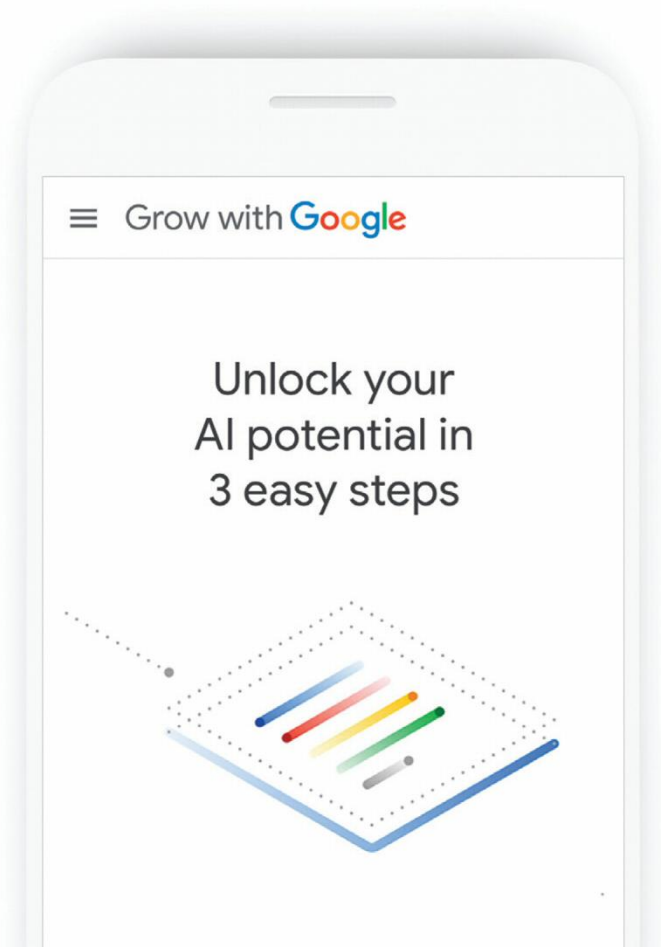




Saccheria Franceschetti
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Bloomberg Businessweek

October 26, 2020 ● EUROPE EDITION

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Generation

Robinhood



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Puts and calls! No customer service number!
Is this really the future of investing? 22

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The Way Ahead

Preserving a National Treasure

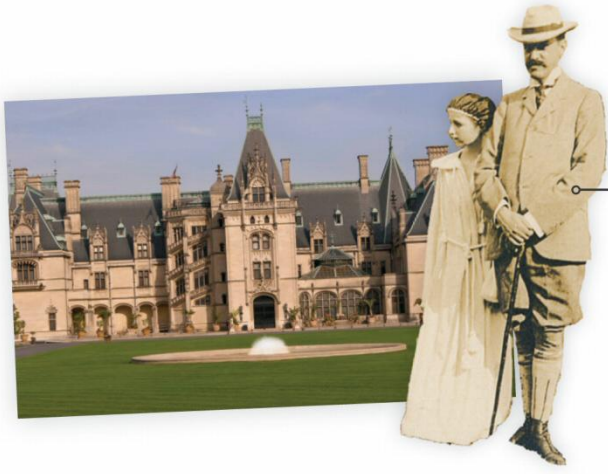
How businesses are responding
to the pandemic

[bloomberg.com/thewayahead](https://www.bloomberg.com/thewayahead)



Stephen Watson

CFO, The Biltmore Company
Wells Fargo customer since 1906



American royalty

More than 1.7 million people a year visit Biltmore Estate, the Asheville, North Carolina retreat created for George Vanderbilt 125 years ago. With 250 rooms, it's America's largest home.

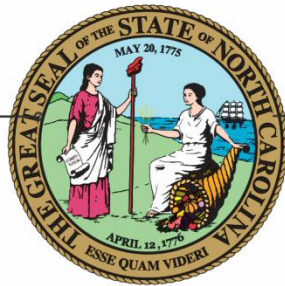
Lockdown

But when the pandemic hit, it had to close its doors for the first time since it opened to the public in 1930. Furloughing 90% of the staff "was the hardest thing I've ever had to do," says CFO Stephen Watson.



Economic engine

The estate adds about \$600 million a year of revenue to the North Carolina economy. "We were afraid of economic devastation," Watson says.



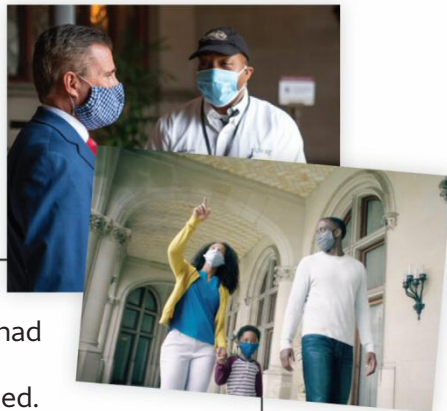
A helping hand



Wells Fargo, the company's bank for more than a century, "came to our rescue," doubling Biltmore's line of credit in a week so it wouldn't run out of cash while closed, Watson recalls.

Road to recovery

By early September, the estate had reopened safely and profitably, and most employees had returned. "We're working every day to get the rest back, and to preserve a national treasure," Watson says.

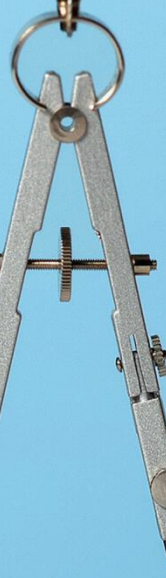
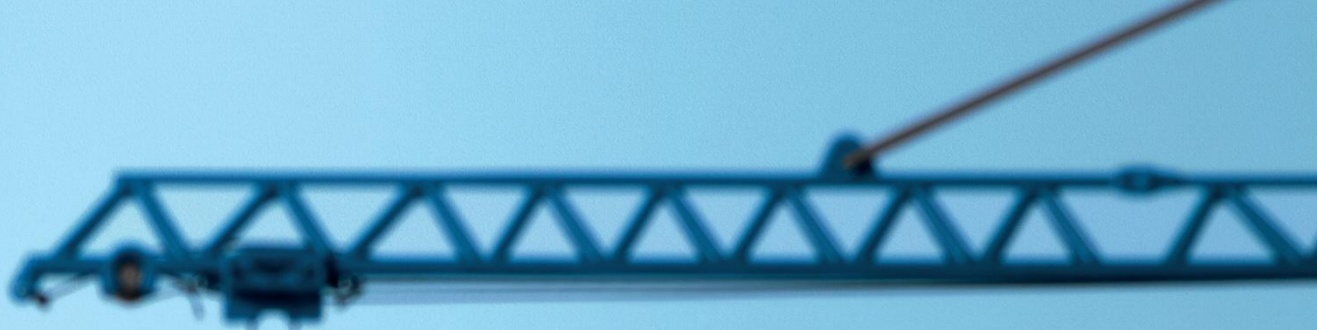


“Doubling the Biltmore’s line of credit not only helped the company, but served the community as a whole.”

Michael Rogers
SVP, Commercial Banking
Wells Fargo



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PROGRESSIVE
COMMERCIAL



◀ Belanger Park in River Rouge, Mich., is wedged between a power plant and a steel fabricator

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■ COVER TRAIL

How the cover gets made

1

“This week we’re talking about Robinhood!”

“Yes! Men in tights! Which one? Errol Flynn? Sean Connery? Kevin Costner? The little fox in the cap?!”

“Actually, it’s a popular investing app with some... interesting problems.”

“Wait, I thought that was a game. Are you saying the fractional shares I bought last night while watching *Tiger King* cost me real money?”

“Yes, real money. And they have a real email address—but no phone number. You can always call their regulators.”

“Well, here’s to the dopamine hit of a good roll of the dice.”

2



“Vivid depiction. Also, an avid trader agreed to a photo shoot.”

“Awesome, let’s see how that turns out.”

[A day later]

“So the shoot is basically my sketch, but real, and he has pants on.”

“Great news!”



Cover: Photograph by Andrew Spear for Bloomberg Businessweek

How to Contact *Bloomberg Businessweek*

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Galaxy Z Fold2



Change the shape of the future

Image simulated.

● Global coronavirus cases have surpassed

41m

and almost 1.2 million have died. With pandemic fatigue taking hold, Europe is seeing a spike in infections. Italy, France, Spain, the U.K., and other countries are tightening restrictions on gatherings.

● The U.S. Department of Justice filed an antitrust lawsuit against Google parent Alphabet.

Google is the “unchallenged gateway” to the internet and used anticompetitive practices to maintain its monopoly in search, the government said in a complaint filed on Oct. 20. It’s possibly the most significant U.S. antitrust action in a century, but investors brushed it off: Alphabet’s shares had risen 4.6%, to \$1,593.31, by the next day’s close.

● Purdue Pharma will pay

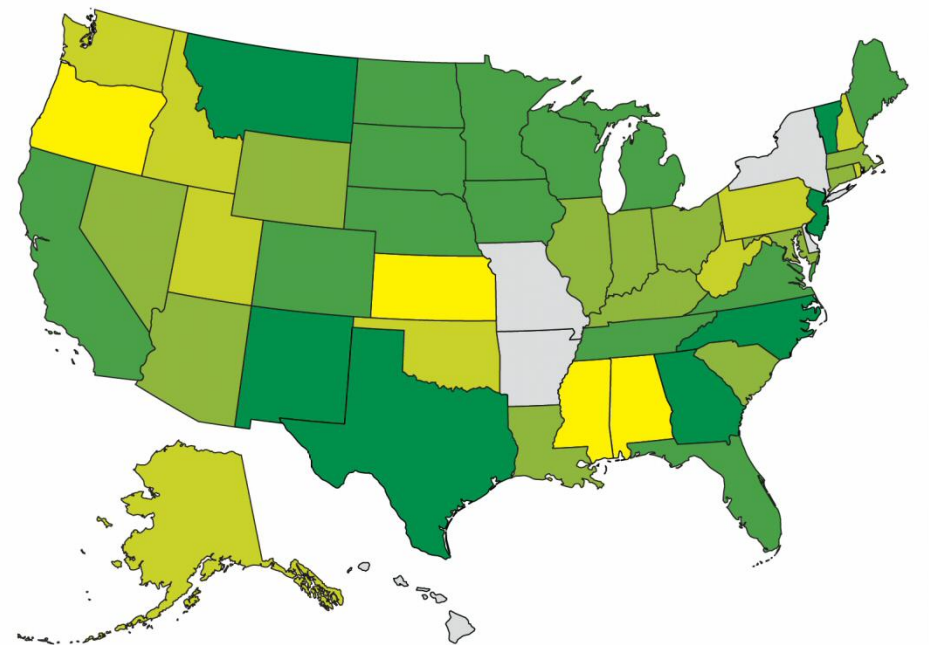
\$8.3b

and plead guilty to three felonies to settle federal probes of how it marketed OxyContin, an addictive painkiller blamed for sparking the opioid epidemic. About 15,000 Americans die every year from prescription opioid overdoses.

● Prime Minister Prayuth Chan-Ocha announced a special parliamentary session in Thailand to discuss the demands of pro-democracy protesters. Emergency rules and police crackdowns have so far failed to halt rallies in major cities.

● America Rushes to the Polls

2020 early votes cast as a share of total 2016 turnout
 0-10% 10%-20% 20%-30% 30%-40% 40% or more No data



AS OF 10/21. DATA: UNITED STATES ELECTIONS PROJECT



Wisconsin



Florida



Massachusetts



Nevada

● “They’re children of God and have a right to a family. Nobody should be thrown out, or be made miserable because of it.”



Pope Francis, in a new documentary about him, *Francesco*, urges nations to legalize civil unions for gay couples. His comments mark a significant departure from the Catholic Church’s long-held opposition to LGBTQ marriage.

● In Bolivia, socialist candidate Luis Arce won the presidency in a first-round landslide. With the vote tallied from 89% of polling stations for the Oct. 18 election, Arce had **54.5%** compared with 29.3% for former President Carlos Mesa, his closest rival. Mesa conceded on Oct. 19.

● Jamal Khashoggi’s Turkish fiancée, Hatice Cengiz, and Democracy for the Arab World Now, an advocacy organization the journalist founded before his death, filed a lawsuit in a U.S. court on Oct. 20 accusing Saudi Crown Prince Mohammed bin Salman of ordering Khashoggi’s murder in 2018. Prince Mohammed has denied any involvement.

Trump's H-1B Visa Reforms Will Make America Poorer

Newly announced reforms to the H-1B immigrant visa system have the potential to reduce the number of foreign workers allowed into the U.S., just as intended by the Trump administration. The problem is that the goal makes no sense. If implemented, the changes will seriously harm many businesses—small companies and health-care providers especially. Overall, they'll hurt U.S. workers, not help them.

While the president has already modified the H-1B program, which brings 85,000 skilled workers to the U.S. each year, the new rules go further. The policy tightens the definition of “specialty” occupations that qualify for H-1B status and prevents companies from hiring foreign workers unless they have degrees that precisely match available job postings—making it impossible to hire a worker with an engineering degree as a software programmer, for instance.

To prevent businesses from undercutting wages, the government will also require employers to increase the salaries of H-1B visa holders. The highest-skilled immigrants will have to be paid at the 95th percentile of the prevailing wage for their occupations, up from the 67th percentile under current rules, making it more expensive to hire them. And visas for workers hired by information-technology placement firms will be limited to one year, a change affecting tens of thousands of people, most of them from India.

The administration expects the changes to reduce demand for H-1B visas by one-third, and it sees this as a triumph for U.S. workers. In fact, it's a defeat. Almost two-thirds of H-1B recipients work in computer-related fields, where labor is in short supply. The third-quarter unemployment rate for programmers was 2.9%, compared with 8.8% for all U.S. workers, and vacancies in the sector are up 4.7% since April. These jobs increase consumer demand and help companies expand by filling critical roles. In other words, skilled immigrants spur growth and help create jobs for American workers.

The rule changes will discourage innovation and entrepreneurship by making the cost of employing foreign talent prohibitive for small businesses. U.S.-based startups that rely on skilled immigrants for IT services will outsource more tasks to workers outside the U.S. And, in the midst of a pandemic, the changes will worsen shortages of health-care workers. The new policy requires all medical professionals on H-1B visas to be paid at least \$208,000, regardless of specialty or experience. For many clinics and hospitals in underserved areas, that's unaffordable.

Normally, public review might have allowed these defects

to be exposed and remedied before the rules took effect. Not this time. The Office of Management and Budget issued waivers allowing the departments of Labor and Homeland Security to move forward without completing the usual review process. At a minimum, the courts should suspend the new rules until they've received public comment. Congressional leaders should also insist on closer scrutiny and remind the administration that far-reaching changes to immigration laws should be carried out through legislation, not executive fiat.

The most important point is the simplest: The strongest possible U.S. economic recovery requires more talent drawn from the rest of the world, not less. A smart immigration system would recognize this fact, and in that way advance the interests of all Americans. **B** For more commentary, go to [bloomberg.com/opinion](https://www.bloomberg.com/opinion)

■ AGENDA



► Happy Anniversary, Christine!

The European Central Bank's governing council meets in Frankfurt on Oct. 29, as Christine Lagarde marks a year at the helm. Under her, the ECB has taken unprecedented steps to aid the euro zone's pandemic-battered economy.

► The U.S. Bureau of Economic Analysis releases its third-quarter GDP estimate on Oct. 29. Analysts predict a sharp rebound from last quarter's -31.4%. > 28

► Also on Oct. 29, the Conference Board reports its gauge of U.S. consumer confidence. Economists say the number should edge slightly higher from September's figure.

► The Bank of Canada meets to set interest rates on Oct. 28. Forecasters don't anticipate a change from the bank's current rate of 0.25%.

► In Germany, the Federal Statistical Office on Oct. 30 is expected to report a 9% decline in third-quarter GDP, following the second quarter's 9.7% drop.

► The Nov. 1 Caixin Manufacturing PMI should show a modest uptick in manufacturing in China. On Oct. 18 the country reported third-quarter GDP of 4.9%, near pre-Covid levels.

► Sotheby's fall sale of impressionist and modern art in New York on Oct. 28 will feature rarities by Magritte, Man Ray, and Monet, and a Van Gogh painted just days before he died.



Slouching Through The Pandemic

● Boris Johnson and many other British politicians believe common sense is the answer. So far, no good

● By Rosalind Mathieson

Boris Johnson does not like rules. The U.K. prime minister presumes his compatriots don't either. Good old British "common sense" will always save the day.

As a key architect of the 2016 "Leave" campaign to exit the European Union, Johnson leaned heavily on the message that the British craved freedom from the strictures set by faceless, unelected bureaucrats in Brussels. This year he's spent months of the coronavirus pandemic shying away from setting rules for social distancing and personal safety, even as the death rate in the U.K. climbed to the highest in Europe. Instead, his Conservative government used words such as "guidelines" and "advice," putting the onus on the public to, as he said, "do the right thing."

Johnson was pictured in the early days of the outbreak shaking hands with people sans mask as officials talked about the need for "herd immunity." There was a new seriousness when he became severely ill himself with Covid-19, but even afterward he and his senior ministers held fast to the view that the famed common sense of the people meant they didn't need or want the government to nanny them.

There are all sorts of tropes about the British, some more true than others. People are indeed generally good at queuing. They let other drivers merge onto the road. But is that kind of amorphous civic sensibility what's needed to deal with a cataclysmic public-health crisis?

It's all been terribly polite. Johnson asked behavioral psychologists in the government's so-called nudge unit to persuade the public to do the right thing. Senior cabinet minister Michael Gove said wearing a mask was a matter of "good manners." Johnson himself spoke of the "ancient inalienable right of the freeborn people of the United Kingdom to go to the pub"—before daily infection numbers suddenly forced the government to shut the bars down.

"There is a disconnect between the British elites and the society they are intended to serve," says Lee Elliot Major, professor of social mobility at the University of Exeter. "In a complex multicultural society where you've got huge differences in background, you need more clarity, you need clear rules." The prime minister, a former student at both Eton College and the University of Oxford who's a distant descendant of King George II, increasingly appears caught in a monolithic version of a U.K. that's in reality far more diverse, fractured, and unequal, say political observers.

Now, with his scientific advisers urging a brief national lockdown, Johnson is being dragged toward tighter restrictions and greater enforcement. If the prime minister obliges,

it will be with gritted teeth. He and his senior Tory lawmakers are seeking to balance health and safety against an economy in deep trouble, where jobs were lost at a record pace in the three months prior to August. Regional leaders and business groups alike are worried about further economic damage. On Oct. 19 the local government announced that all of Wales would be under full lockdown from Oct. 23 to Nov. 9.

But his reluctance to impose further restrictions also stems from his belief that Britons can and should police themselves. Infamous for his own messy private life, Johnson doesn't want to tell them what to do with theirs. "Boris is very much a libertarian, and that's his instincts," says Major, co-author of a new book, *What Do We Know and What Should We Do About Social Mobility?* And it's not just Johnson. "This isn't a right vs. left debate," Major says. "It's a different dimension of political belief. It's how much you want state intervention and rules vs. freedom. You get people both on the left and right who adhere to that" idea of the government giving orders.

The stakes are potentially high for Johnson—and for his Tories, some of whom have been openly questioning his handling of the crisis. They think he's been too heavy-handed with his restrictions. He's faced two rebellions in his ranks in Parliament of late from lawmakers seeking greater say over how he's deciding policy related to the pandemic.

There are different sets of advice for different parts of England, creating a patchwork of guidance that even lawmakers have struggled to keep up with. The guidelines have sown confusion and frustration. Many people wouldn't wear masks, at least initially. There were large gatherings in parks and at backyard parties. And yet police mostly just asked people to move on rather than issuing fines. In the four weeks to Sept. 30, 151 virus-related fixed penalty notices were issued by the police in England and Wales. From June 15 to Sept. 21, just 89 fines were issued for breaches of face covering regulations across England and Wales. Meanwhile, self-isolation for those with symptoms or who've returned from certain countries has been another matter of just "doing the right thing." Checks to ensure people are staying home are rare.

The concept of collective responsibility still exists in the U.K., says Paula Surridge, a political sociologist at the University of Bristol, but it's become more about protecting "in groups," the smaller circles that people feel part of. "People need to be clear about what is and isn't acceptable, especially in a crisis like this where much of the guidance is to protect other people, not to protect yourself," she says. "It needs to be much clearer that they are rules, not guidance, and common sense is not enough, because you're not just trying to make a decision about your own health and about your own family. Your behavior affects everyone else as well."

The lack of firm rules and leadership has given rise to a "dob in a neighbor" culture—that is, in American, "snitching." "There's a real sense of judging others and being judged," says Deborah Mattinson, co-founder of consulting firm ►

◀ BritainThinks. “It’s interesting, because at the beginning there was a feeling of we’re all in this together. We were very united against the virus, and now there’s this sense of division, that people are judging their neighbors. There’s more division now, and I think that’s something the government needs to work at,” she says. “It’s very difficult to do when you’re doing different things in different places and it’s not always apparent why.”

A recent survey by BritainThinks found that more than two-thirds of people feel pessimistic about the U.K. and that 74% believe it will become more divided in the next year. More than 80% say the country needs a strong leader now more than ever. YouGov’s Covid tracker, meanwhile, showed at the end of September that just 31% of people thought the government was handling the pandemic very or somewhat well, down from 44% in late June and 60% in late April.

It’s not just the U.K. that’s struggling. Leaders around the world are grappling with an unprecedented health-care and economic crisis and having to make policy decisions on the fly. Public resistance to lockdowns is growing, even where virus cases are spiking. Some governments have much stricter enforcement, including compulsory hotel quarantines and hefty fines levied for ignoring rules concerning social distancing, going out in public, and wearing masks. In Singapore, even talking loudly on a train is discouraged, on the theory that it may spread the virus faster.

But in the U.K., stricter approaches have faced particular and practical challenges. The government’s track-and-trace system has been dogged with false starts and system glitches. People are forced to pay hundreds of pounds for private tests, because the public system is overloaded. That’s adding to the sense that they have to muddle through on their own.

Tensions over Johnson’s handling of the pandemic are putting hairline cracks in the stunning parliamentary majority he won in December’s election, in which he wooed away long-term Labour voters in England’s northern industrial regions—the so-called Red Wall that was the leftist party’s core—which have been slowly decaying economically. He promised them revitalization, progress, and prosperity, all part of his message that a post-Brexit U.K. would emerge strong and proud, able to make its own economic choices and play a key role in geopolitical hot spots. He calls it “Global Britain.”

The difficulty with that messaging is that it reflects another Johnsonesque view of the U.K.—one anchored in a monolithic, still faintly imperial nation, whereas political cohesion is corroding and identity is increasingly based on being English, Scottish, or Welsh rather than British. For example, surveys show support for Scottish independence at an all-time high. Divisions in economic status, race, and religion are also visible.

And those voters in the northern parts of England are growing restless and may be turning Labour red again. In opinion polls, the proportion of people who now say they don’t know who they’d vote for is much higher among those who backed the Conservative Party in 2019 in those areas,

says Surridge of the University of Bristol. “They haven’t gone as far as saying they will vote Labour, but they are starting to become a little bit detached from the Conservative Party, and that I think will be a cause of concern.”

Local elections scheduled for this year have been deferred, but that simply means that Johnson’s leadership will be further tested when the votes take place next year. Mattinson of BritainThinks recently interviewed some of the voters in northern areas she’d spoken to earlier for her book *Beyond the Red Wall*. “They’re very, very, very disappointed in Boris Johnson,” she says. “One of them said to me, which I thought was very telling: ‘We voted for bold, and we’ve ended up with waffle.’” Even so, because the public wants the virus to be beaten, “they’re kind of willing him to win in that respect.”

According to the BritainThinks survey, 73% felt there was one rule for the public and another for elites. Only 12% agreed that “U.K. politicians understand people like me.” An issue that’s compounded that sense of disconnect has been lawmakers themselves not following the guidance.

Johnson’s chief strategist, Dominic Cummings, drove 260 miles in March to seek child-care support at a time the country was in lockdown—and he did this after his wife began to develop Covid symptoms and he feared he’d also contracted it. Despite the public furor, Cummings kept his job. “The government quite early on backed themselves into a corner by not abiding by the rules,” says Surridge, who adds that the Cummings scandal “really cut through as a symbol of breaking the rules. It left the government in a very difficult position as to how they can then enforce rules rather than say, ‘Oh, it’s fine to use your common sense and do what’s best for your family.’”

More recently, Scottish National Party lawmaker Margaret Ferrier broke self-isolation rules to attend Parliament in London while waiting for the result of a coronavirus test. After receiving the result—which was positive—she traveled back to Scotland by train. She later told the *Sun* that “a lot of people say Covid makes you do things out of character. You’re not thinking straight.” Despite calls for her resignation, she’s refused to step down. Police have said they will not fine her.

The prime minister enjoys joking around and likes to be liked—that contributed to his winking charm and common-touch oratory. But it’s all starting to fall flat amid the health crisis. He’s lost the goodwill he earned from both lawmakers and voters with the “we’re in this together” rhetoric he used in March, which referenced the wartime words of Winston Churchill.

One of Johnson’s ministers recently described him as being tired and not enjoying himself. This was not what he signed up for, Johnson told his colleague. “He is a sunlit uplands man, isn’t he?” says Mattinson, using the sort of language evoked by Johnson, which refers to a longed-for future of happiness and prosperity. “He can do sunlit uplands. It’s much harder to do the more gloomy stuff.” It takes much more than just common sense. **B** — *With Tim Ross*



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Why ADM Is Making Veggie Burgers

● As trading gets tougher, the commodities giant is focusing on healthy food ingredients

Grab a slice of bread in the U.S., a tortilla in Mexico, a glass of orange juice in the U.K., or a pork dumpling in China, and odds are Archer-Daniels Midland Co. has had a hand in it. For decades, ADM, once the self-styled supermarket to the world, helped put the big in Big Food. From trading soybeans to manufacturing high-fructose corn syrup to refining ethanol, it had reach and power rivaled by few in agriculture. But after years of slack growth in its old-line businesses, the 118-year-old giant is hitching its future to such things as pet food, veggie burgers, and probiotics.

Nowhere is the company's headfirst plunge into nutrition on better display than at its ADM Science and Technology Center in Decatur, Ill., a renovated

200,000-square-foot school building. There, machines test the consistency of a veggie burger formula, "sensory panelists" in conference rooms measure the olfactory satisfaction of new ingredients, and food scientists in test kitchens develop recipes for such things as gluten-free winter pizza. (It features ADM's tapioca starch, brown rice flour, and Italian sausage seasoning.)

For Juan Luciano, an Argentine-born industrial engineer who became chief executive officer in 2015, the need for ADM's transformation beyond industrial agriculture was evident when he went out to brunch with his now-25-year-old daughter in downtown Chicago, where the company is based.

"We would pay \$20 for an omelet, but you know, the eggs were from Wisconsin, the potatoes were from Michigan," Luciano says. "I was like, I don't care, but my daughter cared, and because she cared, the whole family went there. The point is, that there were these consumers, like my daughter, they valued this stuff that was locally grown. So we



started to see things like that. We started to see new categories like energy drinks we never heard about, we started to see alternative milks.”

