon, at a more attainable price point.

"Folks who've had the opportunity to taste these bottles notice, *wow*, there's that concentration, that similar profile of combining fruit and structure from the wood," says Greg Faron, co-founder of new importer Bien Élevé in Washington, DC. Some vintage brandy can compare in flavor to glut-era bourbon, he says, referring to the 1970s-to-early-'90s period when distillers cleared out older, languishing whiskey stock under younger labels.

Bien Élevé joins established importers PM Spirits and Charles Neal Selections—plus upstarts such as Bhakta Spirits, from the founder of WhistlePig whiskey—as part of an expanding network of bottlers and retailers working with aficionados to build a ground floor for collecting these complex liquors.

Their biggest obstacle? The French. See, when it comes to investment bourbon, what's most sought-after are single-vintage bottles, ideally single-barrel, bottled at cask strength—offering a premium of intensity and purity and rarity, traceable to a specific location and point in time. But that's exactly the opposite of how French brandy is traditionally produced.

Distillers at major cognac houses such as Hennessy and Courvoisier believe the beauty of their craft lies in artful blending; they lock up eaux-de-vie (unaged spirit distilled from grapes) from hundreds of growers to do so. There are strict brandy-making rules around grape varietals, distillation and minimum aging time in oak barrels, but blending isn't actually a prerequisite.

"I'm French, so I can say this: The French feel they are the guardians of a tradition, which makes them not innovate whatsoever," says PM Spirits founder Nicolas Palazzi, one of the first importers to bring unblended, collector-bait brandy to the US.

The Cognac region, Palazzi says, is particularly disincentivized to put out the kind of artisanal spirits that US buyers are clamoring for. If a producer decides to set aside a barrel for aging as a vintage cognac, a member of the Bureau National Interprofessionnel du Cognac (BNIC) must be present for its sealing. To open that cask for any reason, including if it's leaking or damaged, they need to pay for another inspector to come out and oversee the breaking of the wax seal.

Moreover, Big Brandy doesn't see much long-term strategy in single-barrel bottlings, as it's only able to achieve its current sales volumes by blending spirit from different casks; the ultrapremium $4,000 Rémy Martin Louis XIII may contain as many as 1,200 eaux-de-vie, some as much as a century old. There are precious few growers in Cognac who don't sell to the mass-market houses.

Steve Ury, a well-known former bourbon blogger, takes a cynical view of the Kentucky gold rush, so he turned his gaze toward France. He says his steadily growing Facebook group, Serious Brandy, now counts more than 3,000 members. He says American buyers have had to train smaller brandy producers to fill that desire gap between collectors and the conglomerates.

"Their first instinct was, you blend everything, you water it down to 40%—that's what people want," Ury says. "And we had to go and say, 'No, that's not what we want. We want to see those barrels. Just put 'em in a bottle. We don't need you to do anything else.'"

Cognac houses Pasquet and Grosperrin are among producers that have gotten the memo, as well as L'Encantada Armagnac, he says, which can be "very bourbon-like. It's dark and oaky because they don't do as much treatment to it, they just sort of leave it in the barrel."

Reid Bechtle, a collector in Virginia, agrees. He was so enchanted when first tasting L'Encantada's Armagnacs in 2015 that he and fellow members of his private whiskey club—1789b, which buys whole barrels of spirits—foresaw the untapped demand and purchased three on the spot. Now, he says, L'Encantada's fame has grown, and its small-batch, orange-wax-topped bottles command such a cult following that it's often impossible to find at retail. "What we used to buy for $60 is now $300."

For your own collection, this month PM Spirits is releasing a L'Encantada discovery box ($211) featuring 200-milliliter independent bottlings of brandy distilled by three different domaines over three different decades: 1999, 2001, 2012. Dozens of years in barrel reveal beautiful tertiary aromas of dried citrus, tobacco and resin.

