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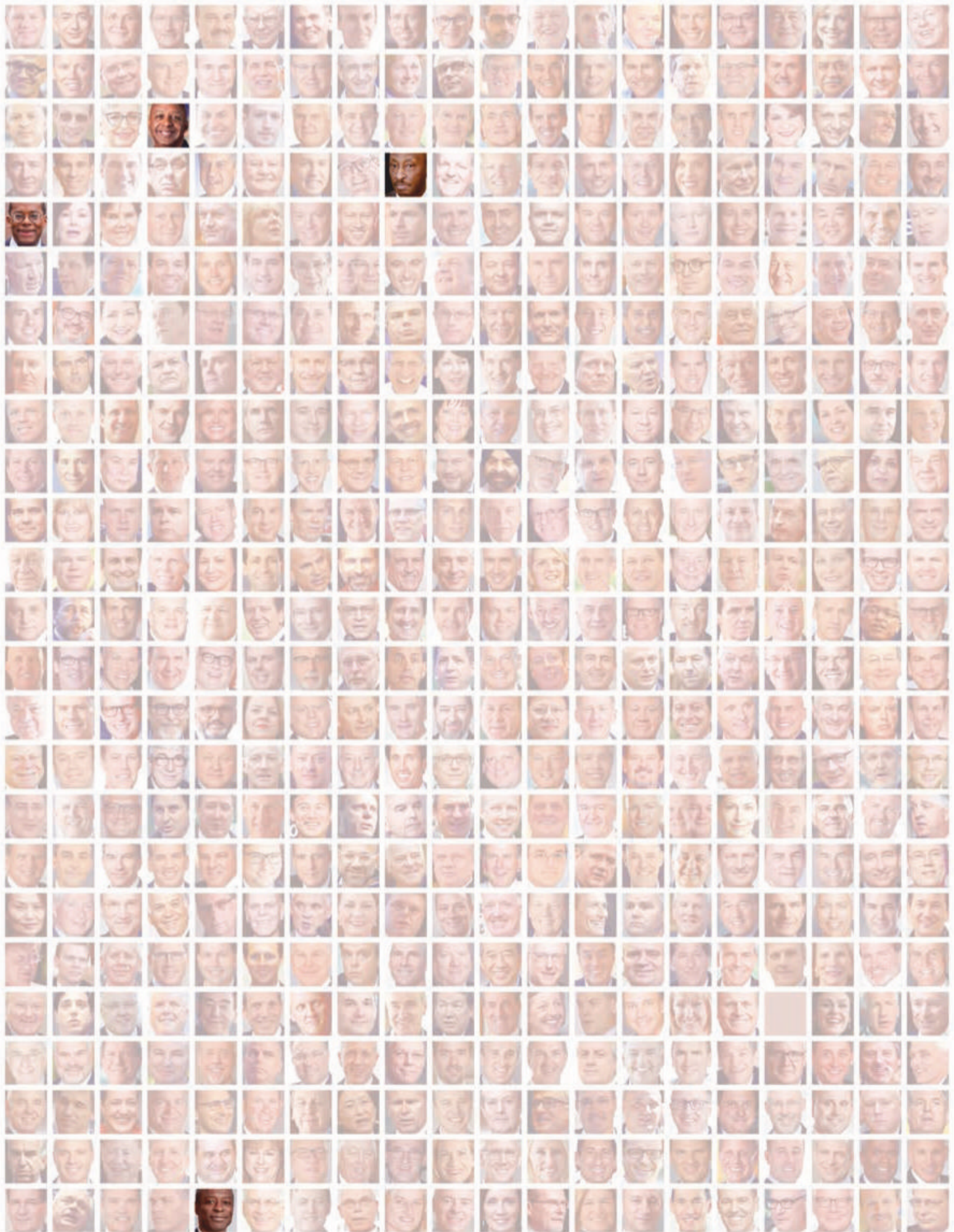
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# Bloomberg Businessweek

June 22, 2020

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- Your back-to-work guide <sup>32</sup>
- And now a surplus of pilots <sup>12</sup>



▲ Only four Fortune 500 CEOs are Black

# Is It Time for Quotas?

They're practically illegal. But companies are still too White <sup>8</sup>





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**Jennifer,**  
Chronic lymphocytic  
leukemia patient

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◀ Workers at Talley Farms in Arroyo Grande, Calif., transfer bell pepper seedlings from an indoor nursery to the outdoors

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■ COVER TRAIL

How the cover gets made

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"This week we're going to talk about quotas."

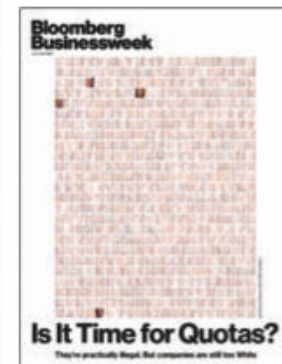
"Very important topic. Do you know how many Black CEOs are in the Fortune 500?"

"If the number is proportional to the U.S. population, it should be about...63?"

"It's four."

"Wow. Can we fit 500 faces\* on a cover?"

"This'll fill our quota for White men on the cover for the next few decades."



\*Well, 499: No photo was available for NVR's Paul Saville. Cover: Photo illustration by 731; photos: AP Photo (2); Bloomberg (89); Getty Images (80)

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● The Trump administration is preparing to propose \$1 trillion in infrastructure spending.

According to people familiar with the plan, the money would pay for not only roads and bridges, but also 5G wireless networks and rural broadband. ▷ 24

● Global cases of Covid-19 continued to climb, passing

8m

Meanwhile, more than 438,000 people have died. China, where the coronavirus first emerged last year, registered a fresh outbreak of the disease, linked to a wholesale seafood and meat market in Beijing.

● JPMorgan Chase plans to bring back about 50% of its trading staff by the middle of July.

The biggest U.S. bank has rearranged desks and tweaked floor plans at its headquarters to ensure traders can maintain social distancing as Wall Street emerges from New York's total lockdown.



● Indian border security soldiers keep watch on the country's Himalayan frontier. India said at least 20 of its soldiers died in a June 15 clash with Chinese troops along an unmarked section of the countries' border. Skirmishes in the disputed area break out periodically, but this marked the first fatalities in more than four decades.

● The nine nuclear-armed nations, which include the U.S., Russia, China, Israel, and North Korea, together had an estimated

13,400

nuclear weapons at the start of the year, according to Sweden's Sipri institute. That's down from 13,865 in 2019, even though China, North Korea, and others stocked up on warheads.

● Authentic Brands plans to team up with mall landlords Simon Property and Brookfield Property to buy J.C. Penney, as part of the retailer's court reorganization, according to people familiar with the plan. Buying the chain, which filed for Chapter 11 protection in May, would ensure the survival of one of the shopping center companies' key tenants.



● A gathering on June 15 at the historic Stonewall Inn in New York's Greenwich Village to celebrate the U.S. Supreme Court's landmark 6-3 decision to protect gay and transgender workers from job discrimination.

● “We recognize Aunt Jemima’s origins are based on a racial stereotype.”

Kristin Kroepfl, chief marketing officer of Quaker Foods North America, announcing Quaker Oats would change the name of the brand, which dates to 1889. Quaker owner PepsiCo said it would donate \$400 million to promote racial equality.

● Blaming a deteriorating business, Cineworld, based in the U.K., abandoned a deal to acquire Canada's Cineplex for C\$2.15 billion (\$1.6 billion). The transaction would have created the biggest operator of movie theaters in North America.

● BP said it will book charges and write-offs of as much as \$17.5 billion in the second quarter.

The revision reflects lower long-term oil demand and the industry's shift to cleaner energy. This is the biggest downgrade of the value of BP's business since the Deepwater Horizon disaster a decade ago.





# In This Pandemic Year, Make Voting by Mail the Norm in the U.S.

Georgia's primary election on June 9 was hardly an exemplar of democratic efficiency. Equipment malfunctioned, backup ballots went missing, lines stretched interminably, and many voters waited for hours to cast a ballot—sometimes in vain.

One reason for the chaos? Because of the Covid-19 pandemic, hundreds of poll workers didn't turn up. That should serve as a warning for November's presidential election: All states need to offer no-excuse mail voting this year, and Congress should help them do it.

Even before the coronavirus, the share of votes cast by mail had been increasing, reaching about a quarter in 2018. The practice has long been helpful for those who can't get to a polling place because of disability, work obligations, or other concerns. It may also have broader advantages. In Colorado, which instituted all-mail voting in 2013, researchers found turnout has increased and voters of color have benefited in particular.

Although voting by mail isn't without risks, these shouldn't be overblown. Misconduct is one concern. Yet research suggests it's extremely rare: Over the past two decades, with some 250 million votes cast by mail nationally, there have been only 143 confirmed cases of fraud. Nor does increased mail-in voting appear to favor one party over the other.

In addition, with more than 2.1 million U.S. coronavirus infections and counting, the case for voting remotely is especially strong in 2020. While no one can predict how the pandemic will look in November, it's reasonable to expect that many voters—especially older ones—will still want to isolate themselves and that state officials will still be discouraging large crowds. That makes mail-in voting desirable purely on public-health grounds.

Ideally then, states should be sending ballots to all registered voters well ahead of Election Day. Yet obstacles remain. Several states still require a valid reason for voters to mail in ballots and haven't made accommodations specific to the coronavirus. That should change. Even areas that have made good-faith efforts this year have run into trouble. While Georgia tried to ensure that all registered voters could easily get absentee ballots, many never received them. A similar foul-up marred the primary in Washington, D.C., on June 2.

Congressional action could ensure better execution. Quickly expanding vote-by-mail capacity in many states will require new equipment, added training, expanded voter education, many more printed ballots, and an awful lot of postage, placing an added burden on governments that are already under extreme budget pressure. Legislators have rightly proposed to help with this effort. But Congress

shouldn't create a permanent handout to states: The key is to treat this election as a one-off experiment.

Nor should the benefits of in-person voting be overlooked. Going to the polling booth offers a regular reminder that American democracy requires active participation. It's a visible expression of civic duty. And many people have fond memories of accompanying a parent to the ballot box as a child—an evocative ritual that may have lifelong effects on voting behavior.

Such benefits need to be balanced against the extraordinary circumstances the country faces. When the act of casting a ballot becomes a threat to public health, seeking alternatives makes sense. If widespread mail-in voting turns out to have salutary effects more broadly—by increasing participation, say—then all the better. In a year of unprecedented turmoil, casting a vote is one thing that should be made as painless as possible. **B** For more commentary, go to [bloomberg.com/opinion](https://www.bloomberg.com/opinion)

## ■ AGENDA



### ► A War's Long Shadow

On June 25, South Korea marks 70 years since an invasion by the North Korean People's Army began three years of bitter warfare. Tensions between the two states have never ended and lately have flared dramatically.

► The Euro Finance Summit on June 22 in Frankfurt brings together regulators, executives, and politicians to discuss ways to ease the region's economic crisis.

► Turkey's central bank sets interest rates on June 25. It's delivered nine straight cuts in less than a year, navigating between stimulating the country's economy and shielding its currency.

► Brazil unveils annual inflation-rate numbers on June 25. The country is suffering through one of the worst coronavirus outbreaks, bringing economic activity to a halt.

► The London SMMT automotive summit takes place on June 23, with speakers including Bentley CEO Adrian Hallmark seeking to map a path out of the demand slump.

► Swedish discount fashion chain H&M reports earnings on June 26. The company will provide a barometer for global consumer demand as shoppers return to actual stores.

► Apple hosts its developers conference on June 22. One hotly awaited innovation: Mac computers will begin using Apple's own main processors instead of chips from Intel.



# Let's not

Party

Meet up

Bro-hug

Defy

# Let's

Stay put

Binge watch

Video-happy-hour

Save lives

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# The Case For Quotas



## ● They've helped women. Can quotas help change the racial makeup of C-suites and management?

### ● By Rebecca Greenfield

At a virtual panel moderated by Goldman Sachs Group Inc. Chief Executive Officer David Solomon on the evening of June 9, Jide Zeitlin made a simple but pointed comment. “We better have more than four Black CEOs of Fortune 500 companies,” said the boss of Tapestry Inc., which owns Coach, Kate Spade, and Stuart Weitzman. “And not in 10 years. Not in 15 years. But in the next year or two or three.” The Whiteness of America’s C-suites has always been glaring, but this call by Zeitlin—one of the four current African American corporate leaders and just 17 over the last two decades—is even more urgent against the backdrop of massive protests over police brutality and entrenched racism.

His plea isn’t likely to be heeded, however, unless companies decide to radically revamp their diversity playbooks. Over the past decade, organizations of all stripes have spent billions of dollars trying to get more members of underrepresented groups to the top, highest-paying jobs. They have poured resources into hiring, retaining, and promoting minorities and women. But for African Americans in particular, these efforts have been futile. There are fewer Black CEOs than five years ago, fewer Black executives at some of the biggest banks, and even fewer Black coaches in the NFL. The racial disparities are starkest at the top, but it doesn’t get much better further down the hierarchy. “The organizational chart at most mainstream organizations looks very similar to the organizational charts of plantations,” says Victor Ray, a sociologist of race theory at the University of Iowa. “Black folks are at the bottom.”

It takes an almost utopian commitment to achieve fair representation: The C-suite and top management must be dedicated to the issue—and it helps if many of those people are already non-White. Most companies are nowhere near that.

What’s the next best thing? How about coercion—or, to be more specific, quotas? The word immediately raises eyebrows and hackles. For some it evokes a time when quotas were used to limit non-White and Jewish employment. Business leaders who thrive on metrics to measure success become allergic to them once they involve race. But it’s worth bringing up as the Black Lives Matter protests get companies to reframe their thinking. Almost every major company has put out a statement condemning racism or racial inequality. Some have even made policy changes. Sephora signed a pledge to dedicate 15% of its shelf space to products from Black-owned businesses. On June 9, Adidas announced at least 30% of new hires would be Black or Latino. (A good-faith target, not a quota.) But that thinking needs to permeate entire organizations to result in more Black CEOs, or even

more Black managers, says Robert Lieberman, a professor of political science at Johns Hopkins University. “Right now companies have these pretty deeply embedded structures that are geared toward diversity,” says Lieberman, who studies race-based discrimination and policy. If a diversity program is to become “an instrument of racial equity, rather than an instrument of creating and sustaining diversity, they’re going to have to do something different.”

So why not consider the coercive powers of quotas? In perhaps the most successful diversity push in recent years, California passed a law in 2018 requiring all public companies based in the state to have at least one female director by the end of 2019. At the close of 2021, boards with five directors must have at least two women, and those with six or more have at least three. Failure to comply costs \$100,000 the first year and three times as much after that. The move was unpopular, even with women, because it suggested hiring committees would have to lower their standards. A year after compliance began, that’s not what happened. Instead, opportunities opened for overlooked executives. “There was a perception when the law passed that there was a limited pool of qualified candidates,” Annalisa Barrett, a governance expert at KPMG LLP’s Board Leadership Center, told Bloomberg News. “It doesn’t seem to have been the case.” Women accounted for almost half of new board seats in the state last year, outpacing female hires for similar positions in the rest of the country.

There are judicial roadblocks, of course. Since the Supreme Court weighed in on its first affirmative-action case in 1978, it’s limited government use of numerical targets. In the ruling, a university admissions case, the court said an institution could use race as a factor in its decisions, but that quotas went too far. Meanwhile, California’s law has faced multiple legal challenges. Judicial Watch, a conservative activist group, called the requirement unconstitutional in a lawsuit filed on behalf of taxpayers, and a shareholder of a California-based company with an all-male board argued in a federal complaint that it’s discriminatory. The first case is ongoing; the second was dismissed in April. While lawyers duke it out, California companies are moving ahead with meeting their quotas. Even if the law is struck down, the gains women have made will be in place.

Boards are just about as White as they are male—as of 2019, 37% don’t have a single Black director. Still, a law similar to California’s that would address racial inequities is highly unlikely and would face “much stronger” opposition than the gender quota law, says Michael Hyter, chief diversity officer at Korn Ferry. “There is an apprehension among companies that if they are perceived as setting a target for hiring for people of color, that the focus will mean hiring less qualified candidates,” Hyter says. It’s a familiar yet unfounded fear “that is hilarious on so many levels,” says Kimberly Reyes, who spent years working as one of a few Black copywriters at various companies. “Even without quotas, people assume you were hired because you were Black.” And, once again, cf. California. ►



◀ If legislators won't act, shareholders could. State Street Corp., BlackRock Inc., and activist investors already pressure companies to disclose the gender diversity of their boards. Those campaigns have resulted largely in gains for White women. They could shift their focus to Black representation, says Natasha Lamb, a managing partner at Arjuna Capital, which pushes banks and tech companies to disclose gender and racial pay gaps. People bristle at the idea of racial quotas, Lamb says, but they work. "There need to be interventions," she says. "The protests are an intervention. Shareholders exercising their voice is an intervention. Without intervention, nothing is going to change." Vanguard says it had already planned a 2020 emphasis on getting boards to disclose their racial and ethnic data. BlackRock says it continues to be committed to pushing for board diversity. State Street says it's "committed to being part of the solution."

The boardroom is just one of many White corners of the business world. Up and down the corporate ladder, strictly enforced targets could legally be used to fix racial imbalances, says David Oppenheimer, director of the Berkeley Center on Comparative Equality & Anti-Discrimination Law. Quotas can't be used in perpetuity, he says, but they can be put in place for a short period to correct a "manifest imbalance" in workforce makeup. "It's sort of like dieting," says Oppenheimer. "Sometimes you have to go on a severe diet to lose some weight, and then hopefully you can go on a maintenance diet where you can eat a little bit more. That's the theory. One hopes it works better than dieting."

Why aren't more companies wielding the powers of this blunt but useful tool in their commitment to diversity? "Quotas are always a bit of an issue," says Pam Jeffords, a diversity and inclusion consultant with PwC. "Our goal is to inspire people vs. shame them." The consulting firm prefers to look at hiring rates instead. The idea, she says, is to make sure companies aren't hiring any specific demographic at a greater rate than another. Jeffords concedes that alone won't change overall representation over time: "What are we really looking for? We don't want the numbers to go down. There's been some decreasing in hiring rates for Black employees."

Half-measures rarely move anyone forward. Take the Rooney Rule—named for Dan Rooney, former chairman of the diversity committee of the NFL, which pioneered it. The 2003 rule, widely adopted by corporate America, requires hiring managers include a diverse slate of candidates for a given role. Since 2003, non-Whites have been considered for open slots in head coaching positions at professional football teams. There are just as few Black coaches now as there were then. In May, the league's owners all but admitted the failure of the program when they met to consider additional incentives for teams that hire non-White coaches.

To be sure, quotas are limited in what they can achieve. In Norway, where public companies must set aside 40% of board seats for women, they hold 42% of those positions.

But even with all those women in charge, men still hold most of the executive power. Only 7.7% of those companies have female chief executives. In Malaysia, government policies giving preferential treatment to the ethnic Malay majority have helped them move up the social and economic ladder, at the expense, critics say, of ethnic Chinese and Indians.

Quotas won't solve racism. As U.S. Supreme Court Justice John Roberts said in a 2007 ruling, "the way to stop discrimination on the basis of race is to stop discriminating on the basis of race." Sending Black people into a hostile environment isn't much better than not hiring them at all. "If you hire a lot of Black people and the culture is such that their jobs are at risk, they will be undermined," says Nadia Owusu, who does diversity and inclusion work at Living Cities and earlier this year wrote a column for the online magazine *Catapult* called "Hiring a Chief Diversity Officer Won't Fix Your Racist Company Culture." Indeed, the internal dynamics of corporations often end up undermining the executives in charge of diversity, many of whom are women of color, Owusu says.

Quotas also invite lawsuits—as they have in California. Harvard's use of race as a factor in deciding on admissions has been called an "evil of private prejudice" and discriminatory by Edward Blum, a legal activist who's brought multiple suits against universities, including Harvard, for what he sees as biased admissions policies. The Supreme Court has allowed institutions to consider race in hiring and admissions, as long as it's in an organization's interest.

Affirmative action was originally meant to counteract deeply ingrained prejudices. "It has traveled somewhat of a distance from that idea," says Johns Hopkins's Lieberman. It used to be a form of "reparations and compensatory justice"—a form of payback for inequalities that exist because of the U.S. history of slavery. It also counteracts programs like legacy admissions that work as affirmative action for White people. Through the decades, however, it's become part of a mushier push for diversity. Racial justice has been dropped in favor of a "business case" for diversity of thought and experiences, says Lieberman. Indeed, while research has confirmed the financial benefits of diverse teams, the profit motive hasn't changed the face of corporate America. Many companies still look for credentials—Ivy League, Fortune 500 internships for example—that perpetuate the status quo.

A debate about quotas may just force corporate diversity programs to shape up. Maybe thinking about the issue as a matter of justice—not just money—will make a difference. "Diversity as the reason for affirmative action is incredibly ahistorical," says Reyes, a Fulbright scholar who's written about affirmative action for the *Atlantic*. "It was initially supposed to be about righting wrongs, or trying to balance something lopsided. Without quotas, how exactly do you change that?" **B** —With Jeff Green, Donald Moore, Kim Bhasin, and Mikael Holter



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# When Jet Jockeys Get Grounded

Covid-19 has put thousands of pilots out of work and left many facing an earthbound future

Two years ago, Qantas Airways Ltd. pilot Richard Garner, who's based in Brisbane, Australia, set up a company to provide financial advice and arrange loans for airline staff. It was never meant to be a career—Garner flew his first plane at age 14 and never wanted to do anything else. Until March he was flying Airbus A330 widebodies on long-haul routes between Australia and Asia. Then Qantas furloughed two-thirds of its 30,000 employees, including the 43-year-old Garner.

Now, he says, his firm, Crew Financial, “has turned into the No. 1 gig. It’s not the story I really wanted to have, but when the world gives you lemons, make lemonade. Isn’t that what you say?”

Flying \$250 million airliners was once a lucrative line of work, and there was no shortage of

opportunity. Last year, Boeing Co. estimated airlines would need to add 800,000 pilots over the next 20 years to feed an Asia-led travel boom, and some carriers in China were offering salaries of more than \$300,000 a year to woo industry veterans.

Then the coronavirus hit, overseas travel halted, and what was once a dream job turned into no job at all. With 51% of the world’s global fleet grounded, pilots have turned to a mishmash of odd jobs and second-choice careers as they wait to see whether they’ll ever get back in the cockpit.

They’re hardly alone: 1 billion workers across industries worldwide could face unemployment or pay cuts as a result of Covid lockdowns, border closures, and economic paralysis. But few jobs have swung from such a severe shortage



to a vast surplus as quickly as that of pilots.

“Pilots by nature, for good or bad, are problem-solvers and risk managers,” says Chris Riggins, a pilot for Delta Air Lines Inc. and a spokesman for the Air Line Pilots Association. “We will do anything we can by problem-solving and managing risks to protect our families. If that means working in a grocery store, pilots will do it.”

In fact, some are working at supermarkets, others at phone companies, still more learning to drive trucks or working in financial services. Like Garner, many are finding the side gigs they’ve developed over the years are now the mainstay.

Domestic flights are starting to take off again in many countries including China and the U.S., the world’s two largest air travel markets. American Airlines Group Inc., for example, is boosting its July schedule by 74% compared with June—but it’s still far short of its 2019 capacity. Globally flights are down more than two-thirds from this time last year, according to flight tracker OAG Aviation Worldwide Ltd.

It isn’t clear when the industry will fully recover. Airlines worldwide are looking at a 50% drop in revenue and \$84.3 billion in losses this year, the International Air Transport Association forecasts.

That points to a clouded future for career pilots. In Leeds, England, Dave Fielding remembers falling in love with planes at age 7 when he received a toy aircraft. Now a 53-year-old captain, Fielding has flown with British Airways since 1993. But he hasn’t been at work for months now, and even the best-case scenario calls for more waiting. As a condition of their government aid packages, U.K. airlines can begin bringing pilots back part time in July, but some will be out through at least October. British Airways aims to cut as many as 12,000 jobs, starting with voluntary retirements. But if it can’t find enough employees to leave willingly, then it might need to resort to dismissals to reach that number.

Grounded but still receiving most of their salaries through a U.K. government program, Fielding and some colleagues got to work setting up lounges in hospitals to support front-line health workers and serve them tea, coffee, and snacks. Project Wingman, as it’s called, now has more than 5,000 air-crew volunteers in more than 50 hospitals.

Airline staff are being encouraged to apply for all sorts of jobs in the hospitals, according to Fielding. “If Covid has taught us anything, it’s that it is a new world,” he says.

On the Professional Pilots Rumour Network, an online forum for cockpit crew, many furloughed pilots say they’re taking new jobs to bolster their finances. A Boeing 737 pilot says stocking

supermarket shelves in Australia is “very tough considering I have just over 60-70k of debt.” An Airbus A320 pilot writes of a part-time security job, where his pay “in a week is what I did earn in half a day.” Another is fixing and installing swimming pools.

It may be temporary. Boeing says passenger demand has repeatedly bounced back after previous market shocks. “The same will begin to happen as the Covid-19 pandemic subsides,” the company said in a statement. “Over the long term, the fundamentals that drive the demand for air travel and air freight—and the pilots and technicians who make it possible—are still in place.”

In the short term, major U.S. airlines including Delta and United Airlines Holdings Inc. need to cut about 20% of their pilots, says a June 3 report from Cowen & Co. Most of those cuts—11,000 to 13,000 in all—will be orchestrated through early retirement. The carriers can’t implement layoffs until after Sept. 30 under the terms of their U.S. government pandemic aid packages, making Oct. 1 “a day many within the industry are dreading,” Cowen analyst Helene Becker wrote.