Before Luciano’s tenure, ADM had spent almost half a century trying to become the globe’s biggest agricultural middleman: buying crops from farmers, storing, hauling, and processing those grains, and then selling them when the time—and price—was right. It was a winning formula for decades.

Then things started to hit a wall. Farm producers across America’s heartland were building up their own storage capabilities, relying less on handlers such as ADM. Improvements in crop technologies led to booming yields and reduced the volatility that big agricultural traders rely on. And the growth of internet data services let farmers sitting in their tractor cabs track real-time weather, prices, and news of foreign nations’ buying plans—key information that had long given an edge to big ag players like ADM.

“Today the farmer basically has the same data that we have,” Luciano says. “Seeds are better resistant to drought, there’s better precision agriculture, and there’s more yield in the same seeds. So that has also limited the big discontinuity that allowed those big trade games.”

The shift is transforming the industry. Trading margins are thinning, and packaged foods have fallen out of favor with younger consumers, boosting demand for nonindustrial commodities such as quinoa, chickpeas, and lentils. ADM’s larger rival Cargill Inc. had already responded to this paradigm, refocusing to become an integrated food company and making a large bet on proteins, such as beef, and aquaculture, where it’s producing fish feed.

ADM’s nutrition unit, which includes the plant burgers and pet food operations, is booming. Profit for the segment surged 52% in the first half of the year, to \$300 million, from the year-earlier period. That helped ADM beat earnings expectations, even as first-half profit at its traditional grain-handling business rose just 7.2%, to \$835 million.

The nutrition business was key to the company’s ability to weather the pandemic. While supply chain disruptions initially hurt many of its commodity rivals, ADM has seen a jump in demand for probiotics and other such products as consumers focus on boosting their immune systems in a virus-stricken world. “It’s been interesting that as bad as coronavirus is for the world, to a certain degree it reinforced the direction we have taken in ADM strategically,” Luciano says. “Today the No. 1 question in the world is: How can I stay healthy?”

To revamp the company, Luciano cut jobs. The cocoa unit and chocolate businesses were sold. He offloaded its Brazilian sugar and ethanol operations.

He also transformed the trading arm, reducing the amount of pure trading it carries out. About 70% of the volume ADM’s global trade desk now handles is to supply the company’s own operations, compared with 5% before 2014.

The focus on nutrition started in 2014 with ADM’s biggest-ever acquisition, the \$3 billion buy-out of European natural ingredient maker Wild Flavors. Another \$3 billion in deals followed over the next few years, including the \$1.8 billion take-over of Neovia, a maker of pet food and animal feed. “The transformation to focus on downstream and nutrition is the right one for ADM,” says Seth Goldstein, an analyst at Morningstar Inc. in Chicago.

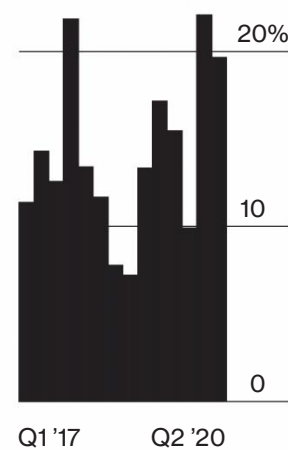
Still, the new products aren’t going to overtake grain handling and processing anytime soon. The company aims to increase operating profit from the nutrition unit to \$1 billion, more than double last year’s level. Meanwhile it remains saddled with a big ethanol business, which after slumping for years saw demand decline even more as the pandemic kept drivers off the road. “I like ethanol as a product—I do believe there’s a lot of potential. I just don’t feel that that’s a business for us,” Luciano says.

ADM’s share price has risen about 20% in the past 12 months, putting it on track to match a record set in 2014 and making up for years of uneven returns. But Morningstar’s Goldstein says that for the company to get a bigger, long-lasting stock boost from the nutrition segment, “it will have to do more acquisitions and grow more organically to make it a large part of the overall business.”

In August, ADM raised about \$550 million by selling a small part of its stake in Wilmar International Ltd., a Singapore-based agribusiness giant, sparking buzz that it was assembling a war chest. At a Barclays Plc virtual event in September, Vince Macciocchi, president of ADM’s nutrition business, fueled the speculation, raising the possibility of a deal similar to its Wild Flavors or Neovia transactions. “At the opportune time, we’ll continue to look to expand our global footprint into North America and other regions in health and wellness,” he said.

Even if no deal is forthcoming soon, insiders say ADM will be forever changed. As trading becomes less important among its ranks, the number of food scientists studying the complex interplay among flavors, smells, and textures to create healthy fare is soaring. “When I started here, we were four,” says Mark Matlock, who retired as senior vice president for food research in 2019 after 39 years with ADM. “We are now some 800 worldwide.” —*Isis Almeida*

▼ Nutrition as a share of ADM’s operating income



“As bad as coronavirus is for the world, to a certain degree it reinforced the direction we have taken in ADM strategically”

THE BOTTOM LINE Farmers now have access to the kind of crop data ADM’s traders used to profit handsomely from. So the company is focusing on nutrition, where its profits rose 52% in the first half.

Covid Threatens Women Pilots' Progress

● Pandemic-spurred cuts in flight-crew ranks will slow already scant gains in the cockpit

Growing up in Amsterdam, Rachna Sharma Reiter felt like the exception. At age 7, she knew she wanted to be an airline pilot but never met any girls her age who shared that ambition. At flight school in the U.S., she was one of three women in a class of 150. After 16 years in the cockpit, she still finds herself being viewed as an anomaly. “It seems like things haven’t really changed,” says Reiter, who works for U.K. discount airline EasyJet Plc. “Whenever I go somewhere, they always tend to think I’m a flight attendant, even when I’m in my pilot’s uniform.”

The path to the flight deck has never been easy for women. Beyond the gender assumptions, there are the structural forces impeding progress. Male-dominated militaries have long fed pilots into airline cockpits, though vets have taken a smaller share of the openings in recent years. Once women do make it in, everything from a male-centered training environment to work rules concerning maternity can slow their advancement.

Still, there was reason for optimism before the pandemic hit. The share of female pilots rose to 5.3% worldwide this year, from 3% in 2016, according to the International Society of Women Airline Pilots in Las Vegas. Europe has led the way among the larger markets, along with a handful of countries like India, where the boom in air travel has attracted women to the well-paying profession.

EasyJet stepped up recruiting efforts several years ago under then-Chief Executive Officer Carolyn McCall. Deutsche Lufthansa AG increased female cockpit-crew representation to 7.1% by inviting more women to its in-house flight school. And fast-growing Wizz Air Holdings Plc announced an ambitious program to retrain flight attendants as pilots.

But with the coronavirus grounding lots of travel, that hard-won progress is at risk. Airlines are reeling, with more than 15,000 pilot jobs in Europe alone under threat of elimination, according to the European Cockpit Association. American Airlines

Group Inc. and other U.S. carriers have started to lay off tens of thousands of employees. In Hong Kong, heavyweight Cathay Pacific Airways Ltd. says it will slash more than 5,000 jobs, including about 600 pilot slots. By yearend, job losses among all airlines globally, including flight attendants, ground staff, and others, could top 340,000, according to consulting firm Five Aero.

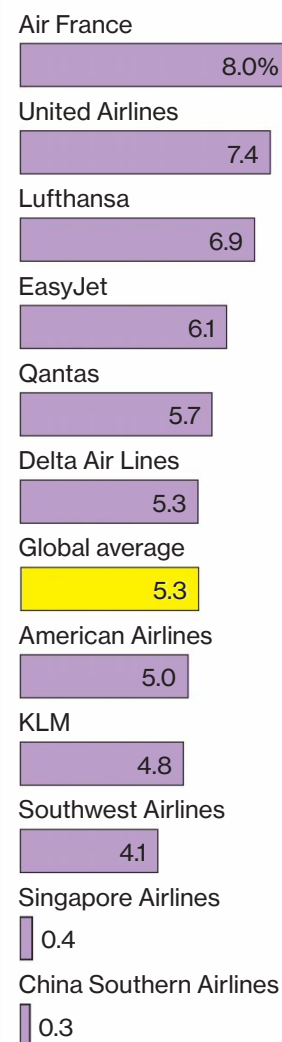
Female representation could slip toward 2016 levels, according to the women airline pilots group. By its estimate, the industry has lost almost 100 female pilots so far because of recent airline bankruptcies.

As they resize their staffs, most carriers are following a last-in, first-out formula when deciding whom to keep. This has put more recent arrivals, many of them women, at a disadvantage.

Decision-makers are “not thinking about last-in, first-out having an impact on female pilots,” says Jenny Body, a retired Airbus SE engineer who helped develop the fly-by-wire software used by modern aircraft and was the first woman to head the Royal Aeronautical Society. “If you look at the population in their 50s and 60s, it’s mainly men.”

The pipeline is also drying up. Lufthansa has temporarily stopped training new pilots. There’s no active initiative to attract more women because of the personnel surplus, a spokeswoman says. EasyJet, which reached its target of 20% female new-entrant pilots this year, says it’s paused recruiting and it’s not clear when it will begin taking on new staff again. Hungarian discounter Wizz still hopes its program, dubbed Cabin Crew to Captain, will help it boost the number of female pilots to 1,000 by 2027, from 50 now. But the initial class has been delayed until 2021. “We’re controlling our destiny,” says Tamara Vallois, Wizz’s head of recruitment. “Four to five years from now, that’s when aviation will hopefully bounce back, and by this time the profession will be in high demand again.”

▼ Share of pilots who are female



At work, women pilots say their male colleagues generally show respect, but that's not always true for passengers. Claire Ross, a 33-year-old pilot for German tour operator TUI AG, says she's encountered comments such as "Are you old enough to fly a plane?" and "Are you sure you can park this thing?" Audrey Escoubet, 45, an Air France captain who's been flying for two decades, says women are always proud to see a female pilot, but some men are "not so sympathetic."

One of the biggest retention issues for women pilots is work schedules, according to a 2016 study in the *International Journal of Aviation Management*. Pilots are expected to spend as many as 15 nights a month away from home, which can cause issues for women flyers, who still often shoulder more caregiving duties at home. Many have been able to use flex time to help manage those family duties, but that also slows their progress toward promotions. (Globally, females make up only 1.4% of airline captains, according to the Las Vegas pilots group.)

Several women pilots who sought anonymity for fear of losing their jobs say they're also penalized financially by such policies as mandatory safety-related groundings during pregnancy. This results in an effective pay cut of as much as one-third during the pregnancy, due to the loss of supplemental flying pay based on hours in the air.

And unlike other highly paid professions, European pilots often get only statutory maternity pay rather than a percentage of their salary during maternity leave. This can mean a 90% pay cut for those months. Some women pilots say colleagues have put off having children while they pay back loans taken to cover flight training, which can cost as much as \$100,000.

While employment terms are often negotiated by worker councils, many lack female representation or haven't prioritized negotiating for benefits that won't affect 95% of their workforce. "The role of a pilot is man-shaped," says Ross, who flies the Boeing 757 and 767 for TUI. "We need more females in these positions of responsibility to inspire and give confidence to others so that they can reach their full potential."

Women pilots say they hope the pandemic crisis may ultimately help improve conditions in the cockpit by giving male colleagues a taste of what it's like to be grounded for long periods of time, as women are during pregnancy and maternity leave. They hope this will lead to improved training and support for pilots returning after a break.

Reiter, the EasyJet pilot, has flown in Europe for the past 16 years and now lives in Berlin. She's been furloughed since March. Her rank as first officer is

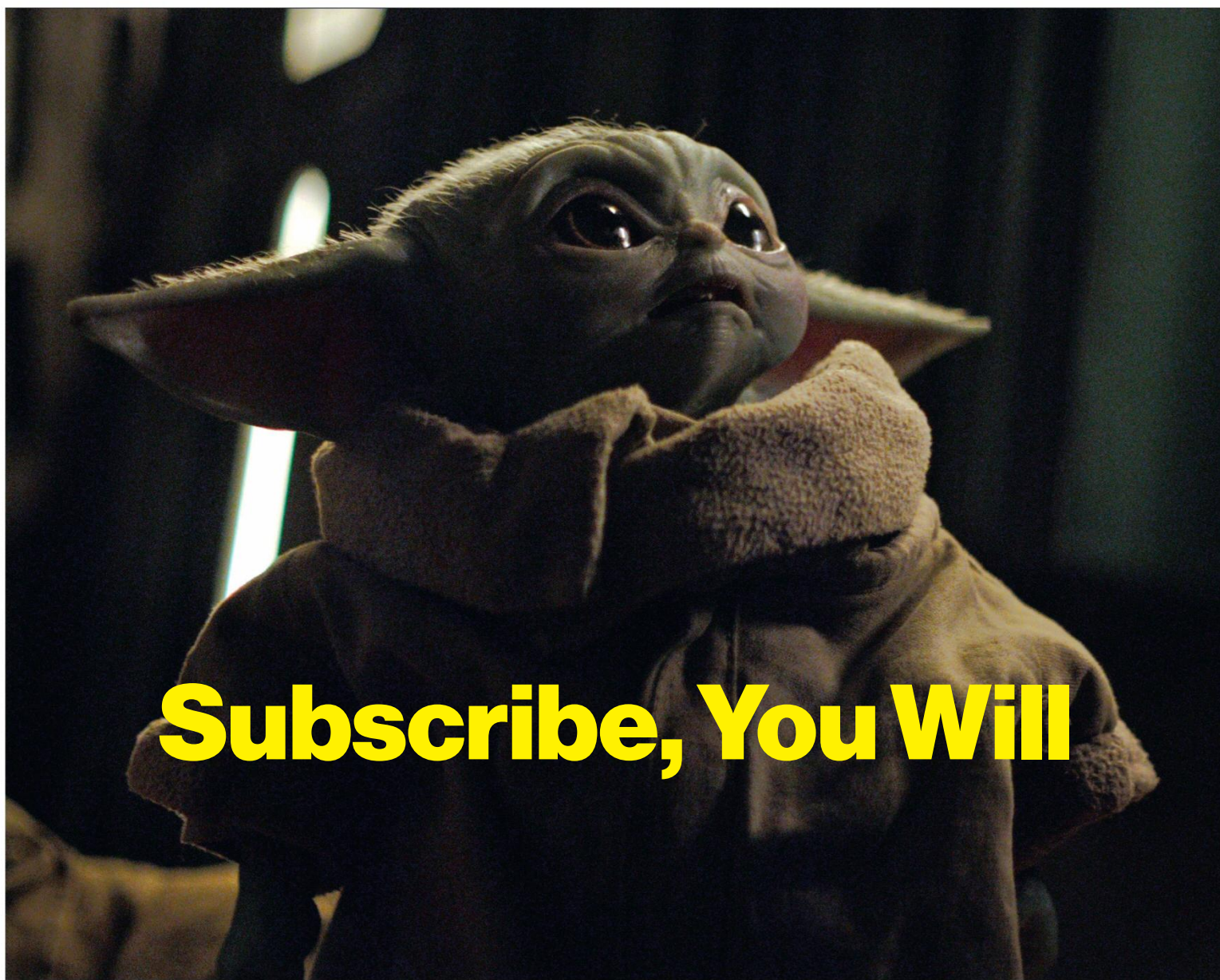


below that of captain, putting the 42-year-old at a disadvantage based on seniority. She has a degree in aerospace engineering and two daughters, age 8 and 2½, and is pursuing an MBA online.

If she can't return to the cockpit, she says, she would consider a ground-based role elsewhere in aerospace. Her 8-year-old plays soccer and wants to be an astronaut. "I would like every girl to think they can do whatever they want," Reiter says. "I had no clue about what was male, what was female. I knew there were less girls flying, but just focused on what I wanted to do and went for it." —Charlotte Ryan

▲ Air France Captain Escoubet (above) and EasyJet First Officer Reiter

THE BOTTOM LINE About 5.3% of airline pilots globally are female, up from 3% in 2016. But since many layoffs in the battered industry are based on seniority, women could be harder hit.



● Disney+ will see next month how many customers it keeps after the Verizon free trial ends

When then-Walt Disney Co. executive Kevin Mayer sat down with Hans Vestberg, the soon-to-be chief executive officer of Verizon Communications Inc., at the 2018 Sun Valley conference in the Idaho mountains, it was supposed to be a get-to-know-you chat. The annual conclave of media and tech heavy hitters is known as a place where deals are hatched—and this meeting didn't disappoint.

Mayer was plotting the launch of Disney+, the company's big effort to compete with Netflix Inc. in the business of online video. Their talk set the stage for Verizon, the largest U.S. wireless carrier, to provide the service free of charge for one year to many of its mobile phone and internet customers. The offer gave the streaming service a boost when it premiered in November 2019, with Disney reporting more than 26 million subscriptions in the first two months, 20% of them from Verizon.

The pair-up was one of many decisions Disney made that have helped lure more than 60 million

customers to its streaming service. The company hit the low end of its five-year subscription forecast in just nine months and is expected to post an even bigger subscriber number when it announces quarterly results on Nov. 12. Even rivals are impressed. "If you'd asked us a year ago, 'What are the odds that they're going to get to 60 million in the first year?' I'd be like, 'Zero,'" says Netflix CEO Reed Hastings. "I mean, how can that happen? It's been a super-impressive execution for them."

With consumers reluctant to go to movie theaters or theme parks, Disney's streaming operation has provided an outlet for the company to release new movies and keep families entertained at home. On Oct. 30 it begins the second season of *The Mandalorian*, the *Star Wars* TV show spinoff that proved to be the service's biggest hit at launch.

On Oct. 12, Disney announced it was reorganizing its TV, movie, and direct-to-consumer divisions, providing content in particular for the company's growing lineup of streaming services, which includes ESPN+ and Hulu. Consumer behavior is driving the decision-making, says Disney CEO Bob Chapek. "We're going to go ahead and take their cues," he says. "And right now they're telling us that they really want to see

more and more content on Disney+ and Hulu.”

Among the most critical decisions was to put almost all of the company’s most popular movies and TV shows on the service, from Walt Disney’s original animated hits all the way to new films such as last year’s *Avengers: Endgame*. The move meant scrambling to renegotiate contracts that had some films, including the Marvel and *Star Wars* franchises, airing on other outlets.

Price was also a key consideration—just \$7 a month or \$70 for a full year. For a company known for obsessive customer research and premium pricing, the decision to undercut even Netflix’s entry-level \$9-a-month fee was made quickly by Mayer—who left Disney earlier this year after being passed over as CEO—and then-CEO Bob Iger. The idea was to come up with an offer so low, customers would have a hard time refusing it. But price hikes could be coming. At an investor event last month, Chief Financial Officer Christine McCarthy said that “we priced Disney+ at a very accessible price point initially.” Another early call was agreeing to buy control of BAMTech, the video streaming arm of Major League Baseball, in transactions that totaled \$2.6 billion and began in 2016. The business served customers such as the National Hockey League and HBO. Disney executives argued that having the technology in-house would give them a leg up in the streaming wars, pushing back against colleagues who said the benefits didn’t justify the cost, according to people familiar with the private discussions.

As Disney+ nears its first anniversary, new challenges loom. The Verizon offer begins to expire for many customers on Nov. 12. In a recent survey conducted on behalf of research firm MoffettNathanson, 44% of Disney+ Verizon customers said they would renew, while 37% were undecided. Verizon is trying to lure customers into top-tier plans with a bundle that also adds Hulu and ESPN+.

The streaming field is only getting more crowded. After a huge start to the year, Disney+ fell to fifth place in new subscriber sign-ups in the third quarter, from the top spot in the first quarter, according to Kantar, a consulting company. Peacock, the free service unveiled in July and being promoted heavily by rival Comcast Corp., was No. 1.

New content is also an issue. The number of Disney+ original episodes released in the third quarter, at 43, fell well below those of Netflix and Amazon.com Inc., according to MoffettNathanson research. (Disney says the number of episodes is higher.) The share of customers using the service daily dropped for the second quarter in a row.

Like everyone else in Hollywood, Disney had to halt production because of the pandemic and

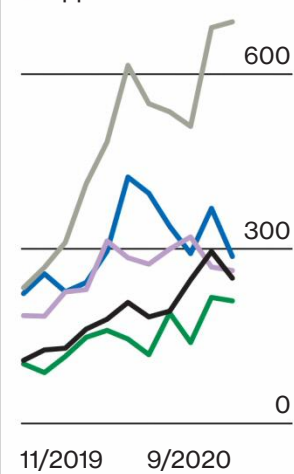
is only beginning to ramp up. Filming of *The Mandalorian*’s second season wrapped just days before the shutdown. *WandaVision*, the first in a series of Marvel-themed shows, is set to premiere in December, as will *Soul*, a new Pixar film that was supposed to be released in theaters.

“We will have something new virtually every week on our platforms, across all of our platforms, all of our franchises,” says Chapek, who took over for Iger in February, just as the virus was starting to spread around the globe. Although he came most recently from the theme park side of the business, the CEO is clearly glad Disney+ was there for him in this challenging year. “We’re not letting anything that’s happening in the short to medium term get us off track,” he says. “We’re going faster, bigger, stronger, along the same route that was set up six months ago, a year ago, year and a half ago. This is the direction of the Walt Disney Company.” —*Christopher Palmeri, with Scott Moritz and Lucas Shaw*

THE BOTTOM LINE Disney’s new streaming service couldn’t have come at a better time, with Covid-19 closing its parks, but can Disney+ customer growth hold when a free trial runs out?

▼ Average minutes watched monthly, per household

- Netflix
- Amazon
- Hulu
- Disney+
- Apple TV+



A Race to The Bottom

● England’s Sea-Kit leads efforts to map the seabed, but competition is growing

On July 24 a 40-foot-long boat called *Maxlimer* set out from the port of Plymouth on the southern coast of England, steering southwest out of the English Channel into the open ocean. The unmanned vessel, guided by pilots at a computer onshore, carries sonar that sends out an average of 10,000 sound pulses per hour to chart the topography of the ocean floor. The goal of the boat’s three-week journey was to put together for the first time a detailed map of about 600 square miles of Europe’s continental shelf, the place where the ocean floor plunges from a few hundred feet beneath the surface to several thousand.

As the *Maxlimer*’s sonar pings bounced off the seabed, scientists around the world took turns listening for alarms indicating gales, approaching ships, or problems with the vessel’s sensors. The *Maxlimer*, whose bullet-shaped hull looks like a submarine that’s just surfaced, had never spent this long a time in such a harsh environment, and researchers fretted that a storm might hobble it, ►

◀ says Neil Timmouth, 37, chief operating officer of Sea-Kit International Ltd., the company that builds the £1.3 million (\$1.7 million) boats. “We wanted to push the limits,” he says, “to do operations in open oceans where you don’t know what you’re going to encounter.”

Sea-Kit is at the forefront of accelerating efforts to map the ocean floor, a terrain that’s less understood than the surfaces of the moon or Mars. Only 20% of the seabed has been mapped, and an atlas would boost efforts to find everything from minerals used in electric cars and mobile phones to new species. The Seabed 2030 project worked with Sea-Kit on the voyage, getting data for its mission to map the ocean floor in the next decade and ultimately make the data freely available. The initiative comes as the United Nations’ International Seabed Authority drafts a framework to allow deep-ocean mining, which may come into effect next year.

The ISA is grappling with how to fairly distribute wealth from international waters and protect the poorly understood ecosystems of the deep ocean. “The law of the sea was written on the idea that if you use something that belongs to everybody, it’s equally shared,” says Marzia Rovere, a marine geologist at the Institute of Marine Sciences in Bologna, Italy, who’s been working on the UN framework. “How to do this—it’s still a matter of debate.”

For centuries, sailors have sought to measure the ocean’s depth as a way to gauge the approaching shore and gain a better understanding of the topography. Until the early 20th century, the technology was simple: a weight and a long rope. The *Challenger* expedition in the 1870s used such sounding lines for a four-year trip that sought to map the seabed and catalog creatures in various parts of the ocean; it discovered the Mariana Trench, home to what’s now called the Challenger Deep, at more than 35,000 feet the deepest known part of the ocean. After the *Titanic* sank in 1912, explorers proposed using sound waves to find its hull in the North Atlantic, accelerating the development of sonar, the most common technique used today.

Sea-Kit last year won the Ocean Discovery

XPrize, netting \$4 million in the competition aimed at nurturing technologies for mapping the seabed. Other groups submitted ideas such as deploying multiple robots to map an area quickly, dropping retrievable pods from drones, and using lasers to determine the shape of the terrain. The XPrize judges said a key differentiator for Sea-Kit was the way it tapped cloud technology to process data and create a detailed map in a tight, 48-hour window.

Corporations are also starting to study the ocean’s depths. Ocean Infinity, based in Austin, does surveys for the oil industry with robots that can map terrain 20,000 feet below the surface. International Business Machines Corp. is working with marine researcher Promare to build the *Mayflower Autonomous Ship*, which next year will attempt an Atlantic crossing guided by artificial intelligence. Fugro NV, a Dutch company that also serves energy producers, has been developing similar mapping technologies—and this year it bought two of Sea-Kit’s boats and invested in the company.

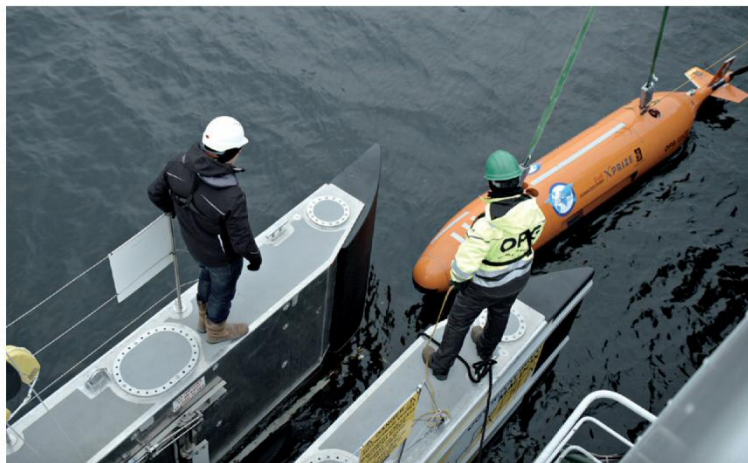
Sea-Kit worked with AI from Teledyne Caris this summer to analyze the 1.5 billion data points the *Maxlimer* gathered. Schools of fish, temperature changes, and the drop-off of an underwater canyon can muddy the information coming back from the sonar; until recently, sorting through those anomalies to build an accurate map took an hour of computer time for every hour spent collecting data. AI has cut that to less than 10 minutes.