Cognac Frapin, a family-owned producer founded in 1270, focuses mostly on traditional aged blends, but it, too, is coming around, with help from Palazzi. A 1994 vintage released in May is a first for the maison: single-estate, single-cask, full-proof. Balancing the richness of the wood with subtle orchard fruit, vanilla and leather, it costs $265. Only 500 bottles were made.

Similarly, Bien Élevé imported a single-cask 1967 Cognac Lheraud Bons Bois ($640), perfumed with exotic spice and dried figs and elegantly rounded on the palate. "It's become more of a focus in France, finally, for single-barrel picks," says Faron, the Bien Élevé co-founder. Just a dozen of the 132 bottles of the Lheraud Bons Bois were allocated to the US.

I wouldn't be surprised if major producers started earmarking exceptional casks as well, given that collectible, traditional blends have stalled. The compound annual growth rate by volume of ultrapremium-and-above French brandy was down 2% globally from 2018 to 2023, compared with ultrapremium bourbon's 22% growth, according to IWSR, a global beverage alcohol data specialist.

"With French brandy, the extraordinary and extensive histories—over 700 years for Armagnac alone—and the tremendous ageability of these spirits, arguably far greater than most whiskeys, should mean that the possibilities for finding great spirits are near endless," says Nima Ansari, a buyer for Astor Wines & Spirits in New York who stocks about 20 bottles of boutique brandy. Cognac can age longer than bourbon or American rye because of a cooler climate and less char on what are usually older, larger barrels.

But the ultimate factor may be the love of the hunt. As in the early days of searching for bourbon "dusties" on liquor store shelves, there's a sense of undiscovered treasure out there, if you know where to look and strike quickly when opportunities arise.

If a vineyard hasn't presold all its grapes to a brandy house, some farmers might have their own spirits distilled for consumption among friends and family or as an investment. "Every farm is a potential producer," Ury says. "There's casks all over the place, all over France, sitting in garages and sheds."

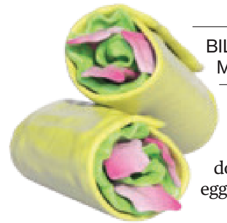
In other words, there's a lot of potential boutique brandy out there—and it's all rare. Consider: If an importer comes across the private stash of an elderly couple, buys it and releases 170 bottles, it might be all that family farm ever produces.

For collectors who get a thrill from acquiring a truly one-of-a-kind spirit, it's tough to put a price on those bragging rights. At least for now, though, a couple hundred bucks ought to do it. B

Check out bloomberg.com/newsletters for the Pursuits bundle, which includes weekly missives on smarter drinking and luxury living.

CEO DIET

How Six Bosses Do Breakfast



BILLY HULT, TRADEWEB MARKETS INC.

"Turkey bacon, lettuce on a whole wheat wrap—that's my go-to because I don't eat eggs. I've not had eggs since I was a little kid."

MARC GANZI, DIGITALBRIDGE GROUP INC.

"A small oat milk cappuccino, two shots, with some granola, berries and whole yogurt."

SCOTT DAHNKE, L CATTERTON MANAGEMENT LTD.

"Black coffee and a liter of water with my morning workout."

PABLO RIVERO, RESY NETWORK INC.

"Going out to restaurants is a constant affair, and I'm presented with opportunities to try incredible food created by some of the best chefs. For that reason, I tend to be more conscious of what I eat at breakfast (when I'm most in control). My weekday go-tos are yogurt with granola and fruit or egg whites with toast and turkey bacon. But I'm from Venezuela, so my favorite breakfast is a Venezuelan staple: arepa with ham and cheese."

CHIP WADE, UNION SQUARE HOSPITALITY GROUP LLC

"Green juice—celery, cucumber, spinach and ginger. I prefer to make my own, a Sunday routine that I'll batch and enjoy throughout the week. I also batch out my own ginger juice with coconut water, lemons, ginger, turmeric and black pepper. If I'm short on time, I'll stop by Om Juice Bar on my walk to the office."

KIM MANNA, PANAMA JACK (FORMERLY)

"I do not eat breakfast. I drink coffee."