Airlines worldwide already plan to eliminate ►



◀ Furloughed Qantas pilot Garner is tending his finance business

▼ The Australian airline laid off 20,000 workers

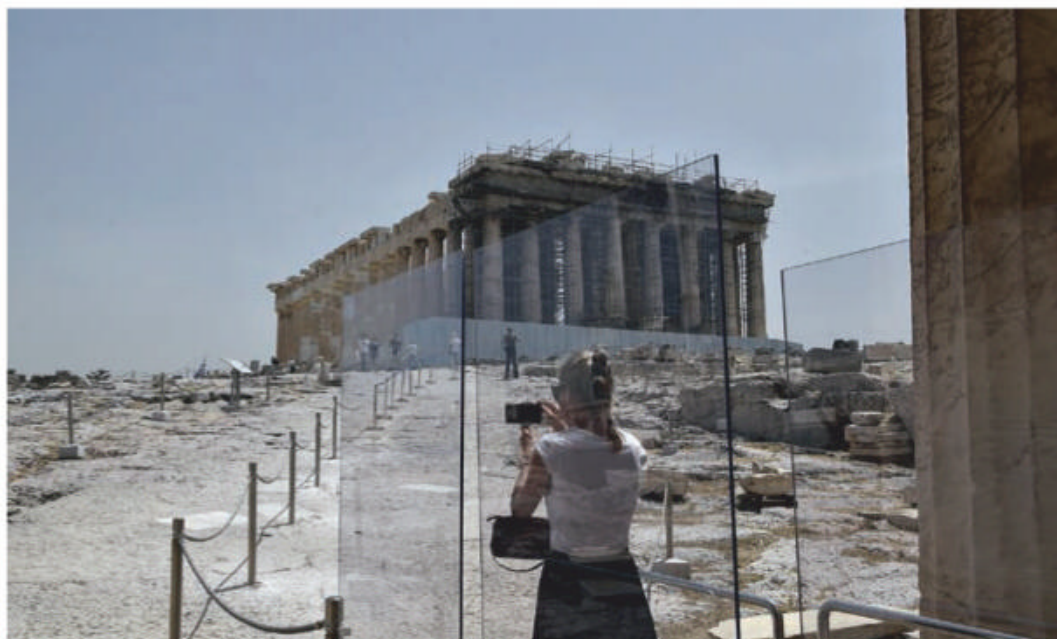




◀ tens of thousands of workers to preserve cash during the yearslong recovery. Lufthansa has said it may have a surplus of 22,000 positions, Alitalia an excess of 6,800, and Emirates is considering slashing about 30,000. Delta’s pilots are negotiating an early-retirement package that would confer some pay and benefits until eligible pilots reach the mandatory retirement age of 65. American, Southwest, and JetBlue have offered similar incentives.

As the Covid crisis pushes veterans out, it also dissuades others from signing up—especially when they typically spend \$150,000 of their own money on training and flying hours to get qualified, says Mark Charman, chief executive officer of pilot-hiring firm Goose Recruitment. “A brain drain of experienced talent leaving at the top and not enough new talent joining at the bottom will drive big future skills shortages,” he says. —*Angus Whitley, Charlotte Ryan, and Mary Schlangenstein, with Siddharth Vikram Philip*

**THE BOTTOM LINE** Before the pandemic, Boeing had forecast a need for 800,000 more pilots over the next 20 years. But in the near term, airlines have thousands more cockpit crew than needed.



## Something to Sneeze At

● Röhm’s Plexiglas was facing a tough year. Then Covid sent demand for its panels soaring

Early in the year, Michael Pack was preparing some tough measures. Röhm GmbH, the German acrylic glass manufacturer he leads, was emerging from a difficult winter season. Demand from the automotive and construction industries was lackluster, hurting prices, and the company’s new private equity owners were keen to map out how to get a return on their \$3.2 billion purchase completed in July. In response, Pack, Röhm’s chief executive officer, started cutting production and workers’ hours at the hardest-hit plants.

Then in March he noticed a sudden uptick in a part of the business that had long been steady at best: acrylic sheets sold under the Plexiglas brand. Orders were pouring in from retailers, offices, hospitals, and public transport companies, which were eager to get their hands on protective shields to separate employees from a coughing and sneezing public spreading the coronavirus. Like face masks and disinfectant, Plexiglas became omnipresent

almost overnight, a translucent guard between cashiers, bus drivers, and receptionists on one side and customers on the other.

For Röhm, the surge offered a welcome boost. “We went from ice cold to super hot,” Pack says. “Initially we thought it was a spike, and let’s take what we can get. Then it really spread, got broader and bigger.”

Pack says the company is now sold out of Plexiglas sheets in Europe and the U.S., at least until October, and indications are that the increase in demand won’t disappear as suddenly as it came on. Röhm predicts translucent barriers in public spaces and offices will remain a common feature for the foreseeable future, supporting a product line that had suffered from weak margins.

“The rise in demand for protective acrylic sheet from Covid-19 is meteoric,” says Anton Ticktin, a managing director at Piper Sandler’s Valence Group who specializes in chemicals transactions. Ticktin estimates record sales and profit this year

▲ From the beaches of Santorini to voting booths in Philadelphia, plexiglass panels are in hot demand

▼ Uses of sheet acrylic in 2019

Construction 28%
Lights and signage 24%
Autos 22%
Other 26%



for the acrylic sheet industry, which is getting an additional boost through consolidation and higher demand for LCD screens that use the material.

Röhm says orders for sheet Plexiglas are largely making up for the drop in demand from the automotive industry, where the material is used for headlamps and glossy dashboard trimmings. It's also used widely in aviation, wall-mounted signs, and greenhouse glazing.

The big rush for protective screens occurred in March and April, with some anecdotal reports pointing to a threefold increase in demand, says Sebastian Bray, an analyst at Berenberg Bank. Longer term, the industry can hope for a "still quite substantial" 15% to 20% annual growth rate, Bray estimates, far beyond previous projections, which hovered in the low single digits.

Plexiglas was discovered by Otto Röhm, a German chemist who began experimenting with acrylic acid around the turn of the century. By the end of the 1920s his company, Röhm & Haas, began manufacturing a clear, transparent bonded safety glass with an interior acrylate layer for use as windows in cars. Granule-based injection molding followed, leading to a range of applications, from futuristic furniture to pens to elaborate car lights.

With annual sales of about €1.7 billion (\$1.9 billion) and 3,500 employees worldwide, Röhm was sold last year to Advent International, which was attracted by the range of products, from the basic acrylic compound to aerospace-grade sheets, as well as a new production method Röhm developed using ethylene rather than the traditional process based on toxic hydrogen cyanide.

Röhm is far from the only manufacturer of the shatterproof material professionally referred to as polymethyl methacrylate, or PMMA. Around the same time Röhm made his discovery almost a century ago, Imperial Chemical Industries Ltd. invented Perspex, followed by DuPont Co.'s Lucite brand, now owned by Mitsubishi Chemical. About two-thirds of PMMA goes into extruded and cast sheets, which include the protective shields, according to Martin Bastian, head of European chemicals at investment bank Houlihan Lokey.

In reaction to the Covid-sparked upturn in demand, Pack began redeploying workers to the sheeting side of the business in both Germany and the U.S. Röhm also took on temporary staff to help handle orders and logistics. "Overall, we're doing better than people would have thought," Pack says. —*Andrew Noel*

**THE BOTTOM LINE** Acrylic was long used for headlamp covers and safety glass. Sudden demand for panels that shield workers from coronavirus transmission has sold out production into the fall.

# BW Talks

# Christopher Nassetta

After being named chief executive officer of Hilton Worldwide shortly before the 2008 financial crisis, Nassetta guided the hospitality company through tough times. Now Covid-19 will test the resilience of the turnaround. —*Carol Massar and Jason Kelly*



- To boost liquidity and reduce corporate expenses, Hilton on June 16 sacked 2,100 corporate staff
- It also extended prior worker furloughs, reduced hours, and corporate pay cuts for up to an additional 90 days
- Nassetta in March said he'd forgo the remainder of his salary for 2020

What will be the biggest single change in travel?

Now there's people in PPE, social distancing, hygiene protocols, hospital cleanliness standards. Some of that will go on, and things that were already happening with technology—the digitization of our business—will accelerate like crazy. We'd already rolled out to almost every hotel in the world digital check-in, digital room selection, and digital key. So on your Hilton Honors app, you already had contactless entry. Of Hilton Honors members, about a third used it. You will see mass adoption of that. And then people won't go back.

it's two or three times better than it was. But we finished last year with average occupancy of almost 75%, so it is meaningfully—devastatingly—lower than where it was.

So what comes back first?

Right now what we're seeing is predominantly growth in leisure. Memorial Day weekend, in markets near beaches and [places] where people wanted to get out, we had hotels that were at capacity—lower capacity because of distancing, but as much capacity as we can handle. Business travel hasn't really come back in earnest, because most people still aren't back in their offices and allowing people to travel.

How robust a pickup do you expect?

Well, 75% of our business relates to business-related travel—either groups or business transient—and 25% of it is leisure travel. At the bottom, systemwide occupancy in May would have been 10% or 12%. I think now it's like 27% or 28%. So

When will business travel pick up?

People are not going to stop traveling and do Zoom the rest of their life. But over the next year, business travel will be weak. It'll work its way back over two or three years.

● Interviews are edited for clarity and length. Listen to *Bloomberg Businessweek With Carol Massar and Jason Kelly*, weekdays from 2 p.m. to 6 p.m. ET on Bloomberg Radio.

# Counting Steps, Detecting Covid?

Fitness trackers may help spot emerging outbreaks

Petri Hollmen was feeling fine the morning of March 12 when he got a troubling reading from the smart ring he wears to track sleep. His “readiness,” a well-being indicator measured by the device, was registering far below normal. The Finnish entrepreneur wasn’t feeling any of the symptoms associated with the novel coronavirus, but because he’d recently returned to his home in Turku, Finland, from a ski trip to Austria, he got a Covid-19 test anyway. “I felt a bit shamed to do that, since I felt perfectly fine,” he wrote in a Facebook post. The results showed that Hollmen had, in fact, been infected.

Initially, the makers of devices such as the Apple Watch, the Fitbit fitness tracker, and the Oura ring Hollmen wears played up their ability to help users count steps, stay active, or monitor sleep. It turns out these gadgets may also be useful in detecting illness. Scientists around the world are racing to discover if wearable technology can tell whether users have contracted coronavirus days before they have a dry cough or any other telltale indicators. In cases of Covid-19, changes to heart rate, for example, often appear before more noticeable symptoms, such as fever. Wearable devices could act as critical early warning systems, predicting and helping prepare for the next wave of a disease that has infected more than 8 million people globally.

“There’s an asymptomatic phase in individuals where people are infected by the virus, a three-to five-day period where there are no symptoms whatsoever,” says Dr. Ali Rezai, executive chairman of the West Virginia University Rockefeller Neuroscience Institute. “What would you do with the information if you knew on your phone app that in three days there’s a 90% chance you’re going to have the symptoms?” You might stay home, he says, or take other steps to protect people around you.

Research has shown wearable data could discover health problems including high blood pressure, heart arrhythmias, and early-stage cancer. A study published in the *Lancet Digital Health* journal in January set the stage for using the same approach to anticipate the spread of Covid-19. It found that data from a Fitbit could predict the



● Noel, who's studying sensors, wears an Oura ring

number of influenza-like illnesses in the general population as well as or better than the Centers for Disease Control and Prevention’s epidemiological models. Eric Topol, director of the Scripps Research Translational Institute, says that wearables could work even better for the coronavirus. “It has the advantage of being simple, continuous, and passive,” he says. “The virus isn’t going away. So we have to have a really good tracking system.”

Public-health officials are relying on testing programs, combined with contact tracing, to measure



how widely outbreaks might spread. Fitness trackers, though, could do some of that work—and relieve the burden on budget-strapped states struggling to train tens of thousands of contact tracers.

For his research, Rezai and his colleagues recruited more than 800 health-care workers and first responders to wear the Oura ring and share the biometric data it collects through sensors touching the skin. Using an app, participants also take part in daily surveys that measure stress, anxiety, memory, and other indicators. From his office in Morgantown, W.Va., Rezai demonstrates how this information is analyzed, sharing an online dashboard with a reporter 2,600 miles away.

Sorted in varying hues of magenta and turquoise, cornflower and emerald, the screen gives an overview of how research subjects are feeling at any given moment, with the colors representing such data as different symptoms or subject groups. A word cloud shows the prevalence of signs ranging from cough and runny nose to fatigue and shortness of breath, while pie charts display Covid-19 cases by age and gender. A map homes in on regions of West Virginia and southwestern Pennsylvania and highlights symptoms by ZIP code. One area lights up in bright red, an indicator of a handful of potentially worrisome symptoms.

Projects like this are being carried out widely. Scripps Research Institute is monitoring the heart rates of about 30,000 volunteers with an array of fitness trackers to look for early signs of disease. A Stanford study is similarly measuring heartbeats among people who are exposed to Covid-19 or are at high risk of contracting the disease. The University of California at San Francisco, meanwhile, initially armed 2,000 health-care workers with Oura rings, later opening the study to thousands of ring-wearing members of the general public.

Kimberly Noel is a physician who's been taking part in the UCSF study for several weeks. A telemedicine specialist interested in how sensors can pick up information from the body, Noel also helped launch a similar research project at Stony Brook University. "The more people you have, the better," she says. "It's more than a pretty ring."

The data is of limited use on an individual level; there are plenty of reasons for an elevated heart rate that have nothing to do with Covid-19. But when taken together, large numbers of data points can act as a smoke signal for disease.

Jennifer Radin, who leads the Scripps study, says wearables have the advantage of offering information that's nearly real-time and more geographically specific than other disease projections. As additional data is collected, projections will only

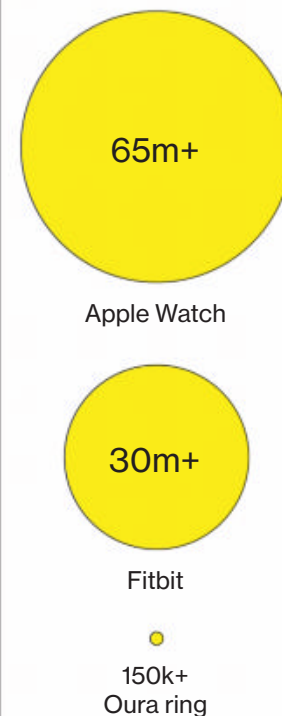
get better, allowing officials to act faster, she says.

Already, researchers have seen promising evidence of how the tracking might assist in predicting new outbreaks. The Rockefeller Neuroscience Institute says its platform can predict coronavirus-related symptoms as long as three days before they show up, with 90% accuracy. Michael Snyder, a Stanford geneticist who's leading the university's study, shared early results with *Bloomberg Businessweek* that showed heart rate anomalies were being detected at or before Covid-19 diagnoses 75% of the time in a 19-person group. In one instance, his team was able to predict infection nine days in advance. Heart rate is stacking up to be a very good indicator: "You can't miss that signal," he says.

Any added evidence would jump-start adoption of wearables, according to NPD Group analyst Eddie Hold. Las Vegas Sands Corp. plans to outfit 1,000 employees with Oura rings for illness-risk detection as casinos reopen. Although the segment has been growing in popularity over the past decade, only 1 in 5 adults uses a fitness tracker and fewer wear a smartwatch, Hold says. "If they can prove that one of these wearable devices can help," he says, "it will be a huge boon." —*Tom Giles and Kristen V. Brown*

**THE BOTTOM LINE** They measure your heart rate and spark joy when you meet your step goal. Now wearable devices could also detect early signs of coronavirus.

▼ Health tracking device users



## Antibody Tests Are Confusing Everyone

● Chiropractors and Botox clinics have even gotten in on the act

In mid-March, as the novel coronavirus spread across Europe and the U.S., Eve went with some friends to a London pub to mourn a ski trip the accelerating pandemic had canceled. They shared food and drinks, a last hurrah before the world went into lockdown. The next day, Eve hopped on a plane to Dubai, where she stayed for a few days, then another to San Francisco. On March 28, after eating a blue cheese and truffle omelet that tasted like nothing, Eve tested positive for Covid-19. Eventually, so did most of her friends from the pub that night.

So she was surprised, to say the least, when two separate tests in early May told her she didn't have ►



◀ antibodies to SARS-CoV-2, the virus that causes the disease. On May 15, another test confirmed she did in fact have antibodies to the virus. “It was confusing,” says Eve, who asked her last name not be published for privacy reasons. “There are no answers.”

She’s right. Yet antibody tests for Covid-19 are suddenly everywhere. Doctors are blasting out texts and emails urging patients to “book an antibody test today.” Botox clinics, flotation spas, and chiropractors have even gotten in on the act.

But antibody tests provide little if any actionable information. Many have been plagued by questions about their accuracy. And even if a test is accurate, experts have no solid proof that antibodies mean a person is immune to the virus, or good data on how long that immunity might last. Some people “mistakenly view antibodies as a get-out-of-jail-free card to return to normal life, a dangerous misconception,” Raja Krishnamoorthi (D-Ill.), chairman of the House subcommittee on economic and consumer policy, told a virtual hearing earlier this month. The subcommittee estimates that millions of people have taken the tests.

Caesar Djavaherian, the co-founder and medical director of Carbon Health Medical Group Inc., the chain of clinics that tested Eve, says that antibody tests present a conundrum for health-care providers. “We’re worried people will get a positive test and go about their business thinking they have immunity to the virus,” he says. “We actually considered not offering them at all. The only thing worse than no data is bad data.” Instead, Carbon Health decided to supply the test with a long list of caveats.

San Francisco-based primary care provider One Medical Group Inc. has devoted an entire team to vetting antibody tests. Chief Medical Officer Andrew Diamond says the company decided to offer them only after it was satisfied the ones it planned to provide were sufficiently accurate and that clinicians had been educated about their limitations. Diamond says he hopes the tests make people more cautious, not less. “Most people end up with a negative test,” he says. “The number of people who think they’ve had it is far greater

than the number who actually had it. Those people do change their behavior. They say, ‘You know what, I should take this more seriously. I was getting cavalier out there, but now I’m going to wash my darn hands and wear this mask.’”

Not every clinic has been so considered in its approach. One Bloomberg employee in New York City recently received repeated text messages from companies called Manhattan Cardiology and Medical Offices of Manhattan, which also advertise the tests prominently online. It turns out the tests offered, from Diazyme Laboratories Inc., haven’t yet been authorized by the U.S. Food and Drug Administration. The results arrive with a list of caveats, including a warning that they shouldn’t be used as the sole data point to confirm an infection. Diazyme Managing Director Chong Yuan defends the accuracy of the company’s test but acknowledges it’s not necessary for most people to take it. A spokesman for Manhattan Cardiology and Medical Offices of Manhattan declined to comment.

Initially, the FDA didn’t require tests to get any government signoff before coming to market. The agency introduced stricter oversight in May, after questions arose about accuracy and claims made by some manufacturers. So far, just 18 tests have received formal emergency-use authorization. But the FDA has allowed almost 200 to remain for sale, including Diazyme’s, as they await review.

Patrick Hsu, an assistant professor of bioengineering at the University of California at Berkeley, was a senior author on a recent study on the accuracy of antibody tests. His group analyzed 14 tests and found only three produced consistently reliable results. “People want answers: Am I immune? Can I go back to work? Can I play soccer in the park?” Hsu says. “But the story’s not quite so simple.” He says that even for tests that can accurately detect the virus, many questions remain. A crucial mystery: If antibodies protect someone from getting the virus again, do they also prevent her from spreading it to other people?

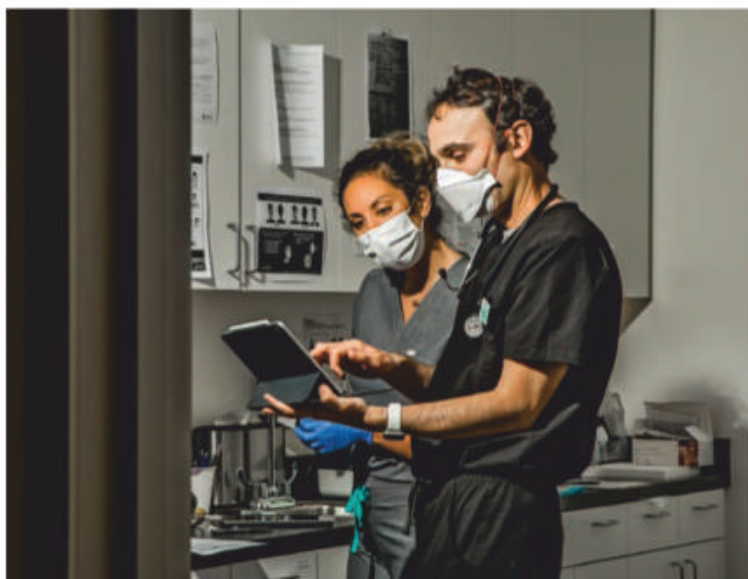
For Eve, the negative test result was confusing. She’d clearly had the virus, but with only mild symptoms, and she worried her body hadn’t generated an immune response. The positive test, days later, allayed those concerns. Eve has since flown back to London, where she’s in graduate school. She admits she thinks of her fellow Covid-19 friends as her “immune herd.” After her testing experience, she says, “I am probably a bit less careful than I would be having not had the virus.” —*Kristen V. Brown*

**“We’re worried people will get a positive test and go about their business thinking they have immunity”**

● Almost 200 antibody tests are on the market. FDA emergency-use authorization has been granted to only

**18**

◀ Djavaherian and a nurse go over a Covid-19 test



THE BOTTOM LINE There are a plethora of coronavirus antibody test kits on the market. However, they may pose more questions than answers. That’s a worry at a time people are seeking certainty.



# Sony's Killer Instinct

● The Japanese company's game of the year is about, um, a deadly pandemic

Sony Corp. and software developer Naughty Dog put a new video game out on June 19 that's arguably the most anticipated release this year. It's set in a fictional version of the U.S. that's been ravaged by a global pandemic. No, really.

The makers of *The Last of Us Part II*, for the PlayStation 4, couldn't have known the world would actually be desolated by a deadly virus when development began six years ago. The sequel to *The Last of Us*, which has sold more than 17 million copies since its release in 2013, revolves around a mutant fungus that transforms people into zombies—who then spread their spores and infect other humans.

Will anyone want to play a game about a terrible pandemic during a terrible pandemic? If players (or their parents) aren't up for the emotional brutality that made the first game so indelible, *The Last of Us Part II* may not be the blockbuster Sony needs. The game will be one of the final titles made exclusively for the PS4, ahead of the release of the PlayStation 5 later this year. As it prepares for the transition, the Japanese hardware giant is trying to squeeze as much revenue as possible out of the current model.

*The Last of Us* was critically acclaimed, with a narrative subtlety uncommon for video games. It told the story of Joel, a grizzled survivor of the pandemic in his late 40s, and his journey across America with Ellie, a teenage girl who's immune to the infection and may therefore be key to a cure. This devastated version of the U.S. is populated with infected zombies and marauding gangs and ruled by an authoritarian government that wrangles survivors into police-controlled quarantine zones.

Fans have been feverishly awaiting the next installment, which was announced in 2016 and delayed multiple times. According to Mat Piscatella, an analyst at the NPD Group, which tracks video game sales, the sequel's too-close-to-home subject matter may not hold it back. "Games of all types and genres have seen boosts, sometimes significantly," he says. Almost everyone's at home, after all.

One hit has been Nintendo Co.'s *Animal Crossing*, which was released on March 20. Its players inhabit an idyllic island full of friendly animals. It became a cultural phenomenon as the perfect quarantine game, in which players could do things that once seemed mundane, like going outside and visiting neighbors. The title immediately broke records, selling more than 13 million copies in its first six weeks.

If *Animal Crossing* is the ultimate escapist

fantasy, *The Last of Us Part II* is its polar opposite—a reminder that no matter how bad things are, they can get worse. The game's director, Neil Druckmann, has said it's intended to make players feel uncomfortable, and early impressions point to a violent, depressing experience. This time around they'll play as an older Ellie battling a monstrous cult of religious fanatics and other enemies. Reviews so far have been laudatory, with the game receiving a 96 out of 100 on the video game review aggregation website Metacritic.



*The Last of Us Part II* isn't the only game that reflects current headlines. Originally released in 2012, a game called *Plague Inc.* received a surge of attention earlier this year. Its players take the role of a pathogen, making decisions about how to infect the Earth. "People seem to use the game to educate themselves, or to help them understand what's going on in a safe, controllable environment," designer James Vaughan says—something no one is likely to say about Sony's new title. —Jason Schreier

▲ Joel and Ellie in *The Last of Us Part II*

**THE BOTTOM LINE** Sony needs to keep gamers excited about the PS4 as it transitions to a newer model. It's betting a violent vision of an infectious disease apocalypse will do the trick.



3

FINANCE

20

# The Protests Come to the Banks

Lenders in the U.S. are being  
confronted with their bleak legacy on race

On June 12 about 100 protesters gathered outside JPMorgan Chase & Co.'s Midtown Manhattan tower, where an organizer with a bullhorn led a call-and-response: "JPMorgan, shut it down! JPMorgan, shut it down!" As the group moved on, one of the demonstrators, Cristo Braz, a professional dancer and graduate student, spoke about racial inequality. "This is not just a social injustice," Braz said. "This is also an economic injustice, economic apartheid."

Bank leaders have rushed to denounce racism after the killing of George Floyd. Yet as the demonstrations grow, the industry is being singled out over its involvement in creating and prolonging economic gaps. On the sidelines of protests, organizers are spreading the word about banks' roles in some of the worst chapters of U.S. history, from financing slaveholders to redlining, a form of systemic discrimination in 20th century mortgage lending that denied generations of minority families the chance to buy a home by limiting loans in certain neighborhoods because of race. Activists are also trading statistics

on the lack of diversity within banks and discussing their lending and lobbying practices.

Jennifer Epps-Addison, president of the social equity group CPD Action, was walking home from a rally in Los Angeles when a picture of Jamie Dimon, chief executive officer of JPMorgan, on one knee in front of a massive vault at a Chase branch popped up on her phone. Taking a knee has become an iconic gesture of protest at the mistreatment of Black Americans. She swore out loud.

Epps-Addison says the image raised questions about the diversity of the bank's leaders and what they've done to right past wrongs. The company, she says, should be hiring and promoting members of minority groups, reorienting core banking businesses, and using its clout in Washington to address disparities. "Which means supporting things like reparations at the federal level, universal health care, access to college," she says.

Joe Evangelisti, a spokesman for JPMorgan, says the bank has been "working hard on many of the



diversity and hiring issues Ms. Epps-Addison raises.” Representatives for JPMorgan declined to specify Dimon’s intent in the picture and referred to his statement on the need to address the past. “We have a collective responsibility to stand up and take serious action to address centuries of structural racism,” Dimon said.

Just days before Floyd’s death, the industry scored a partial victory in a long campaign to ease the 1977 Community Reinvestment Act, a law intended to undo redlining. While backers predicted the changes will spur investment in low-income areas, fair-lending advocates have condemned the moves as gutting the law by making it easier for banks to get credit toward their meeting their obligations.

“Banks’ actions really underline a lot of the economic divide and the wealth gap that we see among the races in this country,” says Darrin Williams, who runs community development lender Southern Bancorp Inc. in Arkansas. A minister’s son, he grew up surrounded by Black church leaders who deposited their Sunday collections into local banks that were unwilling to lend to members of the congregation. Even today, he says, banks “are happy to provide a deposit account and happy to provide a checking account, a transactional account, for people of color. But they’re all too often not providing access to real capital for investment and growth.”

About 17% of Black households in the U.S. were unbanked and an additional 30% were underbanked, according to a 2017 study by the Federal Deposit Insurance Corp. The comparable figures for White households were 3% and 14%. A study this year showed minority-owned businesses were less successful in getting banks to arrange emergency federal loans to weather the pandemic. Many lenders gave priority to existing customers, yet Black-owned enterprises—underrepresented among bank clients—were at greater risk of being left out.