Those are the kinds of advances needed to reach the goal of mapping the entire ocean, says Jyotika Virmani, who was executive director of the XPrize. With that information in hand—and available to the public, as envisioned by Seabed 2030—scientists ▶

● Average number of sound pulses sent out per hour by Sea-Kit’s *Maxlimer*

10k

▼ The *Maxlimer* launches robotic underwater vehicles (left) that carry sonar to help survey the seabed; Sea-Kit’s ability to crunch data quickly helped it win last year’s Ocean Discovery XPrize



FROM LEFT: SEA-KIT INTERNATIONAL; SHIPOWNERS CLUB/ROOT MEDIA



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◀ will better understand, say, where a tsunami might hit, how much sea levels might rise because of climate change, and potential shifts in ocean currents as temperatures climb. “It works to everyone’s advantage to get this information out,” says Virmani, who now runs the Schmidt Ocean Institute, established by former Google head Eric Schmidt. “Once we know what’s there in its entirety, we can really truly start to figure out what’s what on this planet.” —*Amy Thomson*

THE BOTTOM LINE Only 20% of the seabed has been mapped, but a group of companies and researchers is trying to create an atlas of the entire ocean floor in the next decade.

E-Commerce Turns Fashionable

● From Neiman Marcus to Lululemon, retailers are personalizing online shopping to boost sales

“So, what are you looking for?” the Lululemon staffer cheerfully asks. She handpicks a couple of pairs of yoga leggings that cost upwards of \$100, but there’s a catch: There’s no way to try them on because the consultation is over Zoom. The half-hour conversation ends with the purchase of high-rise tights in heathered graphite gray, which show up two days later and fit.

Retailers had been toying with features such as video chats and livestreaming to make e-commerce more pleasant and personable even before the coronavirus forced store closures. But months into a pandemic that still has people wary of going to the mall, the online shopping experiment is pivoting from hype to a longer-term strategy. Covid-19 has supercharged the threat e-commerce poses to brick-and-mortar chains—U.S. online sales in the second quarter rose 45% from a year earlier, clocking three times recent growth rates. Now the industry is racing to respond.

At Chico’s FAS Inc., a women’s clothing chain, consultation services include asking over text and email about a “fashion emergency.” Neiman Marcus Group, the upscale department-store chain that came out of bankruptcy last month, now uses an online quiz to match customers with style advisers. The focus is “how do we get our teams in stores to truly become digital stylists,” says Chief Customer Officer David Goubert.

He shared an example of a customer who took the quiz—which asks questions like “What do you feel is missing from your assortment?”—and got paired with an associate from a closed store in Chicago. They spoke over the phone and FaceTime, which led to an online purchase. Later they met in person when the location reopened, and the customer refreshed his wardrobe.

What’s happening at Neiman Marcus and other chains is part of a wider acknowledgment that the Covid-triggered boom in online shopping has made the need to stand out even greater. And one way to get there is by offering an experience that gives clients the undivided attention of a sales associate and captures some of the emotional warmth found in person.

For the most part, e-commerce hadn’t changed in the past decade. It’s an efficient way to buy something you know you want—what the industry calls mission shopping—but it’s hampered by the challenges of promoting product discovery and impulse purchases. Those benefits are the point of a traditional store, which is still very good at using employees, merchandising, and ambience to persuade people to buy more stuff.

The shift to online sales has other hurdles to overcome. Turning hundreds of employees into virtual sales consultants can require a hefty investment. It might work only for brands selling at premium prices, says Alex Fitzgerald at strategy firm Kearney.

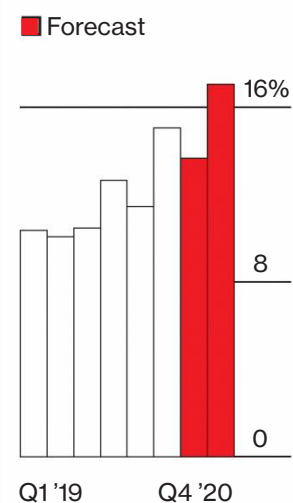
One way to find resources is to cut from somewhere else. Beauty giant Estée Lauder Cos. is doing just that, saying in August it’s investing in “online talent” while eliminating as many as 2,000 in-store positions. The industry is also experimenting with using freelancers who are fans of a brand to work from home on commission.

The technology pushing this expansion is in high demand. Montreal-based Salesfloor Inc., whose clienteling platform is used by the likes of Saks Fifth Avenue, says its revenue tripled this year. A video-chat feature added several years ago failed to catch on, but now “everybody wants it,” says Oscar Sachs, Salesfloor’s chief executive officer.

Many people are changing how they do things, including the way they shop, says Cathy McCabe, the CEO of Proximity Insight, a rival to Salesfloor. After all the hiccups of working from home, people don’t expect a brand interaction to be perfect, either. “The rise of virtual consultations, it’s not just fashion,” she says. “It covers the entire spectrum of retail.” —*Sandrine Rastello*

THE BOTTOM LINE The retail job of the future may be an online associate, who uses video chat and other tools to offer one-on-one experiences previously reserved for stores.

▼ U.S. e-commerce as a share of total retail sales






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FINNANCE

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Edited by
Pat Regnier and
Paula Dwyer



● The broker that merged trading and entertainment is banking on its customers growing up and trusting it with their financial lives

On March 2, just before offices shuttered across the U.S., the staff at Robinhood Markets Inc. worked long after sunset in their Menlo Park, Calif., headquarters. Executives huddled around co-founder Vlad Tenev, then disbanded to bring orders back to their teams. The company faced an emergency: A systemwide outage had disabled its online trading app throughout one of the stock market's busiest days in months.

Spooked by the early spread of Covid-19, U.S. stocks had gone through a harrowing sell-off and then surged back. Robinhood's malfunction consigned its customers to the sidelines while more than 14 billion shares of U.S. equities changed hands. Although Robinhood managed to restore the app's service, its handling of the episode angered customers and drew an inquiry from the U.S. Securities and Exchange Commission, Bloomberg reported in August. (Both the regulator and Robinhood declined to comment on any investigations.)

The incident was the first tremor in what would become a prolonged period of turbulence for the online brokerage. It had several disruptions to trading and data from March through June, which sounds like a disaster for an upstart trying to draw customers away from Charles Schwab Corp. and ETrade Financial and to position itself as the money app for millennials and Generation Z.

But no: Robinhood would become one of the Covid economy's breakout successes. Americans marooned at home binge-watched Netflix shows, went shopping on Amazon Prime, and discovered day trading on their mobile phones. "Robinhood traders" became the shorthand explanation for the frenzy of often speculative retail investing in the pandemic lockdowns.

It's the kind of moment when companies seize the chance to go big. For Robinhood, though, the most urgent need is to get it right—to prove it can manage a simple online trading platform and overcome a reputation for poor customer service. It's paused efforts to expand into Europe and Asia.

Instead, the company has been on a hiring spree for support staff and is focusing on making its technology more dependable. "Over the next few months, you'll continue to see the results ►

"Wall Street people don't love this—it's legalized gambling"

◀ Will Sartain

◀ of all of that work that we've been putting in," Tenev says in a video chat. He wears his hair shoulder-length, and like a lot of guys in these pandemic days, he's sporting some facial hair—in this case, a goatee. "There's a lot more coming."

So what's Robinhood's next act? The core product—stock trading on a fun gamelike phone app—is both controversial and widely imitated. Founded in 2013, Robinhood courted long-ignored small-dollar and novice investors by charging zero commissions on trades. It later offered fractional stocks that allow people who can't afford, say, the almost \$3,200 price of a single Amazon.com Inc. share to buy just a piece of one instead. None of that's unusual anymore: Free trading is now the industry standard, and Schwab made "stock slices" available in June.

But free stock trading was supposed to be an entry point—not, by itself, the business that earned Robinhood a valuation of \$11.7 billion in its most recent venture capital funding round. Robinhood enticed big VC investors such as Sequoia Capital with the promise that "customers will grow with us," according to a 2019 pitch deck seen by Bloomberg. In a slide that said "creating relationships to last generations," the company said each customer's value should increase over time. The first-time stock buyer can eventually graduate to using services the company has yet to offer, including individual retirement accounts, mortgage lending, car and rental insurance, and life insurance.

Robinhood could be under even more pressure to prove it can extend beyond free trades if it goes public. The company's unexpected growth this year has likely pulled the prospect of an initial public offering closer, though those plans aren't imminent, says a senior employee at one of Robinhood's VC backers, speaking on the condition of anonymity. Tenev says he envisions Robinhood as a "large, independent public company" one day, without commenting on the timeline.

In a more tranquil market, it's easy to imagine a gradual transition from deep-discount stock broker to financial supermarket for the mass affluent. (It's the path Schwab blazed decades ago.) But Robinhood has to show it can keep its burgeoning customer base happy even as it tries to coax it to the next level.

In attracting users, Robinhood has been incredibly effective. It has more than 13 million customers, 3 million of whom signed up in the first four months of the year. That's well above the 5.8 million retail accounts as of the end of June at ETrade, a company with an almost 40-year track record. Robinhood's account balances are more

modest than those at other large brokerages, says a person familiar with the company. In June it reported that average daily trades exceeded 4 million, blowing past all other brokerage rivals at a time when retail trading was booming.

Along the way, Robinhood has challenged industry conventions. It brought the compulsive, viral loops that govern our lives on Instagram and Twitter into the financial realm. The app is neatly in sync with Robinhood's mostly millennial-age customer base: About 80% of its assets under management come from millennial users, the 2019 pitch deck says. Half of new Robinhood customers this year were first-time investors, the company said in May.

Will Sartain, 19, is part of Robinhood's fan base. His father tried to teach him about the stock market, but he never took much interest in it. That changed around late February, he says. Sartain, a student at Ohio State University, normally spent about \$50 a week betting on football games, including his college team or the New England Patriots. With live sports canceled, he found himself enticed to trade stocks and options.

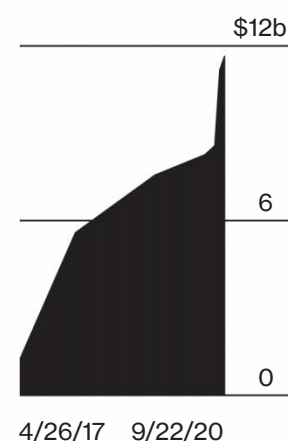
Now he logs on to Robinhood about once or twice an hour when markets are open to check his holdings. "I would get a nice rush from sports betting," Sartain says. "When I started putting the money into Robinhood, then I started feeling that same rush."

Robinhood's app emphasizes social interaction by using the possibility of getting a free share of stock in exchange for inviting friends to sign up. You have a tiny chance of snagging a high-price glamour stock such as Apple Inc., Robinhood says, if your friend signs up and links a bank account. If you find your well of investment ideas running dry—or perhaps don't know where to start—you can browse the 100 most-held stocks among fellow Robinhood users for inspiration.

Some of Robinhood's explosive growth may derive from a stock market entertainment ecosystem that's suddenly risen alongside it. David Portnoy, founder of the website and podcast empire Barstool Sports, is perhaps the most notorious retail ringleader, pulling stunts like using Scrabble tiles to find stock tickers to invest in. He has no relationship with Robinhood, but they share a youthful audience with a taste for trading. "Wall Street people don't love this—it's legalized gambling," says Portnoy. "That's really how I view it. Just like sports betting is entertainment, I think the stock market is entertainment. I don't think there's anything wrong with that."

A growing number of influencers on social

▼ Robinhood's valuation based on private funding rounds



● Millennials' share of Robinhood's assets under management, in 2019

80%

media also promote Robinhood. TikTok videos under #robinhoodstocks have 8 million views. These include people such as Errol Coleman, who says he's been taking time off from Adams State University in Colorado since May to focus on investing. To his more than 200,000 TikTok followers and over 6,000 YouTube subscribers, he offers explainers on everything from spotting a short squeeze to penny stocks.

Robinhood traders can, at times, move markets. They famously piled into Hertz Global Holdings Inc. in early June, and shares of the bankrupt car rental company began to surge. As trading volume in Hertz mushroomed, the number of Robinhood traders holding the stock swelled to 160,000 at one point—about 100,000 more than the month earlier.

It was crazy—shareholders of bankrupt companies generally get wiped out—but when the stock was trading for less than a dollar, maybe it was also fun for some traders to make a bet that things could hardly get any worse. There's a very visible subset of Robinhood customers with a taste for risks once considered exotic. Options trading—in essence, a way to magnify both potential gains and losses on stock moves—exploded in popularity among

smaller traders this year. Robinhood helped set the stage for that when it began offering free options trades in 2017.

Robinhood embraces the idea that investing should be accessible and, yes, thrilling. Its executives often deploy the Silicon Valley-ism that using their product should be “delightful,” a word not normally associated with securities investing.

Critics say Robinhood's app encourages users to see investing like a game. Investors are congratulated for their first trade with a confetti animation on their app. “It's like playing poker—as long as you have a little money, you can sit down and start competing,” says Charles Rotblut, vice president for the American Association of Individual Investors.

Academic research has shown that the more actively self-guided investors trade, the worse they tend to perform. Most of those studies were done before the death of brokerage commissions, a major drag on traders' performance. But at the same time costs have fallen, markets have, if anything, gotten faster and more competitive. Anyone trading from a phone app is trying to outwit increasingly sophisticated pros on the other side of the bet. It's still not an even matchup. ▶



◀ David Portnoy

SARTAIN: PHOTOGRAPH BY ANDREW SPEAR FOR BLOOMBERG BUSINESSWEEK. PORTNOY: PHOTOGRAPH BY CAROLINE TOMPKINS FOR BLOOMBERG BUSINESSWEEK. DATA: BLOOMBERG REPORTING

◀ Robinhood and its venture backers maintain that such worries are elitist. “There’s really a notion that it’s gambling or gaming if you’re new to the market, but it’s investing if you’re wealthy,” says Gretchen Howard, Robinhood’s chief operating officer. She also says the gamelike aspects of the app have been overblown. “We don’t do confetti all of the time,” Howard says. “I don’t think because you celebrate a moment of participating in the market” that that’s “become a game.”

Co-founders Tenev, 33, and Baiju Bhatt, 35, who met as students at Stanford, started out by working with big-money investors. Before creating Robinhood, they ran a hedge fund called Celeris, using high-frequency trading strategies, and a software company, Chronos Research, that catered to algorithmic traders.

While this seems a world away from Robinhood, high-speed trading firms are part of what makes free retail investing possible. A subset of these firms makes money essentially by processing brokerages’ trades, earning money on the tiny “spread” between the price an investor is willing to pay for a stock and the price someone will sell it for. They earn enough that they’ll pay brokerages for sending trades their way, a practice known as payment for order flow. Hence, Robinhood was born with a built-in revenue stream.

Tenev and Bhatt hold weekly all-hands meetings where any Robinhood employee can ask questions about the company’s trajectory and business plan. In a recurring bit, one co-founder will ask the other for a refresher on Robinhood’s mission. The answer is always the same: making finance more accessible to all.

As is typical of Silicon Valley businesses, accessibility is tied to relying on technology, not human beings. The app provides no phone number for customer service. (It offered one years ago, but the number was removed, according to a person familiar with the business.) The company boasted in its pitch deck that it had 23,700 customers per employee while Schwab had 595. It told prospective VC investors it would use “great product design” to achieve “viral adoption,” at a time when they were running a team of about 600 employees. Its approximately 1,000-person roster now is still lean compared with the more than 22,000 at Schwab, the industry’s heavyweight with branches across the country.

Thai Gaon made his first couple trades on Robinhood four years ago after a friend sent him a referral code to start an account and get a free share of stock. He resumed trading on it this year, and though he’s a dedicated customer, he says



▲ Kamilah O'Brien

“the customer service is totally awful.” Robinhood customers often complain that there’s no one to call when the app is down or they have a question about their accounts. Tenev says Robinhood has an “insane customer focus” and constantly reviews how it provides service. “Historically, we felt that the best way to provide our service at scale and to answer people’s questions has been through email,” Tenev says. “It’s not a silver bullet to just add a phone number.”

That attitude has caused some of Robinhood’s biggest boosters to defect. JJ Buckner, 29, runs a YouTube channel focused on investing, which he’s turned into his full-time job since August. Viewership on his videos started to spike in March with titles including *My 28 Robinhood Dividend Stock Portfolio* and *5 Stocks I’m Buying During This Stock Market Crash*, getting tens of thousands of hits. He started selling mugs and hoodies emblazoned with the words “Drink Beer. Buy Stocks.”

On Oct. 14, Buckner announced he’d left the Robinhood platform and switched to Fidelity Investments Inc.’s. His main gripes: The customer service is poor, the app seems to go on the fritz a lot, and a recent hacking incident in which almost 2,000 Robinhood accounts were compromised leaves him worried. “I will just sleep better at night knowing I have my account with a more reputable brokerage that has been doing this for a very long time,” Buckner says.

Robinhood says the hacking attacks were not a breach of its own system but resulted from cyber criminals gaining access to customer emails affiliated with their Robinhood accounts. Victims vented on Twitter and LinkedIn, with some saying they didn’t believe the problem was with their email. Without an emergency phone number to call, they said, they were helpless as thousands of dollars disappeared from their accounts. “If we determine through our investigation that the customer has sustained losses because of unauthorized activity, we will compensate the customer fully for those losses,” a Robinhood spokesperson says.

“We don’t do confetti all of the time”

In the first half of 2020, U.S. consumer protection agencies received more than 400 grievances about Robinhood, or about four times that of competitors such as Schwab and Fidelity, Bloomberg reported in August. Frustrated customers fumed about outages and a lack of support. Robinhood responded by saying it had doubled its customer service staff and was hiring hundreds more, as well as improving the reliability of its platform.

A tragic incident earlier this year drew attention to some of the perils of introducing novices to complex markets. Alexander Kearns, 20, committed suicide in June after his Robinhood account showed a negative balance of more than \$700,000, according to a series of tweets from his cousin-in-law Bill Brewster. In a note Kearns left, he said he had “no clue” what he was doing. Brewster said he believes Kearns only saw the losses on part of a multistep options trade but not the final outcome and misinterpreted what he owed. In a statement, Tenev and Bhatt said they were “personally devastated” by what happened, and the company has made changes to its app to make options trading easier to understand.

Robinhood’s attempts to move beyond trading so far have been bumpy. Last year the company abruptly withdrew an application for a banking charter, which would have allowed it to provide its own debit cards and accounts insured by the Federal Deposit Insurance Corp. It currently works with outside banks to provide a debit card and FDIC protections on its cash management product. In 2018 the company botched the rollout of a different checking and savings product it was planning. It said the Securities Investor Protection Corp. would insure customers’ money. But the SIPC only protects assets in brokerage accounts in limited cases when a broker fails and doesn’t offer the kind of blanket protection against losses that bank customers are used to getting from the FDIC. The SIPC said Robinhood hadn’t contacted it before announcing the plan.

Tenev bristles at the notion his customers are all twitchy-thumbed day traders: “A very small percentage of our customers are engaging in day trading and active trading.” He says that lots of them are making recurring investments in the market, using fractional shares. That points to an intriguing possibility. With zero commissions and the ability to buy tiny pieces of a stock, small investors could, in principle, use Robinhood and its imitators to build for themselves the kinds of low-cost, diversified portfolios they once had to get from fund companies such as Vanguard Group Inc. and BlackRock Inc.

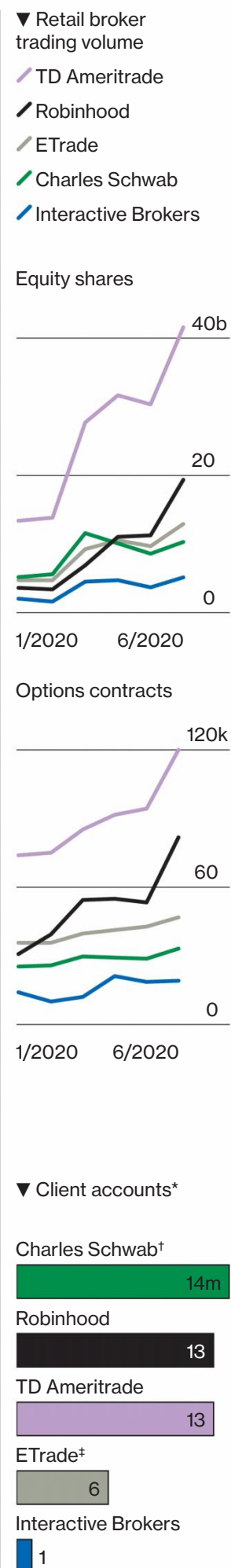
There’s certainly a market—and an audience—for that approach. Kamilah O’Brien, 40, runs a YouTube channel called Focused Spender, where she shares personal finance tips on topics such as saving for an emergency and getting out of debt. But a video she made about investing \$500 across several stocks in a Robinhood account is by far her most popular with 612,000 views. “I don’t like to just do investing videos—but investing videos tend to do much better,” says O’Brien. “I have my initial investment with Robinhood, but I don’t go back and actively trade.”

Right now, trading is still important to Robinhood’s business model. Last year the company expected to make most of its revenue from sheer trading volume through payment for order flow, from which it anticipated receiving \$180 million. The practice is legal and common, but Robinhood didn’t widely publicize it until October 2018, days before Bloomberg News reported it as a significant revenue stream for the company. The SEC is now investigating Robinhood’s disclosures; the company declined to comment on the inquiry.

Detractors say such payments raise conflict-of-interest issues by encouraging the routing of client orders to the trading firm that pays the most, rather than to the one that gets the best price. SEC rules require that brokers seek the best combination of price, speed, and reliability. Regulators already dinged Robinhood once on its practices around payment for order flow. The company agreed to pay a \$1.25 million fine to settle charges with the Financial Industry Regulatory Authority, which oversees brokerage firms, for not being vigilant enough in ensuring customers were getting the best possible execution of equity orders for about a one-year period through November 2017, an accusation Robinhood neither admitted nor denied.

As Robinhood seeks to convince its users that it can be more than just a trading app, it may face difficulties outgrowing its cowboy image. Mo Caletini, 32, deactivated his account after he landed as an assistant financial adviser at a large U.S. bank, which doesn’t allow him to use an outside broker. He says he’d be glad to return, though he would be unlikely to use it for anything beyond trading. “Day trading is mostly what I want to use it for,” he says. “Eventually, I would take whatever profits or proceeds to a more secure account.” —Annie Massa and Sarah Ponczek, with Sophie Alexander, Ben Bain, and Rob Schmidt

THE BOTTOM LINE Robinhood’s investors have high expectations that it will grow into its \$11.7 billion valuation. But first the company has to nail reliable trading and customer service.



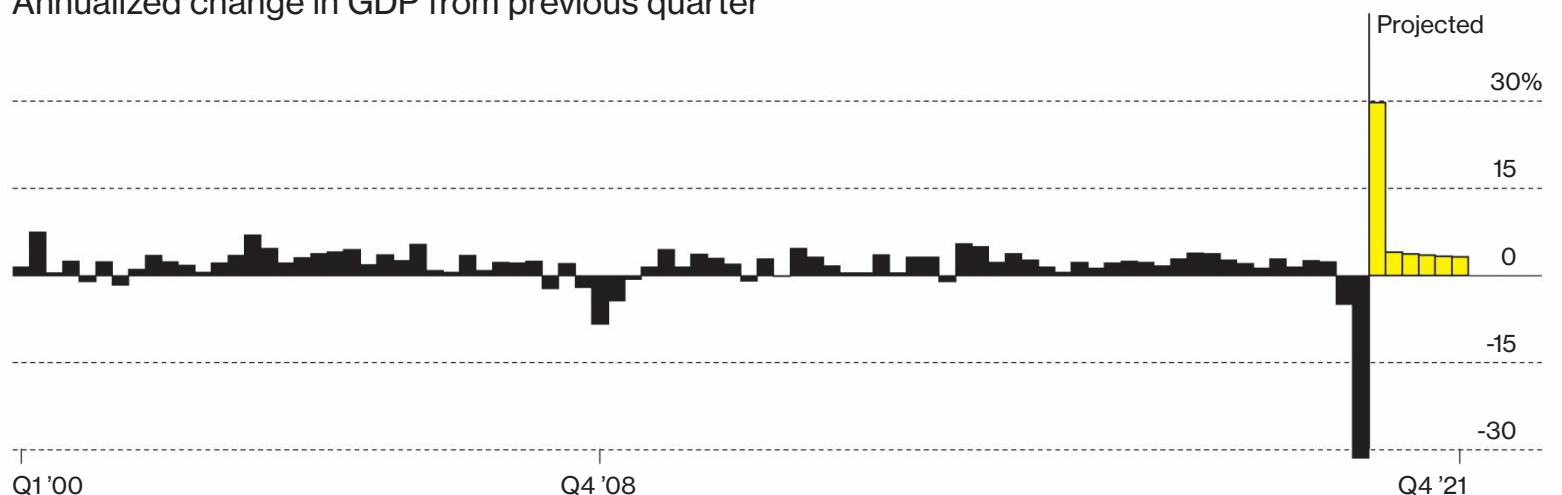
O'BRIEN: PRECIOUS O'BRIEN; *FIGURES REFLECT MOST RECENT DATA AVAILABLE IN 2020. †CHARLES SCHWAB COMPLETED ITS ACQUISITION OF TD AMERITRADE IN OCTOBER. ‡ETRADE DATA REFLECTS RETAIL ACCOUNTS ONLY. DATA: BLOOMBERG INTELLIGENCE ESTIMATES BASED ON COMPANY FILINGS; COMPANY WEBSITES; BLOOMBERG REPORTING



A Bounce You Can't Trounce

The Covid-19 pandemic caused the deepest U.S. recession since at least World War II. Gross domestic product shrank at an annual rate of 31.4% in the second quarter. Covid-19 is infecting more than 50,000 Americans a day, the most since early August. Somehow, though, the economy has roared back. On Oct. 29, according to economists surveyed by Bloomberg, the government is likely to report that GDP rose an annualized 30% in the third quarter—also a postwar record. These graphics portray a recovery that's incomplete yet remarkable.

Annualized change in GDP from previous quarter



Fears that a resurgence of the virus would cause the economy to lapse back into recession are fading. Economists polled by Bloomberg predict slightly stronger-than-normal GDP growth for the current quarter and all of 2021. That should cause the unemployment rate—which peaked at 13% ❶ in June—to drift down to about 6% by the end of 2021, the median prediction in the Bloomberg survey. Women’s participation in the labor force ❷ plunged in April, possibly because mothers dropped out to care for kids when schools closed, but has partially recovered.

Two things explain the economy’s rebound. States ended the general shutdowns that squelched growth in the second quarter. And Congress and the Federal Reserve came to the rescue with unprecedented fiscal and monetary relief.