ILLUSTRATION: CHARLES DESMARAIS

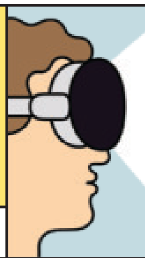
Letter Quest

● By Kid Beyond

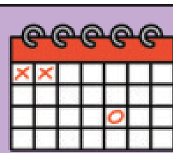
Your challenge: Answer each clue below with a letter of the alphabet

Note that each letter appears only once—and that you may need to say the answer aloud to hear the correct letter. Also, did we mention this puzzle is difficult? Cheating is encouraged, as is sleuthing with a teammate...

1. The only one-letter Nasdaq ticker symbol



2. Series of chips in the new iPad Pro, Mac Pro and Vision Pro

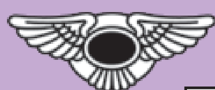


3. Logo of the corporation that rhymes with a day of the week

4. Letter that, when put before a famous video game company, spells a nationality

5. Television network that made billionaire Kim Kardashian a megastar

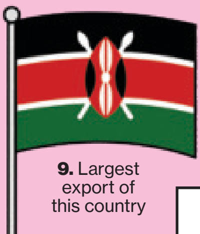
6. The letter removed from this logo



7. First letter of the politician's name that anagrams to

"CITIZEN ALSO COAXED A ROAR"

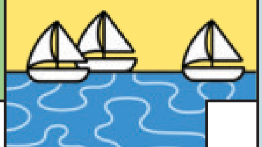
8. Tesla model announced on April 1, 2015



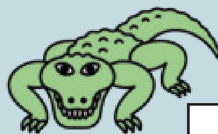
9. Largest export of this country

10. Last letter of the logo that begins with:

11. Flag indicating a yacht race is starting in four minutes



12. Logo of the brand whose name comes from its origins at the University of Florida



13. First letter of both states where this woman has lived

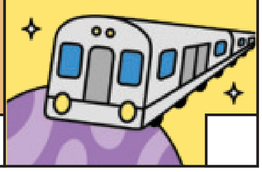
14. One-lettered singer in the band that contributes more than $4 billion a year to South Korea's GDP

15. First name of the world's richest musician

16. Logo of this television series' streaming home

17. Company whose owner becomes a fruit—if you put an "M" between his last and first names

18. New York City subway line that starts at a country and goes to a planet



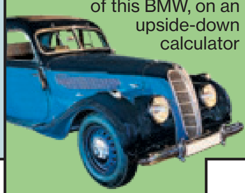
19. Logo of the retailer whose name contains

"ADIOS"

in consecutive order

20. Symbol of this currency

21. Model number of this BMW, on an upside-down calculator



You're so close!

Now take the five unused letters to spell your well-deserved prize...

Stuck? Subscribe to our newsletter, *Businessweek Daily*, where we'll reveal the answers on July 12

■ ILLUSTRATIONS BY DOMINIC KESTERTON ■ PHOTOS: CLARK: MATT KRYGER/GETTY IMAGES. CROWN: NETFLIX. BMW: GETTY IMAGES

Bloomberg Businessweek (USPS 080 900) July 2024 (ISSN 0007-7135) Issue no. 4821 Published monthly by Bloomberg L.P. Periodicals postage paid at New York, NY, and at additional mailing offices. Executive, Editorial, Circulation, and Advertising Offices: Bloomberg Businessweek, 731 Lexington Avenue, New York, NY 10022. POSTMASTER: Send address changes to Bloomberg Businessweek, P.O. Box 37528, Boone, IA 50037-0528. Canada Post Publication Mail Agreement Number 41989020. Return undeliverable Canadian addresses to DHL Global Mail, 355 Admiral Blvd., Unit 4, Mississauga, ON L5T 2N1. Email: contactus@bloombergsupport.com. QST#1008327064. Registered for GST as Bloomberg L.P. GST #12829 9898 RT0001.

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