Banks in recent years have adopted more inclusive policies for staff and curtailed at least some lending to controversial industries such as for-profit prisons. Some have also launched targeted initiatives, such as JPMorgan’s vow last year to increase to \$200 million its investments to support the revitalization of Detroit. Days after Floyd’s death, Goldman Sachs Group Inc. pledged \$10 million for grants to help address racial and economic injustice. Bank of America Corp. promised \$1 billion over four years to provide additional support to communities where inequality is exacerbated by the pandemic.

Bill Daley, Wells Fargo & Co.’s vice chairman for public affairs, says the company is looking at making permanent changes. “We’re going to be trying to look at things really differently than just, ‘Oh, we’re

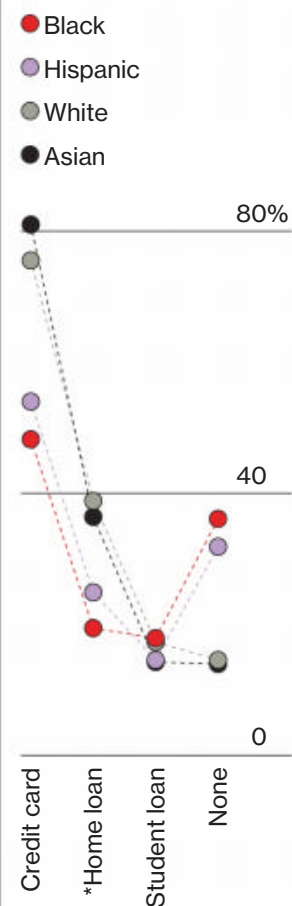
going to commit \$1 million to this and \$50 million to that’ and stuff that we were going to do anyway,” says Daley, who was White House chief of staff in the Obama administration. “That’s just the same old, pardon me, bulls--- that everybody has done before, and that’s where our credibility then becomes zero.”

Finance leaders have pledged for years to diversify workforces but failed to notch much progress. At a number of companies, the relatively small percentages of Black employees and managers have stalled or even declined. Of the more than 80 people listed on the elite executive teams atop the six largest U.S. banks, only one is Black: Citigroup Inc. Chief Financial Officer Mark Mason. Wells Fargo and Morgan Stanley announced they each plan to add a Black executive to their committees soon. “It should belong in any discussion of wealth: Where are the Black bank executives?” says Lisa Cook, an economics and international relations professor at Michigan State University.

Banks must buy from more diverse suppliers, extend more credit in underserved communities, and help more minority-owned and women-owned companies tap capital markets, says Cynthia DiBartolo, CEO of broker-dealer Tigress Financial Partners. “This has to be more than just lip service,” she says. “There has to be some soul-searching. —*Lananh Nguyen, Hannah Levitt, and Amanda Gordon*

THE BOTTOM LINE Banks say they want to address inequality. But they’ve made slow progress on diversity and pushed for looser rules on community reinvestment.

▼ Share of U.S. households that used mainstream credit products in 2017



## So You Want to Buy a Bankrupt Stock...

- Hertz planned to sell shares after filing for Chapter 11. Wait, what?

It’s one of the wildest tales in 2020’s wild-enough market. Rental car giant Hertz Global Holdings Inc. declared bankruptcy, and its stock quickly fell to 56¢ a share. Then hordes of investors—apparently looking for a cheap way to buy the dip—piled into the stock, driving the price up tenfold at one point. That gave Hertz a bright idea: Raise some cash by selling even more shares. A judge approved the sale.

On June 17, U.S. Securities and Exchange Commission Chairman Jay Clayton told CNBC that the agency had “comments” for Hertz on its plan. ►



◀ Hertz suspended the stock sale pending review. Whatever happens, the saga casts light on why buying shares in a company that's filed for bankruptcy is so risky.

Hertz's filing to sell its shares came with more dire warnings than a bottle of bleach. While debt holders often get some fraction of their money back, equity investors rarely get anything out a bankrupt company. The filing is clear: "We expect that common stock holders would not receive a recovery through any plan," unless all debt is paid in full. And that would require a rapid return to travel at levels before the Covid-19 pandemic.

For lots of investors who've played Hertz shares, the main idea was probably to hop in and then hop out while the stock was still climbing. "There's nothing wrong with taking profits," says Arissa Washington, 23, a film director and photographer in Wisconsin, who picked up shares for 75¢ and sold on June 5 after more than doubling her investment. But ultimately a stock's worth depends on the underlying value of the business, and companies in Chapter 11 are required to use their assets to first pay their debts before shareholders can lay claim to the leftovers. Often there aren't any.

Secured lenders—the ones with collateral—go to the front of the line and can dip into the company's cash and property until they get everything they're owed. Unsecured creditors, such as bondholders and suppliers, come next. If there's not enough to pay them back in full, which is usually the case, they might get an equity stake in a reorganized company. But the old shareholders are usually wiped out.

"There's no value there," says Joel Levington, credit analyst with Bloomberg Intelligence, speaking of Hertz. Of Hertz's debt load, \$14.4 billion is vehicle debt—meaning its owed to holders of securities that are backed by the value of the rental company's 494,000 cars. Hertz essentially leases its cars from those bondholders. (Yes, rental car companies rent their cars.) Figuring out what to do with all these cars and the leases on them is a key issue between Hertz and its creditors, and it's been complicated by the April collapse of the used car market. In a nutshell, the collateral isn't worth what it used to be.

Some companies find ways to reorganize that allow stockholders to keep something. But such deals can only go forward with creditor consent, says Bruce Grohsgal, a longtime bankruptcy lawyer who's now a professor at Widener University's Delaware Law School. For example, bondholders and fire victims cut a deal with shareholders in the reorganization of California utility PG&E Corp. after its equipment was blamed for causing wildfires. The agreement diluted shareholders'

stake, but didn't leave them with nothing.

There is a scenario in which current Hertz stockholders might retrieve value. If Hertz is able to sell stock—and raises enough—it can use the money for operations, including paying costs to bondholders so the company can keep renting out its fleet of cars. Travel could come back. And a rebound in the potential resale value of Hertz's cars would make it easier to resolve the problems with its vehicle debt.

But while used car prices are recovering a bit, they will still be down this year. Even before the pandemic, General Motors Co. said that it expected prices to fall 4% this year. And travel? Hertz relies heavily on airport traffic, and while the Transportation Security Administration said on its website that mid-June traffic is better, it's still running at 20% of where it was a year ago.

After hitting a post-Chapter 11 peak of over \$5 a share, Hertz was recently trading at about \$2. "The stock is not for true investors," says Bloomberg's Levington. Rather, it's a "lottery ticket." Those don't usually pay. —David Welch and Steven Church, with Vildana Hajric

THE BOTTOM LINE Equity holders of Hertz are at the bottom of the list of those who stand to recover anything of value from the troubled company.



# Trading at The Speed of Shortwave

● Companies say they can move data across oceans milliseconds faster than fiber optics

High-frequency traders will famously do almost anything to get the latest market data and send their buy and sell orders a few milliseconds ahead of the competition. They blasted through mountains to build the most direct fiber-optic routes possible between exchanges in a competition that transformed global markets and was made famous by Michael Lewis's book *Flash Boys*. Soon, pinging



light through glass fiber at more than 124,000 miles per second wasn't fast enough—the glass slows things down—so traders moved on to microwave transmitters that send signals through the air.

But that has problems, too. Microwaves travel only roughly as far as the eye can see before they peter out and need a signal boost. Now two rival market telecommunications companies have signed a pact they say will give traders more access to experimental wireless signals that can travel across oceans.

To do that, signals need a longer wavelength—known as a shortwave rather than microwave—that bounces between the water and atmosphere. It's an imperfect solution. The waves can handle only a fraction of the data that fiber can, carrying about a kilobit per second vs. gigabits. And some signals can be lost.

Raft Technologies Inc., a startup based in Tel Aviv, says the trade-offs are worth it. Raft says it can send data over shortwave from Chicago to Frankfurt in 31.4 milliseconds, which it says is about 4.5 milliseconds faster than the best available fiber route. That's an eternity in an industry that tends to measure improvements by the thousandth of a millisecond. The company says the signal is about 85% reliable, compared with 100% for fiber. Clients can use a fiber line in parallel as a fail-safe measure.

GTT Communications Inc., which runs the dominant transatlantic fiber line, said in a statement that it has “the lowest latency transatlantic capacity service”—that is, the fastest—“and we are committed to maintaining our leadership position in this market.”

Raft has been serving clients for a year and a half and is working with McKay Brothers International, which specializes in microwave antennas, to expand its reach. The partnership will beam information on Chicago Mercantile Exchange futures contract trading to London data centers. McKay, founded and run by two Harvard Ph.D.s in physics, will then distribute these signals over its data platform, known as Quincy, while combining its own network of microwave hops with Raft's transoceanic leap.

The customers will be algorithmic high-frequency traders, who use computers to scour market data to find and then exploit tiny discrepancies in prices. “The obvious strategy is pure arbitrage,” says Haim Ben Ami, Raft's chief executive officer. The milliseconds matter because the gaps can be so fleeting, disappearing as soon as someone else with a faster computer and quicker connection spots them. The competition is so intense that legal battles can break out over the placement of trading firms' antennas within a few



feet of each other near data centers.

Ben Ami says it's likely some hedge funds and others have already been using shortwaves over their own private networks. A couple of years ago, a ham radio enthusiast spotted an apparent shortwave antenna tower outside Chicago that's been linked to trading companies. “You can imagine several large algo trading firms tried to develop this technology,” Ben Ami says. “But of course they don't offer it as a service.” By offering the system more widely to anyone who can pay, Raft and McKay are “leveling the field,” says Raft's business and market growth manager, Tomer Mann.

Don't expect big defections from transoceanic fiber connections just yet. The bandwidth limitations on shortwave impose significant constraints on modern high-frequency strategies, according to Christina Qi, founding partner at Domeyard LP, a hedge fund. “You cannot carry sophisticated signals or full book feeds with shortwave radio transmission as you would with microwave transmission,” she says, referring to the rich data on other traders' orders to buy and sell that are needed for more complex trading strategies. “But it's a technology that we're keeping an eye on.”

In the midst of a pandemic and economic crisis, it may seem strange to sign a deal to build an expensive network to do nothing but move more market data another imperceptible moment faster. But Ben Ami says he's never seen as much demand. Traffic on Raft's network soared 3,500% from February to March as clients tried to capitalize on markets' volatile price swings. —*Thomas Seal and Justina Lee*

**THE BOTTOM LINE** Shortwave isn't as reliable as fiber or able to carry as much data, but Raft claims that it can cut about 4.5 milliseconds off the trip from Chicago to Frankfurt.



# The Pandemic in Builders' Way

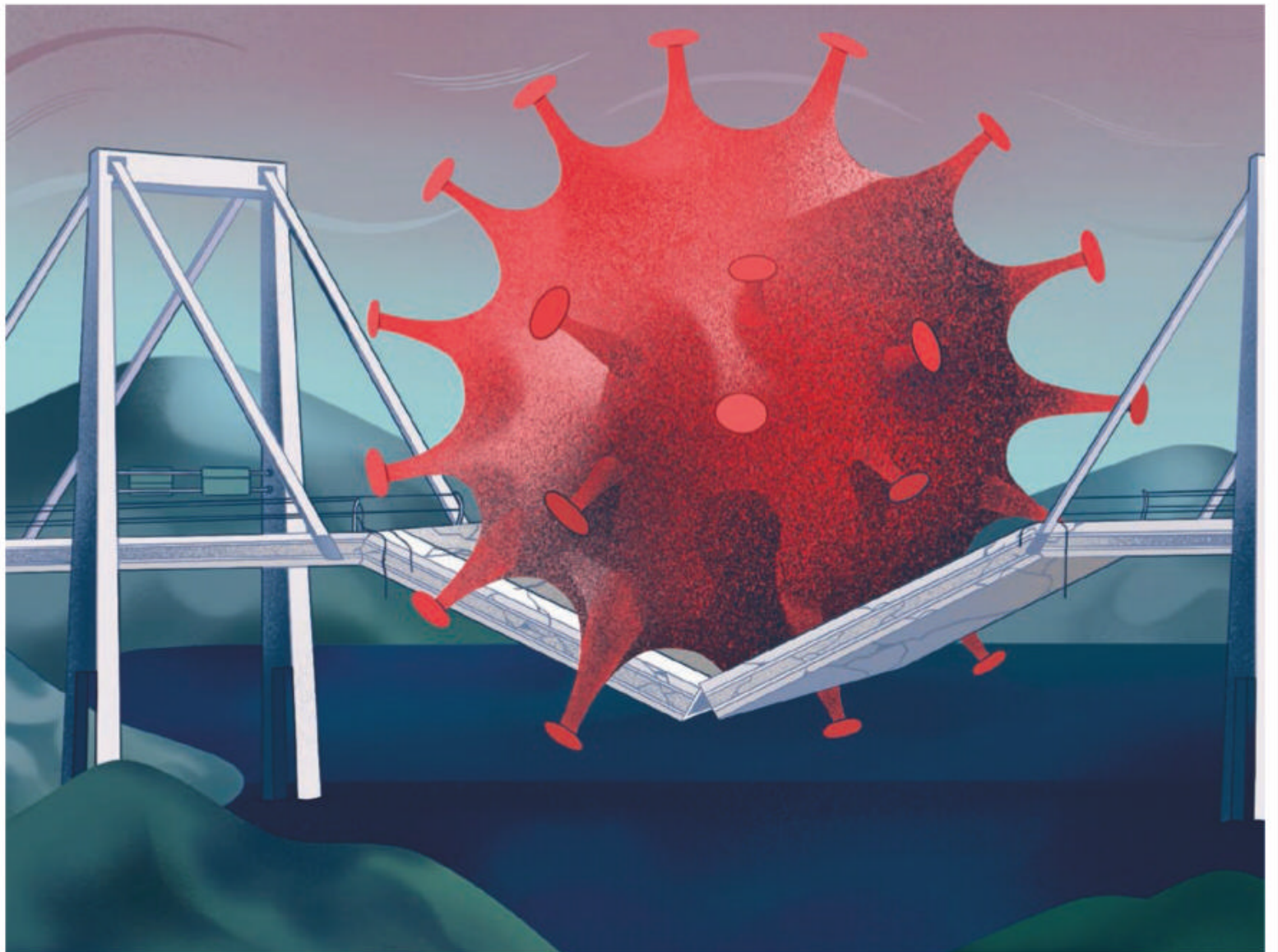
● While politicians in Washington debate trillion-dollar infrastructure packages, states are canceling projects

For years, U.S. infrastructure has been waiting for a blast of new money. Instead, the coronavirus slump is draining away the already limited resources available to maintain and improve it.

Just three months ago, when the country went into lockdown to curtail the spread of Covid-19, there were expectations the crisis would spur the government and lawmakers in Washington into long-delayed action. The Trump administration is preparing to unveil a \$1 trillion infrastructure proposal as

part of its push to revive the U.S. economy, according to people familiar with the discussions, while House Democrats have offered their own \$494 billion plan. Yet experts say that even if a bipartisan deal could be struck—a big if—any increase in federal funding for highways, bridges, and the like may not be enough to compensate for reductions in infrastructure spending at the state and municipal levels, preventing many projects from moving forward.

Tara Beauchamp, a project manager at Anderson Columbia Co., a family-owned contracting company in Lake City, Fla., has already seen at least one project canceled because states have been tightening their spending. She's worried that more will do so as the shutdowns and the recession eat into revenue streams that pay for transportation and other types of projects.





Road traffic in the U.S. is down 38%, which is crimping revenue from excise taxes on gasoline and highway tolls.

“You don’t know when they’ll start trying to reserve money by being more cautious,” Beauchamp says about the states. “We’re going to senators and governors, preparing to tell them we need to keep the budget up for the state because a lot of people are affected. If we don’t have road work, Caterpillar is not selling to contractors. From paint subcontractors to concrete manufacturers to men who lay sod, it trickles down to so many people.” About 1 of every 10 jobs in America is related to infrastructure, according to the Brookings Institution.

Barbara Smith, chief executive officer of steel-maker Commercial Metals Co., based in Irving, Texas, told analysts in a March earnings call that she expected rapid moves toward an infrastructure bill. But today she says she’s losing hope that a federal infrastructure package will materialize. Smith fears a slowdown in her business will start hitting hard by the end of this year and into the next as states scramble to get a grip on how rising medical costs and other expenses related to the pandemic, as well as falling tax revenue, will impact them.

Donald Trump has periodically called for more spending on infrastructure, including during his 2016 presidential campaign. On March 31 he tweeted that with interest rates back near zero, it would be a good time for a \$2 trillion infrastructure bill. That echoed his call two years ago for Congress to dedicate \$1.5 trillion for infrastructure investment. That plan required states to put up at least 80% of the total costs of projects.

But hopes for federal legislation ended in May 2019 after Democrats said the president vowed not to work with them unless they stopped investigating him and his administration.

After the pandemic hit, both parties appeared to converge around the idea of a public works-centered stimulus inspired by Franklin Roosevelt’s New Deal. But momentum dissipated following disagreements on how to fund it. (In case you’re wondering, spending on Depression-era infrastructure programs totaled about \$207 billion in present-day dollars.)

The inability of politicians in Washington to find common ground is forcing bureaucrats at the state level to scramble for alternatives. The American Association of State Highway and Transportation Officials estimates an average loss of at least 30% of state transportation revenues in the next 18 months if lockdowns continue and people remain in their homes. The association is asking Congress to greenlight about \$50 billion in flexible federal spending to offset those losses.

States are required to match about 20¢ of every dollar they get from the federal government to build highways and bridges. If a state fails to make the match, Washington cancels the funding. That can be devastating for states such as Montana, which gets as much as 90% of its infrastructure budget from the federal government.

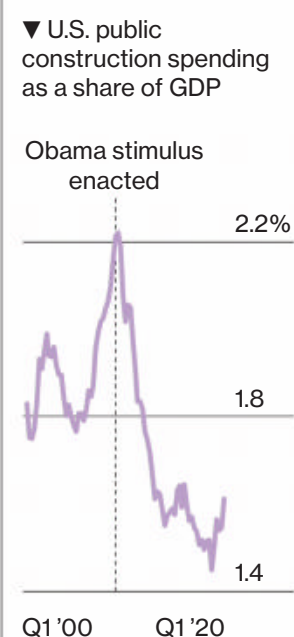
Beauchamp says Anderson Columbia mostly does highway and bridge work in Florida and Texas, two states where infrastructure funding is in good shape. But the company has already seen the cancellation of a tender for a \$709 million project in North Carolina to widen Interstate 95 near Raleigh. It’s on a 20-page list of delayed projects that appears on the website of the state’s department of transportation. North Carolina, along with Texas and Florida, is among a group of states seeing a sharp uptick in new coronavirus infections, which is forcing authorities to divert monies to help fund the public health crisis.

Most infrastructure projects are prefunded, meaning companies aren’t all that worried about 2020. But Beauchamp and others are already fretting about 2021 projects that might not receive financing if states remain partially closed. The real test may come in a matter of weeks, when states finalize spending plans for the fiscal year that begins July 1.

“When you have to shut down restaurants and small business, the impact is very sudden and severe,” says Joseph Kane, a senior research associate at Brookings. “But when it comes to infrastructure projects, those budgets are determined a long time before. So right now we’re sort of at the tip of the iceberg in terms of these impacts.”

Also looming in September is the expiration of the FAST Act, a program last reauthorized under the Obama administration in 2015 giving \$305 billion in funding over five years for surface transportation infrastructure planning and investment. Lawmakers face a choice of either extending it or coming up with a long-term replacement.

A Democratic bill to reauthorize the program was introduced on June 3. It includes investments in roads and bridges, funding to make certain projects more resilient to climate change, and money for public transit and Amtrak, among other priorities. It’s not yet clear how closely the plan the Trump administration is putting together will align with the Democrats’ proposal. “The bottom line is the state DOTs need a backstop,” says Jay Hansen, executive vice president of advocacy for the National Asphalt Pavement Association. “All of them need Congress to do their job and pass a multiyear reauthorization bill with increased ►





◀ funding for investing in highways, roads, and bridges.”

Smith, of Commercial Metals, says that while her order book remains strong, her worry is that if state budgets run short and the FAST Act isn't renewed, the steel producer will see cancellations heading into next year. And that's the thing about the pandemic: The worry isn't just about a loss of economic activity now, but about the lingering effects of the virus months and potentially years down the line. “We have an economic shock that translates to an economic slowdown,” she says. “But the FAST Act and making up some of the budget shortfalls could go a long way and be very helpful.”

—Joe Deaux

**THE BOTTOM LINE** A big boost in federal dollars for infrastructure may not be much help to virus-hit states that can't afford to match funds offered by Washington.

## Doctors Without Borders

26

● Cuba's medical brigades have become a big money earner for the communist nation

The pandemic was raging out of control, and the towns of northern Italy were shuttered and silent when Dr. Yasel Castillo and his team of Cuban doctors rolled up in March. The Havana-trained lung specialist and about 50 colleagues were on a dual mission: to ease the burden on Italian doctors overwhelmed by Europe's most intense Covid-19 outbreak and to earn hard currency to help Cuba's economy through its worst crisis since the collapse of the Soviet Union.

“The night we got there, the Italians in the airport applauded us,” says Castillo, speaking by phone from Crema, 25 miles from Milan, where he was based for two and a half months. When Castillo arrived, all the patients on his ward were gravely ill and on ventilators, he says. Now almost all of them are on the road to recovery, and his team is preparing to move on, having treated about 5,000 Italians.

Meanwhile back home, Cuba's economy is undergoing its deepest slump since the early 1990s. President Donald Trump tightened sanctions on the island in 2019, and the economic implosion of its longtime political ally Venezuela has meant Havana no longer receives generous subsidies from

Caracas. Tourism disappeared with the pandemic and remittances fell as many Cuban Americans lost their jobs when the U.S. plunged into recession. Cuba's economy is forecast to contract 3.7% in 2020, according to the United Nations' Economic Commission for Latin America and the Caribbean.

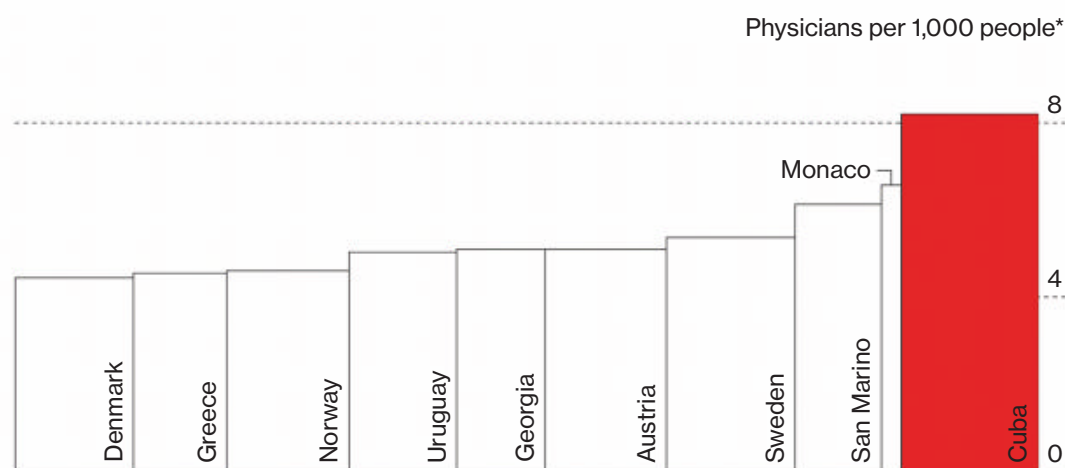
That's left medical brigades such as Castillo's as Cuba's most important source of foreign currency. They've been deployed to fight the Covid-19 pandemic in more than two dozen countries, including China, Jamaica, Kenya, Peru, Saudi Arabia, South Africa, and Turkey. (Cuba has logged 2,280 cases of Covid-19 and 84 deaths.)

The island nation's health-care system has long been a source of pride for its communist rulers. Cuba boasts 8.19 medical doctors per 1,000 inhabitants, the highest of any country tracked by the World Health Organization. (The ratio in Italy is 4.09 per 1,000.) Exports of medical services amounted to \$6.4 billion in 2018, the last year for which the government published figures.

Since its revolution six decades ago, Cuba has sent hundreds of thousands of doctors, nurses, trainers, and technicians to respond to everything from Caribbean hurricanes and earthquakes to the Ebola outbreak in West Africa. The program became a moneymaker for the government in the early 2000s, when Hugo Chávez, the late Venezuelan president, began paying for the medical workers with oil shipments. Since then, Cuba has developed a tiered system in which it charges wealthier nations but not poor ones.

The Trump administration has urged other governments not to accept Cuban medical staff, saying the revenue they generate is helping prop up a communist tyranny. In April, Secretary of State Mike Pompeo said countries that pay for the missions “are helping the Cuban government turn

Top Nations by Physician Density



— = 5% health expenditure as a share of GDP, 2017

\*FIGURES ARE FOR THE MOST RECENT YEAR AVAILABLE. DATA: WORLD HEALTH ORGANIZATION, WORLD BANK



a profit on human trafficking.”

As the coronavirus spread and governments wondered if their health systems could cope, those warnings were widely ignored. The medical missions have now treated more than 100,000 Covid-19 patients, according to Cuba’s government. “They need the medical support. Why would they say no?” says Ambassador Jeffrey DeLaurentis, former chargé d’affaires at the U.S. Embassy in Havana. “They are not paying as much attention to what the Trump administration is saying as they are to what they need.”

Cuba’s economy took a turn for the worse last year when the Trump administration tightened sanctions, leading to a sharp decline in the number of Americans visiting the island and damping investment. Meanwhile, the slow-motion collapse of Venezuela’s state-owned oil company has resulted in a sharp reduction in oil shipments, forcing the government to buy fuel from other countries.

One telltale sign that hard currency is in short supply is that staples of the Cuban diet, including chicken and rice, have become scarcer across the island, leading the government to reinstitute a system of rationing. Cuba imports an estimated 60% to 70% of its food.

On a recent weekday, Yanelis Méndez, a 26-year-old mother who lives in the Diez de Octubre neighborhood in central Havana, waited with more than 200 others hoping to get government rations of canned tuna, toilet paper, and meat scraps. After four hours, the truck carrying supplies finally arrived.

Three hours later, when she got to the front of the line, the meat and tuna had run out, so she came away with extra rolls of toilet paper and bottles of soda instead. “You have to get there at 4 in the morning just to get a ticket,” says Méndez, who lives with her son, husband, mother, and two brothers in Havana. “By the time it’s your turn, things are gone.”

The current crisis is the worst since the so-called special period in the early 1990s, when the Soviet Union’s dissolution cut Cuba off from food and fuel imports, leading to power outages and widespread hunger, says Ricardo Torres, professor of economics with the Center for the Study of the Cuban Economy at the University of Havana. “You only have to look at the long queues on the shortage of basic goods,” he says. “There is no rice anymore at market places, only through the rationing cards. Cubans eat a lot of rice, so when there are shortages, they supplement with pasta—and that’s also in short supply.”