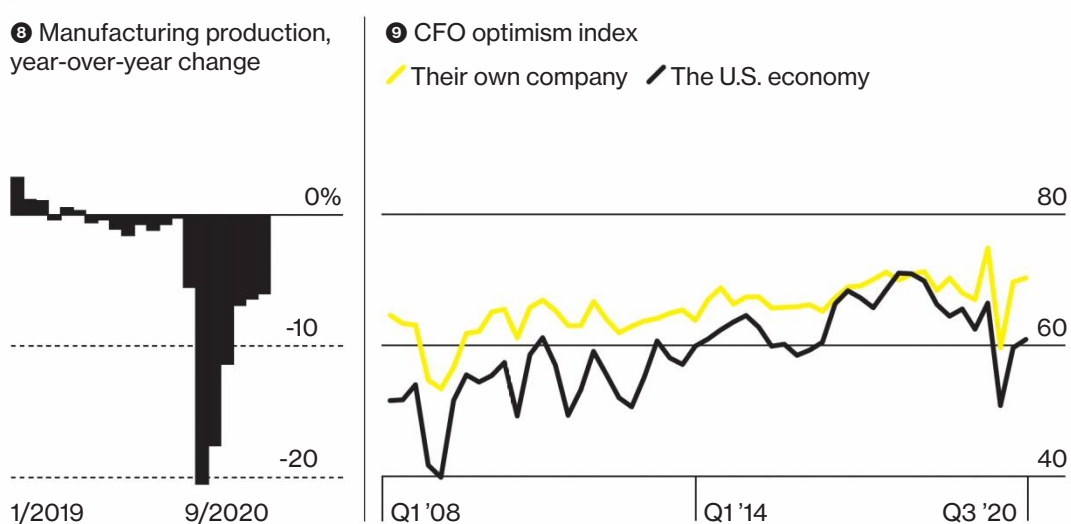
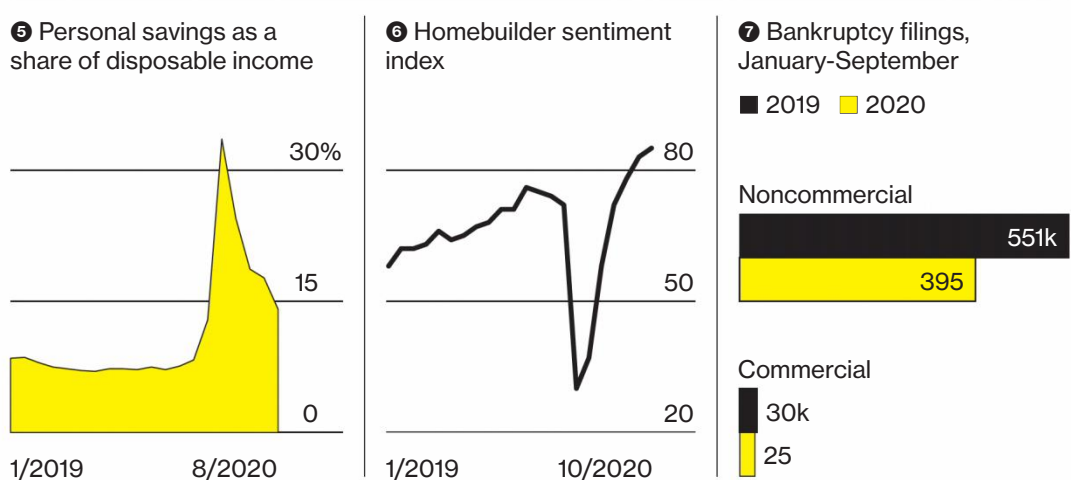
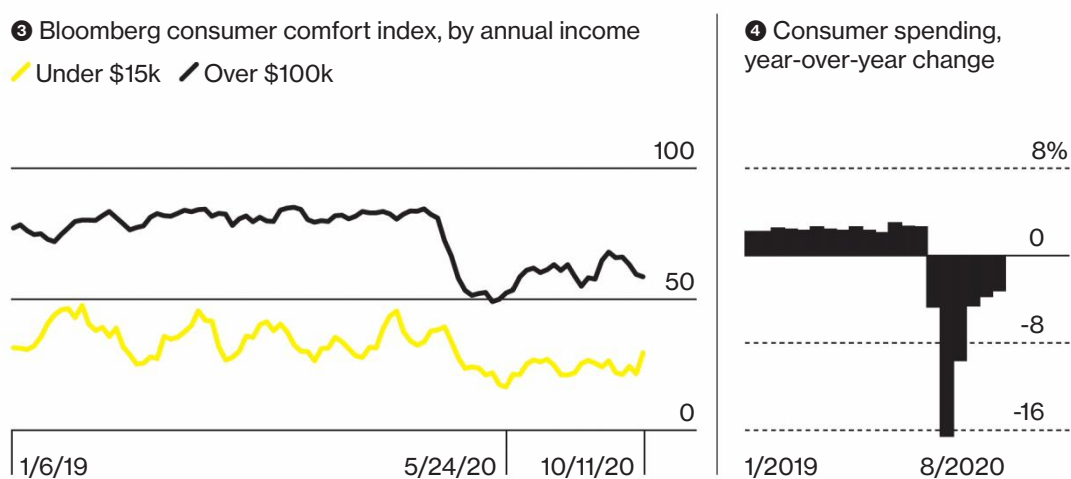
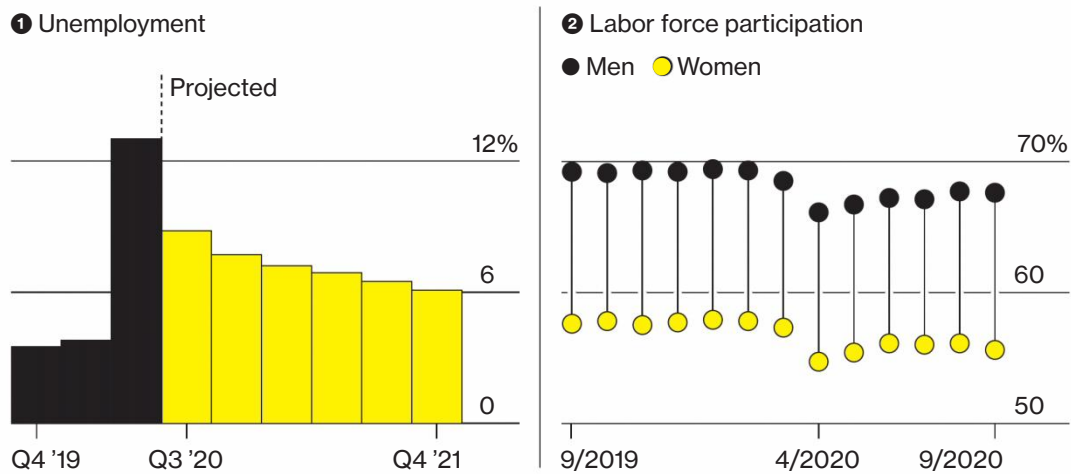
Expectations that the recovery will continue rest on a couple of key assumptions: that states are unlikely to reimpose widespread lockdowns even if cases continue to rise, and that Congress is likely to enact fresh coronavirus relief either before or after the Nov. 3 election.

Although consumers of all income levels express discomfort about economic conditions ❸, their spending ❹ has risen for four straight months (though it’s still down from a year earlier). The savings rate, which jumped in the spring when people were cooped up at home, has fallen now that they are out and about ❺. Most impressive is the strength of housing, fueled partly by the lowest mortgage rates in history. The National Association of Home Builders announced on Oct. 19 that its monthly index of builder sentiment ❻ was the highest since the index was introduced in 1985.

What’s good for the consumer is good for business. Commercial and noncommercial bankruptcy filings ❼ are both down from a year ago. The Federal Reserve’s index of manufacturing activity ❽ has rebounded, though it’s still 6% below a year ago. Chief financial officers are more optimistic ❾ about their companies’ prospects now than they were during the 2007-09 recession, according to a survey conducted by Duke University’s Fuqua School of Business.

That’s not to say all is well. In late September, according to the Census Bureau, about 2.5 million families with children that had been food-sufficient in March, before the pandemic, didn’t have enough to eat sometimes or often in the preceding week ❿. And families have been falling out of the middle class as Congress fails to renew coronavirus relief. But compared to the second quarter, the U.S. economy has come a long way back.

—Peter Coy



❿ Households without enough to eat, among those with children that were food-sufficient before the pandemic*

Frequency	Number of Households
Sometimes	2.1m
Often	354k

*BASED ON SEPTEMBER SURVEY. DATA: 1. BUREAU OF ECONOMIC ANALYSIS (BEA) 2. BUREAU OF LABOR STATISTICS 3. BLOOMBERG 4. BEA 5. BEA 6. NATIONAL ASSOCIATION OF HOME BUILDERS 7. AMERICAN BANKRUPTCY INSTITUTE/EPIQ SYSTEMS INC. 8. FEDERAL RESERVE 9. DUKE UNIVERSITY FUQUA SCHOOL OF BUSINESS 10. CENSUS BUREAU

Factory Jobs Are Still Going Abroad

● Trump's "America First" policies have not reversed the tide on offshoring

In an election year in which millions have lost their jobs to a pandemic, Amy Sabo is an exception. Her 22 years at International Automotive Components' plant in Huron, Ohio, ended in August thanks to the sort of corporate consolidation and offshoring that have been eating at the state's industrial core for decades, rather than the economic carnage caused by Covid-19. That she lost her paycheck because of pre-pandemic decisions made by a company founded by U.S. Commerce Secretary Wilbur Ross and still controlled by the private equity firm bearing his name also makes her a particularly stark example of how President Donald Trump has struggled to live up to his promise to end a decades-long migration of American factories overseas.

On Oct. 31, IAC's Huron plant will close its doors for good, its production having been transferred to factories in Mexico and other locales. The dozen employees left—including Sabo's husband—will join the almost 300 who have lost their jobs since the plant's closure was announced just after Christmas last year. "It was a good place to work," says Sabo, ticking off the generous benefits, decent pay, and shop-floor camaraderie. "We were like a family."

Trump built a political brand around "America First" trade and tax policies that were meant to repatriate U.S. jobs. From his renegotiation of the North American Free Trade Agreement to his trade war with China, the president's stump claim is that he ended an era of offshoring and laid the foundation for an industrial renaissance. "Many plants are being built right now," Trump said at a Sept. 7 news conference. "They're being built in Ohio. They're being built in South Carolina, North Carolina. They're being built all over and expanded at a level that we've never seen before."

The reality is more complicated. Whatever happens on Nov. 3, Trump is likely to end his first term having seen the U.S. economy both create and lose some 500,000 manufacturing jobs. Although the pandemic accounts for the bulk of the losses, employment in the auto industry and a few others plateaued before the outbreak and had started to contract in states such as Ohio and Michigan. As of September, U.S. manufacturing employment was

down by 164,000 from January 2017, the month Trump was inaugurated.

When it comes to offshoring, the data also point to an enduring trend rather than a revolution. One can see it in the applications for Trade Adjustment Assistance, the federal program that is the best available barometer on the effects of corporate disinvestment on employment. In the first three and a half years of Trump's presidency the U.S. Department of Labor approved 1,996 petitions covering 184,888 jobs shifted overseas. During the equivalent period of President Barack Obama's second term, 1,811 petitions were approved covering 172,336 workers.

Stopping the outflow of factory jobs is a bipartisan priority in an election year in which swing states such as Ohio are again crucial. Former Vice President Joe Biden is proposing a tax credit for U.S. companies that bring production home and a 10% surtax on profits linked to new factories built overseas. The Democratic candidate also has pledged to tighten Buy American provisions in government procurement and wants to close loopholes in Trump's tax reforms that he says encourage some industries to continue offshoring.

But the past four years have shown that the policy levers presidents have available don't erase the lure of overseas markets where the consumer class is growing at a faster clip than in the U.S. and the costs of running a factory are lower. "At the end of the day it's hard through trade agreements to push back against these much larger economic forces," says Edward Alden, a senior fellow at the Council on Foreign Relations.

Trump's rebranded Nafta, the U.S.-Mexico-Canada Agreement, requires automakers to use more parts made in North America and includes a provision to have at least 40% of components come from factories paying at least \$16 an hour. The



● Ross

▼ Sabo (left), Wilson



industry consensus is that these rules, which do not go fully into effect until 2025, may eventually prod automakers and their suppliers to channel more of their investment into U.S. plants, particularly as production of electric vehicles ramps up.

Administration officials say that's already happening. As evidence, they cite the \$2.3 billion joint venture General Motors Co. and Korea's LG Chem Ltd. announced last year to build a battery plant in Ohio. "We clearly reversed a long trend of jobs moving away from the U.S. in this industry and are bringing new investment and jobs back," Trump's trade czar, Robert Lighthizer, wrote in an email to *Bloomberg Businessweek*. "The notion that companies are moving to Mexico now is ridiculous."

Labor Department data tell a different story. In the first six months of 2020 alone, the agency approved 25 petitions for trade aid related to auto parts factories going overseas. Fifteen involved relocations to Mexico.

According to Kristin Dzikczek, vice president of industry, labor, and economics at the Center for Automotive Research, Trump's new Nafta has not provoked an investment surge. From 2013 through 2016 automakers announced investments worth \$47.3 billion in the U.S., she says. From 2017 to 2019 the equivalent figure was \$38.3 billion. "Investment goes along with growth in the market," Dzikczek says, and auto sales in the U.S. peaked in 2016.

Instances like IAC's closure in Huron leave the Trump administration vulnerable to criticism of USMCA, which it sees as one of its signature economic achievements. "They tried to give it this new name and burnish it, and shine it up a bit. But it's just Nafta 2," says U.S. Representative Marcy Kaptur (D-Ohio), whose district includes Huron. She voted against the USMCA last year.

Ross created IAC in 2006 by rolling up several distressed parts suppliers, and WL Ross & Co., his former private equity firm, remains its dominant investor. The plant in Huron is one of at least three U.S. factories employing more than 500 people that IAC is shuttering or where the company is cutting payrolls this year, according to state and federal filings. The fate of the injection-molding facility, which turned out dashboards and other parts for the Chevrolet Cruze, was sealed in 2019 when GM announced it was shutting down the assembly line in Lordstown, Ohio, and relocating production to Mexico. Fiat Chrysler Automobiles NV's decision in May to halt production of the Dodge Grand Caravan minivan at its plant in Windsor, Ont., was the final blow.

In written responses to questions, IAC would say only that the Huron plant was closing after 30 years

because customers were ending vehicle programs. The company has been more explicit about other plants. The loss of 145 jobs in Dayton, Tenn., came because "production will be shifted to a foreign country," IAC told the Department of Labor. In Madisonville, Ky., 111 jobs were cut because contracts "are being shifted to production facilities in Canada and Mexico," according to another filing.

IAC, which has its headquarters in Luxembourg, says it still sees the U.S. as a growth market. Yet it's been more focused on chasing opportunities abroad in recent years: Just 3,300 of its 18,100 employees are based in the U.S., according to the company. In September 2017, just as Trump was ramping up his trade war with China, IAC split off part of its business into a joint venture with China's Shanghai Shenda Co.

Ross was required to sell his interests in WL Ross when he joined Trump's cabinet. Both his office and Atlanta-based Invesco Ltd., which now owns WL Ross, say he's had no involvement in business decisions at IAC since then. "Secretary Ross has not had any investment in IAC directly or indirectly since his divestment in October 2017, long before the implementation of USMCA," wrote Commerce Department spokeswoman Meghan Burris in a statement.

In the eyes of former workers at the Huron plant, the blame for its demise lies somewhere between a management team that wasn't aggressive enough in chasing down new business and a president who didn't live up to his promises. "I am not a Donald Trump supporter at all," says Sherry Wilson, who started work at the IAC plant in June 1990 and retired in June this year. "Really, what has he done for all the Americans like me?"

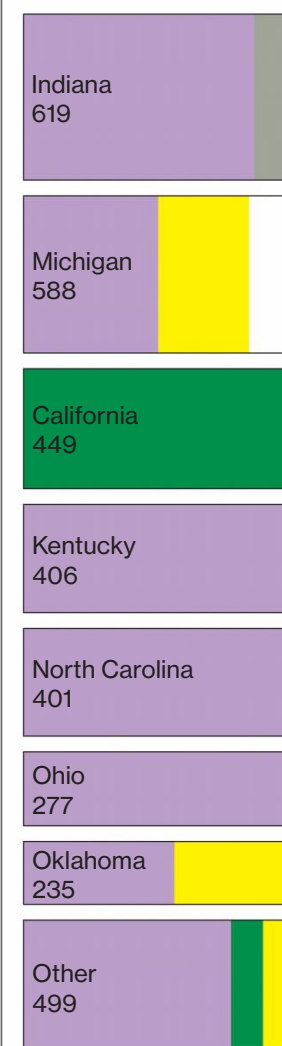
If this were another year, Sabo and her husband would have been busy planning their winter cruise. Now they're trying to figure out whether they can afford the \$2,800 monthly premium they'll owe if they decide to continue their health insurance, as well as \$1,100 a month to stay current on their life insurance policies.

Sabo no longer sees a future in manufacturing for herself. A booming property market has her thinking about a new career in mortgage brokering. Still, in this election the ex-auto industry worker will be giving her vote to Biden. "I have a lot of hope," Sabo says, pointing to Biden's role in rescuing the auto industry more than a decade ago. "He saved my job once in 2008. I'm not sure Trump would have done the work that entailed." —*Shawn Donnan*

▼ Trade Adjustment Assistance petitions by U.S. auto companies in the first six months of 2020, by country job was moved to

- Mexico
- China
- Canada
- Sweden
- Unspecified

Workers affected in



THE BOTTOM LINE An auto parts company once owned by Commerce Secretary Wilbur Ross is among those that haven't been deterred from shifting jobs to Mexico by Trump's revamp of Nafta.

● U.S. charges against Chinese researchers don't match prosecutors' rhetoric

When U.S. prosecutors sought last month to throw a Chinese scientist in jail until her trial for visa fraud, a judge refused, saying they had sought to paint her as a “foreign spy” without backing up the claim. “The government suggests that this court should treat this case as one involving espionage charges, even though no such charges have been filed,” wrote U.S. District Judge John Mendez in Sacramento of the indictment against University of California at Davis researcher Juan Tang.

In July, when the U.S. announced charges against Tang and three other researchers who were working in American university labs, the top U.S. Department of Justice official responsible for national security said their presence in America was “part of the Chinese Communist Party’s plan to take advantage of our open society.” But the other scientists aren’t charged with spying, either, and they too face more prosaic charges.

Across the country in recent months, prosecutors have begun telling the public that they’re cracking down on nefarious behavior by visiting scientists from China, sometimes labeling them “spies” or implying their cases involved threats to national security. Six cases have been filed against Chinese researchers affiliated with military universities in their home country, and several others against visiting scholars who have participated in Chinese academic programs that U.S. authorities suspect are state-backed efforts to gather trade secrets.

Authorities say they are continuing to investigate others in 25 U.S. cities, and defense lawyers say they’re fielding inquiries from researchers

worried that they’ll be deported or charged. The cases played a role in the tit-for-tat closing of consulates in the U.S. and China earlier this summer and in China’s recent threat that it may seek to detain American citizens there.

A review of court filings and transcripts of hearings shows the charges and allegations are far less serious, frequently involving misstatements surrounding a visa application—a violation often punished with less than a year in prison. In only one case has a researcher been charged with acting as a foreign government agent, and she was allowed to return to China eight months before her indictment, leaving little chance she’ll face legal proceedings in the U.S.

The heated words come in an election year when President Donald Trump has blamed China for the coronavirus pandemic and portrayed the country as a grave threat to U.S. interests, amid a broader trade battle and accusations that Chinese technology companies—from Huawei to TikTok to WeChat—are being used to pry into Americans’ private lives. Meanwhile, lawyers and academics say the tactics have the potential to chill research and deprive the U.S. of academic intellect that until a few years ago was encouraged through exchange programs. China supplies more students and researchers to the U.S. than any other country, with more than 350,000 studying and working at American schools in any given year. And American researchers collaborate with more scientists from China than any other country, according to the National Science Board.

John Demers, the assistant attorney general for national security at the Justice Department, declined a request to be interviewed. In a statement, a spokesman said: “We know that the Chinese government instructed many visiting researchers here to hide their affiliation and to destroy evidence of it. So

the question to ask is why the Chinese government would engage in such behavior. We will not wait for theft to have occurred before we disrupt individuals sent here by the PRC who gave false information when gaining entry to the United States.

“Prosecutors are responsible for fairly and accurately characterizing the evidence, including by making reasonable inferences from a given set of facts, and we strive to do that each and every day.”

U.S. officials say China indeed has aggressive overseas espionage programs, including under various forms of academic sponsorships that it calls “talent programs.” The Justice Department launched a “China Initiative” in 2018 and says that 80% of its economic espionage cases involve efforts to benefit China. The initiative has resulted in several successful prosecutions for hacking and data and trade secret theft, for everything from aviation technology to rice engineering.

Peter Zeidenberg, a defense lawyer who’s represented multiple Chinese researchers charged by Justice, says the newer prosecutions aren’t addressing the harms that led to the China Initiative. “They’re taking an incredibly broad-brush approach,” he says. “They’re treating everybody as if they’re committing espionage.”

Generally, lawyers say, it’s acceptable to introduce allegations of suspicious conduct beyond the charges in a case if prosecutors can offer evidence supporting it. But “really, what you’re doing without that is just character assassination,” says Jaimie Nawaday, a defense lawyer and former federal prosecutor in New York.

The recent series of events was kicked off when Trump issued a proclamation in late May suspending student visas issued to graduate students and researchers from China affiliated with its efforts to advance China’s military capability. Since then, the U.S. Department of State has revoked the visas of more than 1,000 Chinese researchers working in the U.S.

After the proclamation was issued, China began contacting some of its researchers and telling them to return home, according to statements made to FBI agents cited in court filings. The urgency increased after the first arrest on June 7 of a researcher at Los Angeles International Airport while trying to board a flight back to China.

After that, a Chinese diplomat instructed five researchers in the U.S. to attend a meeting at the country’s embassy, where they were told to wipe their electronic devices before leaving the country in the expectation they would be questioned by

U.S. Customs officials, according to a statement given to officials by a Duke University researcher identified as “L.T.” who attended the meeting. She wasn’t charged.

Not long after, the State Department ordered the closure of the Chinese consulate in Houston, citing its alleged involvement in directing researchers at a Texas facility to collect certain kinds of information, as well as instructing them in how to evade a Justice Department investigation into the matter.

“With Chinese military scientists, there’s a high level of deception,” says Alex Joske, an Australian Strategic Policy Institute analyst. “They find and study technology of value to the military. It’s not about advancing human knowledge or advancing their economy, but it’s being done to advance military superiority.”

Several recently arrested researchers came from two universities in China with high-risk reputations for trying to help the Chinese military. But if they were functioning as spies, they were sloppy. One who was under suspicion in Los Angeles for gathering sensitive data on nuclear energy development allegedly threw his destroyed computer hard drive into a trash bin while under FBI surveillance. Others were accused of lying about their backgrounds after agents researched them on the internet.

The only researcher to be charged as a foreign agent, Yanqing Ye, came to the U.S. in 2017 to study biomedical engineering at Boston University. While there, authorities say, she surveyed U.S. military websites, sent U.S. documents and information to China, researched U.S. military projects, and compiled information on two Americans with expertise in robotics and computer science for her army supervisors in China.

Ye was interviewed by federal agents in April 2019 at Boston’s Logan Airport as she was returning to China; she admitted she was a lieutenant in China’s military and a member of its ruling party. She was allowed to board the plane and return to China, where she is believed to remain. No charges were filed against her until January.

Of the researchers charged, five have been allowed to remain free pending trial and four continue to be held in custody. Tang, the researcher who was studying cancer treatments, said on her visa application that she’d never served in the military. But the FBI found an online photo of her in a ▶

▼ Some researchers facing U.S. charges. Tang and Tao have pleaded not guilty. Cheng is contesting the allegations, and Ye is a fugitive.

● Charged with

● Accused of/spy claim

Juan Tang

University of California at Davis (cancer therapy)

● Visa fraud, false statements

● Hiding military background on visa application. Prosecutors say that while under investigation, Tang deleted electronic files related to her research.

Free on bail until trial

Feng Tao

University of Kansas (chemical engineering)

● Wire fraud, program fraud

● Receiving U.S. research funding at a time when he took unexcused leave to work on a China-backed project. An FBI agent told Tao’s grand jury his case was related to “counterintelligence.”

Free on bail until trial; judge is weighing a request by his lawyers to dismiss the case

Yanqing Ye

Boston University (biomedical engineering)

● Acting as a foreign agent, conspiracy, visa fraud, false statements

● Collecting intelligence at the direction of Chinese military supervisors. Allegedly gained access to U.S. military websites, sent U.S. documents and information to China, researched U.S. military projects, and compiled info on two U.S. people with robotics and computer science expertise.

Allowed to return to China before she was charged, making it unlikely she’ll be prosecuted

or Scofflaws?

◀ military uniform. When questioned, she disclosed her ties to the school she was coming from, Air Force Military Medical University. Military hospitals are a common feature of medical care in China.

She then spent weeks at the Chinese consulate in San Francisco—where she couldn’t be arrested—and was finally apprehended after she left the building and went to a medical appointment. Charged with visa fraud and making false statements to the FBI, she was released from custody on the judge’s order last month.

Tang’s lawyer, Malcolm Segal, says it’s telling what wasn’t in her indictment. “If the government had probable cause to support its arguments and believed it had evidence to support a conviction,

it would have put that case before the grand jury,” he says.

To Frank Wu, the president of Queens College and former chancellor of University of California Hastings College of the Law in San Francisco, the U.S. has crossed a line in how it’s prosecuted Tang and other researchers by insinuating, without proof, that they’re spies. “Visa fraud should be prosecuted,” he says. “It shouldn’t be prosecuted by innuendo that casts doubt not only on foreigners but also U.S. citizens that happen to look like foreigners.” —*Christian Berthelsen and Joel Rosenblatt*

THE BOTTOM LINE Chinese scientists arrested in the U.S. have been painted as spies despite being charged with minor visa violations. Critics say it’s trial by innuendo.

Zhengdong Cheng

Texas A&M (space exploration)

● Wire fraud, conspiracy, false statements

● Hiding his associations with Chinese companies and universities. Prosecutors say Cheng participated in China’s Thousand Talents Plan.

Remains in custody, with trial set for Nov. 16

Tearing at a Vital Kids’ Safety Net

● Online learning means fewer U.S. children are getting free and discounted school meals

Luz Desiderio has long counted on free school breakfasts and lunches to help feed her four children. Today the cafeteria line is only a memory, like handshakes and movie theaters. In the pandemic, her kids are studying online at home, and she’s running out of cereal, eggs, and fruit. “I’m apologizing to my kids a lot, saying, ‘We don’t have that anymore,’ and they’ll have to wait until next week,” she says.

Covid-19 has taken a well-documented toll on the education of America’s children. But it also poses a less appreciated threat to their nutrition. The federal government spends \$19 billion a year subsidizing school meals. The National School Lunch Program represents an essential strand in the safety net: It’s the second-biggest anti-hunger program after food stamps, now known as the Supplemental Nutrition Assistance Program.

SNAP provides \$646 a month for the Desiderio family in suburban Chicago, but that’s never quite enough. Luz’s husband, Alfonzo, buses tables at a Chinese restaurant. He makes \$8 an hour, plus tips, but families aren’t eating out the way they were before the coronavirus. Luz, who emigrated from Mexico, is staying home with the kids. “When they used to go to school I felt relief, because I knew they were going to get fed,” she says in Spanish.

In a typical year, the government helps feed almost 30 million pupils a day, or about 1 in 2.



◀ Dispensing lunches at a YMCA on Chicago’s South Side

Now, because of Covid-19, most districts are delivering half as many meals as before, or not even half, according to the School Nutrition Association, which represents school lunch program administrators. Many parents aren't able to pick up food because of work logistics or having to watch kids during remote learning, and some schools provide meals only on certain days of the week.

These missed meals are contributing to an alarming increase in child hunger as food banks around the country report soaring demand. As of late June, 1 in 6 U.S. households was experiencing what researchers call food insecurity, surpassing the rate at the peak of the Great Recession, according to the Brookings Institution, a Washington think tank. "When we first saw these numbers, I thought, 'My God, they can't be true,'" says Diane Whitmore Schanzenbach, a Northwestern University economist who studies child poverty. "You think, 'What is going on, America?' This is a problem we can solve."

In 1946, President Harry Truman signed the National School Lunch Act, declaring that Congress was "strengthening the nation through better nutrition for our schoolchildren." Now the school food program, run by the U.S. Department of Agriculture, provides free meals for children in households with incomes below 130% of the poverty level, or less than \$34,060 a year for a family of four. A family earning as much as 185% of the benchmark, or \$48,470 annually, could get a lunch costing no more than 40¢.

As part of coronavirus relief, Congress gave the USDA the authority to make all families eligible for free school meals, regardless of income, through the end of the calendar year, a waiver the USDA has extended through June 2021. The agency also eased nutrition regulations so schools can offer grab-and-go fare such as burgers and baby carrots.

Given freer rein, districts are improvising. Over the summer, the Houston Independent School District bused boxes of fresh fruit and vegetables to pickup sites at about 20 apartment and housing complexes. But the program died in June when state money for delivering the food ran out.

Chicago's public schools are letting parents pick up three days of food in a single visit. On a recent weekday in the city's artsy Logan Square neighborhood, families gathered at the side door of an elementary school. A staffer asked how many kids each had and distributed bags of chicken patty sandwiches, chicken fingers, burgers, fries, apple slices, and chocolate milk.

In Bexley, Ohio, a Columbus suburb, the high school has taken a page from DoorDash and Instacart. Parents fill out an online order form and,

from 8 a.m. to 2 p.m. once a week, staffers drop off cheese ravioli, chicken fried rice, and other meals.

Both grab-and-go and delivery have a downside: food that's less fresh and more processed. This backtracks on a federal initiative to improve school nutrition, a signature issue of former First Lady Michelle Obama. In 2012, thanks to revised USDA standards, American school menus got a makeover, including more whole grains and salad bars and less salt. The Trump administration has sought to dismantle that effort, citing red tape and food waste. But many districts have continued the push, leading to tough choices.

In Charleston, S.C., the district shut the salad bar, but it's looking for a way to send salad packages home. "The further you get away from the kitchen, the harder it is to do a good job with your food," says Ronald Jones, who directs health and nutrition for the South Carolina Department of Education.

The link between learning and proper nutrition is long established. Children whose diets deteriorate are also more likely to develop conditions such as Type 2 diabetes and high blood pressure, according to Caroline Dunn, a Harvard researcher who's studied the pandemic's effect on kids and hunger. "The long-term implications of this are really substantial for children who rely on the National School Lunch Program," she says.

In Katy, Texas, schools, channeling McDonald's, have opened drive-in windows from 4 p.m. to 6 p.m. The menus of ham and cheese sandwiches and burgers might not meet the Obama standard. But there's a bigger problem: Many poor households don't have a car. Even middle-class ones might have only one and need it for commuting.

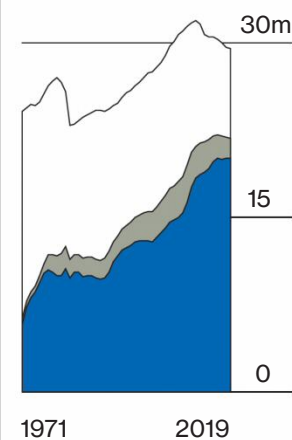
That's the case for Jodi Legan, a mother of four in Katy. Her husband, Dietrich, a supervisor at a water bottle plant, needs the family car. "We don't get the school lunch," says their fourth-grader daughter, Layla. At school, "I could, like, make my salad and stuff, but now I can't do that."

Layla isn't getting much salad at home these days, either. Her father makes about \$40,000 a year with overtime, though his hours have been getting less regular. Her mother had to take a break from her job as a nursing assistant to supervise the kids' online classes. She finds herself with no choice but to pick up the cheapest food she can find. "We used to be able to go and get fruits, vegetables. And now you can get a bag of chips at Kroger for a dollar," Jodi says. "It's sad, but that's the tossup that you're making now." —*Leslie Patton and Nic Querolo*

THE BOTTOM LINE Many school districts in the U.S. are distributing far fewer meals than they used to, adding to the pandemic's strain on families and posing risks to children's health.

▼ Average participation, National School Lunch Program

- Full price
- Reduced price
- Free





Small Business



A New Look for The Yarn Industry

Fresh faces, a culture clash, and the pandemic have turned the knitting world upside down

October 26, 2020

Edited by
Dimitra Kessenides

Adella Colvin was 34, recently married, and living in Georgia when she first visited a yarn shop on her own five years ago. One of her neighbors had suggested knitting as a hobby. Colvin figured she'd give it a try and headed to a shop in South Carolina, about 40 minutes from where she lived.

That experience could easily have become her last. Colvin barely made it past the front door when the owner, an older White woman, stepped in her way. "My bathroom is for customers only," the proprietor declared.

"She saw a chubby Black woman with an afro knocking on her door," Colvin says, and that was enough to end the interaction. "My heart shattered." She turned around and left. Soon after, she decided to buy yarn online, for simple starter projects—hats and scarves. Then she decided to experiment with dyeing her own yarn.

When she wore her dyed wools, there'd always be compliments, women mostly who'd tell Colvin how much they liked the colors. So she opened an Etsy shop, Adella's Crochet Cottage, in late 2015. "When I started selling," she says, "I would not show my face. If people see a Black face, they think 'inferior.'"

When her daughter, Lola—nicknamed Bean—was born in June 2016, Colvin started to think about the legacy she was building. She rebranded her business LolaBean Yarn Co. and hired an illustrator to create an image of Bean, with big, bright eyes and unmistakably black skin, as her logo.

Today, Colvin is an in-demand independent dyer whose yarn is sold in shops around the country. Her customers remain mostly White, but she says her demographic has gotten younger and Blacker. Anyone who buys her yarn sees "my baby's little Black face," she says. "I can't tell you how many times I have done a show, and I've had Black women walk up to me bawling, 'I just want to thank you.'"

The world of knitting and other fiber arts—embroidery, weaving—conjures images of a grandmother in a rocking chair. But in recent years, the quiet industry of tiny neighborhood yarn shops scattered across the U.S. has become an unlikely cultural battleground. It's been divided by charges of racism and cultural appropriation that have erupted in a series of social media firestorms, prompting some owners to close, sell, or rebrand their business.

The cultural tension has been set against the backdrop of a global pandemic and an economic crisis that threaten almost everyone in the business who hasn't mastered e-commerce—meaning almost everyone in the business. Before the crisis, there were 1,500 to 2,000 local yarn shops in the country, producing \$750 million in annual revenue. Fewer stores are almost certainly operating today, but there are no hard numbers, because the trade association that used to track them closed this spring after the pandemic forced it to cancel its annual show.

Colvin continues to knock on doors. She got a big break in 2017 when she was introduced to Gaye Glasspie, a Black sales coach from Clifton, N.J., who, with more than

40,000 Instagram followers, is a social media influencer among knitters. Glasspie raised Colvin's profile overnight with knitters and women business owners across the country. "When she spotlighted me," Colvin says, "I got more Black customers and followers."

Glasspie, better known as GG, learned how to knit from YouTube. The platform includes thousands of videos from big retail brands and stores, such as Martha Stewart and HobbyLobby, and indie stores across the globe, drawing hundreds of millions of views from consumers. GG bought her supplies from national retailers, including Jo-Ann Stores and Michaels, where a ball of acrylic yarn can cost less than \$5. Then she discovered local shops that feature hand-dyed natural fibers that can cost \$30 a skein. "I feel like yarn saved me," GG says. In 2012 she unexpectedly and in quick succession lost her dad, her mom, and her job managing a call center for Verizon Wireless. Knitting suddenly became a bigger part of her life. "My yarn didn't ask me why I was still crying," she says.

Social media expanded Glasspie's following and she started getting recognized in stores—one knitter telling another about the feed: a constant stream of knitting tips, social commentary, and her signature color, orange. "Her following is insane," Colvin says. "I kid you not. Orange is the hardest color for me to sell, unless it's something I'm working on with GG."

Last year, Glasspie introduced Colvin to Felicia Eve, who owns String Thing Studio in Brooklyn, N.Y., one of maybe a half-dozen Black-owned yarn shops in the country. Eve became the first shop owner to promote Colvin's yarns with a trunk show. They planned for a three-day sale, but with a boost from Glasspie's Instagram feed, Colvin's stock sold out in one. The three women have been FaceTiming daily—about yarn, business, life—ever since.

String Thing Studio shares a brownstone with an Indian restaurant in the family-friendly Park Slope neighborhood. A podiatrist who set aside her practice to stay home with the kids before deciding to pursue her passion, Eve says she chose the word "studio" deliberately. She wanted a place where crafters would feel comfortable plopping into a chair for an hour or two to knit. "You go into that shop no matter what color you are," Colvin says, "it's like going to a friend's house and sitting on the sofa, which is why I call it my local yarn shop even though I'm in Georgia." And yet, even in Brooklyn, customers often assume that the White woman who works for Eve is the owner. String Thing Studio has little presence online and hasn't done much more than break even. Eve says her husband, not her business, covers the home mortgage. "Put myself on the payroll?" she says and laughs. "Dude! When? How?"

The industry's cultural battles peaked in June 2019 when Ravelry, long knitting's dominant social platform with a vast database of patterns, ignited a skirmish by banning all pro-Trump content. "We cannot provide a ►

◀ space that is inclusive of all and also allow support for open white supremacy,” the owners announced in a written statement. This year the script flipped when Ravelry was accused of failing to be inclusive by not fixing a website redesign that some users said triggered migraines, seizures, and nausea.

After George Floyd was murdered in Minneapolis, Steven Berg, who owns one of the country’s most successful stores and calls himself “the Elton John of knitting,” posted a video announcing that he had yarn kits ready to send to anyone who wanted to put aside her troubles and get back to her knitting. The cries of White privilege were immediate, no doubt inflamed by the location of Berg’s store just blocks from where Floyd was murdered. The video came down, the store closed temporarily, and Berg apologized. “I’ve changed from being the loudmouthed leader to listening and learning,” he says.

The crossfire prompted many knitters of color to share their stories of racism in the industry for the first time. “People say, ‘I had no idea there was so much racism in knitting,’” Colvin says. “Of course. Racism was built into the fabric of our country.”

Many White-owned businesses responded by seeking out people of color to follow and support. Glasspie, who had ended 2018 disappointed that she had failed to reach 10,000 Instagram followers, blew past that in 2019 and 2020. “All the White people were like, ‘Follow GG, follow GG. She’s a good one,’” she says.

Inspired by images of White protesters standing between police officers and Black protesters, Glasspie started a hashtag, #StandintheGap, that encourages people to step up and offer that kind of protection in everyday life. Colvin has leaped from one wholesale account to 30 with a waitlist of more than 70. Her production time is booked through the end of the year. Still, she says, she found the increased business that followed Floyd’s murder unsettling. “It can be really heavy trying to figure out who genuinely wants to work with you,” she says, “and who is using you just to make them seem more inclusive so they don’t lose money.”

The concern has led her to become more outspoken. The woman who once tried to hide her Black face says she has lost the little bit of filter she had left. “Sometimes I’m brutal,” she says of her Instagram posts. “If that makes you want to not buy my yarn, don’t buy my yarn. If I don’t work for you, that’s fine. I’m not going to ignore who I am at my core. I’m not going to make middle-aged White women comfortable about where they buy their yarn.”

Colvin and Glasspie entered 2020 with big plans. Glasspie was hoping this might be the year she could give up her day job and just do yarn. As the year began, she had events booked every month. She made it to California in February before everything shut down.

In March, Colvin was getting ready to move her business



Colvin's daughter inspired LolaBean Yarn's logo

out of her garage. She needed production space for her wholesale operation, and she wanted to create a community hub where she could teach classes—“sort of like a church, but for fiber,” she says. She found what she thought was the perfect spot, at a good price, and was planning the build-out when the lockdown began, forcing her to question the wisdom of signing a five-year lease

and abandon the plan. “I probably cried for four days,” she says. Colvin and her husband recently closed on a new home in a more diverse neighborhood—“I need my kids to see Black people”—which will allow her to turn their current home into her “dye house.” She plans to hire employees and expand production.

On the last Friday in June, with the pandemic and the protests still raging, Eve told Glasspie and Colvin over FaceTime that her landlord had slapped a rent-due notice on the door to String Thing Studio. With the store closed, she hadn’t been able to pay the rent. She needed \$17,000 to catch up and to retrofit the shop for Covid. When Glasspie and Colvin suggested raising money with a GoFundMe campaign, Eve demurred. “I’ll figure it out,” she said.

“Look,” Colvin said. “I get it. It’s embarrassing. All you have to do is say, ‘OK.’” After a few minutes, Eve agreed and Colvin activated the page. The first donation came in almost instantly. All three watched in disbelief and tears as the donations poured in: \$2, \$5, \$500, \$1,000. “Some of the biggest donations were from other yarn shops,” Colvin says. “That was what really got me emotional.” The total quickly passed the \$17,000 goal. When they hit \$28,000 in less than three hours, they shut down the campaign.

The next day, Eve posted an emotional thank-you video, stunning many of her followers who hadn’t even heard about the campaign. Wanting to pitch in, some sent money via PayPal. Others bought from her limited offerings online.

While the women struggled to reconcile how such an outpouring was possible from a yarn community ravaged by strife and crisis, it left Eve feeling challenged to build a better shop. “It’s yarn,” she says. “There’s nothing threatening about this. This is fun. We shouldn’t be trying to stick knitting needles in each other’s eyes.” —Loren Feldman

THE BOTTOM LINE In recent years, tiny yarn shops across the U.S. have become an unlikely cultural battleground. The pandemic and economic crisis threaten many shop owners who haven’t mastered e-commerce.

A Sudden Boom For Black Booksellers

Shop owners are working overtime to keep up with the increased business

Katrina Brooks has a challenge most small business owners would envy: She's working overtime to fulfill orders at Black Pearl Books in Austin. A year ago, when she started her company, which depends mostly on online sales, she expected she'd have time to build a customer base. She still thought so when pandemic lockdowns occurred in March, and local arts, school, and other events where Black Pearl operates pop-up stores were canceled.

Then came the Black Lives Matter protests after the police killing of George Floyd in late May. Suddenly, Black Pearl was deluged with orders for books by and about Blacks and other minorities—so many that Brooks closed her online store in July so she could tackle her backlog. She reopened in August and has relied on volunteers, friends, and family, including her mother, to help pack and ship books to customers while she strategizes for the future.

"Overnight we went from getting dozens to thousands of orders, and it felt overwhelming," Brooks says. "I had to switch my thinking about the scale of my business. I'm still working until 3 a.m. many days—but it's been a blessing."

In recent months, Black booksellers have had more success than many Black-owned businesses. After confronting the same disruptions at the outset of the pandemic, including having to close brick-and-mortar stores, they were swamped with orders from a more diverse and larger group of customers than they'd previously served. Now they face the challenge of sustaining increased demand, or at least transforming their short-term sales boost into a longer-term benefit. This includes curating an inventory of books that appeal to new customers, increasing social media and other marketing efforts, and forming partnerships with local community groups, schools, and businesses.

There are about 120 Black-owned bookstores in the U.S. today, according to the African American Literature Book Club, compared with 54 in 2014 and about 200 in the mid-1990s. They make up about 8% of the 2,524 independent bookstores overall, and they've long served as keepers of Black culture and as community hubs where authors, activists, and neighborhood residents exchange ideas. That's kept them alive, despite Amazon.com Inc.'s dominance in the bookselling market.

At Semicolon in Chicago, owner Danielle Mullen is tapping into that legacy to build on this summer's sales uptick. She's inviting local artists to display their work at her store, where reading chairs have been removed to allow for social distancing. She's holding book giveaways for public school

students. And to encourage customers to browse and purchase books on subjects they aren't familiar with—instead of only race-related bestsellers, which have accounted for half her sales this year—she arranges books so covers are facing forward, and she mixes fiction and nonfiction books.

At Black Pearl, Brooks plans to open a physical store in November in time for the holiday season. She leased space from a nonprofit that sells handcrafted products from developing nations. She's filled orders from several departments at the University of Texas at Austin, a potentially long-term and large customer. "This has been such an unprecedented time, and I have no illusions that we'll main-



Brooks operates Black Pearl Books out of her garage in Austin

tain the sales levels we've had forever. So now it's about creating partnerships that will sustain us going forward."

Brooks chose her bookstore's name "because a black pearl is a rare gem, and pearls go through a lot of resistance and pressure to be formed," she says. She's counting on attracting a mix of customers with books that tell the stories of marginalized groups and was elated when she received orders for books in Spanish, including Michelle Obama's *Becoming*. "When I get an order like that, it's the highlight of my day, because my goal is to promote diversity and give people access to books they can identify with in the language that works for them." —Carol Hymowitz

THE BOTTOM LINE The 120 Black-owned bookstores in the U.S.—about 8% of the 2,524 indie books shops overall—are trying out new strategies such as working with community groups.

Holiday Shopping Tests #BuyBlack

Will the boost consumers gave Black-owned companies over the summer last?

Business at Robin Wilson's home textiles company in New York City spiked this summer as Black Lives Matter protests spread across the country and #BuyBlack trended on social media. After appearing on several lists of Black-owned businesses, Wilson saw a 3,000% jump in sales for a few weeks, from the end of May to the start of July. "It was mind-boggling. It was wonderful," she says. "Then it slowed down." Even so, she says, her sales have remained up about 25% since the beginning of the summer.

After a dismal year amid the pandemic, the retail industry is counting on shoppers to spend more freely this holiday season. Many Black business owners such as Wilson have seen wild swings in 2020, from no revenue during early state lockdowns to sometimes unsustainable demand by early summer. These proprietors say the next three months will prove whether shopping has changed for good.

"It takes a convulsive tragedy to occur in the African American community before companies and consumers

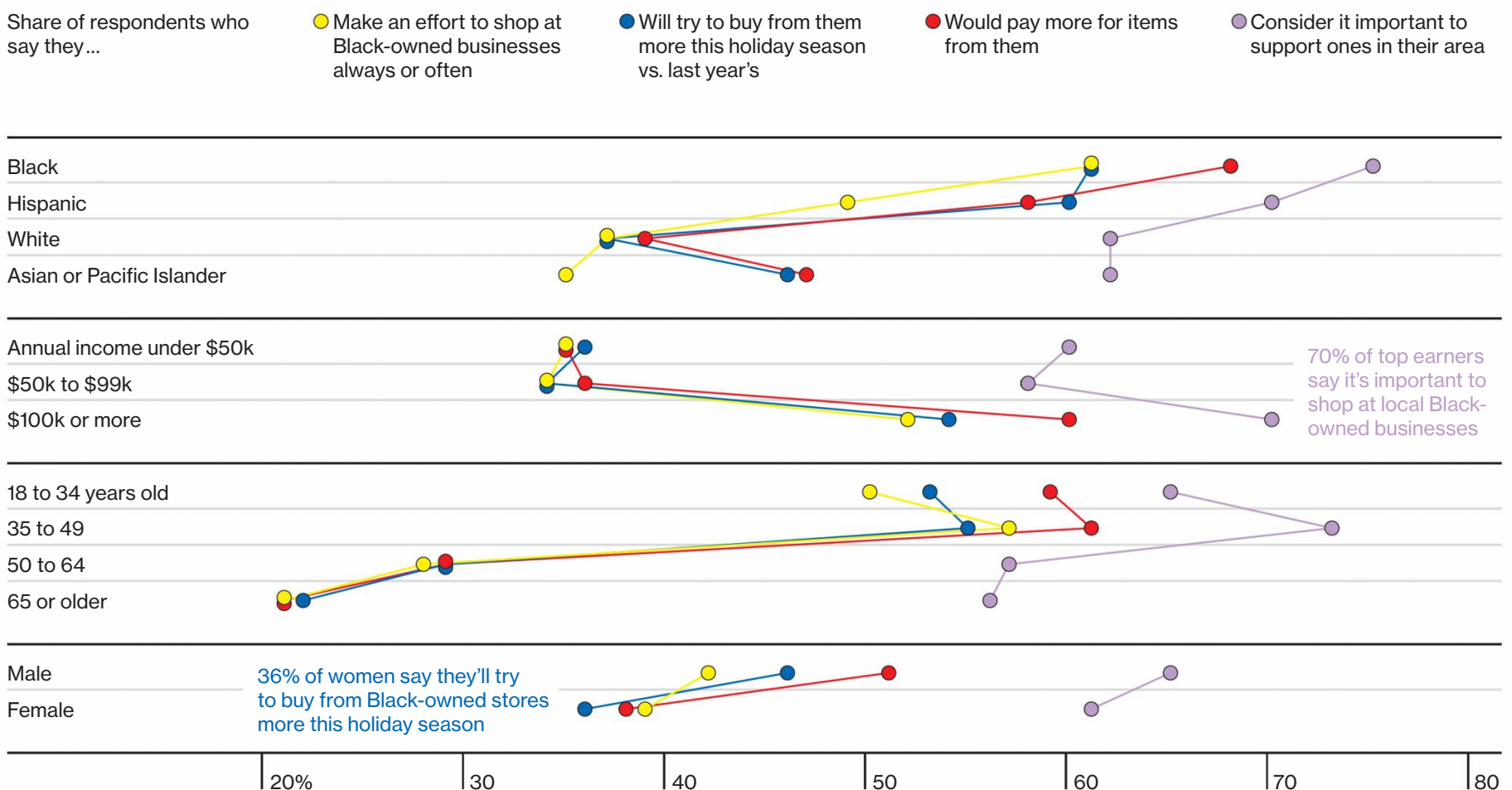
really start to vote with their wallets," Wilson says. Her business received one of its largest orders, from a hotel group that learned of the company from a list of Black-owned businesses. Another customer placed an order for 25 throw blankets and included a note that said, "This is my Christmas gift for everyone."

Tonya Council, the owner of Tonya's Cookies and the Sweet Tea & Cornbread store in Raleigh, N.C., has seen steady interest since June, with sales up 15%. Her bakery aims to capitalize on the moment by expanding with nut brittles for the holidays and possibly gift sets featuring products by other North Carolina artisans.

A majority of Americans say it's important to support Black-owned businesses, according to an online survey conducted Oct. 8-10 by the Harris Poll with Bloomberg News. Among the more than 2,000 respondents, 61% of Black shoppers said they were more likely now than last year to make a conscious effort to shop at Black-owned stores,

40

Survey of U.S. Adults on Shopping at Black-Owned Businesses



SURVEY CONDUCTED OCT. 8-10
DATA: THE HARRIS POLL FOR BLOOMBERG

compared with 37% of White consumers. Black-owned businesses numbered 124,004 in the Census Bureau's latest Annual Business Survey.

Supporting Black businesses has never been easier, says Maggie Anderson, whose book *Our Black Year* chronicled her family's pledge to buy Black in 2009. She points out that search engines and apps such as Yelp and OpenTable now highlight Black businesses: "We make it hard to buy Black, when it really is not." Often shoppers assume there aren't Black-owned businesses that sell what they're looking for, she says. More alarming, some consumers might view businesses owned by Black entrepreneurs as second-rate. "The problem," she says, "is that buying Black is seen as an afterthought."

Not for Courtney Grasty. The 34-year-old from Frederick, Md., has only Black-owned businesses on her Christmas shopping list. She's compiled a spreadsheet of 600 clothing and footwear brands and shares links with family members and friends, suggesting businesses to buy from.

Bunnie Hilliard owns Brave & Kind Bookshop in Decatur,

Ga. She says after actress Gabrielle Union shared information on Instagram about the 2-year-old store, online sales in June surpassed all of 2019's web sales. "Last year we were just a local bookstore, whereas now we're an online bookshop with more of a national presence," she says. The shop already is seeing rising holiday demand.

Dee Marshall, a diversity and inclusion adviser to the Black Women's Roundtable, an empowerment program, expects the most lasting impact on Black Americans' economic life to be from corporate commitments to hire Black employees and investors' decisions to support Black ventures. "Black folks are watching," she says. "They'll be watching this time next year to see what happened since you said Black Lives Matter. The conversation is beyond holiday shopping and buying Black. It's about economic injustice."

—Jordyn Holman and Karen Toulon

THE BOTTOM LINE Black small-business owners have gone from no revenue during lockdown to unsustainable demand over the summer. The holiday season will test long-term consumer support.

Q&A

Rooting for Everybody Black

Issa Rae created and stars in *Insecure*, a dramedy on HBO about dealing with the awkward reality of life. The Emmy-award winning series, set in Los Angeles, features the historically Black neighborhoods of Leimert Park and Inglewood and highlights Black-owned businesses. Here are edited excerpts of Rae's email interview with Jordyn Holman of Bloomberg News

What are some career challenges you've confronted that informed *Insecure* storylines?

Starting anything from the ground up is extremely challenging. You're always meeting roadblocks, but a lot of it is you. For me, a lot of my holdup was procrastination and excuses. It's already so hard to get started, and then when you finally do, it's a fight to get it off the ground. You can never anticipate what challenges you'll face. Then when you finally get it off the ground you realize, this is just the beginning!

How do you plan to have your company, Hoorae, keep promoting Black-owned businesses?

I want Hoorae Media to raise the profile of other artists of color. It's more about



using the platform to build other minibusinesses and collaborations. Hoorae Media consists of Raedio, a music label and audio company that works with artists and songwriters. We have ColorCreative, a management company dedicated to boosting and shaping the careers of writers

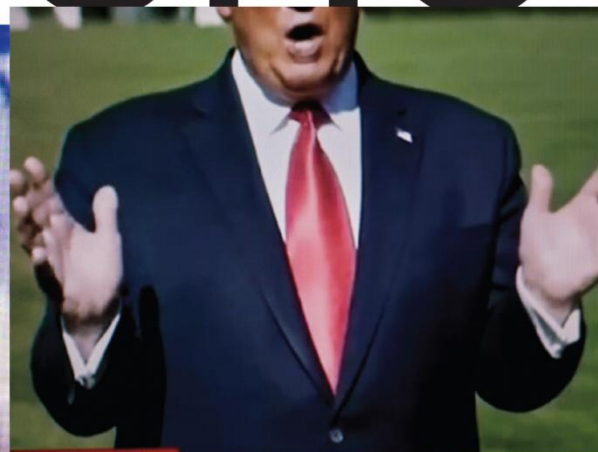
and multihyphenates. And of course Hoorae Film & TV, which serves as the production company.