Even for food such as pork that Cuba produces domestically, the country relies on imported feed



for the animals, Torres says. This means the lack of hard currency to pay for imports is biting hard.

With U.S. dollars hard to come by, Cuba missed payments due under an agreement it struck in 2015 with a group of foreign governments on \$2.6 billion in debt dating back decades. The deal was supposed to pave the way for the country to eventually return to international capital markets. The Cuban government is now asking those countries for a moratorium on debt payments until 2022.

“They are desperate. They do not even have a penny to buy food—they will have less to pay the debt,” says Emilio Morales, president and chief executive officer of Havana Consulting Group, a Miami-based company that provides data and analysis on the Cuban economy.

However bad things are, Cuba still has powerful friends that will bail it out rather than watch it fall apart, Ambassador DeLaurentis says. “A country like China, Russia, or others, for ideological or political reasons, would not stand by and let it implode.” —*Exra Fieser and Matthew Bristow*

▲ A team of Cuban doctors in Havana before departing in April for Italy’s Piedmont region

**THE BOTTOM LINE** Cuba’s exports of medical services brought in \$6.4 billion in 2018. The revenue is helping offset the loss of hard currency from tourism and remittances during the pandemic.



5

POLITICS

GOUUGERS

OR

SAVIORS

## ● Pharma's new "halo effect" dims prospects for Congress to lower drug prices

When a headhunter for the drug industry approached Michelle McMurry-Heath in January about taking the helm of a powerful trade group, she brushed off the offer. She wasn't interested in making "bad-smelling" positions palatable to Washington. "If you're looking for a typical lobbyist," she recalls saying, "I'm not that person."

McMurry-Heath holds an M.D.-Ph.D., has worked at the U.S. Food and Drug Administration and Johnson & Johnson, and calls access to medicine "the social justice issue of our time." The Biotechnology Innovation Organization had accelerated a search for its next leader as the novel coronavirus jumped across borders, and McMurry-Heath stood out. "She wasn't the clear, obvious choice," says Jeremy Levin, the chairman of BIO. Its last chief executive officer was former Republican Representative James Greenwood of Pennsylvania. "But we had the opportunity to make a statement."

The board convinced McMurry-Heath that it was serious about having her lead a new national

dialogue on medicine and science. "If we do not have a strong and vibrant biotechnology ecosystem, we are not going to be prepared to combat this crisis or any other crisis we're likely to face in coming years," McMurry-Heath says.

In the era of Covid-19, the pharmaceutical industry is trying to change its image from price gougers to virus-conquering scientists. Its largest trade organization, the Pharmaceutical Research and Manufacturers of America, has made TV ads with the tagline: "Science is how we get back to normal." David Ricks, CEO of Eli Lilly & Co., says, "There's an opportunity to reset the reputation of the industry."

As drugmakers invest billions of dollars and dedicate their top scientists to virus research, the crisis has also given them even more power to halt policies against their interests. That's bad news for backers of a drug pricing bill once thought to have decent odds of passing Congress.

Drug costs have accelerated faster than inflation and are hitting patients more directly because of increasingly prevalent high-deductible health plans, says Jim Yocum, a consultant who helped build the price transparency technology used by Medicare.gov. List prices of brand-name drugs increased an average 4% annually from 2016 to 2020, according to a data analysis from



ConnectureDRX, which provides price-comparison software to health plans. This follows years of high-profile price hikes, including ones to Mylan NV's allergic reaction treatment EpiPen, which snowballed into a scandal.

In 2019, Senate Finance Committee Chairman Chuck Grassley co-sponsored a bill with Senator Ron Wyden, a Democrat from Oregon, to penalize drug-makers for raising the prices of medicines above the rate of inflation. It also includes provisions that would redesign Medicare's prescription drug benefit to cap seniors' out-of-pocket costs and improve price transparency. Altogether, it would save taxpayers \$95 billion over the next decade.

The bill looked like it had the potential to be signed into law this year—if Grassley, a Republican from Iowa, could team up with President Trump to win over more members of his party, including Senate Majority Leader Mitch McConnell.

Trump said in January in his State of the Union address that he would sign bipartisan drug pricing legislation “into law immediately” should it be presented to him. But many on Capitol Hill have worried his attention has been turned elsewhere. Lawmakers, too, have been focused on other priorities: Covid-19, economic catastrophe, and a wave of protests against police abuses.

“There are macroevents that have understandably changed Congress's focus,” says Stephen Ubl, CEO of PhRMA, the trade group that represents the world's largest drugmakers. “I'm sure that drug pricing discussions will come back around.” The industry, moreover, takes issue with the Grassley-Wyden bill's “price-control” component, Ubl says, and believes it doesn't do enough to address the roles of health insurers and pharmacy middlemen.

The leaders of BIO agree. Levin, the chairman, says he applauds Grassley for forging a bipartisan agreement, “but we have to rework this now in light of Covid.” McMurry-Heath, who started as BIO's CEO and president this month, says previous conversations about drug reform are “now obsolete” because it would hamper innovation at a critical time. She says she worries about the consequences for communities of color that have grappled with the U.S.'s racial health disparities and are waiting for cutting-edge medicines, including for Covid-19.

The drug industry spends heavily lobbying Washington, and its argument that price limits hinder innovation is far from new. But its appeals resonate differently amid a pandemic. Decision-makers have rallied billions of federal dollars for drug research and development and loosened regulations to see experimental candidates across the finish line. And the two trade groups say they've

already noticed a newfound appreciation for them in Washington.

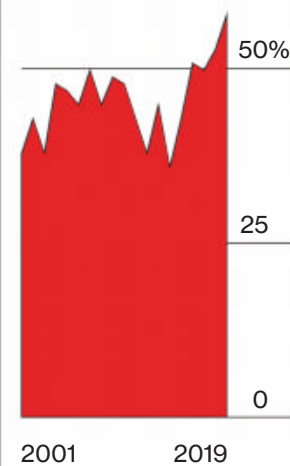
There's “a recognition that lawmakers are going to have to play nice,” says Spencer Perlman, director of health-care research at consulting firm Veda Partners. “The pharmaceutical industry was about as popular as mass murderers a few months ago,” he says. Now? “There's a sort of halo effect that's come around them.”

Grassley vehemently disagrees that the coronavirus should prompt a rethink of his proposal. “There's no better time to address this issue,” he says, adding that he still intends to push for a vote this year with Trump's backing and is even seeking to have it incorporated into the next phase of coronavirus relief legislation. “The pandemic is bringing up the cost of medicine. Affordability is still central to the conversation.”

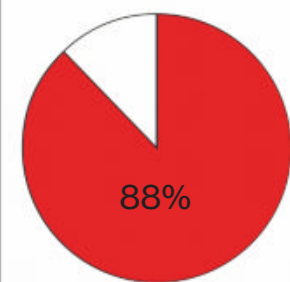
The question of how much Covid-19 drugs will cost looms large. The first drug shown to help patients recover from the disease—Gilead Sciences Inc.'s remdesivir—doesn't yet have a price tag. Although vaccines being developed by Johnson & Johnson, Merck & Co., Moderna, and Sanofi have all benefited from U.S. taxpayer dollars, that doesn't mean the government can set their prices.

Margarida Jorge, a campaign director for the coalition Lower Drug Prices Now, is skeptical the industry will set affordable prices. “We couldn't trust them on EpiPens,” she says. “Why on Earth would we think that we could trust the prescription drug industry to create a vaccine that they would then price at a fair rate?” Almost 9 in 10 U.S. adults say they're concerned the drug industry will leverage the pandemic to raise prices, shows a poll from ▶

▼ Share of respondents with a negative opinion of the pharmaceutical industry



▼ Share of respondents concerned that the pharmaceutical industry will use the Covid-19 pandemic to raise drug prices



▼ McMurry-Heath





◀ Gallup and West Health released on June 18.

The clock is ticking on the long-delayed Grassley-Wyden bill. As Election Day gets closer, bipartisan legislation will become increasingly difficult to pass. If it's put off until September, the bill is dead, says a Senate Finance Committee aide.

Drug companies, Grassley says, have “got government through Medicaid and Medicare eating out of their hands. They’ve got the consumer eating out of their hands. Because when you take drugs to stop

life-threatening [conditions], then they’ve got a lot of sympathy. And put that with their political power, and things don’t change.”

McMurry-Heath acknowledges that the industry isn’t widely trusted. But, she says, “the world has changed, and the debate is going to have to change with it.” —*Riley Griffin and Emma Court*

THE BOTTOM LINE Drugmakers’ efforts to develop critical Covid-19 medications have given them more leverage to resist a bipartisan drug pricing bill in Congress.



● Grassley

# Europeans Tilt at Wind Turbines

● Local pushback against wind farms is on the rise and not as quixotic as it sounds

Sweden—the country that brought the world 17-year-old climate activist Greta Thunberg—is aiming to zero out greenhouse gases by 2045. To reach that goal, it’s ramping up wind energy. The country expects to install 1.8 gigawatts of capacity of wind power this year alone, enough to charge more than 16,000 Nissan LEAF electric cars.

At Ripfallet, in the forests near Malung in western Sweden, German wind developer WPD AG has plans to build as many as 30 wind turbines that would reach heights of up to 250 meters (820 feet), according to Maria Roske, managing director of WPD’s Scandinavian arm. But a group of area residents is working to block it. “The project risks destroying the area where our ancestors used to hunt and pick berries. We want to be able to pass it on to future generations,” says Hans Ojes, one of the group’s organizers.

The efforts of the group have led to a referendum that could decide the project’s fate, which local politicians will schedule by June 22. “Wind power stirs up a lot of emotions, and the industry is used to both worry and criticism. Even if a lot of people are in favor of renewables and wind power, it’s different when it’s close by,” Roske told Swedish public broadcaster SVT last year.

Increasingly, the Nimby (“not in my back yard”) sentiment that often drives homeowners to protest a planned landfill or commercial development near them is being directed at renewable energy projects in some of the world’s most climate-hawkish democracies, threatening efforts to reduce carbon emissions. With wind power now cheaper to install per megawatt hour of output than coal or gas, the

biggest challenge facing Europe’s energy transition may not be cost, but public perception.

Next door to Sweden, in Denmark, wind met 47% of the electricity demand last year, a larger share than in any other country. Two things break up the flat farmland of the Danish countryside: wind turbines and church steeples. Local dioceses of the Church of Denmark have traditionally had the right to object to changes that disturb the view to or from a church. This veto is increasingly being used to block or alter plans for wind parks, according to industry group Dansk Energi.

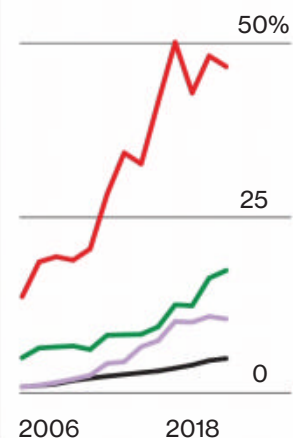
“In light of the climate challenges we face, the church’s veto against wind farms needs to be removed,” says Kristine van het Erve Grunnet, managing director of Renewable Energy at Dansk Energi. But the bishop of the Ribe diocese told the paper *Kristeligt Dagblad* in January: “I don’t think it’s a contradiction to both focus on the environment and on cultural landscapes.”

The issue was raised in the Danish parliament earlier this year, but Minister for Ecclesiastical Affairs Joy Mogensen showed no signs of wanting to change the rules, arguing that in most cases there was a good dialogue between the church and municipalities that want to add turbines.

Germany has 30,000 wind turbines, the most in the European Union. Bigger, more powerful ones are replacing old clunkers, and saturation is taking projects ever nearer to woodland. Fachagentur Wind, a government agency, ran a survey last year and found 325 lawsuits against wind projects, many brought on the grounds of protecting ecology and wildlife. (Wind turbines can kill birds and bats that

▼ Wind as a share of total power generation

Denmark  
Germany  
Sweden  
Global







collide with them.) Opposition efforts by groups who haven't gone to court number many more, the agency says. Groups can petition local councils, potentially delaying projects by years or even nixing them if councils decide in their favor.

"Murmurings of protests against wind farms here and there over the years have turned into a roar," says Julia Zilles, a political analyst at the University of Goettingen. "Partly it's a problem of provincial sensibilities vs. big-city politics: Locals feel that policymakers just don't care what they think."

The onshore wind market in Germany has virtually come to a standstill. Worried about the risk that poses to clean energy targets, Chancellor Angela Merkel's coalition last month drew up a bill of sweeteners to woo local support for new wind projects, including a share of profits. Yet the investors who are needed to bump up the additions are staying away from capacity auctions. The German Wind Energy Association, or BWE, fears that a net loss of turbines may be around the corner as the oldest subsidy contracts begin to expire.

Giles Dickson, chief executive officer of the industry group WindEurope, says it's important for developers to reach out early to people who live near the proposed wind farm before a design is finalized. Wind farms usually pay out a portion of their revenue to local communities. They also bring jobs, sometimes to remote places that struggle to attract employers, Dickson notes. WindEurope is calling for permitting systems to be streamlined.

While community benefits can be a successful strategy, they can sometimes make a bad situation worse, says Patrick Devine-Wright, a social scientist who advises the United Nations Intergovernmental Panel on Climate Change. "If there's already a lack of trust, people think that they're being bribed, and then it digs in the trenches even more," he says.

Leaders like Merkel can apply lessons from the coronavirus crisis, he argues. She's been lauded for using her scientific knowledge to explain the need to make personal sacrifices for the greater good. "You have to have a grown-up conversation with citizens and treat them as adults and say, 'Listen, the status quo has changed, we're in a climate emergency, we have to make radical and fast changes to our systems,'" Devine-Wright says.

Those arguments could sway some skeptics, but others will likely remain convinced that their neighborhood is the wrong location for the towering windmills.

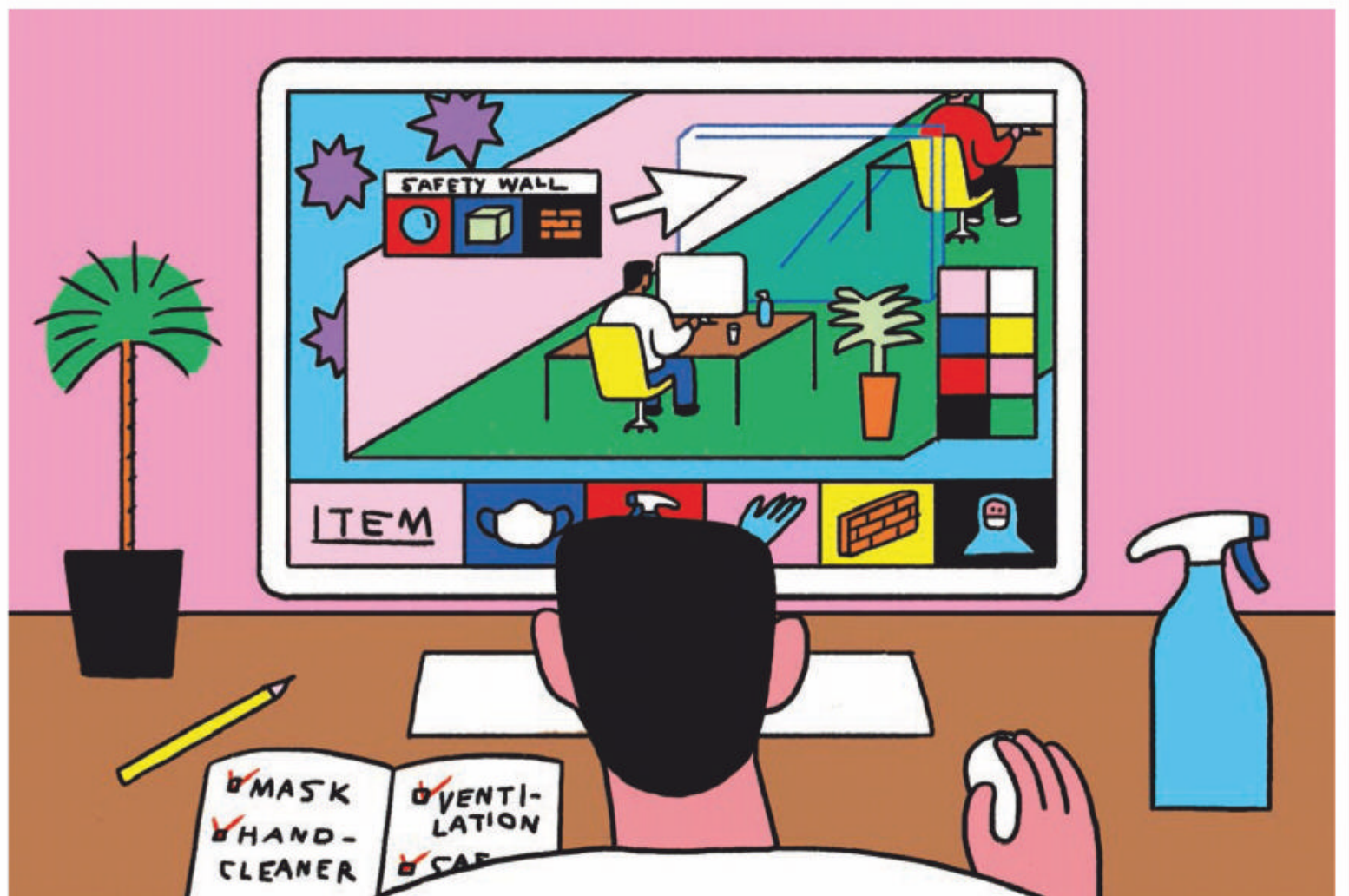
"There can be wind turbines where they don't disturb people, for example, offshore," says Anders Nilsson, a church organist who opposes the Björkvattnet wind farm under construction in Sweden. "But not in a quiet place like this." —*Jess Shankleman and Lars Paulsson, with Brian Parkin, Will Mathis, Will Wilkes, Christian Wienberg, and Morten Buttler*

**THE BOTTOM LINE** As Sweden, Denmark, and Germany look to wind power to help meet climate targets, citizens are opposing wind farms on the grounds of habitat disruption and spoiled views.

▲ A wind turbine outside Torup, Denmark



# WELCOME BACK?



● Consult this checklist before you ask anyone to head into the office

You have a lot to think about at the moment if you run a company. One of the biggest questions is whether to have employees return to the office, assuming your area allows it. How do you let people do their jobs and keep them safe? We asked scientists, interior designers, public-health and building experts, and others for their thoughts on what to do right now—and what to think about for the future.

● WHAT'S MY PRIORITY?

“You should be identifying the core workers that you need to be physically present,” says Joseph Allen, assistant professor of exposure assessment science at the Harvard School of Public Health.

Everyone else stays home. He says companies should follow the decades-old approach to keeping workers safe from chemical and biological hazards called the hierarchy of controls. Step 1 is “elimination”—which in the case of Covid-19 reopenings means prohibiting anyone from a building who doesn’t need to be there.

● WHAT'S THE NEXT STEP?

“Substitution,” Allen says. Today, that translates to siloing critical workers so they’re easily quarantined if necessary. Step 3 is “engineering controls,” aka how we make a building safe.

Air circulation is key. “Many buildings’



ventilation systems don't meet basic standards," says Ian Cull, president of environmental consultant Indoor Sciences Inc. Have your system evaluated by an indoor air-quality adviser—Google your city and “test and balance consultant.” You want the building to meet the standards of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers.

● **WHAT SPACE SHOULD I WORRY ABOUT MOST?**

The coffee break area. “You'd be safer eating lunch in the bathroom,” says Charles Gerba, a microbiologist and environmental scientist at the University of Arizona. “How many people use that coffee machine?”

Encourage alternatives. Reimburse employees who bring coffee from home, or supply Jot (jot.co), a just-add-hot-water coffee concentrate people can make at their desks with a personal electric kettle.

● **HOW ABOUT AREAS I OCCUPY WITH OTHER TENANTS, LIKE ELEVATORS?**

Shared spaces are problematic, says Michael Silver, chairman of Vestian LLC, a corporate real estate consulting and management company. “Most lobbies aren't big enough for an elevator queue spaced 6 feet apart, and vertical transportation time to your office is affected,” he says.

Now's the time to renegotiate your lease; landlords are likely to pay for safety upgrades rather than try to find a new tenant in this economy. Articulate details such as building sanitation schedules and maximum lobby-to-office travel times.

Gerba suggests minimizing elevator use if possible, because their fans don't fully refresh air between rides. Encourage employees to use stairwells (one up, one down), stagger arrival times and days, and put footprint stickers where people should stand—while waiting for the elevator and in the elevator itself. Sheryl Schulze, who heads landlord services for architecture firm Gensler, says companies should hire a vertical transportation consultant, who can speak to speeding up cars; increasing air-flow; installing touchless systems; and stacking cabs, which is when two occupy one bank.

● **SHOULD I EVEN ASK ABOUT THE BATHROOMS?**

The novel coronavirus is found in human waste, which can be aerosolized when we flush toilets. Bathrooms are high-touch environments, but they're also more ventilated than other spaces.

For now, block off every other stall or sink. “It will

not be as aesthetically pleasing as we would like, but that's what needs to be done,” Schulze says. Install a touchless entry lock, digital counters that tally users and alert cleaning staff, and biodegradable hand-towel dispensers (blow-dryers launch germs into the air). More long-term, install floor-to-ceiling toilet partitions, touchless stall entries, toilets with sensors that lower lids before flushing, ventilation systems for each stall, and sinks with red and green lights to time 20 seconds of hand-washing.

● **WHAT ABOUT FOOD?**

“Most businesses are washing their hands of any liability issues by discouraging food delivery,” says Ben Gillam, founder of U.K. design firm ThirdWay Interiors Ltd. Your habit of leaving the office to grab a salad or sandwich for your desk is on hold, too. Both options create elevator and lobby traffic and force additional interactions.

Many companies are encouraging people to bring their lunch, according to Schulze. If you provide food service, let people order ahead and send them to multiple “grab and go” points, she says.

● **I'M HEARING ABOUT “DEEP CLEANS.” DO I NEED TO DO THIS?**

A month-old list from the U.S. Environmental Protection Agency details more than 400 pesticides approved to kill SARS-CoV-2. Many of the chemicals haven't been meaningfully tested on human health. Cleaning companies are using them to keep employees safe—and lower businesses' liability—but this is spiking exposure to such products.

Ask cleaners what they're using, especially for after-hours deep cleans, which can involve an electrostatic sprayer blanketing surfaces with disinfectant; when in doubt, opt for gentler products, and consider options like giving staffers disposable desk mats and alcohol wipes and asking them to clean their desks daily. In a study, Gerba found that hand sanitizer and disinfecting wipes dropped the amount of virus on surfaces and hands by 60% to 90%.

Lastly, run your disinfection plan by an exposure scientist from a school of public health.

● **ANYTHING ELSE?**

Sadly, you need to think about stuff like grouting. Karl Heitman, president and founder of Heitman Architects Inc., recommends oversize tiles, which reduce the number of hard-to-clean grout joints, and antimicrobial carpets and fabrics. He likes textiles and wall coverings from memosamples.com, which are commonly used in health-care settings; vinyl and rubber flooring from mohawkgroup.com; and antimicrobial coatings from Microban. —*Arianne Cohen*

● **You Don't Know Quat**

More formally known as quaternary ammonium compounds, quats are an active ingredient in many disinfectants. Effective killers of bacteria and viruses, they're still relatively untested for long-term human safety. Pre-pandemic, they were most often used in health-care facilities—not office lobbies, elevators, and break rooms. Given that alternatives are available, it might be prudent to limit the use of quats and other powerhouse cleaning agents when possible to protect workers who are already being exposed to a growing number of chemicals. —*A.C.*



# KEEP ON TRUCKIN'

## ● Tips from a long-haul driver on how to avoid burnout

Want to know how to stay serene through endless shifts in a confined space during a pandemic? Talk to Anthony Visuano, 63, a trucker for OpenRoad Transportation. He hauls construction materials on one- to seven-week routes for 14 hours a day. Winter brings snow and ice; summer, tornadoes and hurricanes. Visuano prefers the Interstate Highway 5 corridor, from Washington to California, because he lives in Oregon. "I can stop by the house every now and then and see how things are going," he says.

The lockdowns hit while Visuano was en route to Virginia in a 70-foot truck: "At first I didn't have a face mask, because in an 18-wheeler there's not a whole lot of pharmacies where I can just park and run inside, you know what I mean? I ended up getting a mask from a supplier who required them, so I could go into places." He slept in his truck, parked at rest stops, and for a while was ordering his dinners from truck-stop delis while restaurants were closed. Arianne Cohen caught up with him while he was hauling insulation panels across Idaho. Here are edited excerpts from their conversation.



### 1 GO FORWARD

When Visuano gets cut off by other drivers, "I mumble under my breath about how crazy they are and sometimes use a four-letter word, but I just keep driving." This has become an urgent coping skill. "People are more crazy than they were before they went into Covid hibernation. There's more risk takers these days. I'm like, 'Wow, you guys are crazy.'"

### 2 COMMUNICATE

It'll relieve your anxiety. "Traffic can delay everything from my delivery time to my next pickup time, and I don't get paid until the job is done." He calls dispatchers or managers at the first sign of trouble. "Sometimes we get things worked out where I make a later delivery, and that takes a lot of stress off."

### 3 SPLIT YOUR SHIFT

Visuano gets 10 hours of rest a day, but he doesn't always take it all at once. "Sometimes I do eight and two, where I rest for eight hours, and then later down the road I stop and rest for two more. That's advantageous, especially if I'm running late—that extra two hours can get me there on time, and then when I'm done I'll take the other two hours and finish up my 10."

### 4 DITCH THE DRAMA

Don't scroll mindlessly through social media. Visuano, who recently "quit logging on," also avoids trucker gossip on CB radio. He doesn't even have one in his truck. "There's too much drama on it. I can't handle it."

### 5 SLOW AND STEADY WINS THE RACE

Give everyone space to do their thing. Trucks have excellent grip on the road, yet Visuano still drives 30 mph to 35 mph on ice. "There's no issues, no problem. Nobody's running into me, and I'm not running into them. Everybody's happy." No matter how careful you are, remember that not everyone is great at self-preservation. "I just stay way back and go real, real slow, so when something does happen I'm able to react responsibly."



Q&A

# 'LIQUIDITY IS KEY'

If you're calling Steve Wybo, your business is probably not in a great place. Wybo advises what his firm calls "distressed and underperforming companies and their constituents," which means he takes calls from executives up a creek. At advisory firm Conway MacKenzie Inc., he represents mostly auto industry suppliers, along with consumer-product and industrial clients. Since the auto industry is an economic bellwether—sales crash earlier and recover more slowly than those of other sectors in a recession—Wybo has a firsthand look at the kinds of negotiations private companies are having right now and what those wranglings tell us about how the next six months could shape up. Here are edited excerpts from his interview with Arianne Cohen:

● Why haven't a lot of companies gone out of business so far?