Activism, community efforts, and social justice movements have become somewhat commodified. How can small businesses stay committed to their customers without compromising their core values?

By making those core values a mandate. By checking in with customers and communicating intentions. Transparency goes such a long way, and your base wants to feel like they're being considered in the evolution of your business.

● Read the full interview at www.bloomberg.com

An Audience Of One



OAN has positioned itself as the Trumpiest channel on air—and an eventual home for the president, win or lose

By Felix Gillette and Gerry Smith
Photographs by John Francis Peters



Dan Ball, a host for One America News Network, looked disgusted. It was Tuesday, Sept. 29, and the first debate between President Trump and Joe Biden had just ended. Across social media, people were criticizing the moderator, veteran Fox News anchor Chris Wallace, who'd struggled to control the proceedings. Now Ball wanted to take a whack for OAN, a slavishly pro-Trump cable channel that's been positioning itself as more loyal to the MAGA cause than Fox News.

Ball pulled out a box of tissues. "I brought something with me for Chris Wallace," he said. "Chris should use that to get the brown stuff off of his nose." For the next half-hour, OAN's panel of analysts piled on. Wallace, they agreed, had been incredibly favorable to Biden, failing to fact-check his falsehoods, parroting Democratic talking points, and letting him interrupt and insult Trump. Still, the commentators said, Trump had performed admirably. He had better points to make and more specific facts. He was more natural onstage and stronger on the economy, voting fraud, taxes, crime, and the coronavirus.

By proxy, Fox News was the night's big loser. Ball noted that "a lot of people" think Fox leans right. "Not so much anymore," he said. "You have an anchor right there who was obviously favoring the Democratic candidate."

Since taking office, President Trump has ushered into Washington a baroque procession of louche political operatives and oddball supplicants unlike anything seen in prior administrations. In the news business, OAN has been the single most jarring arriviste. The network, which started broadcasting in 2013, has managed to claw its way out of the cable news hinterland of San Diego and into the White House briefing room. Trump regularly calls on its reporters and touts it on Twitter, holding it up as a worthy alternative to Fox.

OAN doesn't subscribe to Nielsen, so data about its audience size is something of a mystery. Kagan, the media research unit of S&P Global Market Intelligence, says the network reaches 23.1 million pay-TV subscribers. That's far fewer

A THREAT

than Newsmax TV (58.2 million) or Fox News (78.6 million), but OAN has nevertheless more than doubled its advertising revenue over the past two years, to an estimated \$13.3 million. The channel is brim-

ming with ads from companies hoping to sell things to Trump fans. On a recent afternoon, it featured commercials for Henry Repeating Arms, a shotgun and rifle maker; *Trump Card*, a documentary by conservative polemicist Dinesh D'Souza; and MyCleanPC.com, a hard-drive-scrubbing service.

Trump's affinity for the network is proving to be its own kind of currency—albeit one that might seem at risk of serious devaluation. As the election looms, OAN faces a crucial test: Can it capitalize on the next act of its beloved protagonist, whether it's a second term or a post-presidency?

Some industry observers have speculated that, if Trump loses, he could acquire Herring Networks Inc., the little-known company that owns OAN, and turn the channel into his own TV network, siphoning off die-hard MAGA-heads and QAnon fanatics as Fox embraces whatever comes next from the establishment GOP. While it might be impossible to outflank prime-time hosts Sean Hannity and Tucker Carlson on the right, Fox's daytime hours are filled with less partisan voices, potentially leaving an opening. "Fox News, even under Roger Ailes, had a track record of being very pro-establishment," says Sam Nunberg, a former Trump campaign adviser. "A major syndicated network for conservative news media would certainly have a tangible market to compete against Fox during the daytime."

The person who could determine whether OAN capitalizes on a Trump free agency is Robert Herring Sr., a largely unknown 79-year-old former computer hardware entrepreneur. Herring didn't respond to interview requests, but conversations with more than 20 past employees paint him as an industrious, adaptive, paternalistic businessman who got into TV largely to chronicle the inspirational opulence of the unabashedly rich—and who, after a series of misfires, stumbled into Trump. Herring is a person, they say, who likes to trumpet expensive-looking things, as cheaply and loudly as possible—a Trump yacht parade come to life.

In courting the president, Herring may hold one advantage over his bigger rivals: He's built a private family business that operates with little of the tiresome interference and quality controls typical of modern corporate and newsroom governance. At Herring Networks there are no meddling board members, no second-guessing investors, no hotshot executives, and definitely no fealty to pious journalistic ideals. The company is a fiefdom designed to accommodate one man. Others might be able to offer Trump more dollars or a bigger audience, but Herring could give him something even more enticing: a company that feels like home.

"I don't quite have the money that Rupert Murdoch has," Herring once told the *San Diego Business Journal*. "But I can do more with less than anybody in the world."

In 2003 word spread through San Diego's small TV industry: Some rich guy was starting a new high-definition network about upper-crust lifestyles. Job seekers were summoned to a cavernous building along Interstate 5, where they met the visionary behind WealthTV: a short, spry man with dazzling white veneers and dyed brown hair.

Herring was born in Louisiana but relocated with his family to California when he was young. Forced to drop out of school as a teenager, he built a fortune in circuit boards, selling one company, Industrial Circuits, for \$60 million in 1988 and another, Herco Technology, for more than \$100 million in 2000. He lived in a megamansion and owned a yacht. His employees called him Mr. H.

The idea for WealthTV, he explained back in 2003, had come to him late at night while flipping fitfully among cable channels. He'd always enjoyed the show *Lifestyles of the Rich and Famous*, the seminal 1980s celebration of materialism. He'd even gotten to know its longtime host, Robin Leach. "I started thinking, 'What's this word 'wealth' mean?'" Mr. H said in an early promo. "It's not 'money.' I looked it up, it said, 'an abundance of good.' That to me sounded like a fantastic name for a TV station."

WealthTV was launched in June 2004, with a staff made up largely of recent college graduates. Mr. H expected hires to write, produce, and star in their own shows. He involved himself in every facet of the business, generating ideas, reading scripts, and reviewing expense reports. Before long, WealthTV's programming reflected his passions, with series about anti-aging remedies and wellness (*Wealth on Health*), sports cars (*Wealth on Wheels*), yachts (*Wealth on the Water*), and other dudish playthings (*Boys Toys*).

The house style was one part Late American Empire, one part Monte Carlo bender. A former employee recalls that everything on the network looked like the lobby of a Trump hotel. Another describes the aesthetic as women in bikinis throwing a football on the beach. The network's brand logo was a ritzy "W" morphed into the shape of a crown.

At one point, Mr. H ordered up a half-hour program on a dating service called Svetlana Incorporated—the business, his employees soon learned, through which he'd met his young third wife. Its namesake, Svetlana Novikova, was an entrepreneur who arranged dating tours of Russia for successful American men. The TV program included footage of a poolside soiree at which a line of women stood smiling, their low-cut

CHINA THREAT

ANNOUNCES FUNDING



dresses numbered for easy identification. Men in slacks mingled nearby, assessing.

Mr. H got his first taste of the conservative limelight in 2005, during the legal battle over Terri Schiavo, a woman in a prolonged vegetative state. He publicly offered her husband, Michael, \$1 million to turn over guardianship to Terri's parents, who disapproved of Michael's plan to take her off life support. Schiavo ignored him. Fox News did not. "This is a very, very generous offer, sir, that I think could save somebody's life," Hannity said.

At the time, Mr. H was losing a lot of money on WealthTV. Few major satellite or cable distributors were carrying it, and executives told the *San Diego Union-Tribune* in 2006 that the network had lost as much as \$60 million. "It may break me, to be honest about it," Mr. H told the paper.

The mood at the studios grew increasingly strained. Every Tuesday morning, Mr. H would

gather production staff in the boardroom and ask each person what they were working on. When he was in a good mood, former staffers say, the meetings could be pleasant. But when the boss was feeling on edge, as was often the case, he would tear into everyone, dropping what staffers began calling H-bombs. "A lot of the behavior felt unprofessional," says Stephen Alberts, a former WealthTV producer. "It seemed like there was no accountability. The attitude was always, well, we're a private company, we can do what we want."

The building's interior was outfitted with security cameras, the better to spot workplace malingerers. Turnover was high, gallows humor abundant. Mr. H frequently fired employees, often in front of their colleagues. Former staffers say he also kept what he called a "traitors list" of those who'd left him for competitors.

The Herring family was a source of much fascination among staff. The younger son, Charles, the company's president, was tight-lipped and aloof around the employees. The older son, Bobby, who oversaw many day-to-day operations, was regarded as the warm one. He told staffers he'd been wild growing up and had struck out on his own before becoming a born-again Christian and returning to the fold. Bobby gave the impression that he worked extra hard to win his father's approval, which wasn't always easy. Mr. H frequently berated him in front of others. Former employees say that for a brief, uncomfortable spell, he disciplined his eldest son by making him perform janitorial duties.

Bobby didn't respond to interview requests. In an emailed response to questions, Charles wrote that Bobby plays "perhaps the most important role" at the company, "overseeing daily operations," and said it was untrue that his father kept a traitors list. "Disgruntled, former employees, that don't

have firsthand knowledge, aren't the best sources," he wrote.

In 2008, Mr. H started his first daily news show, *Wealth International News*, filling it mostly with repackaged wire service segments. It was anchored by Graham Ledger, a tanned, muscular San Diego newsman who'd spent years at KFMB-TV, the local CBS affiliate. Ledger was known behind the scenes at KFMB as a vocal conservative who would scour scripts for signs of liberal bias. (He didn't respond to interview requests.)

Five years after his first foray into news, in the spring of 2013, Mr. H announced he was starting a competitor to Fox News called One America News Network. OAN began broadcasting that July 4. The network's logo was an eagle with wings outstretched, talons descending. The graphics were red, white, and blue.

News programming continued to revolve around dutiful setups of wire service segments, but now Mr. H had an opinion side, too. Ledger moved there and began hosting a show called *The Daily Ledger*, featuring his signature opening line: "Stand by. The doors to the newsroom are locked, and the PC police are not getting in."

OAN, like WealthTV, struggled to attract major cable distributors. Staffers started calling the network One America Snooze. In its efforts to gain notice, OAN brought in Sarah Palin for a guest-hosting stint in the summer of 2015. At one point, she did an obsequious interview with candidate Trump, in which she praised his "avant-garde" campaign and asked him where he "got his guts" when it came to schooling certain "idiots" in the mainstream media. Afterward, Charles Herring told CNN he wanted to hire Palin but couldn't yet "afford what she is worth."

Trump, on the other hand, was endlessly jawboning for free—the perfect budgetary and stylistic fit for Mr. H. Soon, OAN was gaining notice on the campaign trail by airing Trump rallies, unabridged. Any Trump fan annoyed by the reality-based political interjections of Fox reporters now had a genuine alternative.

Once Trump gained office, OAN spiraled into a firenado of MAGA-friendly content. According to former employees,

Mr. H involved himself deeply in the process, combing through right-wing websites for ideas and assigning stories. At some point, he dutifully performed the MAGA hajj, traveling to stay in the Trump International Hotel Washington, D.C., which he was aghast to find didn't subscribe to OAN. He duly complained on Twitter.

In 2018, Jonathan Harris, a former OAN producer, filed a discrimination and harassment lawsuit against Herring Networks and Ledger. According to the lawsuit, Ledger would regularly "berate, demean and verbally abuse" Harris over his liberal politics and



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his “perspectives as an African-American male.”

Harris claimed that when he filed a formal complaint about Ledger’s allegedly racist behavior, Herring grew angry and fired him. In court documents, Herring and Ledger responded that the claims were without merit, but in early 2020 a jury found in Harris’s favor, awarding him \$1.1 million in compensatory and punitive damages. Several months later, Ledger left OAN, ostensibly to spend more time with his podcast.

Meanwhile, the network was playing host to various members of the Trump demimonde. Herring briefly hired former Trump campaign manager Corey Lewandowski as a political commentator, and OAN aired several documentaries and specials involving Trump associates, including Carter Page, Steve Bannon, Michael Caputo, and Rudy Giuliani. The multipart series featuring Giuliani aired during Trump’s impeachment hearings, advancing the false notion that Ukraine, not Russia, interfered in the 2016 U.S. presidential election, and on Hillary Clinton’s, not Trump’s, behalf.

Over time, the line between the network’s commentators and news reporters all but disappeared. In 2019, OAN hired Chanel Rion, a conservative illustrator (“President Trump’s most stalwart graphic warrior against leftism,” per her website), as its White House correspondent. She’s since emerged as the defiant, maskless face of the network’s pandemic coverage—tangling over Covid safety protocols with the White House Correspondents’ Association, promoting the conspiracy theory that the coronavirus was created in a North Carolina lab, and posing some memorably bizarre questions. “Is it alarming that major media players, just to oppose you, are siding with foreign state propaganda, Islamic radicals, and Latin gangs and cartels?” she asked Trump in March. (Rion didn’t respond to an interview request.)

All the while, OAN’s reputation grew stronger among hardcore Trump fans—and the people hoping to profit from them. In January, the *Wall Street Journal* reported that Hicks Equity Partners LLC, an investment firm based in Dallas, was trying to assemble a bid of roughly \$250 million to acquire Herring Networks. Even by Trump-era standards, the deal had the air of a nepotistic feeding frenzy. According to the *Journal*, Thomas Hicks Jr. (son of the firm’s superwealthy founder) is friends with Donald Trump Jr. (son of the president) and was being backed by Doug Deason (son of billionaire Darwin Deason). “With the 2020 political season in full swing, expressed interest is on the rise,” Charles Herring told the *Journal*. “Yet our family didn’t build our operations to sell it.” (A representative for Hicks Equity Partners declined to comment. Deason didn’t respond to an interview request.)

If Trump wins, OAN would appear well-positioned to capitalize further on its relationship with the president. “Herring Networks

Inc. is profitable, has no debt, and is growing,” Charles Herring wrote to *Bloomberg Businessweek*, adding that “2020 is expected to be a strong year for the company, with record top and bottom line results, driven by increases in ad sales and digital deployments across numerous platforms.”

Even so, it faces a daunting set of challenges. The cable industry is rapidly contracting. Many beloved brands are losing large chunks of their audiences to streaming competitors. And unlike, say, Sinclair Broadcast Group Inc., which owns or operates nearly 200 broadcast-TV stations it can inject with conservative views, Mr. H is dependent on satellite- and cable-TV providers. In recent years, those companies have been trimming away underperforming channels to keep costs down.

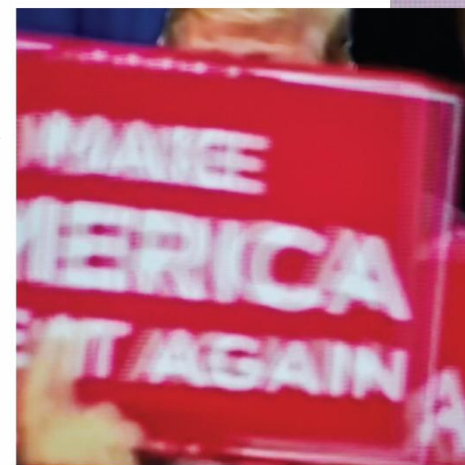
OAN’s frequent pleas to viewers to badger one cable company or another to pick it up haven’t helped it get carriage from several of the giant pay-TV providers, notably Comcast, Charter Communications, and Dish Network. And its largest distributor, AT&T Inc.’s DirecTV, is swiftly losing customers. Herring Networks does own a boutique streaming service called KloudTV, but it currently provides subscribers with access only to a range of lesser-known outlets, including OAN, AWE (“A Wealth of Entertainment,” the rebranded name of WealthTV), the Nautical Channel, Infowars, and Horse.TV.

Ultimately, OAN’s best bet for winning wider distribution may depend on positioning itself around Trump’s next act. Jon Klein, a former president of CNN/U.S. and current co-chairman of the streaming company Tapp Media LLC, points out that plenty of conservative consumers are still up for grabs. Just as political constituencies can splinter and re-form around new candidates, so can TV audiences. “You shouldn’t assume the conservative audience is a monolith,” he says.

Years ago, Klein remembers, when he was helping Palin launch a streaming channel, he reached out to Ailes, then the head of Fox News, where Palin was a contributor. “Ailes was very concerned about being outflanked on the right,” Klein recalls. “He said, ‘As long as you don’t try to build a network to the right of me, I’m fine. If you do, I’m going to have to kill you.’”

Ultimately, the Sarah Palin Channel came and went as fast as her national political career. The Trump Show, by contrast, seems unlikely to fade so quickly to static.

In May, during an appearance on OAN, Mr. H said the network is preparing to expand and hire more people. Criticism of its reporting in the mainstream media, he averred, was a welcome sign of its growing stature. “I kind of enjoy it,” he said. “What it really means is that we’re making progress. They’re worried that we’re coming up. There’s a lot of reporters out there that should spend more time really doing what our kids do, doing research and everything and trying to put out real news.” **B**



THE BAD AIR ABOVE

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Have decades of industrial buildup around a patch of Southwest Detroit left residents especially vulnerable to Covid-19?

By Cynthia Koons and Bob Ivry
Photographs by Ali Lapetina



MEETS THE VIRUS BELOW

A family plays soccer at Salina Elementary School, across the railroad tracks from an industrial power station

It looked like an ordinary drive-by parade. The kind that people in locked-down states have been holding this year to celebrate births and graduations. Cars rolled slowly down the street, their drivers honking and waving, stopping for brief chats. There were balloons and a banner: Welcome Home.

The July celebration was festive, but it was also a reminder of all the ways Covid-19 had devastated this Southwest Detroit neighborhood. Theresa Landrum was there to salute her niece, Donyelle Hull, who'd won a touch-and-go battle against the virus—doctors at one point told her son to start planning her funeral. Hull, who's 51, spent 61 days in Beaumont Hospital and an additional 45 days in rehab learning to walk again.

This wasn't the only welcome-home parade Landrum had been invited to. She counts at least 10 friends and neighbors who've recovered from the virus. And she has another list, of those who didn't make it: a pastor, a state legislator, a neighbor couple who passed away within weeks of each other. "You can't even grieve," Landrum says. "You just harden yourself so you don't get that feeling of hurt."

She doesn't think it's a coincidence that so many people she knows have had severe cases of Covid. She attributes it to something quite obvious: the air they breathe. Her ZIP code, 48217, is one of the most polluted in Michigan. And researchers have begun to confirm that pollution can worsen the effects of the illness. A study out of Harvard, for example, has shown that Covid death rates are higher in populations with more exposure to pollutants, and international research has demonstrated that some of the hardest-hit parts of Europe are in especially polluted areas.

For decades, Black Americans like Landrum, who's in her 60s and describes herself as a 48217 environmental-justice

activist, have fought to limit industrial emissions in their neighborhoods. More than two dozen industrial sites surround hers. People in 48217 live on average seven fewer years than in the country as a whole, and asthma hospitalization rates in the area are more than twice as high as those of Michigan and about five times higher than those of the U.S.

Generations of activists in Southwest Detroit say they're tired of living under a cloud. They've demonstrated, filed petitions, shown up at public hearings, and watched as industry won regulatory victory after regulatory victory. This summer, as the Black Lives Matter protests raged, residents of an overwhelmingly minority Detroit-area neighborhood filed a civil-rights complaint related to the approval of a hazardous-waste storage facility's ninefold expansion, arguing that pollution is a form of racism, too.

Michelle Martinez, acting executive director of the Michigan Environmental Justice Coalition, says activists have been "screaming for decades" about the consequences of industrial expansion but haven't been taken seriously. "The pollution and the smokestacks are a form of slow violence."

A ring of heavy industry encircles Landrum's neighborhood, a 2-mile-long residential pocket of Southwest Detroit where the median home price is \$48,100. Some 80% of the 6,887 residents of 48217 are Black, and 40% of all residents live in poverty. The area is surrounded by mills run by U.S. Steel and the mining company Cleveland-Cliffs, as well as DTE Energy's River Rouge coal-fired power station, a Great Lakes Water Authority treatment facility, an oil refinery, a drywall manufacturer, a salt pile, a lime quarry, three scrap-metal processors, a chemical plant, four concrete suppliers, an asphalt maker, Ford's River Rouge production facility, cars spewing exhaust on Interstate 75, and diesel trucks rumbling up and down the streets belching so much dark dust that other drivers sometimes have to pull over because they can't see the road.

Neighborhoods like this sprung up by design. A century ago, Detroit was a magnet for Black Southerners who were flocking northward for steady jobs in heavy industry. But redlining ensured that only Whites could live in the city's more desirable neighborhoods, and segregation was enforced with such zeal that in 1941 developers built a half-mile-long, 6-foot-high wall to keep minorities out of a White area. (Sections of the wall remain standing to this day.) Black people settled in Southwest Detroit, in ZIP codes like 48217, in the shadow of Ford Motor Co.'s sprawling manufacturing complex. In its heyday, Ford employed more than 100,000 workers there. Today, the number is 7,500.

Landrum's father tore down coke ovens for a living. Growing up in 48217, she'd shake off his coveralls in the yard after work, not knowing the dust contained asbestos. She didn't think there was anything unusual about a sky tinted orange by smoke. And when silver or black fallout from local mills would coat the neighborhood, she and her friends would write "wash your car" on automobile windows. Nobody thought anything of it.

That changed for her in the late 1990s. Landrum was at a hair appointment when she heard a loud boom. No one in the



Industrial sites in and around 48217

Landrum outside her childhood home



salon flinched. “I said, ‘Wait a minute, did you all hear that?’ They said, ‘It’s been going on awhile.’” She and her neighbors were also noticing cracks in the foundations of their homes, sunken spots in their yards, and broken windows. They traced the reason to a lease granted in 1999 by the city to Detroit Salt Co., allowing it to extract salt from 1,500 acres of public property. The process involved the use of explosives some 1,200 feet underground, according to a 2003 *Detroit Metro Times* article. Landrum and her fellow residents succeeded in forcing the company (which didn’t respond to requests for comment) to reroute its blasts. It was her first foray into the kind of activism that would shape the next decades of her life.

One of Landrum’s most consistent antagonists has been a steel mill built almost 100 years ago by Ford. It stands across the street from the playgrounds of the Salina elementary and intermediate schools in neighboring Dearborn. The plant was sold in 2004 to Severstal, a Russian steelmaker. Ownership has changed hands twice since then, but the auto industry has remained a prime customer. The mill’s violations have been so numerous that state regulatory staff, who are responsible for enforcing federal and state environmental laws, have called it “by far the most egregious” facility in Michigan, according to internal emails uncovered by lawyers battling the mill’s owners.

Even so, officials have continued to grant permits allowing the mill to pollute. Case in point: In 2014, Severstal was allowed by Michigan’s regulator, the Department of Environment, Great Lakes, and Energy (EGLE), to substantially increase its emissions. A group of community members fought back, filing a case that dragged on even as Severstal sold the mill to Ohio-based AK Steel Corp. that same year. (Severstal says it needed to increase emissions because of construction projects at the mill.) In 2015, as part of a settlement in a separate legal matter related to the mill’s pollution, AK Steel agreed to install air-filtration systems at the Salina schools. Since then, Michigan has cited the facility 13 times, including twice this year, for environmental violations such as emitting too much lead and manganese.

Residents’ complaints about pollution from large plants routinely led to violation notices last year, sometimes as many as four a month. At least three times, EGLE cited AK Steel for soot that ended up in the surrounding neighborhood. In one instance, starting in the late afternoon of Oct. 19 and extending into the next day, 11 residents complained of it falling on their homes, yards, and cars.

This January the situation for residents threatened to get even worse: AK Steel filed an application requesting permission to triple the plant’s lead and manganese emissions. “I don’t know if they were having a meeting and somebody said, ‘Does somebody want to see a funny joke?’ and submitted the

permit” application, says Justin Onwenu, a Sierra Club community organizer.

Tyrone Carter, a Michigan state representative and Covid survivor who lives right by I-75, says polluters don’t have much trouble getting permits in Southwest Detroit. He doesn’t recall a time when the state regulator denied one. “They’d have a hearing, you’d go, you’d voice your complaint, you’d do it in writing, we as a community would show up, and then they’d get a permit anyway,” he says. In the past decade, EGLE has approved 3,586 applications statewide and denied 18.

People who live near plants say the onus is on them to prove the companies are doing harm. “It’s so backwards,” Onwenu says, recalling meetings where resident after resident got up to talk about their health problems. “Why isn’t the company here telling us their operations are safe? The community shouldn’t be the ones under scrutiny for the experiences they’re having.”

Lung cancer rates in Wayne County are 27% higher than the national figure, but the system isn’t set up to hold polluters accountable for such issues. “It’s almost like an impossible task to prove that you’ve suffered harm, because the legal framework requires you to associate a specific cancer to a single contaminant,” Martinez says. “When you start piling on smokestacks with freeways with soil contamination with water contamination, the cumulative impact is enormous.”

That’s another quirk. When considering an emissions permit, the state regulator doesn’t always account for the totality of what’s affecting a given neighborhood. That means more than one factory can get state approval if its emissions of, say, particulate matter are under the legal limit. The same is true, in most cases, on the federal level. “Our Clean Air Act does a pretty bad job of addressing that issue,” says Nick Leonard, executive director at the Great Lakes Environmental Law Center. “It commonly looks at facilities facility by facility, and pollution as pollutant by pollutant, and doesn’t get at this issue of a number of facilities being in a small area.”

On the afternoon of March 23, De’Andre Tucker, a 34-year-old aspiring fashion stylist and former autoworker, was being treated for Covid at Henry Ford Hospital when he tried calling his mother—Landrum’s niece, Donyelle Hull. No answer. He tried again. No answer. The two are very close. They live together and talk three or four times a day.

Tucker wanted to let Hull know he’d tested positive and been admitted. Now he was getting nervous. Finally he decided he’d have to check himself out of the hospital to investigate. “I got in the car, and I drove 90 miles per hour,” Tucker says. When he got inside the house, he saw his mother lying on the couch, foaming at the mouth. “I screamed, and I fell to my knees,” he says. “I thought my mom was not here anymore.”

Then Hull surprised him, using her nickname for him ►

◀ to ask, “Byrd, what’s wrong?” She left the house in an ambulance. Tucker followed her to Beaumont Hospital and ended up admitted as well. Hull was soon being kept alive with a ventilator. A doctor told Tucker to prepare for the worst and said that if his mother did pull through, she wouldn’t remember him.

Although they were in the same facility, Tucker never saw her. He was discharged from Beaumont, then ended up back at Henry Ford, then was discharged again and told to quarantine for eight weeks while he recovered from Covid-related pneumonia. All the while he was getting updates about Hull. Her heart rate spiked. She had pneumonia and other infections. She’d been placed on dialysis. Her liver was shutting down. “It was the scariest time of my entire life,” he says.

At one point Tucker asked to be put on the phone with Hull even though she was on a ventilator. He spoke through tears. “I said, ‘Please do not give up, I know this is a lot on your body.’ I said, ‘If you cannot fight any longer, I understand, because you have been through so much. But I don’t want you to give up.’