When they shut down in mid-March, most had about 60 days of invoices due. They were getting paid and had sent people home on furloughs or laid them off. They weren't paying payroll. Some might have gotten PPP [Paycheck Protection Program] money. The money was there, and the liquidity was there.

● Now what?

My phone's been ringing off the hook with, "We have no more invoices left to collect, I've used all the money I had, I don't have any collateral, and I'm gonna default on my loans on June 30."

● So what's going to happen?

We'll have some forced marriages. For example, GM will call a healthy supplier and say, "I got a problem with a struggling supplier and can't interrupt my production. It's in your commodity. I really need you to buy the struggling company."

● When CEOs call, are they freaking out?

In 2006 to 2008 it was *panic*. The capital markets were a mess, the banks were failing, and suppliers were going out of business left and right. That's not



the case this time. The banks are willing to defer principal payments and adjust loans, and the government has billions of dollars out there. The CEOs are levelheaded and optimistic about their ability to weather the storm.

● What's your advice for executives doing the weathering?

Micromanage cash. Liquidity is key during a crisis. And don't let down your guard until we find a vaccine for Covid—the health and safety of your people is critical.

● How is all this going to affect private equity firms?

They're gonna look at the bottom 20% to 25% and companies that were struggling prior to Covid. If the companies have liquidity, they make it—but they're not going to get capital.

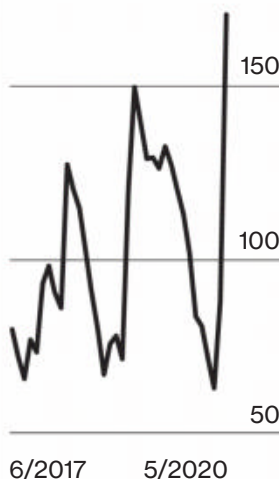
● Are these poorly run companies?

No. In '05, '06, '07, there were poorly run companies, and they went out of business. But before Covid, most suppliers were in pretty good shape financially and very good shape operationally.

● So there are going to be some deals.

A few years from now, when these companies are flipped again, you're gonna hear some big scores. There are a lot of good companies at reasonable prices and many turnaround firms out there that are good operators. They're gonna make a lot of money.

▼ Bloomberg Corporate Bankruptcy Index



ILLUSTRATIONS BY SUJIN KIM; DATA: BLOOMBERG. INDEX MEASURES THE OCCURRENCE AND SEVERITY OF RECENT U.S. BANKRUPTCY ACTIVITY FOR CORPORATIONS WITH AT LEAST \$100 MILLION IN REPORTED LIABILITIES







# A quarantine-inspired, sourdough-free appreciation

*of*

# FOOD

37

**Reading time: 30 minutes**

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- 56** *When all the best restaurants close*

**Living under lockdown has forced many Americans to reconsider the source of their groceries, whether it's a farm-box delivery or a drive-thru food bank. We took the opportunity to explore the hiccups in our supply chains and see if avoiding them can help us build a better food system. Should we be growing our greens closer to home? Why are we baking our own bread all of a sudden? Is there any ethical way to eat cheap meat? P.S. Restaurants, we miss you.**

**Photograph by Daniel Gordon**



# Let Them Bake Bread





## King Arthur, a 230-year-old flour company, ramped up production to meet the demands of a baking renaissance

By Elizabeth Dunn  
Photograph by Daniel Gordon

**O**n March 18, Bob Morando, the chief executive officer of a flour mill located in the pancake-flat wheat fields of central Kansas, received a short, cryptic text from Brad Heald, the director of mill relations for his biggest customer, King Arthur Flour Co. “Call me,” it read.

Morando had an idea what Heald might want. Locals had been showing up at the mill all day in frantic pursuit of flour after finding it sold out at nearby grocery stores. When Morando called, Heald asked what it would take to get his whole-wheat flour mill, Farmer Direct Foods Inc., to double its output. King Arthur, one of the country’s largest flour companies, was running dry.

Mid-March is normally when a mill such as Morando’s slides into its annual slow period, as the weather warms and home bakers step away from their ovens. But fears were rising about the spread of the novel coronavirus. Cities across the U.S. were implementing unprecedented school and business closures, and shoppers were preparing for weeklong quarantines like the ones they’d seen on news reports from China and Italy.

Anything that could be hoarded flew off the shelves—pasta, toilet paper, canned soup. Among the staples in highest demand was also, unexpectedly, flour. The American public seemed to reach a collective understanding that baking, with its soothing rhythms and hint of homestead self-reliance, was just the thing to help ride out a stay-at-home order.

King Arthur’s retail flour sales almost tripled in March; in some grocery stores, when shipments arrived, shoppers picked the pallets clean before anything made it to the shelves. In two weeks, the entire “safety stock”—essentially, the company’s strategic flour reserve—was depleted, and so were baking aisles across the country.

After four decades in the cereal grains industry, Morando never expected to find himself facing down a national flour shortage. To meet it, though, he’d have to square his responsibilities to King Arthur, and to the American public, against his unease about Covid-19 and what might happen should it find its way into the mill. “I’m over 60, and a couple of my other guys are over 60,” Morando says. “We thought, Oh boy, if I got sick with this I might die. But what the heck. You gotta do it. You’re in the food industry.”



A King Arthur employee blends flour in Vermont

**K**ing Arthur Flour opened for business in 1790, during George Washington’s first term as president. It’s America’s oldest flour company and one of its oldest manufacturers. Over the centuries, King Arthur developed a loyal following among bakers. Priced a bit above the competition but without artisanal pretensions, it’s the Cadillac of flours.

At the heart of the company’s approach is wheat sourcing. It pays extra for wheat that’s especially high in protein—the critical element for giving baked goods a nice, proud rise. The 45 mills that make King Arthur flour, including Farmer Direct, meticulously blend each variety to get the protein ratio consistent within two-tenths of a percent. King Arthur all-purpose flour clocks in at a sturdy 11.7%, a figure that’s printed right on the front of the ►



◀ bag. The resulting breads are light and airy; the cookies don't spread too much on the tray. "I've always found King Arthur flour to be superconsistent in its quality," says Karly Kuffler, executive pastry chef at Le Crocodile in New York. "It's also accessible. My mom taught me how to bake with King Arthur, and here I am using it in the

**"We thought, Oh boy, if I got sick with this I might die. But what the heck. You gotta do it. You're in the food industry"**

professional kitchen today." The flour is never bleached, lending it a creamy, natural appearance that sets it apart from its bright-white competitors.

For much of its history, King Arthur was content to dominate the New England market. It's only in the past few decades that it expanded nationally and began focusing on building a deeper, direct connection with bakers. Brinna Sands, the wife of Frank Sands—whose family owned the company from 1870 to 2004—was adamant that King Arthur not simply sell flour but become an educational resource for bakers, too. The couple established a headquarters in Norwich, Vt., nicknamed Camelot, that featured a baking school, a cafe, and a store. It's become one of the state's biggest tourist attractions.

The independent, values-driven approach carried on after the Sands family sold the company to its employees in 2004. King Arthur became a certified B Corp three years later, recognizing a long-standing commitment to its local community, the education of bakers, the environment, and progressive employment practices. Annual sales have risen from a bit more than \$4 million in 1984 to about \$150 million in 2019, making it the second-best-selling U.S. flour brand, behind only Gold Medal from General Mills Inc.

As the business's fortunes have grown, the Sands family's commitment to baking education has continued to flourish. King Arthur has published three cookbooks, and it offers more than 1,000 recipes on its website—gateways to a thriving e-commerce operation where you can pick up whole-wheat pastry flour, Indonesian cinnamon, or a baguette pan. For 20 years the company has also run a hotline staffed by experienced bakers, who field thousands of calls each month from customers fretting about proofing temperatures or recipe substitutions. An equally knowledgeable team tackles questions and comments that come in through social media.

When the pandemic struck, those channels were flooded with requests. "Just as demand for flour has gone up two to three times, so has the amount of consumer inquiry, whether it's 'Help me to bake' or 'Where can I get flour?'" says Karen Colberg, one of King

Arthur's co-CEOs. The company's unusually close ties to customers made the thought of leaving bakers in the lurch feel personal. Colberg and her co-CEO, Ralph Carlton, committed themselves to filling the breach.

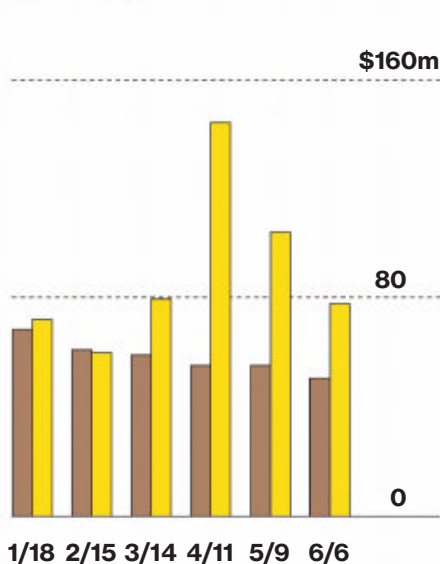
King Arthur quickly added a fourth distribution center to keep up with its ballooning e-commerce orders. It also added a second shift at a facility on its Norwich campus that makes baking mixes and bags flour milled elsewhere, retraining staff from the now-closed cafe and store. A dozen teachers from the baking school moved over to the hotline and social media teams, working remotely from their homes to handle a spike in inquiries to double the normal volume. "The number of sourdough baking questions has been just huge," says Linda Ely, who works on the hotline. "Why isn't my sourdough growing? Did I kill my starter? What kind of flour can I feed it?" The bakers were skewing younger and less experienced than her typical callers, asking questions about how to measure ingredients and whether long-forgotten bags of flour in the freezer were still usable (usually, no). "We've been getting a lot of people who are new to this," Ely says.

**B**eyond advice, what bakers really needed was flour, and that came down to the mills. There was no shortage of wheat: The U.S. grows 2 billion bushels (about 120 billion pounds) per year, less than 2% of which becomes retail flour. Even an astronomical increase in consumer demand represented a small share of the overall market.

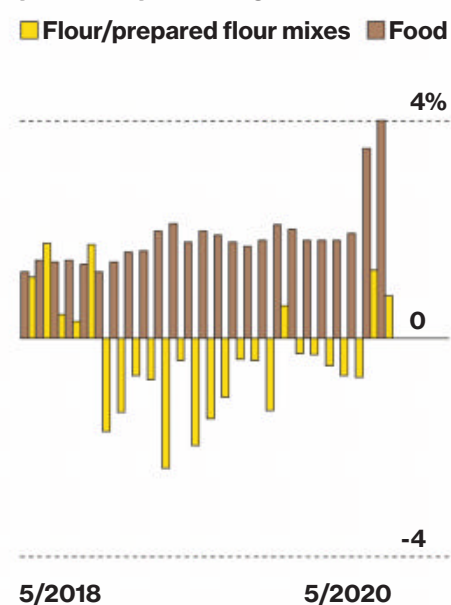
The bottleneck lay in the limited number of manufacturing lines set up to package flour into the 2-, 5-, and 10-pound bags destined for grocery shelves. Of King Arthur's 45 mills, only 7, including Farmer Direct, are equipped with the required machinery. The rest ship flour by the truckload or in industrial-size bags

## The Rise of Flour

U.S. in-store flour sales during the trailing four-week period\*



Consumer price index, year-over-year change



\*DATES ARE FOR THE 2020 PERIODS. THE 2019 PERIODS ARE THE FOUR WEEKS ENDING CLOSEST TO THOSE DATES. DATA: NIELSEN, BUREAU OF LABOR STATISTICS





Another employee packages the blended flour

direct to commercial bakeries, food manufacturers, and restaurants. Building and installing machinery would mean enormous expense and take more than a year to complete.

The key instead was to get all the retail packaging lines in King Arthur's network to drastically increase output. Milling and packaging are highly automated; it takes only four shift workers to operate Farmer Direct's 10,000-square-foot mill. (Social distancing, thankfully, isn't a problem.) That meant Morando could double his flour output simply by hiring four new employees and operating a second shift.

Those jobs, however, are highly skilled. To fill them, Morando leaned on Kansas' tight-knit milling community. "We call ourselves the Kansas mafia," he says. He brought back a few retired employees and hired a couple of recent graduates of Kansas State University's milling science and management program, the world's only four-year degree in grain milling. In less than two weeks, Farmer Direct went from operating one shift five days a week to double shifts six days a week.

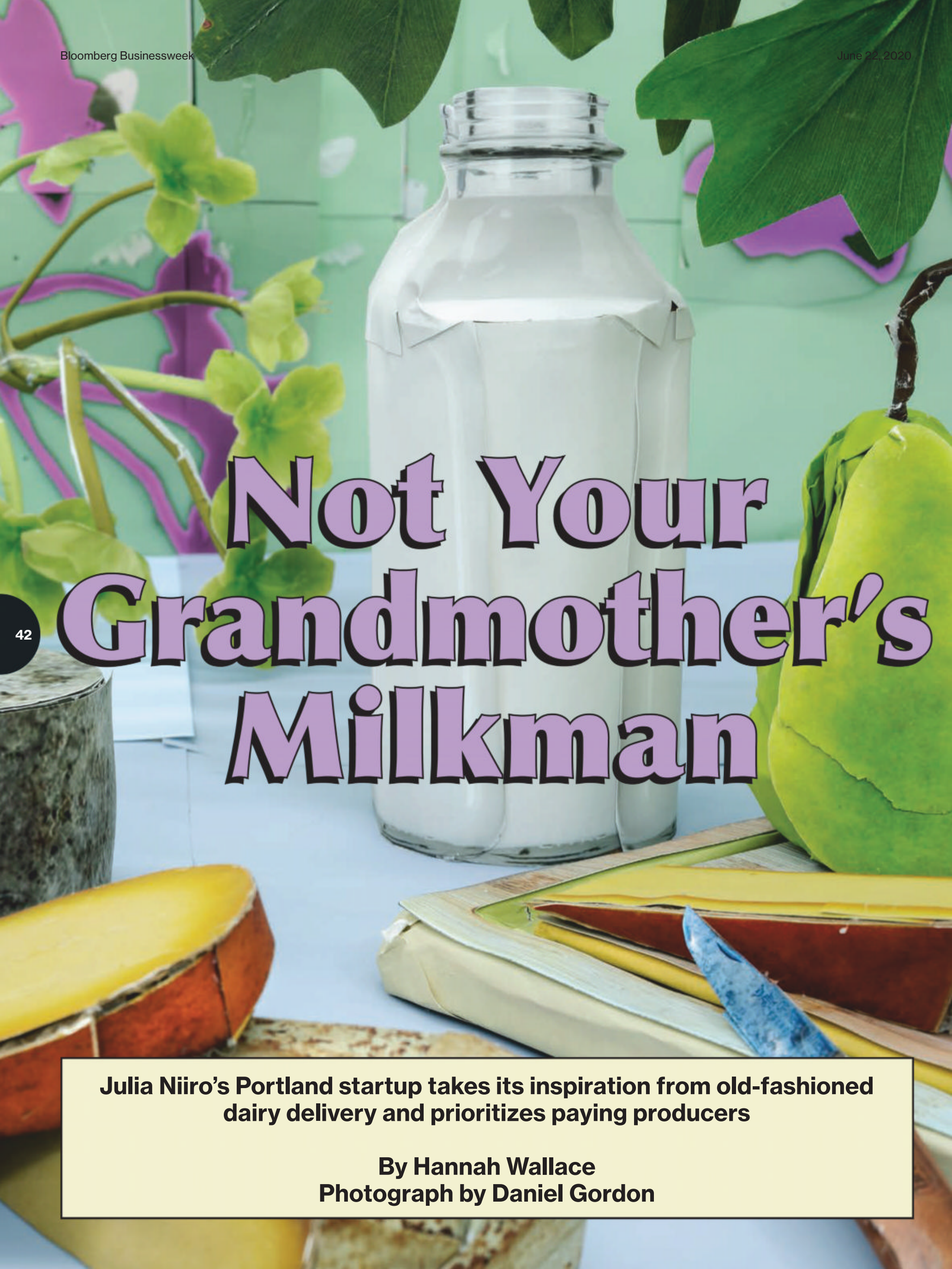
With all seven mills bagging flour at full tilt, King Arthur found one more way to increase production. Two of the company's mill partners had lines sitting idle that had been set up to pack 3 pounds of baking mixes into

resealable plastic pouches. King Arthur had never sold flour in that kind of package, but it swiftly designed a plastic pouch that could be filled with the same weight of all-purpose flour and got manufacturing under way within weeks. The solution promises to add up to 1 million bags of flour to the company's inventory; it's already on sale, exclusively on King Arthur's website.

As quarantine measures ease, the question on everyone's mind is how long the baking renaissance will last. Will the unprecedented demand for flour continue through the summer? Longer? If the economic downturn brought on by the pandemic continues, retail sales could remain elevated. King Arthur saw a 25% increase during the 2008 recession, when people ate out less and turned to home baking as an affordable indulgence.

As of now, the company plans to keep retail production ramped up through the end of the year. Carlton, the co-CEO, predicts that even as the pandemic risk recedes and more activities resume outside the home, people newly initiated to the joys of baking will continue with it. "There's a whole new generation of people baking from scratch for the first time," he says. "The circumstances are not ones we like, but that learning experience is very exciting." **B**





# Not Your Grandmother's Milkman

**Julia Niiro's Portland startup takes its inspiration from old-fashioned dairy delivery and prioritizes paying producers**

**By Hannah Wallace  
Photograph by Daniel Gordon**



**W**hen Julia Niiro founded MilkRun in Portland, Ore., in 2018, she wanted to combat two enduring challenges to local food systems: inefficient distribution and low farmer pay. Addressing these issues was necessary for smaller producers to disrupt an industry that's "really, really good at processing cheap food and selling uniform waxed apples at the same place we go to buy our toilet paper," as she put it in an impassioned 2019 TEDx Talk. But it's much less successful at delivering the sustainably raised, flavorful food grown on nearby farms.

In America, Niiro says, efficiency and scale have superseded taste, nutrition, and the livelihood of the farmer who grows, raises, or otherwise produces our food. Producers get only 8¢ out of every dollar spent by consumers, on average. MilkRun's mission is straightforward: "I want to make it as easy to buy from our local farmers as it is to book a stay in someone's house or call a ride."

The case for buying locally produced food is stronger than ever. When the Covid-19 pandemic began to shut down Oregon and the rest of the country in mid-March, it both sped up the trend toward online grocery shopping and highlighted the shortcomings of the industrial food system. In just a few weeks, farmers, unable to sell to restaurants, school districts, and coffee shops, were dumping milk and plowing under onions. Not long after, 20 U.S. meat-processing plants were shuttered because of coronavirus outbreaks, leaving farmers to euthanize tens of thousands of pigs and chickens. By contrast, the small, nonindustrial supply chains of family-run ranches, dairies, mills, and produce farms were able to keep up with increased demand.

Niiro, 34, grew up eating Jif peanut butter sandwiches on white bread in Detroit. She majored in English at Colorado State University and worked as a digital marketing director at Penton in Cleveland. "I was on your typical corporate America path," she says. In 2014 she moved to Portland for a change of scenery and fell in with a group of chefs who were passionate about local ingredients. (One of them, James Serlin, became her husband.) When she interviewed dairy producers and vegetable farmers for a short-lived social media startup she'd founded, she discovered how hard it was for them to get their products to market and make a living. She started MilkRun with a \$10,000 loan from her parents.

**N**iiro credits the milkman—the delivery method that was a hallmark of pre-World War II America—for inspiring her business model. With MilkRun she modernizes the technology, allowing consumers to purchase not only local dairy but also produce, meat, seafood, and locally made products from a sleek website. Then she pays farmers to deliver the orders directly to consumers' doorsteps.

One of the first farmers she brought on board was her

neighbor Garry Hansen of Garry's Meadow Fresh, who sells all-Jersey milk, cream, and half-and-half in glass bottles. Eventually she lined MilkRun's virtual shelves with bratwurst, dried black beans, freshly baked bread, chocolate bars, locally made dog food, and much more. She now offers roughly 500 products. Some are pricey—a 12-ounce bag of Capitola Coffee beans is \$15, and a half-gallon of Garry's organic milk is \$7—while other items, such as organic kale for \$3 a bunch, are less so, especially because delivery is included. Marketing director Rebecca Alexander says MilkRun can keep prices competitive because it buys directly from growers and producers, and it doesn't have to pay processors, packagers, or distributors, all of which take a cut in traditional supply chains. Alexander says that between 60¢ and 70¢ of every dollar MilkRun customers spend goes directly to producers.

Since the onset of the coronavirus, MilkRun's growth has climbed sharply. When I speak to Niiro in early April, she sounds dazed. "We did in sales last month



MilkRun founder Niiro on her cattle farm in Canby, Ore.

what we did in the entire last year of business," she says. The company had expanded to eight new ZIP codes (mostly in Portland's dense western suburbs), moved to a 6,000-square-foot warehouse, and doubled its delivery days, to four. Orders jumped from 100 per day before the pandemic to 700, and May revenue exceeded \$600,000, a twelvefold increase over February.

For shoppers nervous about venturing into supermarkets, grocery delivery has been a lifeline. It's also been a lifeline for Oregon farms and ranches, especially those that used to sell mainly to restaurants or corporate clients. Prior to the pandemic, Campfire Farms, a Willamette Valley producer of pasture-raised pork, sold to Airbnb Inc.'s Portland-area office cafeteria. The cafeteria closed in mid-March, but Campfire was able to almost triple its sales to MilkRun, which softened the blow. Farmer Zach Menchini says the figure "would be higher if we had more inventory to sell." Carman Ranch, a Wallowa County farm whose grass-fed beef is prized by Portland chefs such as Greg Higgins and Naomi Pomeroy, now processes its meat into steaks and hot dogs for MilkRun. In April it sold them 500 pounds of product—far short of the roughly 3,000 pounds per week it usually sells to restaurants, but owner Cory Carman says it helps.

Cora Wahl and her fiancé, Woody Babcock, the owners of Woodrow Farms, a small sheep dairy in Langlois, Ore., had recently doubled their flock of East Friesian ►





▲ MilkRun staff pack up grocery boxes at the company's warehouse in southeast Portland

▼ MilkRun has leased its own vans and hired laid-off restaurant workers to help keep up with demand for deliveries





◀ ewes when they lost most of their business because of Covid-19. With almost 1,750 gallons of sheep's milk on their hands and no experience selling directly to consumers, they reached out to creameries around the Pacific Northwest but couldn't find buyers. The couple was on the verge of drying up their sheep—reducing the energy content of their diet so they gradually stopped lactating—when they heard that MilkRun was having trouble keeping milk in stock. Wahl called Niiro, who committed to buying the milk as long as it was bottled prior to delivery. Wahl found a custom bottling facility in Tillamook and registered a new business, Langlois Creamery.

Sheep's milk is still an unconventional product, though, so MilkRun came up with an additional way of packaging it: ricotta cheese-making kits. "School is out, and people are looking for stuff to do at home," says Alexander, the marketing director, who collaborated on the project with local kids' cooking company Little Sous LLC. The cheese kits, which include colorful stickers and child-friendly recipes for ricotta pancakes and cheesecake, sell for \$49. "For the price of going to the movies—which you can't do right now—we're going to sell you this kit, and we'll save a farm in the process," she says. So far, MilkRun has sold 750 quarts of Langlois Creamery's milk.

Wahl says MilkRun has basically saved her family's farm. "When I dropped off the milk, we hadn't even discussed payment," she recalls. "I was like, 'Here, take this, do something.'"

Local food-system advocates are thrilled by what MilkRun is doing. "This is what we've been waiting for," says Maia Hardy, food and farms manager at Portland nonprofit Ecotrust. "An easy-to-use, well-developed, and well-run platform on the user end that also has transparent sourcing." Hardy runs an accelerator program for small and midsize farmers, and she admires the way MilkRun posts each farm's story and contact information, along with photos.

The company expanded to Seattle earlier this month and is about to close a seed round, though Niiro won't disclose what she's hoping for. She says she's in conversation with farmers and potential customers in Austin, Denver, Detroit, and New York to bring MilkRun to their cities—not to mention Vancouver, Wash., whose residents have made their wishes especially clear. Residents of the town, just across the Columbia River from Portland, have been e-mailing in droves to ask when MilkRun will expand to their area. "Vancouver, we hear you!" she says, laughing. Everything is on the table, as far as she's concerned, but she's also wary of moving too fast. Other food tech companies, such as Good Eggs Inc., have been forced to contract after an early burst of growth.

Whereas many food delivery companies buy a fleet of trucks and hire drivers, Niiro has been paying the farmers to deliver their own and others' food. At least she did

prior to the Covid-19 pandemic. The benefits are clear: Most farmers already own trucks and are accustomed, in most local food systems, to driving into cities to deliver their product to restaurants and farmers' markets without being compensated for it. MilkRun's paying the farmers for deliveries has allowed them to keep the money or hire someone else and preserve their time for farming.



Sheep's milk ricotta-making kits from Langlois Creamery

With the growth the pandemic has brought on, though, Niiro has leased nine vans and hired 34 laid-off restaurant and bar workers to help farmers keep up. "I can't tell you how overqualified our staff is," Niiro says. Prior to the pandemic she only had four employees. Now her team includes Bill Wallender, former chef at farm-to-table restaurant Quaintrelle, and Kalani Parducci, a former bartender at the James Beard Award-winning Ox.

Niiro says the best part of her job might be educating customers about how local food systems actually work—about the natural uncertainties and occasional crop failures that mainline grocery stores can solve by ordering fruit or vegetables from a different, far-off supplier. If a farm is 1,200 pints of strawberries short of its target because the weather wasn't as warm as anticipated, Niiro has to email a thousand MilkRun customers to explain. She also loves seeing people who are her parents' age engage with local food for the first time. "They're super-excited," she says. "We get all these emails—'We Googled garlic scapes and we LOVE them. Who knew?'"

One of the pandemic's countless effects has been to highlight the fragility of the global food supply chain. That's important for Niiro—it's meant increased interest not only from consumers and farmers but also from investors and other influential people. "Something is very wrong when people are euthanizing hundreds of thousands of pigs a day—when grocery store shelves are empty, and communities are hungry, and we're pouring out food," she says. "It's not just about delivery. We need an alternative. So let's invest in people who are putting time into the solution. That's the way change happens." 📍



# The Meat of The Problem



**Workers in this hyperconcentrated, functionally unregulated industry are extremely vulnerable to the pandemic**





**By Polly Mosendz, Peter Waldman, and Lydia Mulvany  
Photograph by Daniel Gordon**



**S**tephanie Morales was weighing her coronavirus symptoms against an 8-pound hunk of fancy steak. That Saturday in April, her bosses at the JBS meatpacking plant in Cactus, Texas, had promised their 3,000 employees that anyone who worked that day would receive half of an Angus rib-eye. At the typical \$9 a pound or more, this bonus equaled at least half a day's wages for her and many other workers at the plant, where the pay starts at \$16.20 an hour. She decided she couldn't pass up the deal. Morales, 25, had had a fever the previous weekend, and that Thursday she'd vomited at the plant during her break. But when she went to see the nurses, they took her vitals, said she was fine, and sent her back to work. Morales planned to tough it out.