“You know,” he continues, “the very next day the doctor called me and told me they were going to take her off the ventilator?”

Many explanations other than pollution have been floated for Black Americans’ increased vulnerability to Covid: Black people are more likely to have chronic illnesses such as diabetes and high blood pressure, which can magnify the virus’s effects; many work in frontline jobs in grocery stores, public transit, and residential care, where they face more exposure; and there’s been documented reluctance of doctors to believe Black patients when they describe the severity of their symptoms. Tucker himself was turned away the first time he showed up at the hospital for a test, even though he was having trouble breathing and had a confirmed exposure to Covid.

Scientists are increasingly certain, though, that bad air plays a role in the coronavirus’s course. “We think the immune response to the virus is weakened by air pollution exposure,” says John Balmes, a pulmonologist and professor of medicine and environmental health sciences in the University of California system. Cells in the lungs release cytokines, which normally help a person fight off infection. But when a person’s lungs are loaded with particles, the body’s defenses become dysfunctional. “The virus cannot be contained,” Balmes says.

Some of the most in-depth early studies about Covid and pollution have come from outside the medical field. Francesca Dominici, a professor of biostatistics at Harvard, has spent decades authoring studies showing that Black Americans breathe poorer-quality air and that this is linked to adverse health. In April she published an article connecting increases in the death rate from Covid with even modest increases in long-term pollution exposure. “If you live in a community where you’ve been exposed to all kinds of toxicants and air pollutants, we know that your lungs have been inflamed for a very long time before, and if you contract the virus, your ability to respond to the virus is compromised,” Dominici says. “Air pollution could be one of the major contributing factors why we observe this much

higher rate of Covid mortality among African Americans. It’s not the only factor, but it’s a very important one.”

The study thrust Dominici into the spotlight in a way her prior research typically hadn’t. She was invited to speak to Congress and in May joined Democratic Senator Cory Booker of New Jersey and a minister from Louisiana’s so-called Cancer Alley for a webinar on high rates of illness stemming from exposure to air and water pollution.

Dominici’s study focused on PM 2.5, short for particulate matter that’s 2.5 microns or smaller—at least 30 times smaller than the average diameter of human hair. Sources of PM 2.5 are everywhere: vehicles, smokestacks, cigarettes, vape pens, forest fires. Most of the bad stuff people inhale gets caught in the upper respiratory tract, where mucous can catch it and a cough can sweep it out. But PM 2.5 is tiny enough that it can journey deep into the lungs, where it can do the most damage—and where it might be meeting up with the coronavirus.

Other scientists have also highlighted the idea that pollution can affect Covid outcomes. Yaron Ogen, a post-doctoral researcher at Martin Luther University Halle-Wittenberg in Germany, normally uses satellite images and remote sensing data to evaluate the chemical composition of the Earth’s surface. His research involves classifying and quantifying Mongolian minerals, which got him thinking about how the virus might thrive in different environments. “Since March, the distribution of fatalities was not equal,” he says. “It was mostly located in China, in a certain area of China, in Iran, Italy, and Spain. It wasn’t Rome, it wasn’t Barcelona. As a geographer, I was asking one simple

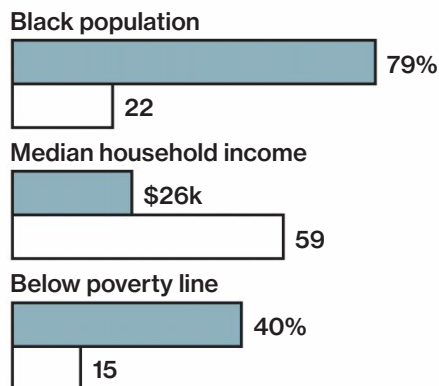


Tucker outside his home

Southwest Stats

■ Zip 48217

□ Entire Detroit metro area



question: ‘What do they have in common?’”

The hardest-hit cities, like Madrid, Milan, and Tehran, are near mountains or hills, which can trap pollution. So Ogen used satellite data that monitors nitrogen dioxide—a gas emitted by vehicles and power plants—to see whether there was a correlation between pollution levels and the number of deaths. What he found was fairly clear: Of the 4,443 deaths

by March 19 in 66 regions in France, Germany, Italy, and Spain, 78% were in five of the more polluted parts of Italy and Spain. Only 1.5% of the deaths occurred in the least polluted regions of those surveyed.

Ogen would like to see medical doctors drawing on this sort of information when they evaluate a patient’s health. “We need to cooperate, the two different disciplines,” he says. “The healthier the environment, the healthier we are as people.”

Few medical centers in the U.S. have departments dedicated to the effects of air pollution. There’s little recognition of how industrial emissions affect an individual’s health, despite consensus that they cause damage broadly. Vicki Dobbins, a friend of Landrum who lives in River Rouge, a town bordering 48217, was hospitalized with Covid for four weeks this spring. She points out that conversations with doctors tend to center on personal habits, as if getting sick could be the patient’s fault. “The doctors never ask you ‘Where do you live? What water do you drink? What water is around you? What kind of chemical are you ingesting?’” she says. “They just ask you ‘Did you smoke, did you drink, did you take drugs?’” More than two months after Dobbins got her diagnosis, she still has to pause to catch her breath just to finish a sentence.

Residents of 48217 scored some victories earlier this year. Marathon Petroleum Corp.’s refinery, which is within walking distance of Tucker and Hull’s house, was forced to pay the community \$82,000 in fines for emissions releases and \$280,000 for environmental remediation in Southwest Detroit. These are substantial sums for residents, if not much compared with the \$3.3 billion Marathon investors received in dividends and share buybacks in 2019. Much of the \$280,000 will go toward an air-filtration system for a third local school that sits in the shadow of heavy industry.

Jamal Kheiry, a spokesman for Marathon, defends the refinery’s environmental record. “Our commitment to being a good neighbor has driven our success in dramatically reducing emissions from our production processes and the use of our products,” he says. “Our Detroit refinery has operated at more than 40% below its yearly permitted emission levels for the past 15 years, and we have reduced its emissions by 80% over the past 20 years.”

Marathon has made financial contributions to the

community in the past. After a planned \$2.2 billion refinery expansion drew criticism from activists such as the Sierra Club, the company struck a deal with the city that included a \$2 million donation to rebuild the Kemeny Recreation Center while it moved ahead with the expansion. The center has become a bedrock of the neighborhood, offering Halloween parties for kids, exercise classes for seniors, and baseball diamonds whose fields end at I-75, just across from the refinery.

Some residents see these efforts as greenwashing. Dolores Leonard, who’s been fighting for better air quality alongside Landrum since the late 1990s, volunteers at the center a few times a week. She noticed last year that staff were wearing Marathon-logo sweatshirts, freebies from community events hosted by the energy giant. “I took it personally that Marathon was trying to come across as a good neighbor when in fact they’re killing us every day,” she says. Leonard asked the staff members for their sizes so she could get sweatshirts advertising the Kemeny Recreation Center instead of Marathon. “You think that something is free,” she says. “It’s not free.”

The neighborhood saw some productive corporate engagement this summer, after AK Steel was acquired by Ohio-based mining company Cleveland-Cliffs Inc. in March for \$1.1 billion. The new owners of the local mill held a meeting with community leaders in June. State Representative Abdullah Hammoud of Dearborn came away impressed with Cleveland-Cliffs’s willingness to listen to neighborhood concerns—which he views as a stark change from AK Steel’s approach. “We’re cautiously optimistic,” Hammoud says.

Afterward, Cleveland-Cliffs agreed to withdraw the mill’s application to triple its lead and manganese emissions. “There’s a history of misunderstandings and deceptions with the community,” says Lourenco Goncalves, Cleveland-Cliffs’s chief executive officer. “We’re fixing everything. We don’t want to pollute more, we want to pollute less.”

Still, Landrum is amazed that the mill continues to operate despite its history of violations. Were a meat-packing plant cited for *E. coli* contamination, it would get shut down and cleaned up, then have to prove it’s safe to reopen, she says. “Come on now, why aren’t they doing that to industry?”

In recent months, Landrum has been attending more hearings than ever before—a byproduct, she speculates, of rollbacks to clean-air regulations that the Trump administration claims will help ease the economic devastation wrought by the pandemic. She’s on three, four, five Zoom meetings a day. Permit hearings, town halls, community advisory panels for companies like Marathon—sometimes she’s double-booked and splitting her screen to keep up. She feels obligated to be present on screen as much as possible because she knows some of her neighbors can’t join in to defend themselves. They don’t have internet. She likens her environmental-justice work to having two full-time jobs.

She’s still got her eye on that steel mill, too. Experience suggests to her that the fight isn’t over. “Guess what?” she says. “They’re coming back. They always do. Not one time in history have I known a company to withdraw their permit and not come back.” **B** —With Keith Naughton and Yuliya Fedorinova

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Rebecca Garelli, Cecily Myart-Cruz, Stacy Davis Gates, and Jessica Torrence are among those demanding better Covid safety protocols for teachers

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Covid has forced America's teachers to flex the muscles they've built in a decade of bruising fights over lousy pay and teaching to narrow tests. The stakes are higher than ever

By Josh Eidelson



By early August, the Chicago Teachers Union had its fill of magical thinking. After a spring of virtual learning, Chicago, like many cities around the U.S., was pushing toward reopening classrooms in the fall. The revival of the local economy seemed to hinge on parents' ability to get back to work, and plenty were desperate to get their kids somewhere, anywhere, just out of the house.

Teachers around the country had spent weeks campaigning against reopenings. They'd flooded school board meetings, governors' mailboxes, and Facebook news feeds, posting versions of their own obituaries. Even U.S. infectious disease chief Anthony Fauci, the face of America's Covid response, left some teachers feeling they'd been judged acceptable losses. "Though this may sound a little scary and harsh—I don't mean it to be that way—you're going to actually be part of the experiment," Fauci said on July 28, during an online Q&A session organized by the American Federation of Teachers.

"I do not want to be an experiment," Andrea Parker, an elementary school language arts teacher, told the crowd at a Chicago protest on Aug. 3. "I do not want to be the sacrificial lamb."

Chicago Teachers Union Vice President Stacy Davis Gates says CTU was fielding calls even from local principals saying, "You guys got this, don't you?" They did. On Aug. 5, the morning after news broke that the union would hold an emergency delegates meeting to discuss striking, America's third-largest public school system said it would continue remote-teaching its 350,000 students until at least November.

With the pandemic raging, America's failure to prepare its public schools for a new year has left teachers, students, and parents facing impossible choices. Remote teaching is its own kind of experiment and carries its own costs. After doing their best to muddle through the summer, some parents are leaving the workforce to watch their young kids. Others who live paycheck to paycheck are wrestling with the risk of their unsupervised children falling behind, as well as missing out on school meals.

And yet Covid has killed more than 200,000 Americans; pushing millions back into classrooms could kill a lot more. Even if most kids won't die or get badly sick from the virus, they can still get it and spread it. Underfunded schools, where teachers already have to buy their own markers and masking tape, often also lack ready supplies of masks, or the ventilation that would help keep kids and adults safer.

To help cut the risks of classrooms enough to justify the rewards, many American communities will have to spend a lot more money to make their schools safer, and that still won't be enough by itself. It's also essential to curb the kinds of community spread that have spiked as businesses have reopened in much of the country, says David Michaels,

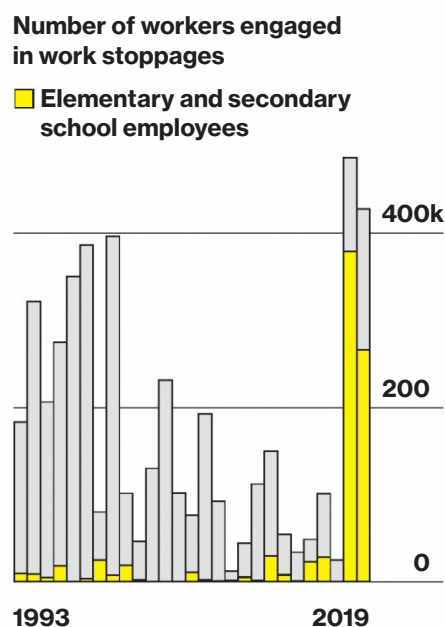
a public-health professor at George Washington University who ran the Occupational Safety and Health Administration under President Obama. "Governors have made the choice that opening bars is more important than opening schools," Michaels says. "We're paying the price for that now."

In August, within days of reopening, schools in Indiana, Louisiana, Tennessee, and other states closed because of outbreaks. One Georgia district had to quarantine almost 1,200 students and staff; in Arkansas, the teachers union in Little Rock called a halt to in-person instruction. The country's largest school district, New York City, started reopening its 1,800 public schools at the end of September and closed 124 right back up the next week. New York's per capita Covid numbers are much better than those in the Deep South, but hot spots in parts of Brooklyn and Queens have seen a major resurgence over the past several weeks, and the local union and Mayor Bill de Blasio pushed Governor Andrew Cuomo to shut down schools there.

Under pressure from teachers, many of the biggest U.S. school districts have held off longer, including Chicago, Houston (virtual classrooms until Oct. 19), Las Vegas (virtual until at least late October), and Los Angeles (at least November). The nasty outbreaks in other districts and on college campuses suggest these moves have saved lives. They've also shown that after a decade of battles about whether teachers are the U.S. school system's victims, villains, or heroes, teachers have built up enough clout to force cities to listen. Using a playbook that was pioneered in Chicago and has evolved elsewhere, teachers have fought—both within their unions and without—to make sure their communities can't ignore the risks they're being asked to take.

Of course, teachers aren't a monolith, parents' safety concerns have also proven pivotal, Covid isn't disappearing by November, and no district has firmly settled the question of what comes next. Some teachers say they're eager to return to class and they can handle the relevant safety procedures, but many have made clear they don't feel equipped to police students who ditch their masks or lurch within 6 feet of classmates. Given the demographics of American teaching, it's tough not to notice who's being asked to manage these threats: mostly women, some of whose age or health conditions exacerbate the danger from the coronavirus.

When it comes to avoiding that danger, some teachers' options are severely limited. In Florida, a state where striking could cost educators their jobs and their pensions, high school English teacher Jessica Torrence says coming to class in Kissimmee since Aug. 24 has driven her through cycles of depression, denial, anger, activism, and anxiety. Overwhelmed one day, she vomited into a plastic bag in a classroom closet. "It's a big game of chicken," she says, and the fear of retribution has kept Florida's teachers from



“You will not be able to function without dealing with us fairly”

gambling on a strike. Just mention the word, she says, and “people scatter.” Before returning to work, Torrence wrote a will for the first time. She had it witnessed during her son’s socially distanced fifth birthday party.

The new era of U.S. teacher power began taking shape in 2010, when a group of activist teachers took control of the Chicago Teachers Union. They called for a more confrontational campaign against then-fashionable education reforms such as the “turn-arounds” that disproportionately shut down Black schools there. The tactics they modeled have since been adopted around the country. They revolved around the most basic union principle of all: strength in numbers. CTU got serious about organizing inside and outside of school, pushing colleagues to participate more actively in the union’s work. They won support from parents by identifying shared priorities, such as smaller class sizes, under the banner “the schools Chicago’s students deserve.” And then they struck.

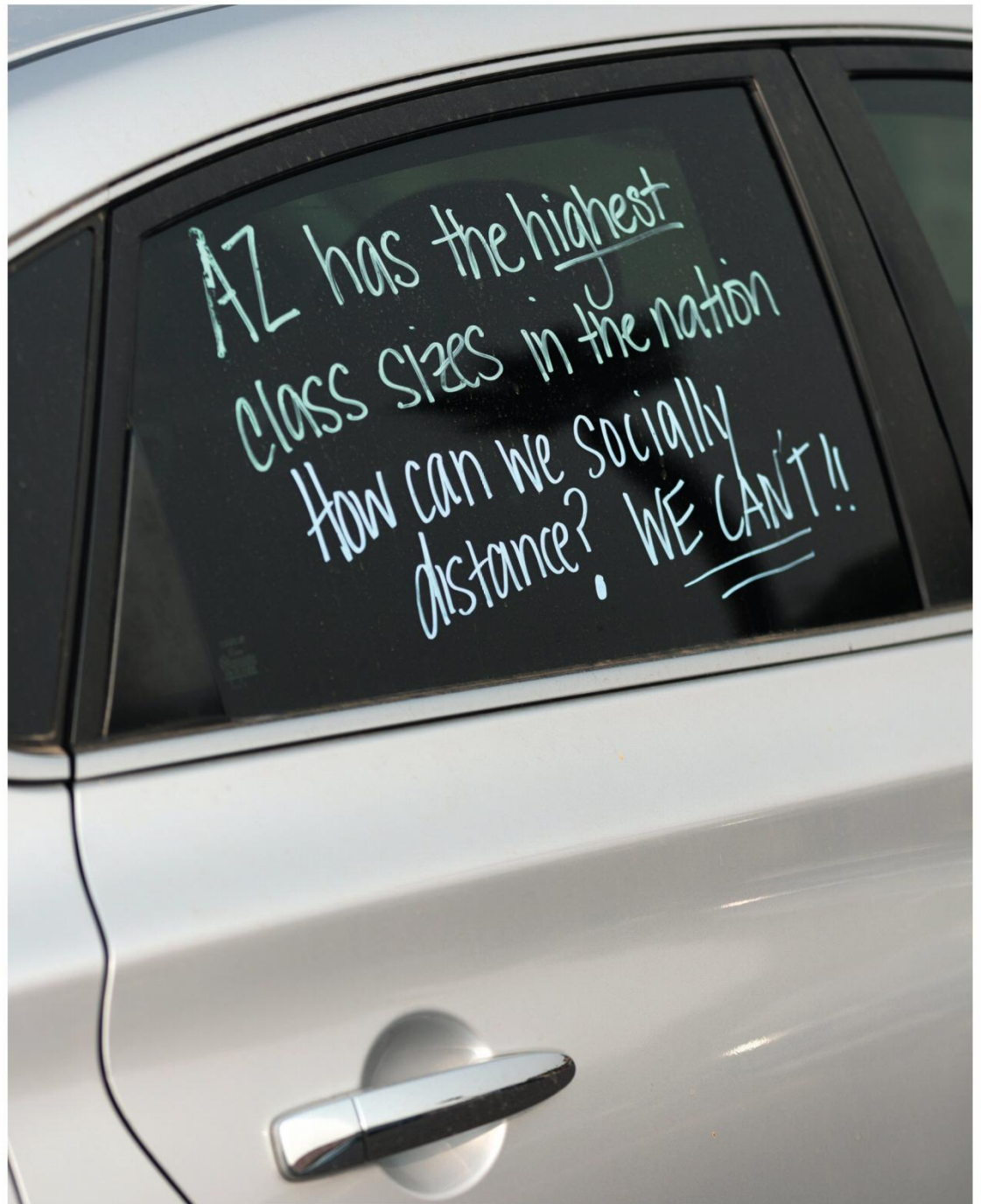
During contract negotiations in September 2012, Chicago’s teachers took to the streets for a week—the union’s first strike in a quarter-century—demanding smaller classes, more teachers, and less emphasis on standardized testing. The city argued in court that the “noneconomic” grievances made the strike illegal, but the teachers won 15-student caps on special education classes, commitments to hire more art and gym teachers, and restrictions on the importance of test scores in teacher evaluations. “Having the authorities understand that we will shut down your city” was pivotal to the union’s success, according to its then-president, Karen Lewis. “You will not be able to function without dealing with us fairly.”

At the time, teachers seemed to have few friends in either party. Chicago’s then-Mayor Rahm Emanuel, a Democrat, was previously President Obama’s chief of staff, and the schools chief who’d rankled the city’s activist teachers had become Obama’s secretary of education. That summer’s Democratic National Convention included a speech from Deval Patrick, then the governor of Massachusetts, celebrating a school that replaced most of its teachers following Obama’s education reforms. The next year, voters in deep-blue New Jersey handed a landslide reelection victory to Republican Governor Chris Christie three days after a crowd cheered him for angrily berating a special education teacher who asked why he kept casting schools as “failure factories.” The crowd around them ate it up when Christie replied, “They fail because you guys are failing.”

That teacher, Melissa Tomlinson, says the crowd’s cheers for

Christie made her realize just how much blame her profession was shouldering for America’s underfunded education system. While continuing to teach, she now also heads an activist group called the Badass Teachers Association, one of several pushing union leaders around the country to follow Chicago’s lead. Those efforts have advanced in part through activist takeovers of union affiliates in places such as Baltimore, Los Angeles, and Oakland, Calif., and in part through teacher protests that have defied local union leaders’ plans.

By 2018, teachers were on the offense. Large numbers of



Car caravans, sometimes known as motor marches, have become a popular way for teachers (and some parents) to voice their concerns about classroom safety

parents sympathized, fed up with policies that fixated schools on high-stakes tests. And for many, the push toward charter schools had sounded a lot better coming from Obama than it did from Betsy DeVos, President Trump’s billionaire secretary of education. A new wave of strikes began with about 20,000 school employees in West Virginia, spurring similar actions in red states including Kentucky and Oklahoma. Despite lacking legal protection for their work stoppage, the West Virginians refused to end their strike even after union leaders said they would. They waited another full week, until ▶

◀ the governor signed a 5% raise for teachers, whose pay had averaged roughly \$46,000, as well as for other state workers.

In Arizona that year, Phoenix math and science teacher Rebecca Garelli, who'd recently moved there from Chicago, posted on the Badass Teachers Facebook page that she wished her new home state would follow West Virginia's lead, too. Activists in other states replied that she should make it happen. Soon, Garelli and a handful of other teachers were training colleagues in about 1,200 Arizona schools to organize protests. West Virginia helped make clear that teachers could fight for better treatment without waiting for union leaders' permission, says another organizer, Noah Karvelis. "It was, like, anybody can do this, this is a thing, the strike is still alive," he says.

Arizona teachers' statements of solidarity, such as showing up to work in red T-shirts, escalated into a weeklong strike. Joe Thomas, the head of the state's union, says he provided advice and resources but the activists took the lead. Thomas says his attitude was: "If these people I've never seen before are the answer, hallelujah, I'm with them." The teachers won a promise to hike their pay 20% over three years.

By the time Covid arrived in the U.S., years of reinvigorated unionism gave teachers a voice and power they otherwise might not have had. In March, Chicago's teachers joined with labor and community groups to demand that the city halt evictions, expand paid time off, and deliver school lunches to children in need. There and in other cities that had followed the same model, teachers helped drive school districts to shift quickly to remote learning. By the end of March, union leaders and activists such as Garelli were already holding Zoom calls to figure out how to approach the fall.

"You have everybody from the Trumpers on down saying, pretty much, get your asses back into the building," says Cecily Myart-Cruz, president of United Teachers Los Angeles, which represents educators in the country's second-biggest school district. "When you see the infection rates going up, there's just no way in good conscience you could actually have students coming in."

Over the past six months, America's teachers have protested classroom reopenings on Facebook, through the mail, and in person at school board meetings. They've hoisted mock coffins in protest processions and adorned their cars with poster slogans such as "Go virtual, not viral." A school district east of Phoenix had to cancel the first days of class after teachers staged a sickout. Activist union locals teamed up with groups such as the climate-focused Sunrise Movement to hold coordinated protests in dozens of cities on Aug. 3 and again on Sept. 30, demanding that schools be kept closed until science shows they're safe. Their other demands, some more aspirational

than others, included that schools reopen free of cops as well as Covid and urged the hiring of more school nurses, cancellation of rent, and moratoriums on charter programs and standardized tests.

In keeping with the Chicago playbook, teachers around the country have been working to deepen ties with parents. In West Virginia they've consulted with parents and legislators on ways to adapt special education instruction for remote learning. In Arizona, parents and teachers have conducted joint "motor marches" in their cars. (Sample sign: "Remote learning won't kill us, but Covid can.") In Chicago they've hosted a daily educational television show on the local Fox station, dropped off diapers at parents' homes, and checked in regularly by phone. "You can't just be calling parents saying, 'Hey, your kid is f---ing up,'" says 11th grade social studies teacher Jackson Potter, one of the activists who helped reinvent Chicago's union a decade ago. "We're in it with our parents." Polls suggest that most parents, like most teachers, think schooling should be mainly remote for now, with some openness to hybrid models that put smaller numbers of kids in classrooms with appropriate safety measures.

The two big national unions, the National Education Association and the American Federation of Teachers, have emphasized their eagerness to get kids back into classrooms as soon as it seems safe while insisting that districts avoid reckless reopenings. NEA President Becky Pringle says her union supports and reinforces the tactics of its members and affiliates. "We are not managing them," Pringle says. "We are listening to them." In July, the AFT's executive council passed a resolution backing safety strikes "as a last resort." Randi Weingarten, the AFT president, says, "I love the advocacy. I may disagree with it sometimes, but I love it." Still, she says, she worries about some left-wing activism being "misrepresented" to paint the union as an undue obstacle to classroom reopenings.

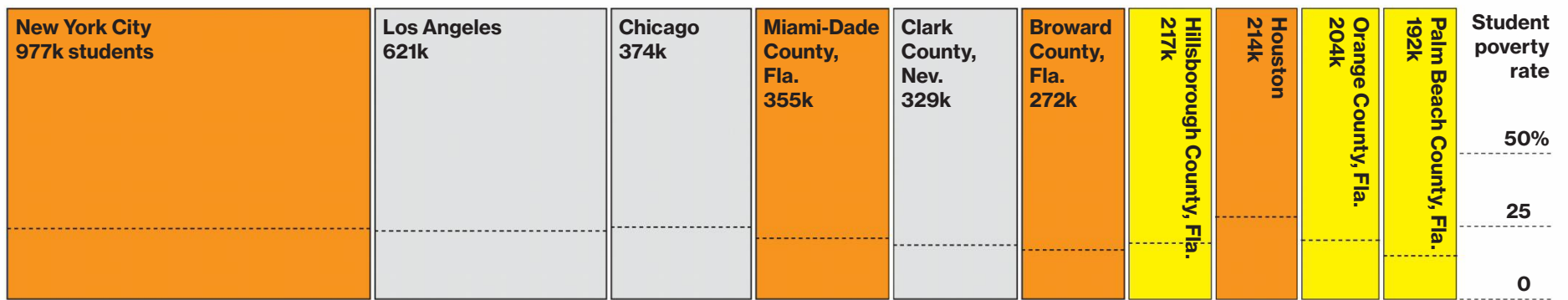
All of this gets extra complicated in places such as Florida, where teachers who participate in strikes, under state law, can be fired and stripped of their teaching credentials and all the money accumulated in their pensions. Even basic wins are tough to come by. Eric Rodriguez, a teacher and local union president in Florida's Suwannee County, has been pushing for a simple in-school mask mandate. No, the state still doesn't have one.