"I wasn't going to get tested, because on Saturday they were going to give out half a slab of rib-eye, and I really wanted it," she says. "I thought, I'll get tested on Monday." Morales says her husband eventually talked her into getting screened that Friday. She tested positive for Covid-19 and didn't get to collect the prized meat, though she did make a full recovery. Two months later, there were six Covid-19 deaths associated with the plant and more than 900 infections. (The company disputed those numbers but did not provide its own.) While this was going on, managers at multiple JBS plants were promising \$600 to workers with no unexcused absences.

Throughout the industry this spring, bonuses of steak and cash were instrumental in keeping workers on the job as the coronavirus rampaged through U.S. meatpacking plants. The payouts forced people on the lowest rung of the economic ladder to assess their pocketbooks against the health of their families and themselves. Yet when the U.S. Centers for Disease Control and Prevention told JBS and other meatpackers to stop offering incentives based on attendance, lest employees come to work sick, the companies didn't listen. Why should they? The CDC has no legal authority over the industry, so even in the grip of the pandemic, adherence to its directives was purely voluntary. "CDC was requested to do initial inspections and offer recommendations," wrote Jason McDonald, a CDC spokesman, in an emailed response to questions. Any follow-up inspections would have to be done by other agencies, he wrote. Asked about the CDC's report, JBS said bonus eligibility was not tied to sick days. "Throughout this pandemic, we have prioritized team member health and safety above everything else," a spokesperson wrote in an emailed response.

The federal agency that does have the power to regulate conditions in meat plants is the Occupational Safety and Health Administration, part of the Department of Labor. But with its staff cut by the Trump administration and its inspection activity sharply curtailed, the agency hasn't issued a single enforceable order for what meat plants should do to prevent workers from contracting Covid-19. As usual, meatpacking companies are on their

own, unencumbered by regulators they've assiduously kept at bay.

Together, JBS SA and three other big U.S. producers, Tyson Foods, Cargill, and National Beef, control more than 80% of the U.S. beef market. There have long been allegations of price fixing, driving up costs at the supermarket. For the past decade, meatpackers and processors have spent close to \$5 million annually on lobbying, up from only \$542,000 in 1999. The industry spent \$1.3 million on the 2018 election, with two-thirds of that going to Republican candidates, according to an analysis of

## OSHA hasn't issued a single job site requirement for how meatpackers, or anyone else, should protect workers

campaign finance data from the Center for Responsive Politics. After Tyson ran full-page newspaper ads and a statement on its website warning of food shortages if meat and poultry plants were forced to shutter, President Trump signed an executive order to keep them open.

In the interest of averting cases like Morales's, the CDC warned JBS on April 20 to stop offering inducements for workers to come in, but JBS ultimately didn't follow the agency's advice. OSHA, for its part, ordered its staff in April to do in-person inspections only of hospitals and other front-line facilities during the pandemic—not meat plants—because health-care employees and first responders were deemed to be the only workers at sufficient risk of contracting the virus to warrant immediate investigation. All other OSHA probes were to proceed by phone and fax. Even in normal times, OSHA and its state partners have just 2,100 inspectors, who are responsible for the well-being of 130 million U.S. workers at more than 8 million work sites. That translates to one compliance officer for every 59,000 workers.

All the while, Americans demand meat, consuming about 224 pounds per capita a year at very low prices. The pandemic has done nothing to quell that hunger, even though 98 meat industry workers have died from the coronavirus and about 27,000, almost 1 in 20, have gotten sick, according to the Food and Environment Reporting Network, a nonprofit news organization. Sales have skyrocketed during the pandemic, rising 51% by dollar amount and 37% by volume year over year for the week ended May 3.

A safer, less deadly meat industry could be fashioned through widespread legislative and regulatory reform. Consumers, too, could force change with mass boycotts—or if they were willing to spend more money on less meat. But in the absence of pressure, the industry has no incentive to change. Covid-19 has become just another workplace hazard in one of America's deadliest industries.



In 2009, when President Obama took office, the H1N1 swine flu pandemic was sweeping around the globe. OSHA ordered all employers and workplaces to follow the CDC's guidelines, which consisted largely of social distancing and wearing face masks and other protective gear. It was a successful workaround for a significant issue: OSHA had no rule, and creating one was an enormously time-consuming, politically sensitive process. The following year, OSHA launched the long bureaucratic process of promulgating its own workplace standards for combating infectious diseases. Those rules were almost finished in 2017, when Trump took office.

His administration significantly cut back OSHA health and safety probes. Ergonomic investigations, which look into the most common work-related ailments, were slashed by a third. The agency has nearly ceased issuing press releases shaming company violators, blunting one of its most potent enforcement tools. OSHA has also been handicapped by staff cuts: It has fewer health and safety inspectors today than it did 40 years ago, even though the U.S. workforce has almost doubled, and it performs about 25% fewer inspections than it did a decade ago. The agency declined to comment.

OSHA hasn't issued a single job site requirement for how meatpackers should protect workers. By failing to compel companies to follow CDC guidelines or take any other pandemic measures, OSHA has left meat workers particularly exposed, says Debbie Berkowitz, a non-profit labor advocate who served as the agency's chief of staff and as a special adviser in the Obama administration. She calls OSHA's pandemic response a "total desertion of duty."

By the time the agency showed up at National Beef's slaughterhouse in Dodge City, Kan., in mid-May, three workers were already dead. After co-workers on both sides of her workstation got sick, Aleja Perez, a 56-year-old immigrant from Cuba, asked human resources if she could get tested for Covid-19. She was told she had to keep working if she had no symptoms, says her son, Yunier Santana. He urged her to stop, but she insisted

on finishing the week. "The bonus was the only reason," says Santana, who works as a truck driver.

On March 16, National Beef Packing Co., a unit of Brazil's Marfrig Global Foods SA that's based in Kansas City, Mo., announced a temporary hazard bump of \$2 an hour and, effective April 27, offered a \$500 weekly bonus to any worker who took no time off—a pandemic raise, for perfect attendance, of almost 80%. Santana took Perez to the hospital on May 4 but was barred from entering and never saw his mother again. She died on May 6. Now he's stuck with the medical bills, and no one from National Beef will take his calls.

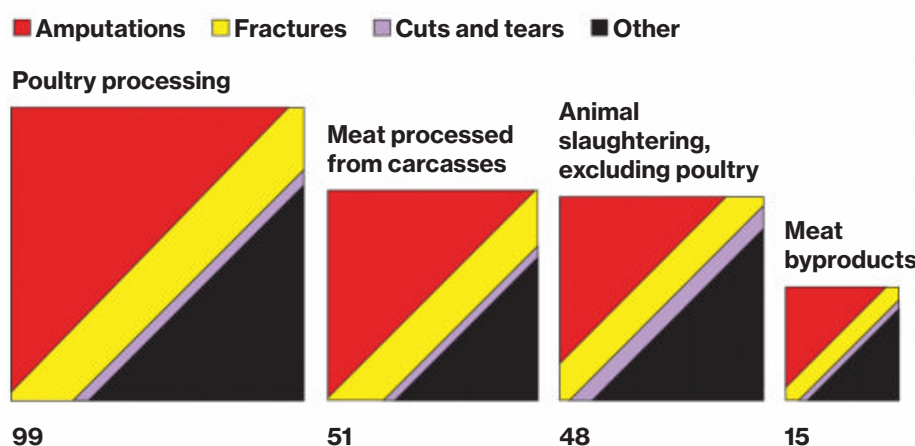
The virus swept through the 2,700-worker plant, making Dodge City, and surrounding Ford County, the coronavirus capital of Kansas. On April 24, when three occupational-health experts from the CDC toured the plant to offer advice, they found that approximately 190 workers were out with Covid-19, 400 more were in home quarantine because of "close contact" with infected people, and 250 hadn't shown up for work. The CDC issued an advisory report based on its tour and recommended that National Beef stop offering workers bonus pay based on attendance, but the company spurned the advice. National Beef did not respond to emailed questions.

On May 13, after the company's death toll hit three in Dodge City, OSHA Wichita Area Director Ryan Hodge made the 150-mile drive west to inspect the plant. More than 250 plant workers had already been sick with Covid-19. Hodge was in and out of the facility in less than 90 minutes, says Alfonso Figueroa, the United Food and Commercial Workers' site rep, who accompanied the OSHA official inside the plant. A Labor Department spokesman confirmed that OSHA is investigating the deaths at the Dodge City plant but declined to comment on the open probes.

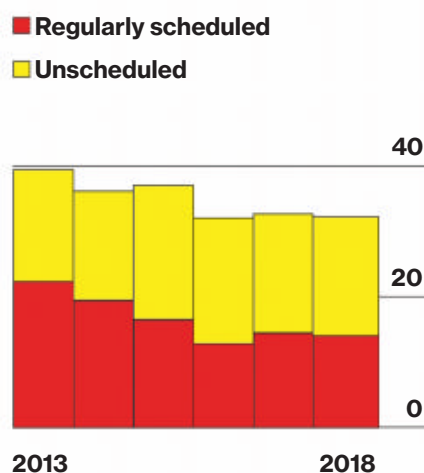
After injuries, deaths, or other serious incidents, OSHA inspectors can probe anything relevant to an investigation. But Hodge asked only to see the stations where the three deceased employees had worked. He showed no interest in the bathrooms, locker rooms, break areas, cafeteria, or any of the choke points on the plant's fabrication line, where ▶

## Occupational Hazards in Meatpacking

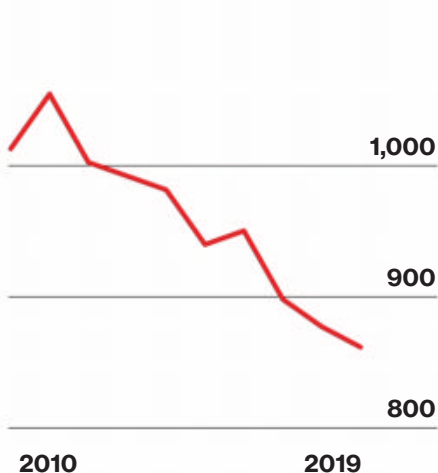
Severe injuries in meat industries reported to the U.S. Occupational Safety and Health Administration, 2019\*



OSHA inspections, by fiscal year



Number of OSHA inspectors



\*U.S. OSHA COVERS THE PRIVATE SECTOR IN 28 STATES. DATA: U.S. OSHA, NATIONAL EMPLOYMENT LAW PROJECT



◀ workers continue to practically rub shoulders, Figueroa says. “It seemed like just a casual visit, considering three people had died,” the union rep says. “He was content with what he saw and left.”

Hodge paused to ask a few questions on the kill floor, where beef carcasses, still warm, are sawed in half. It was there that Perez had worked removing tags from the animals’ tongues. Hodge noted that her workstation was only about 4 feet from another worker’s. A plant manager promised to install a barrier between the positions, which still hadn’t been done two weeks later, Figueroa says.

By the time OSHA got around to issuing guidance for meat plants, it was late April. The document, developed jointly with the CDC, recommended reconfiguring workspaces to allow for 6 feet of distance “if feasible,” but set no hard rules. National Beef installed stainless-steel and Plexiglas barriers between work stations, which the CDC says should not replace 6-foot worker distancing. The heavy plastic actually makes it more difficult to breathe, workers at multiple plants say, especially as noxious fumes from the assembly line get trapped more easily.

Even with fewer workers coming in, the plant denied union requests to slow down the line to accommodate less manpower—it still processes 390 cattle per hour, a decline of just 7% from its normal run rate. Meanwhile, National Beef has extended the bonus pay through June, rejecting a union request to abide by CDC guidance and delink the extra money from attendance. “We still have a long way to go before our workers are safe,” says Martin Rosas, president of Local 2 of the UFCW. “We know OSHA isn’t serious about helping them. Unless someone out there starts holding these employers’ feet to the fire, they’ll never change.”

**H**istorically, politicians and regulators have rewarded the industry with autonomy and lax regulations. As its labor supply dwindled, National Beef appealed to Kansas Secretary of Agriculture Mike Beam to muscle the union on its behalf. “Our request is that they hear from the Governor’s office about the importance and special responsibility of food production workers and to ask the Union to encourage its folks to continue to report for work,” Simon McGee, National Beef’s chief financial officer, wrote to Beam in an email.

In Nebraska, Governor Pete Ricketts directed departments not to release Covid-19 case statistics at meat plants, citing concerns about privacy and the quality of the data. Cattle production is the leading industry in the state, where cows outnumber humans 4 to 1 and license plates proudly boast that it’s “the beef state.” Among the donors who’ve supported Ricketts’s career are Tyson Foods Inc., Smithfield Foods Inc., and the Nebraska Cattlemen.

Across the country, politicians were facing similar decisions as illnesses and deaths were mounting. In Colorado, the public health director of Weld County, where Greeley is

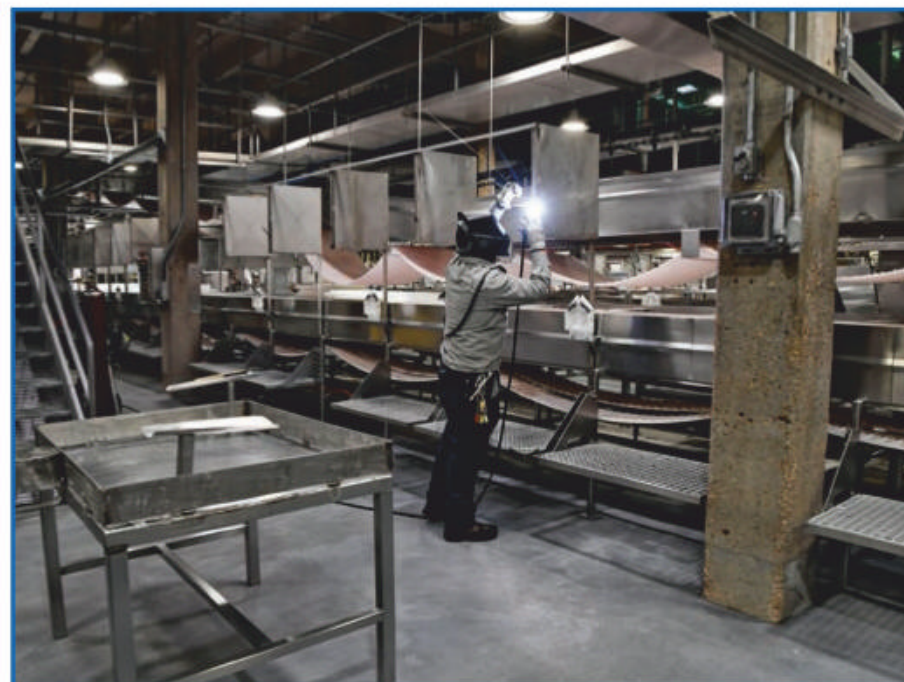
located, notified JBS in early April that 64% of the plant’s workers who’d tested positive for Covid-19 had worked while symptomatic and contagious. The JBS employees told health-care personnel that the plant had a culture of “work while sick” that included managers and supervisors, wrote the county’s public health chief, Mark Wallace. Wallace, who’d been on the job 20 years, abruptly retired in May after warning the Weld County Commission to slow down in reopening for business.

JBS, after lobbying the state to keep its plant open in Greeley, eventually shut down the facility for a two-week cleanse. “We chose this aggressive option to quarantine the entire workforce and stop any potential chain of infection,” a JBS spokesperson says.

The demographic makeup of meat industry workers may explain why some politicians side with companies over their employees. Meatpacking houses focus on “hiring vulnerable workers that they can put under their thumbs,” says UFCW7 President Kim Cordova, including older workers, refugees, women, and others who badly need jobs but are reluctant to speak up for themselves because of language barriers, immigration, or social status. This allows the “work while sick” culture to flourish. To keep the plant running, JBS Greeley has even pulled workers from halfway houses in the community, Cordova says. Asked about her allegation, JBS said it isn’t “aware of” any workers hired from halfway houses.

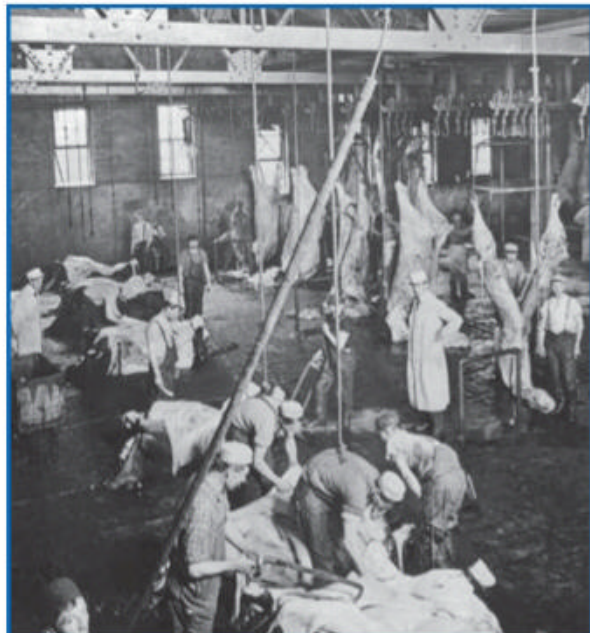
Politicians aren’t quick to take up the cause of meat industry employees, in part because it doesn’t serve them at the polls. The actual work of processing animal carcasses is hidden, tucked away in small towns and rural areas. Workers are often minorities and immigrants, who lack significant political representation. There are no exact statistics on how many undocumented or noncitizen workers are employed in the industry, but the nonprofit Food Empowerment Project found that 38% of meat processing workers were born outside the country.

Meanwhile, the industry is rife with scandal. The



A welder makes modifications to JBS processing stations in Greeley in April





At the Swift & Co. Packing House in Chicago, circa 1906, workers cut up and tag beef, pork, and lamb

Department of Justice recently subpoenaed the nation's four largest meatpackers in an antitrust probe: Beef prices have almost doubled over the past month, drawing the president's attention.

**F**or now, the most leverage to change these practices may lie with consumers. Over the past century, meat consumption has steadily increased, reaching \$75.9 billion in sales in the past 52 weeks, according to data from Nielsen Corp. Over that same period, plant-based meat alternatives accounted for only \$922 million in sales. A 2019 Barclays Plc report predicted it would take meat alternatives a decade to surpass 10% of the global meat market. The likelihood of a majority of Americans going meat-free, especially in an emergency, is low.

Factory-farmed meat is cheap. Ground beef at a farm stand sells for \$8 a pound, double the national retail average, according to Bureau of Labor Statistics data. The small farm price is cheaper than a plant-based alternative, though: 16 ounces of Beyond Meat ground "beef" is \$10. A rib-eye at a family farm can run as much as \$27 a pound, nearly triple the average price at the grocery store. That single steak would amount to 18% of the average family's weekly grocery bill, according to an analysis of BLS data from consumer expenditure surveys. For Americans without access to farm stands, factory-farmed meat is the only option, and it will come from one of the four mega-suppliers. That concentration is key to the U.S.'s low-cost industry, says Stephen Koontz, an agricultural economist at Colorado State University.

Small players are trying to build cult followings to take on the Big Four, but with limited success. Jon McConaughy, a former Credit Suisse trader who founded Double Brook Farm in Hopewell, N.J., in 2011, seeks to create an antidote to the problems of industrial agriculture. McConaughy calls his farm "vertically integrated, closed-loop"—it grows vegetables, grains, and fruits that nourish its turkeys, chickens,

ducks, cows, sheep, pigs, and goats. Their waste fertilizes the fields where the crops are grown. Two-thirds of the farm's food is sold on-site at the Brick Farm Market, and the rest is served to diners at the Brick Farm Tavern and Taste Café.

McConaughy also has his own slaughterhouse on the farm—nearly unheard of in the U.S. these days. It took five years of maneuvering and \$450,000 to build, but once a week two butchers kill and cut up Double Brook Farm's four-legged livestock, totaling some 1,200 U.S. Department of Agriculture-certified carcasses a year. (The 22,000 birds are slaughtered elsewhere.) Having his own slaughterhouse addresses a multitude of ills, McConaughy says. It avoids trucking livestock and processed meat thousands of miles to and from massive, centralized slaughterhouses, which are located far from population centers where people might object to their emissions and labor conditions.

Double Brook's ground beef sells for \$8 a pound, slightly more than at a nearby Whole Foods, which allows the farm to nearly break even and McConaughy to pay his workers a fair wage. One of his butchers earns \$52,000 a year, while the other makes \$18.50 per hour. Both work just under 40 hours a week. The typical wage of a meatpacking industry employee is \$15 an hour, plus overtime. Many work up to 60 hours a week.

The pandemic has made a handful of consumers switch to local, ethically farmed meat products, but it's unclear if those shopping patterns will persist after the headlines stop. McConaughy is hoping Covid-19 has opened people's eyes to where their meat comes from. Ethical production "became important for sneakers and jeans and cellphones. Maybe it will for food," he says.

The nation may now be experiencing a second wave of the virus outbreak, with case counts mounting in Texas, Arizona, and other red states where meatpacking is more common. On June 5, JBS's Cactus location sent workers home with 10-pound boxes of chicken tenders. The state had 1,693 new Covid-19 cases that day. **B**



# Greener Pastures



**“Novel farming,” which turns out pricey designer produce, isn’t hurt by shortages of water or migrant workers. It’s seeing a massive jump in demand**

**By Deena Shanker  
Photograph by Daniel Gordon**



**B**y Saturday, March 14, even before Mayor Bill de Blasio announced the shutdown of all in-restaurant dining in New York City the next night, Viraj Puri, chief executive officer of the Brooklyn, N.Y.-based indoor urban farming company Gotham Greens, found his business had essentially changed overnight.

His major restaurant customers were suspending all orders “until further notice,” while the grocers, including Whole Foods Market, FreshDirect, and other major chains were doing the opposite, asking for huge increases in product and extra deliveries of the company’s locally grown greens and herbs. (Puri declined to share the food service-retail split for his business, but he says restaurants are the smaller piece.) “My phone was buzzing off the hook from the largest supermarkets, saying can you run extra trucks,” he says. Gotham was ready—it had just opened three facilities in Baltimore, Chicago, and Providence and had another opening in Denver in May, almost tripling its production capacity. In the immediate days after the pandemic declaration, the company increased planting by more than 20%. “For me, it’s seed as much as you can,” says Jenn Frymark, a managing partner who also serves as the company’s “chief greenhouse officer.”

Unlike typical field operations, with separate planting and harvesting seasons, Gotham Greens runs continual, year-round seasons in its hydroponic, urban greenhouses, often built on the sites of now defunct industrial businesses, including a former Bethlehem Steel Corp. plant in Baltimore and an old toy factory in Queens, N.Y. It focuses on such greens as butterhead lettuce, basil, and, especially since the many food-borne illness outbreaks that have come out of West Coast production, romaine lettuce. Packaged in chic 4.5-ounce plastic clamshells, the salad basics can go for more than twice the price of their direct competitors, which explains why Puri is so singularly focused on the greens market, at least for now.

His greenhouses are huge technological steps forward from their forebears. Engineers can adjust factors such as humidity and temperature to simulate the ideal conditions for any part of the growing cycle at any time. They are, Puri says, “very coddled plants.” The company says that thanks to such factors as shorter growing cycles and precisely applied recirculating irrigation, its yields are 35 times higher per acre than those of a conventional farm—and use about 95% less water.

When major farms around the country saw their food service business disappear almost overnight, many were left dumping produce and plowing it under while it was still in the fields. Puri says that Gotham, while it did donate some product that would have headed to food service, didn’t dump anything. Some of its customers, such as restaurant distributor Baldor Specialty Foods Inc. and lunch chain Just Salad, kept buying product but sold it retail.

Gotham is hardly alone in its quest to retool American agriculture to be closer to consumers, more high-tech, and less reliant on the dwindling resources that are making conventional farming ever more challenging, such as water and migrant labor. While a number of its competitors have folded in the face of such challenges as scaling up and using new technology while selling expensive products, Gotham is expanding its reach to new regions. Overall, the “novel farming” industry, which can include everything from giant vertical farms near cities to distributed farms that grow produce right in supermarket aisles, raised \$945 million in 2019, a 46% jump from 2018, according to agricultural researcher and investor AgFunder Inc.

Even with the growth of indoor farming, 90%-plus of leafy greens and vegetables still come from California, says Roland Fumasi, a senior analyst specializing in fruit, vegetables, and floriculture at Rabobank, and the epidemic has highlighted the potential disruptions of a very long supply chain. In March the shock spread to cold storage, trucking, and other parts of the normal way of doing food business, giving companies such as Gotham, with significantly fewer miles in its supply chain, a big advantage.

Meanwhile, other indoor growers are expanding beyond the lucrative basil and lettuces. Hamilton, Ohio-based 80 Acres Farms is growing tomatoes in its multilevel vertical farms. New York-based Bowery Farming Inc., which says it’s more than 100 times more productive than typical field agriculture, has grown kohlrabi, tubers, and vine crops, though not commercially. Both companies say the pandemic led to massive jumps in demand for their products at retail. For Gotham, that’s meant an increase in revenue of more than 50% since March. Edinburgh’s Intelligent Growth Solutions Ltd., which builds and sells highly automated vertical farm towers and stations to operators, produces equipment that can grow root crops, such as carrots, turnips, radishes, potatoes, and spring onions, as well as leafy greens. Inquiries have “at least doubled” since the beginning of the pandemic, says CEO David Farquhar, and they’re coming from all over the world.

**C**onventional field operations, however, aren’t about to disappear; they’ll remain the primary source of fruits and vegetables for a long time, and in the U.S., much of that produce will come from California most of the year. They’ll continue to face the same problems that have only grown worse, too little water and too little labor, says Dave Puglia, president and CEO of Western Growers. “The challenges facing our members pre-Covid are well known because we’ve been calling for help a long time,” he says.

When it comes to labor, the coronavirus only exacerbated an existing problem. Traditional field agriculture requires humans, often close together, picking ►



◀ and packing the produce. While machines have been in development to replace humans for years, so far they have yet to imitate the precision and delicacy of a human touch. It's meant Covid-19 outbreaks hitting farms in New Jersey, Tennessee, and Washington just as the peak harvest season is getting under way. The industry is doing everything it can to protect its workers in the short term, says Puglia, including more education and forced distancing. (This protects more than workers; it protects yields, and therefore bottom lines.) Still, some farmers are better equipped than others for the kind of changes required to maintain a healthy workforce.

Talley Farms in Arroyo Grande, Calif., cultivates 1,600 crop acres to grow vegetables such as cabbage, spinach, and peppers. Its workers, 275 at the height of the season, often come through the government's H-2A visa program and therefore, under the program's requirements, live in farm-provided housing. Housing represents the biggest challenge for preventing the spread of a deadly virus, but co-owner Ryan Talley, who runs the farm his family started in 1948 and expanded in the following decades to not only grow but also pack and ship its vegetables, says his farm is unusually well prepared. That's because workers live mostly in actual homes, including ones that were on the farm when he purchased the land and those they've subsequently built, instead of the bunker-style dormitories that are common for H-2A workers. Each house has a few bedrooms, each of which holds a few people, and they're cleaned daily before workers come home from the field.

In the field, instead of having pickers shoulder to shoulder tossing cilantro and cabbage into a "harvesting aid" that is attached to a communal tractor for others to pack them, workers are now spread out and doing their

**“To make the economics work, it has to be in high-value crops, like herbs, specialty greens, and berries”**

own packing. None of the actual picking is mechanized, though Talley and others recognize that's where the industry is headed: fewer people, more machines.

“Our industry is so hand-labor-intensive that with minimum wage going up and overtime hours here in California, the workday is shrinking,” Talley says, referring to the more worker-friendly laws that are increasing hourly wages and overtime pay requirements. “Mechanization, that's the future.”

Investors agree with that prediction: Farm robotics, mechanization, and equipment companies raised \$184 million from venture capitalists in 2019, a 38% increase from the year before, according to AgFunder.

“Over the long haul, hopefully, we will have transitioned more workers to higher-pay jobs operating machinery and further reduce the risk of transmission,” Puglia says. That means fewer workers total, and even fewer that come in under visas or without documentation at all.

Talley Farms was largely spared the worst of the Covid-19 financial blows, since food service accounts for only about 10% to 15% of the business. A Talley direct-to-consumer farm box program that delivers freshly harvested local produce exploded, as did those at many other farms across the country, when consumers were forced to stay home and do their own cooking, and many wanted to avoid the masses at supermarkets. But the shift from one kind of customer to another didn't happen without casualties. “We had to dump a little bit,” Talley says, including about 2,000 cartons of napa cabbage, weighing 60 pounds each. The logistics of perishable foods means that big changes can be costly.

Talley doesn't expect to be able to afford one of the mechanical pickers, whenever one successfully comes to market for a crop he grows. Most likely farmers like him will be renters of the machinery, not owners, says Rabobank's Fumasi. “Harvest as a service,” he says, “that's always made the most sense.”

At novel farming operations, much of the work is already done by machines, and what isn't might be soon enough. Employees also don't live together and are unlikely to be migrant workers—they're frequently city dwellers who work their jobs year-round. Finding them can still be a problem, as those with the required training remain in short supply. But Covid has highlighted these systems' resilience.

Startup costs for indoor farming operations can be very high, as are electricity bills, depending on the energy source, and supermarket prices often reflect that. Yet the benefits of longer shelf life, lower water use, and fewer (if any) pesticides and food-borne bacteria will continue to make these models attractive. That won't be true of everything in the produce section. “To make the economics work, it has to be in high-value crops, like herbs, specialty greens, and berries,” Fumasi says.

The companies best positioned to succeed, he continues, are those that focus on regional distribution models, instead of hyperlocal, which can leave a producer in the lurch if, say, extreme weather closes everything within the city limits. Gotham's model is regional and extending farther westward with its new Denver outpost, while other newer farms are still extremely local.

But for countries where access to a local food supply is challenged, such as the tiny island of Singapore or the deserts in the Middle East, governments are increasingly funding the ventures, says Henry Gordon-Smith, founder and managing director of Agritecture Consulting, a novel farming consultancy. “These countries,” he says, “are saying Covid has shown us how fragile our food supply is.”



# WHAT IS AVAXHOME?



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▲ Picking and boxing spinach just after sunrise at Talley Farms in Arroyo Grande, Calif.

▼ A Gotham Greens greenhouse in Chicago's Pullman neighborhood







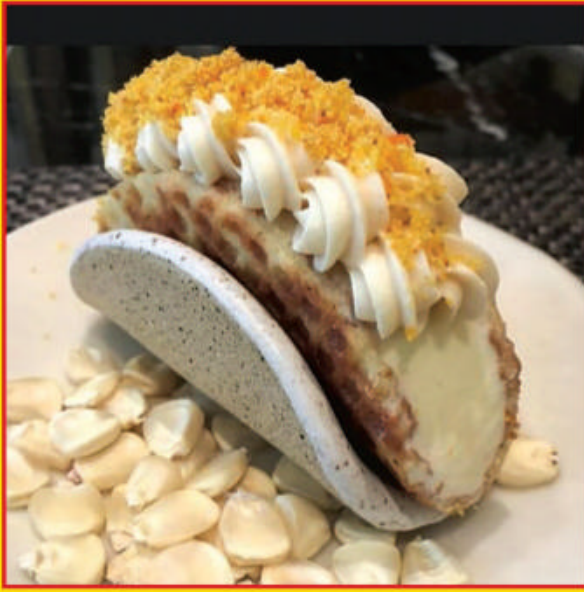
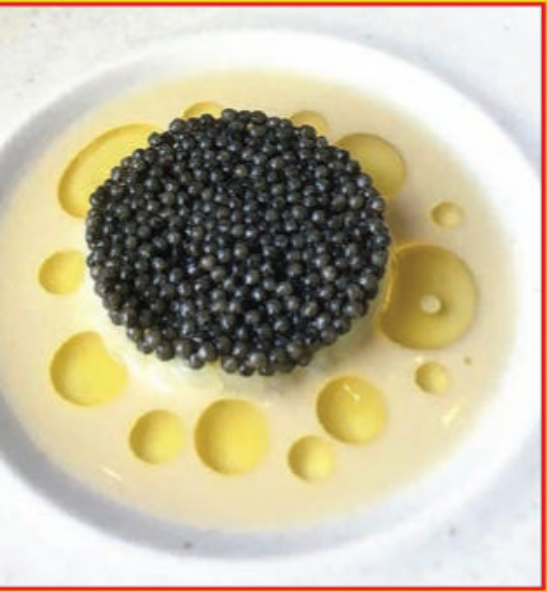
# How I Learned to Cook Again: A Culinary Tragedy

I ate at the best restaurants all the time. Then the pandemic happened, and I had to work my kitchen

Story and photographs by Howard Chua-Eoan

For more on these restaurant dishes, go to [#themagicofrestaurants](https://www.instagram.com/themagicofrestaurants) or [@hchuaeoan](https://www.instagram.com/hchuaeoan) on Instagram







**M**y long-lost friend Keith found me on Facebook in the middle of May. He'd retired from the U.S. post office and, with nothing to do in New Jersey during the lockdown, was surfing links and lists—and there I was. I hadn't heard from him in almost 20 years. I could tell from a rush of likes that he'd clicked through scores of the hundreds of photos I've posted of my meals at some of the best restaurants in the world. Under the most recent one, he commented: "Who's got it better than you."

"You don't understand," I replied from isolation in London. "I used to have it better than me. I used to eat out every day. Every day! Now, I have to cook. And do the dishes. And complain about what I prepare." Most of my best pictures were months old. He'd put the comment under one of my home-cooked meals from the day before: a microwaved sausage roll and a cup of tea. I was flabbergasted. Didn't he get the irony? He replied with an emoji howling with laughter.

It's a ridiculous situation. I'm one of those stereotypical city dwellers who use the kitchen to store shoes, books, and the odd tax form. When I lived in New York, I pulled the plug on my refrigerator—it was on only for ice and made this awful rattling sound that scared the neighbors. When I moved to London two years ago, the real estate agent showed me a lovely flat with a spectacular view but apologized that the fridge was barely bigger than half a dozen stacked shoeboxes. I took the apartment. The kitchen was my least concern. I lived alone. I ate out every day. Restaurants defined my existence.

The pandemic, of course, changed that. I'd just moved to a new flat in hipsterish Shoreditch, close to my favorite dining spots. It had a full-size fridge, which didn't matter to me until it did: There were restaurants, restaurants everywhere, but not a place to eat. I hadn't cooked since about the last time I saw Keith. So there I was, learning all over again with pots, pans, and cutlery hurriedly ordered from Amazon.com. I Instagrammed pictures of what I cooked at home or had delivered from the couple of takeaway services that met my criteria, interspersing them with nostalgic remembrances of the spectacular dishes of meals past. Sad emoji. With teardrop.

My sainted mother—the best cook in the family—had taught me a few basics ages ago, and, after my family moved to the U.S. from the Philippines in the early 1980s, I'd cooked for my parents and siblings, because I was usually the first one home from school and work. Once I was on my own, I liberated myself from the kitchen and lived off the culinary skills of others. Before Covid-19, it was possible in New York to have dinner in a different restaurant every day for more than 80 years. I chose to be a regular at about two dozen. I miss them still: the bar at Momofuku Ko and its crazy good daily specials, the deconstructed wine bar and gorgeous food at Wildair, the sumptuous nouvelle *banchan* at Atoboy, the empanaditas at Maite in the Bushwick neighborhood

of Brooklyn, brunch at Estela, pizza by the slice after midnight at Joe's Pizza in the West Village...

In the early days of lockdown in London, friends sent me helpful messages like this one: "Don't forget to put the ice cream sandwiches in the fridge. They melt." Ha ha. (But good reminder, thanks.) I joined a biweekly subscription service for fresh meat, fish, and poultry. In a similar vein, a restaurant I patronized pre-Covid began supplementing its income by delivering vegetable boxes from an organic supplier. But I still had to figure out how to get that produce from a raw state to a condition I'd be willing to put in my mouth. And swallow.

There were so many things to learn and relearn: discerning baking soda from baking powder; washing my hands every time I touched raw chicken; measuring the right proportion of water to rice; cleaning out the organic shit between the folds of fresh leeks; using the flavorful water in which you've rehydrated shiitakes; deciphering the strange workings and beepings of my Siemens oven and hob, as they call range tops in London. And holding the onion you're slicing, terrified as you fight back tears, so you don't slice off a fingertip. That might yet be how I die.

Still, I've made chicken soup from a 1.5-kilo bird—twice—and boiled down 3 kilos of beef bones for more than 12 hours to make broth, freezing it in the event of a graver apocalypse so my instant ramen won't be so watery. I learned from chefs who post recipes and techniques on Instagram. I made an excellent onion omelet based on directions from @studiokitchen1 (Shola Olunloyo, the best chef without a restaurant before all chefs had no restaurants). I apologized to him for taking several shortcuts and excused myself saying I lacked skills. His reply on Instagram: "Repetition is the key to mastery."

A sense of accomplishment comes from all this. Soon that satisfaction transfers to having washed the dishes—over and over. It also takes a lot of practice to master the art of turning leftovers into more than leftovers. I would eat and wonder how much to keep and which other leftovers to match with it the next time. Menu planning with scraps may be an opportunity for creativity, but mostly it's an opening for desperation. Repetition becomes drudgery, and drudgery becomes a part of your domestic self-esteem. The repetition stung in other ways. I used to make fun of my mother for wearing her showy diamond engagement ring all the time, even while cooking. But when I started being splattered by hot cooking oil, I realized why she did it—to draw attention away from the many tiny burn spots that were aging her lovely hands.

The unending cycle of domestic life brought me back to restaurants. They may not have been perfect or had the most ethical business model—many were financially unsustainable, works of love rather than commerce, and prey to real estate vultures. All that, combined with the pandemic, has made the plight of their unemployed workers particularly stark. But restaurants and the





An onion omelet inspired by Shola Olunloyo's Instagram—but not as sophisticated



Avocado salad, based on memories of a Cuban-Chinese diner in New York



My traditional soy-sauce chicken turned out untraditionally pale



A simple success with goat cheese, onions, cilantro, and tomatoes on toast



Chicken soup from scratch, but with shrimp dumplings, not matzo balls

people who labored in them provided me and other city dwellers with a great gift—the luxury of time.

Restaurants were my antidote to solitude. They were a diversion from the time-consuming drudgeries of domesticity, letting me savor the fleeting joys of urbanity. At any of my regular spots, I was happy to be alone with a book and food, or deep in conversation with the bartender, or rhapsodizing over the subtleties of a new dish with the chef, or catching up on gossip with the server, or delighting in a new wine with the sommelier. I still enjoy those things a lot more than fretting about cooking: finding ingredients, chopping onions, washing dishes, sorting leftovers, and, of course, buying the essential kitchen gadget I forgot during the latest shopping trip. What am I really going to do with that £25 meat thermometer?

I've saved a huge amount of money over the months of lockdown by cooking and eating in. But it takes time to plan a meal, chop and dice, watch knife edges and hot fat, do the dishes, repeat. I'm convinced the most important and seriously underpaid members of a restaurant team are the dishwasher and the prep cooks. They should be well compensated, because they make possible the evanescent pleasures of urban life—which in turn make me feel like I'm part of a philosophical continuum. Almost 2,400 years ago, Epicurus said, "Not what we have, but what we enjoy, constitutes our abundance."

That's what I'm afraid we may lose altogether if a frightened world emerging from the pandemic decides to give up on restaurants. It would lead to the tragic end of a glorious golden age of dining out, of the art of enjoying life. The mystique is lost when curbside pickup service replaces a sense of arriving and being welcomed to a refuge from the rest of the world.

Every time I visit René Redzepi's acclaimed restaurant, Noma, in Copenhagen, I look forward to being greeted by Ali Sonko, a longtime dishwasher who welcomes every guest with a sure sense of ownership. In fact, he's a part owner: A couple of years ago, Redzepi made Sonko a partner at Noma, which has become one of the most ambitious restaurants in the business, not only in terms of cuisine but also of social and environmental responsibility. It's a bracing and embracing ethos.

Noma is an oasis in the middle of a metropolis—what all good restaurants are—writ large. Last September, I sat in its garden after lunch service, listening to René in conversation with his old mentor Ferran Adrià, chef of the legendary El Bulli on Spain's Costa Brava, one of the prime movers of the golden age. They were talking about how

to preserve their legacies—a poignant conversation in retrospect, now that all restaurants are fighting for their lives in a world convulsed by calamities. Both have set up think tanks that are trying to figure out how to adapt. In the meantime, Adrià is on Twitter teaching his followers how to make vichyssoise, among other things. Redzepi is serving hamburgers in Noma's garden until it's safe to reopen the dining room.

I've seen many favorite restaurants close even before the pandemic, and I've mourned them all, because each was part of how I tell my own story. I used to take dates to Anita Lo's Annisa in Greenwich Village—and figure out if the guy was worth pursuing based on his response to the restaurant. I miss Annisa immensely since it closed three years ago. And I don't date anymore.

But there's always hope that lost restaurants can come back to life. As I prepared to write this piece, I decided to check in on Elise Kornack, who ran Take Root, a tiny culinary jewel box in Brooklyn, with her wife, Anna Hieronimus, until 2017. They'd moved north to Ulster County, N.Y., to start over. How have they fared?

For more than a year and a half, Kornack and Hieronimus pursued the painfully slow process of getting a residential property in the town of Phoenicia rezoned so they could turn it into their dream restaurant. Just when all the paperwork was done, the pandemic hit and investors scurried away. That didn't stop Kornack. "Funding is an important part of developing any project," she says, "not the only part." She's been using the time to clear the property, which has long trails through meadows down to the edge of a brook where, eventually, diners will be able to sit in the middle of nature. The delay, she says, "gives you time to think things through and to see more possibilities."

Elise Porter, a mutual friend who's helping Kornack and Hieronimus with the project, says, "They've taken the necessary time to become a part of the community and let their relationships with farmers, locals, and artists organically shape the concept."

The spaciousness of the property has become a potential lifeline. As people flee dense settings for fear of contagion, physical open space has become marketable. Kornack is again receiving calls from potential investors. What seemed like a sudden stop is now full of promise.

I'm praying it does succeed. Just as I'm doing for all the restaurants I love, long for, and hope to dine in again. Let them be reformed and transformed by these trials but still sanctuaries of joy. And maybe the next time I see Keith, we can eat out. He's single, too. **🍷**





Protesters gathered near the makeshift memorial in honor of George Floyd in Minneapolis, Minnesota.

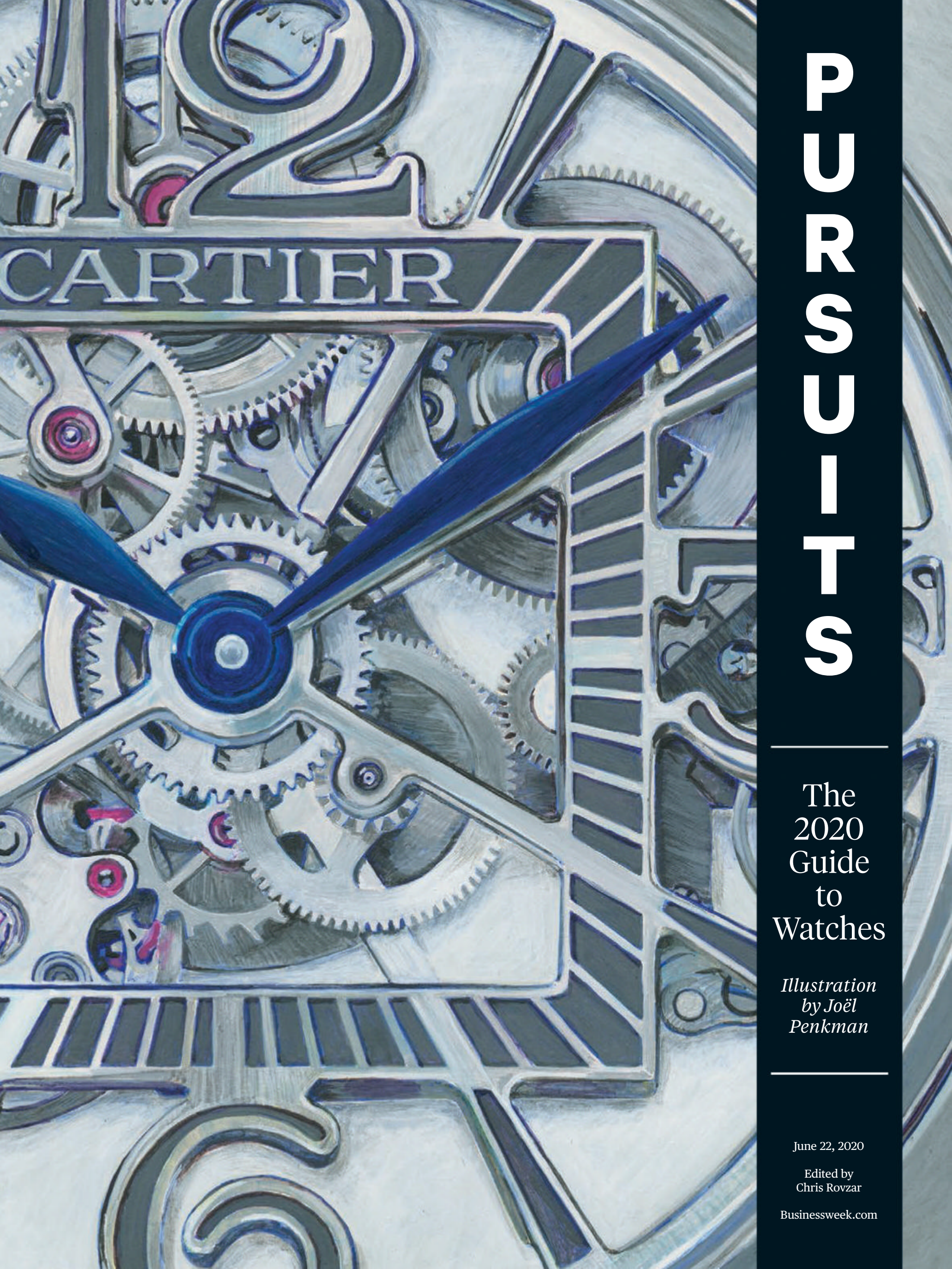
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# PURSUITS

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## The 2020 Guide to Watches

*Illustration  
by Joël  
Penkman*

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Edited by  
Chris Rovzar

[Businessweek.com](https://www.businessweek.com)



# Rewriting History

Marie-Laure C  r  de mines the past to push Cartier’s watchmaking division into the future

By David Graver

To appreciate how deeply Marie-Laure C  r  de understands the DNA of Cartier SA, the 173-year-old French luxury house where she directs the design and development of timepieces, one must first consider the watch on her wrist and the pen in her hand. The creation team she oversees designed the former—and their first drafts began with the latter.

“Of course, we have the traditional tools of designers and the modern ones—the software and the 3D printer,” C  r  de says from her sun-dappled office in Paris’s 8th arrondissement on June 5. “But at first, the Cartier watch is drawn by hand.”

C  r  de initially joined the maison in 2002, but she departed in 2005 for Harry Winston. When she came back in October 2016, she adopted the title of deputy director of watchmaking—and was promoted seven months later to her present role, timepieces creation director. She returned at a strong time for the company, but she’s currently overseeing a beleaguered department, as the maison and its hard luxury goods peers face their worst headwind in almost two decades.

Cartier is by far the most powerful brand in the jewelry portfolio of parent company Richemont, representing more than four-fifths of jewelry and over 40% of the luxury conglomerate’s total sales. But Richemont, which did €14.3 billion (\$16.2 billion) in sales last year, saw them plunge 18% in the first three months of 2020 during the pandemic. For a jewelry house that makes watches, it’s a challenging time but also an opportunity: Jewelry has fared better than other accessories and apparel in part because it’s viewed as an individual long-term investment. Watches, if they’re timeless, can be, too.

“If I can say in one sentence what it means to design a Cartier watch, it’s a signature in a single stroke,” C  r  de says, alluding to the soft edges found on the brand’s medley of watch case shapes. You’ll encounter various rounded squares, curvaceous rectangles, slender ovals, and, rarely, a circle.

“We used to say that a Cartier designer should put the pen to the paper and not lift it through the curves, only stopping when they’ve achieved the perfect shape.”

Take the swirling bangle on her wrist during our interview, a watch called the Maillon de Cartier. Offset gold links compose its bracelet, forming a woven illusion. Its hexagonal case, measuring only 16 millimeters by 17 millimeters, is set like a jewel. It’s an entirely new model for this spring, designed by C  r  de’s watchmaking studio. The Maillon’s glittering facets call to mind the brand’s earliest reputation as the jewelry house of royalty.

C  r  de works from the top floor of a 19th century Haussmann building rising between modern glass towers, in an office populated with design objects—a D49 chair by Hans K  necke, a ’50s Ico Parisi desk, and two armchairs by contemporary designer Faye Toogood. Here she sketches, oversees the work of her designers, issues approvals, and digs through reference materials.

Overall, she shepherds a watchmaking venture that began in 1903, as Louis Cartier, grandson of the jewelry maison’s founder, Louis-Fran  ois Cartier, began work on the Santos. The rounded square was arguably the first watch for men designed to be worn on the wrist, created at the request of an aviator. From 1906’s Tonneau (an oval with flattened ends) to 1917’s Tank (an elegant rectangle), the house introduced shapes the world hadn’t seen before.

C  r  de spends substantial time going over these inspirations with the heritage department’s archive team and with the Cartier Collection, the division that reacquires vintage and historic pieces. “Knowledge is a prerequisite to creation, especially for Cartier,” she says. “You need to master the heritage in order to create. We have a look at the historical drawings and their context.” These aren’t merely sketches of pieces; they’re the stories around them that have been preserved, too, such as the strange tale of the Crash, which dates to 1967. Jean-Jacques

C  r  de in 2019, wearing a Panth  re de Cartier watch





Cartier, then head of Cartier London, designed the crumpled-up Crash based on a Cartier watch that had been mangled in a car accident. The result calls to mind the melting clocks of Salvador Dalí.

In her quest for knowledge, Cérède works closely with Pierre Rainero, Cartier's image, style, and heritage director, whose title requires deciphering. Rainero, who wears a Tank Américaine from the early '90s and occasionally quotes Voltaire, has been with the brand for more than 30 years. "I was artistic director. It was the end of the '90s, and I felt very quickly it was wrong as a title," he says. "The responsibility of the artistic direction is shared by many people. That's the culture of the house." His role involved having "a vision of what the Cartier style should be today and in the years to come." Cérède benefits from Rainero's encyclopedic knowledge when overseeing watch reissues, such as 2019's elongated Tank Cintrée, first released in 1921, and this year's rhomboid Tank Asymétrique, originally produced in 1936.

No recent collection represents the work of her and her

A skeleton version of the new Pasha



(the analog, battery-free mechanism that powers the watch), and the case back became sapphire crystal. They also introduced personalized engraving under the crown cover, as well as interchangeable bracelets. For their wildly imaginative limited editions, they even stripped the watch into a skeletonized form and dressed up the bones in diamonds.

"We aim to avoid trends" Cérède says. "When we put out a watch, revival or new, we want it to look like it could have been done 40 years ago." In dismissing the fleeting, the brand also dismisses the question of gender. It's an issue Cérède has been approached about often, in part because she's a woman in the male-dominated watch world.

She embraces the androgyny that's creeping into the horological sphere. Historically, larger watches with mechanical movements were designated for men; dainty, diamond-covered quartz timepieces were for women. Consumers—and women collectors in particular—who are eager to wear

## The Pasha "was a symbol of male power in the '80s, but it's been hijacked by women... We set no limit to gender"

team quite like the Pasha de Cartier, announced in April at Watches & Wonders, an annual trade show primarily for the Richemont brands. (Cartier has been a member since 1993.) Pasha's storied history began in 1932, when Louis Cartier introduced a round waterproof watch that the brand developed into a collection in 1943. One of the most famous watch designers of all time, Gerald Genta, would reimagine the Pasha de Cartier in 1985—making it an icon of that decade. The brand reacquired a 1943 model for the Cartier Collection, and Cérède's team used it as the starting point for this year's relaunch.

Iterations share similar details: a bold, round case, a square detail on the dial, and an exaggerated cabochon on its crown or crown cover. Pasha wristwatches have been sought by collectors, many of whom have also requested reissues. "We have been dealing with very high expectations from clients for years," Cérède says. "We felt this time was the right time, because Pasha is a curved watch."

Re-creating an icon is a demanding exercise, Cérède says. Fears teeter from disappointing collectors to turning away the next generation of buyers. "Pasha pushed our boundaries," she says. "We didn't simply want to rejuvenate it, but more to electrify its original design." To do so, the creative team isolated every attribute and upgraded each accordingly; they incorporated a new movement

a watch that appeals to their sense of style have lately defied these traditional shopping stereotypes. "It's more a question of a person's sensibility of design, and this has no gender," Cérède says, returning to the Pasha collection as an example. "It was a symbol of male power in the '80s, but it's been hijacked by women. We, as a brand, do not think like this. We set no limit to gender."

This type of flexibility is key to the house. "The Cartier style was not born immediately," Rainero says. The shift from its humble reputation for meticulous craftsmanship to a global luxury leader began with Louis Cartier, who sought to develop a house style by introducing emblematic icons such as the panther and artistic movements such as art deco. "That was revolutionary," Rainero says. "The notion of a specific house style did not exist in the decorative arts at the time. A common expression for many creations in many fields, a common language that is the Cartier style."

Cérède uses this ingrained capacity for stylistic evolution to inform her answer to the ultimate question: Is it Cartier? "There are things both rational and not," she says. "If you think about Cartier as a watchmaker, you must not forget that beforehand we were a jeweler. I'd like to say that I hope these pieces are not so much watches in the end. They are more objects of design, driven by an intricate emotional attraction." **B**



A Maillon drenched in diamonds



# Crimson Times

Racy red dials shift into high gear

By Mark Bernardo

Photographs by Joanna McClure

The color red always says something—and says it loudly. In lipstick it speaks of a brash confidence. On a Ferrari it practically begs for a speeding ticket. And on a wristwatch it says, “The time is not to be ignored.”

Although blues and greens have recently been trendy in elite watchmaking, reds and burgundies are emerging as elegantly bold alternatives, particularly on special editions made in limited quantities. It’s not hard to figure out why: Hues call to mind sensuality and danger—TAG Heuer’s crimson dial honors the 50th anniversary of its Monaco racing chronograph—whereas others offer heat and luxury. When Hublot set out to create the industry’s first “vibrant-colored” ceramic, it ended up producing a version of the material that was extra-hard, too. Here are seven timepieces draped in red that are sure to get a connoisseur’s blood pumping.



## BOVET VIRTUOSO V RED GUILLOCHE EDITION

The main dial of this special edition, with an innovative jumping hour and retrograde minutes hand, is treated with 12 layers of lacquer. On the reverse (shown above), an open face features an off-center hours-and-minutes subdial in the same red guilloché. Price upon request



## CHOPARD MILLE MIGLIA ROSSO CORSA

Chopard’s longtime partnership with Italy’s Mille Miglia vintage car rally is celebrated annually with special-edition timepieces. Last year’s fleet of wristborne racers paid tribute to the nation-specific colors of the event’s teams. Among them is the Rosso Corsa, a high-octane chronograph whose dial bears the blazing—and distinctly Italian—red of Alfa Romeo, Ferrari, and Maserati. \$6,280



## HUBLOT BIG BANG UNICO RED MAGIC

It took four years for Hublot’s R&D team to achieve the red ceramic that made its debut on this watch. The material, produced from a secret patented formula, boasts a greater hardness than conventional ceramics. It enhances the case, hands, and indexes of this red timepiece, which is equipped with the skeletonized, column-wheel-driven Unico chronograph movement. \$26,200





**TAG HEUER MONACO ANNIVERSARY EDITION 1979-89**

The groundbreaking Monaco chronograph, made famous by Steve McQueen in the 1970s, marked its 50th birthday in 2019 with five limited editions, each tailored to a specific decade of the model's life. Suitably, a bright red dial reps the go-go '80s. \$6,550



**H. MOSER & CIE. PIONEER PERPETUAL CALENDAR MD**

Moser is renowned for its graduated "fumé" dials, and the one on this perpetual calendar might remind you of a snifter of ruby port. The complex movement behind the dial, meanwhile, requires no resetting at leap years and no winding for a week. \$39,900



**JAEGER-LECOULTRE REVERSO TRIBUTE SMALL SECONDS RED**

Originally designed for polo players in the 1930s, the legendary Reverso, with its two faces and swiveling case, has become a canvas for numerous artful interpretations. This elegant, burgundy-dialed piece includes a customizable steel case and matching leather strap from artisanal Italian bootmaker Casa Fagliano. \$7,650



**TUTIMA SAXON ONE CHRONOGRAPH RACING RED**

The Cold War-era aviators' watches that inspired the Saxon One had only a single red stripe on the rotating coin-edge bezel. On the modern version, the claret-colored dial is enhanced by sunburst-finished chronograph subdials, a multifaceted pyramidal steel case, and an integrated alligator strap. \$6,100



# The Diamond Tier

Jeweled watches with slim movements demand oversize attention

By Carol Besler

The ladies' wristwatch dates back to the early 1800s, but its golden age may just be emerging, thanks in part to Paul Newman. When the hammer came down on Newman's Rolex Daytona three years ago for \$17.7 million at a Phillips auction, it supercharged the revivalist trend in men's watches.

Vintage designs from the 1950s and '60s were suddenly everything, and that dictated smaller cases, which in turn dictated smaller movements. (The Newman watch was 37.5mm across. In recent years, sports watches usually start at 40mm.) When it became more commercially promising for brands to develop them, a new generation of smaller, thinner calibers emerged, with silicon escapements, ceramic bearings, and other state-of-the-art components.

Which all means that women are now more likely to find an automatic watch with a seconds hand, date window, even a tourbillon, that doesn't feel like a hockey puck on their wrists.

Technically speaking, diamonds add more intrinsic value to a watch than an innovative mechanical movement—so there's still plenty of sparkle in this horological segment, too. Melt a tourbillon down, and you're left with a pile of metal. Take a jewelry watch apart, and you have a pile of precious stones.

Carat count remains the standard by which women's watches are evaluated on the high-end secondary market; winners at auction lean heavily on the gem-set side. And gem-setting is evolving: Piaget calls its technique *serti descendu*, or cut down.

Several other brands, including Patek Philippe, have similar methods, but all of them are essentially a variation on the prong setting, which positions a gem with as little metal showing as possible. This allows more light to enter the middle of the diamond, so more can be reflected out the flat top facet—that is, more dazzle for the dollar.

Hours of hand-setting make jewelry watches limited in production, and because rarity is a large factor in valuation, a jewelry watch is as important as a high complication. Here are some new ones to look for.



## PIAGET LIMELIGHT GALA

Introduced in 1973, the Limelight Gala was worn by Jackie Onassis and Elizabeth Taylor. The distinctive asymmetrical lugs extending from each side of the case cry out for bling, and Piaget delivers several versions. This one is set with diamonds and sapphires using the *serti descendu* technique, in which claws and grooves grip the stone. The bracelet is hand-engraved gold. Price upon request

## PATEK PHILIPPE CALATRAVA DIAMOND RIBBON JOAILLERIE

Patek Philippe doesn't do diamonds very often, but when it does... wow. Instead of standard pavé, the 4.4 carats of diamonds on this dial are arranged in a hypnotic swirl pattern. The applied numerals are blued gold, and the case, which measures 36.5mm wide by 8.23mm thick, is 18-karat white gold. \$73,710

## ROLEX DAY-DATE 36

The Day-Date is known as the "president's watch" because so many U.S. presidents have worn one, but this 36mm version is more of a "first lady's watch." The dial is paved with 542 diamonds, and the hours are marked with baguette-cut sapphires in a rainbow of colors, a look made famous by Rolex. The center links of the bracelet are set with an additional 412 diamonds, and there's yet 52 more on the bezel. \$128,000

## PARMIGIANI FLEURIER TONDA DOUBLE RAINBOW FLYING TOURBILLON

The gradient of colored sapphires on the bezel is matched by an inner ring surrounding a slice of aventurine that displays the colors in reverse. In between is a field of snow-set diamonds. The 40mm case contains an ultrathin movement, with a platinum micro-rotor and a tourbillon escapement integrated into the main plate. \$178,000

## VACHERON CONSTANTIN TRADITIONNELLE TOURBILLON

Vacheron's first tourbillon watch geared toward women measures 39mm wide by 11.22mm thick. "Two years ago we launched caliber 2160, which is compact and self-winding, ideal for the design of a feminine version," says Christian Selmoni, the maison's style and heritage director. The jeweled model has 559 brilliant-cut and baguette-cut diamonds totaling more than 6.5 carats. \$197,000





Cruise, as Maverick, with the Porsche Design watch

# First in Flight

*Top Gun: Maverick* brings the spotlight back to pilots—and their watches. *By Roberta Naas*

The sequel to *Top Gun* has been pushed to Christmas in theaters, but when audiences are finally able to see the movie, they can expect certain things not to have changed in the 34 years since the original came out: Tom Cruise's perfect matinee-idol hair, the leather bomber jacket. And the watch.

In the original, Cruise wore a stealthy, black PVD-coated steel Porsche Design Chronograph 1, created in 1972 by Alexander Porsche, designer of the iconic 911. Now that Maverick is back as a training instructor and test pilot in the Paramount Pictures sequel, word has it the watch will make a return appearance, too.

Chrono functions are not traditionally associated with aviation watches, though they've become popular. A "pilot's watch" bears certain hallmarks: Typically larger than a dress watch—generally at least 40 millimeters in diameter—it has

a dark dial with high-contrast hands and markers painted with a luminous coating to ensure maximum legibility day or night. Often models are equipped with an oversize crown for easier setting.

It also helps if the watch is antimagnetic, to guarantee precision near so much electric machinery, which can throw off magnetic fields and affect accuracy. A soft-iron inner case can protect the movement's parts, or they can be made with antimagnetic high-tech materials such as silicon or palladium.

Regardless of whether his timepiece qualifies as a pilot's watch, Maverick may inspire you to seek out one yourself.



## IWC PILOT'S WATCH CHRONOGRAPH TOP GUN

Named for the U.S. Navy's Strike Fighter Tactics Instructor program (more commonly known as Topgun), IWC Schaffhausen's series of watches has been in production since 2007. This one is crafted in antireflective black zirconium-oxide ceramic and built to withstand extreme G-forces. It also offers day and date windows in addition to its timekeeping functions. \$7,800



## BREMONT MBIII

Ten years ago, British brand Bremont (a favorite of Cruise's) teamed up with Martin-Baker Aircraft, builder of ejection seats for about 70% of the world's air forces, to create a watch that could withstand the rigors of a bailout. Its MBI is reserved strictly for pilots who've ejected using a Martin-Baker seat. For the rest of us, there's the MBII and MBIII. The 43mm steel MBIII offers GMT timing, is shock resistant, and has passed tests for vibration, temperature extremes, and corrosion. \$5,895



## BREITLING NAVITIMER B03 CHRONOGRAPH RATTRAPANTE 45

Breitling has been supplying cockpits and wrists with authentic pilots' instruments since the 1930s. Its first Navitimer watch—equipped with a slide rule bezel for making fuel calculations—was introduced in 1952 and has become an icon. This chronometer-certified 45mm version in 18-karat rose gold has a rotating bezel with circular slide rule. \$27,480



## TUTIMA M2 PIONEER

Since 1984, Tutima's NATO chronograph has been the official service watch of the German Air Force. The company has also produced Grand Flieger chronographs for graduates of the country's own Topgun unit (GAF Tactical Training Center). For civilians, this 43mm M2 Pioneer is made of titanium with an antimagnetic inner case. It features a Kevlar strap, a chronograph, a 24-hour display, and a rotating bezel with markers made of gas-filled luminescent capsules. \$6,100



# What to Invest In Right Now

Five industry experts list the timepieces they'd buy today and resell later  
*By Carol Besler*

Physical boutiques that were shuttered during the pandemic are only now reopening, but enthusiasm for classic watches remains high, by all accounts. And as is the case in any economic slowdown, this can be a great time to pull the trigger and buy.

But what to choose? We asked top watch experts to tell us which timepieces they would invest in right now, either on the secondary market or new, and why. They told us what they think will resonate with collectors and make a great trade-in down the road.

As Benjamin Clymer, the founder of the watch enthusiast site Hodinkee, says, "Ultimately, now is an amazing time to buy a watch, because you, like me, probably have more time in front of a computer than ever before, and that means you have the chance to spend hours reading about everything, new and old."

Clymer advises us to use the same philosophy we'd apply to searching out a classic car or piece of art. "Don't be afraid to go against the grain and choose something that makes you and only you happy," he says. "That, to me, is the sign of a great watch."

An Omega Speedmaster, c. 1973



The modern A. Lange & Söhne Odysseus in stainless steel



## GARY GETZ

Corporate strategy expert, collector, and member of the Academy of the Grand Prix d'Horlogerie de Genève

I'm looking at watch purchases that allow me to combine my interest in small independent watchmakers, who are particularly vulnerable today, with some confidence in longer-term value. One great example is a watch I have on order, the Chronomètre Contemporain from young independent star Rexhep Rexhepi. It's a real jewel of arts and crafts, from its deep-black fired-enamel dial to its beautiful movement finishing. Its classical shape gives me confidence that it



## ERIC WIND

Owner, Wind Vintage

We are living in difficult times, so rather than buying a six-figure watch, I would consider adding a vintage Omega Speedmaster to your collection. **To me, the Speedmaster is about the most undervalued watch on the market.** Last year was the 50th anniversary of the Apollo 11 moon landing, and there was a lot of interest in Speedmasters—but that's quieted down a bit. I recently sold a Ref. 145.022-71 with an unpolished case and attractive dial that Omega confirmed was produced in 1973, for less than \$4,500—well under the price of a new Speedmaster. With technical excellence and cultural relevance wrapped into one, the Speedmaster is a worthy part of any collection.

will be an enduring favorite. And Rexhep is not only the "it" boy of watchmaking these days but a splendid guy!

**I recently bought an Odysseus, the first-ever steel sport watch from A. Lange & Söhne. It's a piece that represents the spirit of the times with an eye to the future.** It's extremely solidly made and wearable for both work and play. In the vintage world, I'd suggest a search for some possibly underappreciated pieces from blue-chip makers. One example of that is the Patek Philippe Ref. 1526, a 1940s-era watch that was the first perpetual calendar wristwatch made in series by any producer. Its diameter is a bit small, and it's been undervalued at auction for that reason. But it's terrifically important, and I believe history is on its side.



An Audemars Piguet  
Royal Oak Ref. 5402



## REBECCA ROSS

Watch specialist,  
Christie's Inc.

In the present market, I would advise investing in the iconic models. They can be solid investments but, more important, are enjoyable to wear and own. Not only can vintage watches hold a rich history and heritage of the brand, but they can often hold supreme value over modern timepieces.

**A special example comes to mind: the coveted Audemars Piguet Royal Oak Ref. 5402 "A-Series."** Audemars Piguet introduced the Gerald Genta-designed stainless-steel model in 1972, in a series of 1,000 watches. A second series of 1,000 Royal Oak "A" serial numbers was produced before they progressed to the "B" series, "C" series, and so on. This early "A" series of 2,000 Royal Oaks have their edition numbers engraved on the casebacks.

I would also recommend the more obscure timepiece collectibles such as rare pocket watches, coin watches, and clocks. Timepieces not worn on the wrist, but instead used to adorn the home, are welcome while we spend more time indoors.

The F.P.Journe  
Chronomètre à  
Résonance



## PAUL BOUTROS

Head of watches,  
Americas, and senior  
vice president of Phillips in Association  
with Bacs & Russo

The Vacheron  
Constantin 222, c. 1977



## BENJAMIN CLYMER

Founder and chief execu-  
tive officer, Hodinkee

The watches I've been most excited about over the past 12 months or so are seldom vintage. I would instead look to contemporary

**Right now I would recommend buying preowned Résonance watches by the independent brand F.P. Journe.** It was the world's first wristwatch to use the resonance phenomenon, and one of the most important and innovative of the 21st century. It's powered by two independent movements integrated into one, with separate escapements that, when in motion, beat in synchrony. Natural resonance evens out the discrepancies in their beat rate, causing them to keep the same time while permitting even greater timekeeping accuracy.

Journe's Résonance is also a superb and practical dual-time watch, as all versions are fitted with two separate dials and hands. Now discontinued, the Résonance evolved over three generations since its launch in 2000. My top choice would be the brass movement versions produced until 2004. (Journe began using rose-gold movements across models from then until 2019.) The company will soon release an all-new Résonance, which will likely make the discontinued versions especially sought-after.

classics—watches made in the last 30 years or so that are currently out of production—or completely modern watches that have meaning to you. In the first category, I think early examples of A. Lange & Söhne's watches have tremendous technical and artistic value, and end up being solid investments. Look for special examples of the Lange 1, and Pour Le Mérite Tourbillon.

Likewise, **I think Vacheron Constantin remains the most overlooked watchmaker in the "holy trinity"** [Patek Philippe, Vacheron Constantin, Audemars Piguet] and has created some stunning contemporary watches. Look at early Overseas, which are hand-wound chronographs using Lemania calibers and ultrathin minute repeaters. Trust me when I tell you that one day the steel sports watch craze will end, and you'll be much happier paying for watchmaking instead of hype.

At slightly lower price points, looking at watches for everyday wear, you should throw anything but true love right out the window. Buy what makes you happy, because these are the watches you're going to keep for the rest of your life—the watches you'll wear in truly the most precious moments and pass down to your children and grandchildren. Have a look at Omega's incredible Master Chronometer-certified sports watches, like the Seamaster and new Speedmasters. The work coming from Japan's Grand Seiko rivals many of the big names from Switzerland. And the best part about them? They're readily available at your authorized dealer.





The TAG Heuer Golf Edition Connected smartwatch

# A Swing And a Prayer

TAG Heuer's Golf Edition smartwatch is promising but falls short

*By John Paul Newport*

Luxury watch brands have moved a lot of product over the years by associating themselves with golf. Occasionally the connection to the game has to do with timekeeping—a giant Rolex clock counts down the minutes until players tee off at the Masters—but in general the associations are superficial.

Professional golfers almost never wear watches when they play. My journalist colleagues at PGA Tour events used to joke that winners took so long to emerge from the clubhouse and hoist the trophy for the cameras because they were looking for the watch they're contractually obliged to show off.

I recalled this recently as I tested TAG Heuer's \$2,550 Golf Edition of its Connected line of smartwatches, a luxury timepiece designed to be worn during a round of golf and incorporated into it. It's the pet project of Frederic Arnault, son of Bernard, the chairman of LVMH, which owns TAG Heuer. Arnault, 25, was digital director for the brand for less than two years before ascending to chief executive officer this month.

TAG Heuer has been chasing the visibility of leading brands in the golf segment, such as Rolex and Omega, for years. Tiger Woods was its "ambassador" from 2003 to 2011,

and the company introduced a professional golf watch in collaboration with him in 2005. The timepiece wasn't a functional golf watch per se, merely a luxury watch slim enough to wear while competing, which Woods occasionally did.

For years I've been using the shot-tracking setup from Arccos Golf. Its lightweight sensors screw into the end of the grip on each of my clubs, and its app, which can be paired with an Apple Watch, does a great job of logging each shot and distance automatically. After the round, I can review my shots, correct any detection errors (the wrong club can be registered by accident), and visualize how to play smarter next time based on the accumulated data. I was eager to see how the Golf Edition measured up.

For starters, it's gorgeous. It looks and feels every bit like an aspirational luxury watch should: solid and substantial on the wrist, with a vivid organic light-emitting diode display, a sapphire crystal touchscreen that works handily with a rotating crown, and two flanking pusher buttons. The watch is a bit bulky, but it didn't interfere with my swing.

By my third round, I came away impressed with its basic golf functions. The colorful map of each hole displayed on the screen is easy to read in bright sunlight. By twisting the crown, or dragging your finger on the touchscreen, you can move the focal point wherever you want—a hazard, a turn in the fairway, the green—and the watch provides the distance. Those distances, computed by GPS sensors, were dead on compared with the numbers I got from my reliable laser range-finder. The pushers made keeping score on the watch a snap.

Off the course, the Golf Edition has added utility, too. Its fitness functions, built around Google's Wear OS system, can track cycling, running, and other activities. The default strap is white with a golf ball-like dimpled texture, but it also comes in black rubber that, when paired with one of the traditional watch face options, could pass muster in the boardroom.

The fatal flaw for me, though, is that recording each shot is a two-step manual process. First you must press the top pusher button (or tap the screen twice) before each swing. Then, when you reach the ball, you have to push or tap the screen again to register the distance—and then once more to record which club you used. Despite my determination to remember these steps, I forgot one of them a half-dozen times in each of my rounds.

Even worse, you can't go back after the round and insert a shot you forgot to record—which you can do with Arccos and several other GPS golf apps. It got to the point where, if I remembered quickly, I'd run back to the spot where I hit the shot and press the right button, much to the consternation of my golfing buddies.

TAG Heuer intends to update its software frequently and add a user's manual, which it currently doesn't have. In time, no doubt, the Golf Edition's user friendliness will improve. In terms of function, however, the company has a way to go to catch up with Garmin, Bushnell, SkyCaddie, and other mass-market companies that have been at this game for years and offer much less expensive watches. For now, I'm sticking with what I have. **B**



# Coats of Arm

The Grande Seconde Paillonée by Jaquet Droz puts centuries of history and craftsmanship on your wrist  
*Photograph by Joyce Lee*

Pierre Jaquet Droz created his first clockmaking studio in La Chaux-de-Fonds, Switzerland, in 1738. Over the course of the next half-century, his mechanical wizardry became famous in the courts of Europe. The clocks delighted the aristocracy, and some of his automatons, or rudimentary computers shaped to look and perform like humans, still function today. A hallmark of his pocket watch designs is a figure eight of overlapping dials, illustrated nicely on this \$42,000 Grande Seconde Paillonée in rose gold for your wrist.

## THE COMPETITION

- Van Cleef & Arpels is another grand keeper of old-world craft traditions. Its \$71,000 Charms Romance Parisienne Promenade watch depicts the park by the Eiffel Tower with the use of *champleve*, in which enamel dust is poured into troughs carved into metal and then fired.
- The \$8,800 Ulysse Nardin Classico Manufacture “Grand Feu” has a mesmerizing dial carved in a guilloche, or wave, pattern and covered in a deep blue enamel. It’s terrific for fans of the art looking for a lower price point.
- If cost isn’t a consideration, try the Fugaku Tourbillon from Seiko’s Credor collection, which features white and gold waves crashing in front of a sky painted with glittering *maki-e* lacquer. Each of the eight watches is priced at 50 million yen (\$466,000).

## THE CASE

The figure-eight dial of Jaquet Droz has long been auspicious for the Chinese market—Qianlong, the fifth emperor of the Qing dynasty, was a collector. But the design also leaves room on the watch face for detailed artistry such as *paillonée*. (Although the family-run maison folded in 1790, Swatch Group Ltd. restarted the brand in 2000 with an eye to historical techniques.) On the Grande Seconde Paillonée, craftsmen start with a guilloche dial and fire several layers of blue enamel on top, each time risking cracks or damage. Then they place gold-leaf fleur-de-lis paillons in a precise pattern, before a final coat of translucent enamel is fired again. Limited to only eight pieces, this watch is sure to become a collector’s item. \$42,000; [jaquet-droz.com](http://jaquet-droz.com)



↗  
 The watch measures  
 43mm across



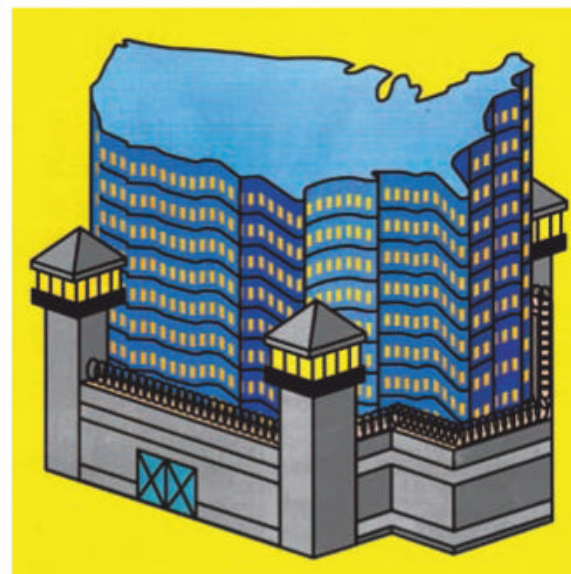
# We're No.1—Not in Police, But in Prisoners

By Justin Fox

The ratio of police officers to population in the U.S. is on the low side among rich nations. Prosecutors and judges appear to be thinner on the ground here, too, though the statistics on that are less timely and probably less comparable. Measures of arrests and prosecutions also face comparability issues, but data from the United Nations Office on Drugs and Crime at least don't show America to be a big outlier.

What part of the U.S. criminal justice system does stand out by international standards? The prisons. Even after almost a decade of declines, as of 2016 this country's prison and jail population was tops in the world, both in absolute terms and relative to population, according to the most recent World Prison Population List from the Institute for Crime and Justice Policy Research in the U.K.

The punitiveness of modern U.S. criminal justice is out of line not only with international norms but also with the country's history—the incarceration rate is now more than three times higher than it ever was before 1980. Yes, there was a lot of violent crime from the 1970s through the early '90s, and the prison boom was in part a reaction to that. But incarceration went up much faster than crime did, and while numerous studies have concluded that putting more police on the street reduces crime, the evidence that longer sentences and increased incarceration do so is much weaker. Mass imprisonment also brings huge economic and human costs—it's been a big contributor to the long fall in male labor force participation—that have been borne disproportionately by black Americans. None of this really tells us how best to address current calls to reform or defund the police, but it does indicate that we really shouldn't forget the prisons. **B** —*Fox is a columnist for Bloomberg Opinion*

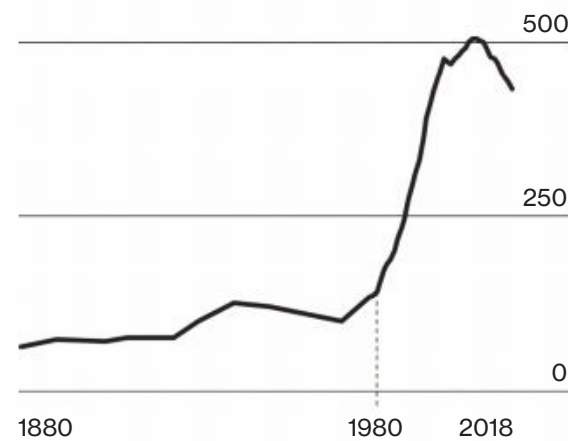


● **RACE COUNTS**  
There were 431 sentenced prisoners for every 100,000 Americans in 2018, according to the Bureau of Justice Statistics. Among blacks the rate was 1,134 per 100,000, and among Hispanics it was 549.

● **BLUE LINES**  
The U.S. had **207** police officers per 100,000 people in 2017. In Italy the number was 453; in Germany, 298; and in Canada, 188.

● **TOPS IN COPS**  
The jurisdiction with the most police officers per 100,000 people as of 2017, according to the UN, was the Macao Special Administrative Region in China, at 1,105.

● **U.S. state and federal prisoners per 100,000 population\***



● **CROWDED HOUSE**  
Including people in county jails, 655 out of every 100,000 Americans were behind bars in 2016. The rate in England and Wales was 140; in Canada, 114; and in Japan, 41.





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