Parts of Florida have been sending teachers in since mid-August, even as the state reported roughly 5,000 new Covid cases a day. "Just as the SEALs surmounted obstacles to bring Osama bin Laden to justice, so, too, will the Martin County school system find a way," Governor Ron DeSantis said during a speech in August. "All in, all the time." To compel some reluctant districts to reopen classrooms earlier than they wanted, the state threatened to claw back tens of millions of dollars in funding. Under orders from DeSantis's

"I'm of the mindset that there's no such thing as an illegal strike, just an unsuccessful one"

Largest U.S. school districts

■ Classrooms mainly reopened starting in August or September ■ Classrooms mainly reopened starting in October ■ Classrooms mainly closed



education commissioner, the state's largest counties, Miami-Dade and Broward, resumed in-person schooling earlier in October than planned.

Rather than choose between bars and schools, DeSantis reopened both at once. Florida, which held off on a state-wide stay-at-home order until April, first took its watering holes off the lockdown list in June, then had to shut them again later that month following a surge in coronavirus diagnoses. On Sept. 25, two weeks before the biggest school districts reopened, DeSantis signed an executive order mandating that local governments let bars and restaurants reopen at 50% capacity or more.

At B.D. Gullett Elementary School in Bradenton, Fla., Principal Todd Richardson says the protests he's seen on TV don't represent what he's heard from his teachers. He reopened classrooms on Aug. 17, with giant balloon characters and a gator-costumed parent on hand to celebrate, and only one student has tested positive, he says. (Some students have had to quarantine after being exposed elsewhere.) Several parents who'd initially opted for remote learning reconsidered within days of trying to keep their children learning from home, Richardson says. "I don't want to kill my kid" was a common refrain, the principal recalls. "I want him to come back to school."

Nicholas Leduc, a fourth grade teacher at nearby Barbara A. Harvey Elementary School, says he had zero reservations about in-person learning but plenty about remote. "I worry about the long-term implications of kids having no social interaction," Leduc says, "to have kids on a therapist's couch because they didn't talk to another kid for a year and a half." Leduc says he's getting kids "as sanitized as possible" by wiping down tables, desks, and dividers, and being stringent about masks, face shields, and regular handwashing.

Even in Florida, though, zero reservations is the minority position. The Florida Education Association, a union representing about 300,000 school employees, sued the governor and education commissioner in state court, arguing that their mandate for in-person schooling was an unconstitutional overreach into local affairs and should be struck down. In August a judge ruled in the union's favor, but the appeals court overturned the ruling, saying it was the lower court that had exceeded its constitutional authority.

Given the tools at their disposal, Florida teachers can't exactly follow the Chicago playbook. In July, after teachers in Florida's Duval County started talking about the possibility of a strike, the local union sent out an email telling them

to "be smart" and warning that "striking is against the law and will have life-altering consequences." Then again, West Virginia's teachers had no legal right to strike in 2018, either, but enough did that the state caved and raised their pay. "I'm of the mindset that there's no such thing as an illegal strike, just an unsuccessful one," says Alex Ingram, a seventh grade civics teacher in Duval County. He and dozens of colleagues staged a sickout on their first day of classes in August but haven't been able to escalate their resistance beyond that. After one week back, Ingram had self-quarantined because of Covid-19 symptoms and a student's positive test result.

Ingram says classroom reopening has been as bad as many feared. Cardboard dividers between desks have forced kids to crane their necks toward one another to see the board. There's inadequate sanitation and ventilation, he says, and mask use is inconsistent among his students and even worse among their elementary school counterparts. "They're kids," he says. "They don't wear their shoes, either."

The AFT released polling in September showing that, though most teachers oppose reopening now, 79% would be up for it if local infection rates were low, testing were readily available, and there were safety measures including masks, daily deep cleaning, open windows, and virtual alternatives for at-risk kids and adults. Instead, the Miami teachers union has been pleading for locals to donate hand sanitizer, saying the state has left cash-strapped schools without it.

It bears repeating that America's leaders have offered no coherent, cohesive, or adequately funded plan to reopen classrooms. They've simply run out the clock on the country's children, parents, and teachers. This response has forced many teachers—like fast-food cashiers, meatpackers, warehouse haulers, and all sorts of people deemed essential workers—to weigh their fear of retaliation for staying home against their fear of Covid. Many are casting around for least-bad alternatives.

Some have nabbed remote-only teaching assignments. Many others have taken leaves of absence or early retirement. If enough teachers organized resistance, they could stop premature reopenings and save more lives, says Damaris Allen, a parent activist in Florida whose teens are learning from home this fall. "I don't want to put that responsibility in their laps, because they've had so much responsibility already put on them," says Allen, a former Hillsborough County Council PTA president. "I also know that they have all the power right now. But they're really scared." **B**

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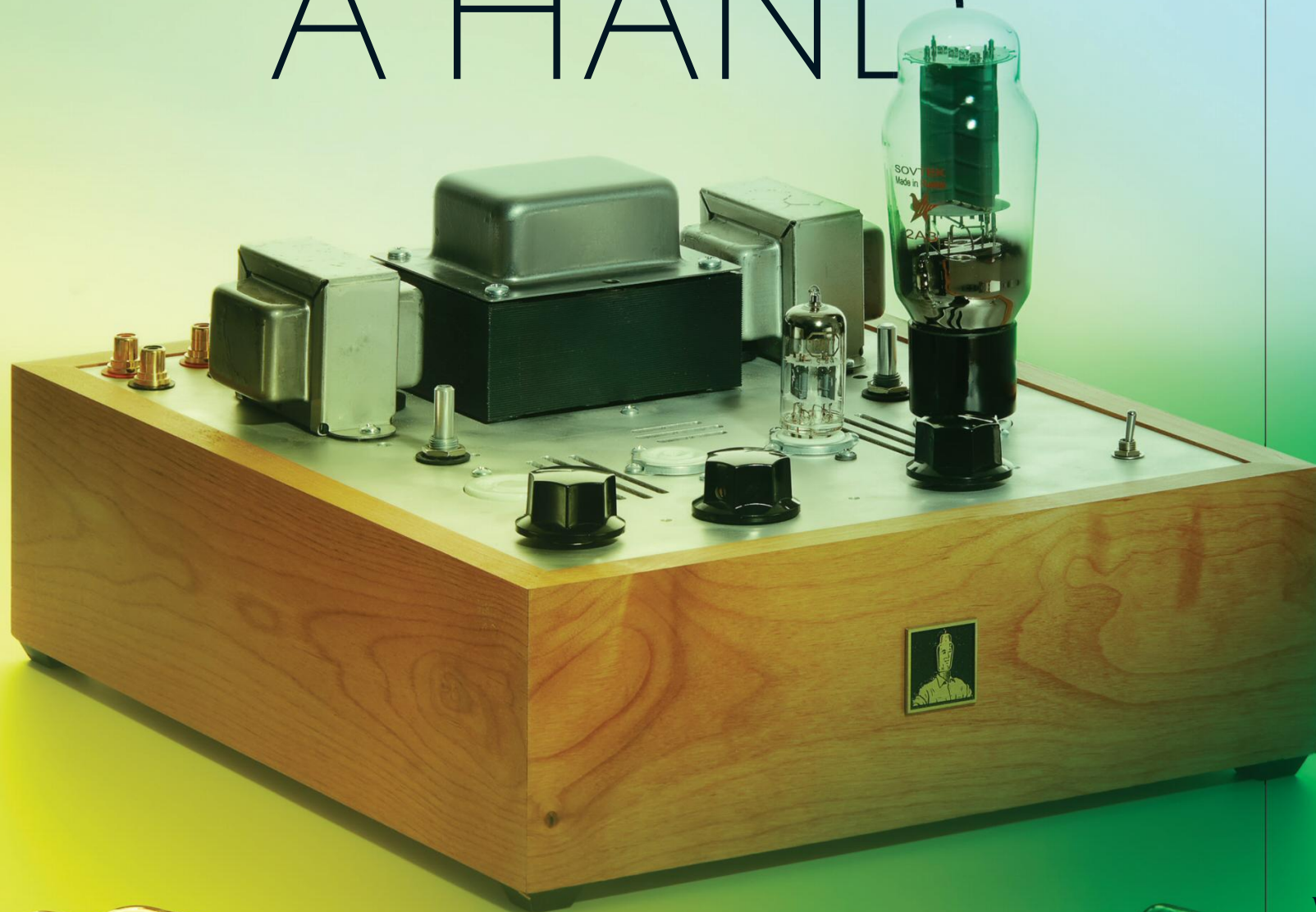


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October 26, 2020

Edited by
James Gaddy

Businessweek.com

Brad Breedlove never considered himself an audiophile. The project manager for an Indianapolis-area industrial piping company has been collecting vinyl for about five years now, and the records in frequent rotation on his midrange Audio-Technica turntable include the well-worn now-classics that belonged to his parents when he was growing up.

It's a good stereo system—but not obsessively so—that includes SVS Ultra Bookshelf speakers and an SVS SB 4000 subwoofer powered by a Schiit Vidar amp.

In September, however, Breedlove took a step into the deeper waters of the sonically serious and ordered a \$369 Reduction 1.1 phono preamplifier from Bottlehead, an audio kit maker in Poulsbo, Wash., across Puget Sound from Seattle. When it arrived, the box contained slabs of unfinished alder wood, carefully packed circuit boards, vacuum tubes, and bags full of capacitors and resistors. Before he could turn on his preamp, he would have to put it together.

In the golden age of hi-fi in the 1950s and '60s, building your own stereo equipment was almost as common as buying it. Entire magazines dedicated to the craft were full of black-and-white halftone depictions of Brylcreemed dads hunched over disemboweled sound systems from companies such as Heathkit and Dynaco, soldering irons in hand. These days it's often the warm glow of vacuum tubes on Instagram—and a surfeit of time—that draws in people.

Breedlove had some experience framing houses and building decks, but this was his first electronics project. He borrowed a soldering iron from his brother, watched a few YouTube videos, and “just kind of figured it out,” he says. The project took about eight hours spread over two afternoons. “The instructions were easy to follow,” he says, “and the first time I fired it up, it worked.”

He joins a growing number of enthusiasts who are building their inaugural system this year. Bottlehead's founder, Dan Schmalte, saw a surge in orders that started in the spring, coinciding with lockdown measures to combat Covid-19. “It was definitely a lot of first-timers,” he says. “It was guys who were saying, ‘Man, I’ve been thinking about this for three years, and here’s the opportunity.’ Of course, what they weren’t saying was ‘I also got that stimulus check, which is just about exactly what this kit costs.’ We saw right when this check started hitting, it was going into our bank.”

At Ottawa-based ANK, which specializes in high-end digital-to-analog converters (DACs), director Brian Smith had a similar experience. “In the summers we typically slow

down on sales because people are not really thinking about projects, but this year, it just kept climbing,” he says.

That surge was reflected in the audio industry as a whole. “While sales in tech over the past six months have been dominated by productivity-focused products like PCs,” says Ben Arnold, an analyst with NPD Group Inc., “we’ve also seen growth in consumers’ investment in entertainment, of which audio is included.” U.S. sales in the audio category from March through August totaled \$5.62 billion, Arnold says, with “11% growth during what is normally a pretty sleepy sales time.”

Even if build-your-own audiophile gear is a niche within a niche—Bottlehead sells a few thousand kits a year—it's a decent-size one, says Jason Donald, who founded DIYAudio in 1999. The site's forums have more than a half-million members, he says, who contribute about a thousand posts a day. Much of the conversation revolves around tips for building and modifying gear bought from a related online store Donald began in 2009.

Components and kits can range from the \$1,950 Elekit TU-8600S 300B amp, suited to builders with a few projects under their belt, to a \$327 Amp Camp one, geared for novices and originally designed in 2012 by Nelson Pass, an industry guru. The most recent allotment sold out quickly, and orders taken now won't be fulfilled until January.

Pete Raho of Gowanus Audio in Brooklyn, N.Y., has been teaching the DIY-curious to build Overnight Sensations speakers for the past two years. Now that in-person workshops are few and far between, he's rolling out a new strategy: For \$565 he'll send all of the parts to build a pair of those bookshelf speakers. Included in the price is a loaner box of tools, with a return shipping label. (You can knock \$20 off if you have everything you need.) Also included are 90 minutes of live Zoom or FaceTime instruction for tasks such as soldering the crossovers or applying veneer.

Clear directions and customer service are, arguably, more important for a happy outcome than the actual hardware. ANK recently hired a documentation specialist to improve the steps for its kits. “The manuals have gotten so good over the last couple of years that we're at a point now where I just don't hear from people anymore,” Smith says.

Build times can range from a few hours to a few days, depending on the project's complexity and the builder's skill. Bottlehead's forums are a source of support from both fellow builders and their products' designers. And if all else fails, the company will soon bring back a repair service that will “do what is needed to make it function to

“IT'S HUMAN SCALE. IT REALLY PUTS
A SMILE ON YOUR FACE AND LIGHTS YOU UP”

A KIT FOR EVERY HIT



ELEKIT TU-8600S

Few amplifier designs offer a more immediate living, breathing, in-the-room-with-the-artist experience of a recording than a so-called single-ended, 300B tube amp. *Stereophile* magazine says the predecessor of Elekit's TU-8600S "should cost \$20,000 but will cost you only about \$2,000 because you've assembled it yourself." The only caveats: This isn't a beginner's project, and the tubes are sold separately. \$1,950; diyaudiostore.com



ANK DAC 5.1 SIGNATURE

The Canadian company's kits are ranked in difficulty from level 1 (beginner) to level 5, like the DAC 5.1, which would take an experienced builder one or two weeks working at a comfortable pace. All of ANK's DACs, however, use "resistor ladder" architecture, which creates the most accurate possible translation of a digital audio file's data stream into the analog signal your amp and speakers need. From \$5,000; ankaudiokits.com



TRINITY TRITON

Inspired in part by the minuscule Fender Champ amplifier, which was supposedly used by Eric Clapton on *Layla*, this portable amp is as suited to harmonica as it is to guitar. Its simple design makes it an ideal first project, but the TV-front-style, lacquered, tweed-covered combo cabinet and 8-inch hemp cone speaker look, and sound, like something you've had around forever. \$828 for kit, speaker, and cabinet; trinityamps.com



AMP CAMP AMP

Originally designed for participants at Amp Camp, an annual DIY audio gathering in San Francisco, this ingenious piece of gear is known to perform far beyond what one would expect, given its price and power. It's designed to be completed in a single day and has 8 watts per channel when run in stereo and 15 watts as a monoblock, which is enough for a pair of high-efficiency speakers. \$327; diyaudiostore.com

stock specifications." ANK, where the initial outlay is often considerably higher, will do it for free.

You could always let someone else do the building. ANK's L5 DAC 5.1 Signature costs \$5,000 in kit form but can be bought fully assembled for \$6,050. Independent builders also hawk completed kits on eBay and Etsy, where Bottlehead's bestseller, the \$430 Crack headphone amp (with the Speedball upgrade), can be purchased for \$710, no assembly required.

Of course, having someone else do the building would be to completely miss the point, Raho says. "We're so devoid of authentic experiences. We're going in that direction—it's not getting any better," he says. "But I can take apart a tube amp and figure out how it works. I can take apart speakers and figure out how they work. It's human scale. It really puts a smile on your face and lights you up. You cannot get that from a little Jambox or whatever."

That's not to say that your commitment of money, sweat, and soldering is the only reason to love a piece of home-built audio gear. Much of it sounds genuinely great. Steve Guttenberg, a writer and stalwart of the audiophile community with a substantial YouTube following, recently tested the Amp Camp amp and noted that "you don't buy this amp if you're a measurement geek"—a persnickety class of audiophile who quantifies every aspect of a piece of equipment's ability to accurately reproduce a sound. But, he says, it's "definitely cut from the same sonic cloth" as Pass's other

revered designs, such as the \$4,000 First Watt J2 amplifier. Guttenberg has also described Bottlehead's Crack headphone amp as something that "sounds like it's five times the price."

One difference between the heyday of kit stereos and today is that back then, even Harman Kardon, Fisher, McIntosh, and other big-name manufacturers offered DIY options alongside finished pieces. The current surge of interest is causing at least one of those companies to consider reentering the market.

"We're taking a serious look at it now," says Charlie Randall, chief executive officer of McIntosh Laboratory Inc. Discussions are ongoing about how complex a project its kit would be. "We would have to supply the circuit boards and then let the people basically do the mechanical assembly and wire connection," he says. "That's what we're leaning toward."

If there's uncertainty about how difficult it is to make the kit, there's little doubt about the enthusiasm an audio-kit release from the company would create. Randall says that when he sent out an image of the original 1960 advertisement for the company's first (and only) foray into DIY audio, the Mac-Kit 30 tube amplifier, to a group of 25 of McIntosh's longtime dealers, he was deluged with responses of "You gotta do it!" His new caption for the vintage ad? "Back by popular demand!" **B**

Hot Off the Presses

The newest startups in music are banking on analog technology. *By Devin Leonard*

Colorful vinyl
from Burlington
Record Plant

Federico Casanova was booking rock shows in Philadelphia a few years ago when he noticed the tendency of bands to play songs that were a year or two old instead of newer fare. The musicians told him it was because they needed to sell their records: Fans preferred to buy them on vinyl, but it could take a year to get a new release pressed and shrink-wrapped in the retro format.

So Casanova, who's now 28, set out to start his own record-pressing plant. In January he and two partners opened Softwax Record Pressing. It was intended to serve local acts, but the news spread quickly, and now he's fielding requests from bands in New York and Pittsburgh, too. "I'm getting emails every day," Casanova says. "People say, 'Yo, we just found out about you! Let me put an order in right now!'"

Even in the age of Spotify, vinyl sales are soaring in the U.S. From January to June of this year, they surpassed those of CDs for the first time since 1986, reaching \$232 million, according to the Recording Industry Association of America. The surge has led to a rebirth of the pressing industry, which the digital revolution had crushed.

In the heyday of vinyl, labels owned and operated hundreds of pressing plants—after all, a Led Zeppelin record could ship a million copies the first week. With the advent of CDs, which were cheaper to make and retailed for more, record companies junked their machines. By 2011 there were 13 plants left in the U.S., says Steve Sheldon, the former president of Los Angeles's Rainbo Records, one of the few survivors at the time.

Vinyl's upswing has lured new players to the industry. Many are small, two-press operations catering to independent labels, but that's enough for them to thrive. Dustin Blocker, co-owner of 6-year-old Hand Drawn Pressing in Addison, Texas, and a board member of the recently formed Vinyl Record Manufacturers Association of North America, says the number

of plants has grown to more than 25. "We're running 16 hours a day, six days a week," he says, "We're booked through February."

Initially the biggest challenge was finding pressing machines, most of which had been sold for scrap. Justin Crowther, owner of 6-year-old Burlington Record Plant in Vermont, says he paid more than \$30,000 sight unseen for a decades-old record stamper once used in a Warner Bros. facility in Germany. "It had been out of service for 30 years," he says. "It was all in pieces." With the help of a local engineer, Crowther got it running and built a replica from scratch so he could have two. Since then the plant has been operating nonstop, churning out wax for the likes of Wilco's Jeff Tweedy and underground rap icon MF Doom. "We're doing 1,500 to 2,000 records a week," he says.

Three entrepreneurs in Toronto saw another opportunity and in 2015 founded Viryl Technologies, a startup that makes pressing machines. The company says it's sold almost 100 of its signature WarmTones worldwide.

The timing was perfect for some. Sean Rutkowski, vice president of Independent Record Pressing in Bordentown, N.J., a 5-year-old operation, says his company started out using six Hamilton machines almost 50 years old. It's since replaced them with WarmTones. "I liken it to a new car vs. an old car," he says. "A '70s Camaro can run really well. You're just constantly putting money into it."

In an industry steeped in tradition, some operators remain convinced that older is better. Softwax's Casanova began with a rebuilt \$160,000 SMT machine, a workhorse from the days when the Bee Gees ruled the charts, but recently paid \$80,000 to augment it with one of Independent's old Hamiltons. "It's beautiful," he says, running his hands over it as if it were the hood of a muscle car. "It's the same as when it was built in the '70s." **E**





Vocal Distancing

The maestros of classical music now depend on the camera lens to translate their magic. *By James Tarmy*

The Metropolitan Opera stages more than 200 performances and hosts almost 800,000 visitors every season at its cavernous building in New York. But when the curtain fell on its March 11 production of *Così Fan Tutti* ahead of the city's coronavirus lockdown, history recorded it as the company's last of 2020.

Like most everyone else, the Met began hosting virtual events: On April 25 the At-Home Gala featured 40 opera stars around the world singing into their laptops over Skype. Despite poor audio quality, the performance raised \$3 million. Fresh from that success, the company began boosting production values and hired audio-visual professionals to record a series called Met Stars Live in Concert.

The Met has been streaming its operas since 2006 with a Live in HD program, but Met Stars Live leaves the acoustically rigorous confines of the opera house to enter uncharted territory—which is how tenor Roberto Alagna and soprano Aleksandra Kurzak found themselves standing on a cliff in Eze, a hillside village on the French Riviera, singing *Vogliatemi Bene*

from Puccini's *Madama Butterfly*. Instead of the Met's famous cinematic production by Anthony Minghella, viewers at home were treated to the lawn of the Château de la Chèvre d'Or, a five-star hotel overlooking the Mediterranean.

And that, in a nutshell, is the state of "live" music today. With few exceptions, the closest that many people will get to seeing and hearing a concert is through a computer or TV, and the closest performers will come to an audience is through a camera lens. In late September the Met announced it had canceled the rest of its schedule until the fall 2021 season, and as Covid-19 cases rise in Europe and the U.S., live music will be mediated by a digital connection for the foreseeable future.

The logistical hurdles of re-creating live sound vary from location to location. The Berlin Philharmonic has been recording performances for its website's Digital Concert Hall for 12 years. Players are now seated a meter and a half apart onstage for social distancing, but otherwise nothing has changed in the way performances are captured. "One of the secrets to make a live recording as interesting, and as near to the live performance, is the hall itself," says Olaf Maninger, a cellist with the orchestra. Berlin's concert hall, he says, has "the best microphones," along with cameras that record in 4K HD. Currently the Philharmonic's in-person audience is limited to 670 people; as many as 15,000 have streamed it live.

In other instances, such as Alagna and Kurzak's cliffside performance, audio technicians must compromise—not only because sound quality is harder but also because re-creating the immediacy of a live performance takes priority over its aural authenticity. Unlike a recording, the visuals in a live-stream do the heavy lifting, says Jakob Händel, an audio producer who worked on the concert in Eze. High-quality recordings don't translate on low-quality computer speakers, anyway. If you're listening on an iPad, he says, "everything is clear and loud and obvious," as opposed to a subtler approach that matches the veracity of live sound.

It's not only technicians who have to adjust to remote concerts. "It's most different for the performers," says David Frost, a producer who's won 16 Grammys and produced a Met Stars Live performance featuring Renée Fleming. "They need to somehow feel that the audience is there, because that's so important to them," he says. "This is all now happening in the mind of the performer."

Similarly, with Covid restrictions separating musicians who are normally seated side by side, "the distances onstage are extreme," Maninger says. "If you're now sitting with the second violins, and the horns are 20 meters away, then it's hard for the orchestra and the conductor to get everything together to make a fantastic interpretation" of the music.

Despite the challenges, music via livestream carries a surprising potency. There are no cuts and no edits, and it has the sensation that there's no filler. It's just a performer, there on your screen, singing some of the most affecting music ever written. "Think about goosebumps," Händel says. "That's what we want to create with our audio—it's the most pleasurable feeling you can have when you listen to music." **B**

High-Def On the Shelf

A new class of home speaker streams your tunes better than ever before. We tested six of the best

By Robert Blau

I once bought a pair of speakers in a dimly lit parking lot in Kalamazoo, Mich., from a man who went by the name of Mango. They were from the Netherlands and weighed about 100 pounds apiece. I had to pay someone on the street to help me haul them into my living room in Chicago. When my wife saw them, she said, “They look like baby coffins.”

“They’re aubergine,” I protested. Eventually, they were buried.

Those imposing Kharmas were replaced by squat, square boxes crafted in a Stockholm garage, the latest acquisition in a modest audiophile habit that began with a Panasonic cassette player hissing the sibilant notes of the Beatles’ *Magical Mystery Tour*. I wired it into a short-wave radio speaker, which improved the sound incrementally. It was the impulse that counted.

Maybe it was the pandemic, with its on-again, off-again quarantine, or the stale, unvisited air, but my audiophile revival began with a simple goal: to be able to blow the windows out of my 113-year-old Baltimore house. I had recently heard Jennifer Hudson belt out the high notes of *Amazing Grace*, and I swear her voice moved the wine glasses on the table. That’s the kind of powerful, being-there experience I was after.

I originally set my sights on some refined, time-honored hardware. A hand-built tube amplifier. Too-tall speakers. Maybe a turntable. All connected by a snake pit of cables.

But a new generation of technology beckoned: speakers that fit on your bookshelves and still combine amplification, digital processing, streaming capability, and even room correction to produce high-fidelity sound. And some of them claim they can do it all wirelessly. This convergence of relatively small, powerful components held the promise of a plug-and-play system that performed as well as or better than a stack of esoteric equipment.

Above all, these “active” speakers offer a simplicity unimagined and, in many ways, unwanted by hi-fi aficionados, for whom endless tweaking, upgrading, and equipment swapping is the main appeal of the hobby.

But the end of fussing sounded good to me. I’d rely on easily available digital sources, whether a computer, phone, or streamer, piggybacking when possible on Wi-Fi or Bluetooth—not the most rarefied audiophile formula.

Even then, it wasn’t so simple. Although no user manual offered the advice, it should have been spelled out: If you’re going to take this route, get your internet house in order, even if that means, as it did in my case, spending hours on the phone with customer service agents in California and the Philippines, installing new routers and mesh systems, and requiring two home visits from Covid-ready cable technicians. Then, and only then, should you press play.



KEF LS50 WIRELESS II

Setup time: 10 minutes

Ideal location: Near a living room TV

Looks like: Futuristic roulette tables

Weight equivalent: A ripe pumpkin

► The latest offering in KEF’s active speaker line sets a high standard for hassle-free but sophisticated listening, and the revised user interface is a giant leap from the interlocking and buggy apps that controlled earlier models. These 12-inch rear-ported speakers are driven by 380 watts apiece and show off a broad, enveloping soundstage that projects music up, down, and around with impressive finesse and muscle across the frequency spectrum. During Quantic’s *Cumbia Sobre el Mar*, the female vocals were positioned far to the left of the speaker, and though the cowbell and clarinet were a bit recessed, the overall sound was holographic and hypnotic. That was true for a wide range of genres, and especially electronic tracks such as Balkan Beat Box’s *Habibi Min Zaman*. Ultrahigh-resolution playback is available when the speakers, otherwise wireless, are tethered to each other with a supplied cable. And they sound great when connected to the TV. \$2,499; us.kef.com



BLUESOUND PULSE FLEX 2i

Setup time: Less than 15 minutes

Ideal location: Kitchen

Looks like: A tissue box cover

Weight equivalent: A half-gallon of milk

► This small but well-built speaker embodies the convenience of the wireless genre,

producing alluring, high-resolution sound in a plain, portable cabinet. They're at home on a kitchen shelf while you're listening to NPR—or Kendrick Lamar—in the background. When I put them to the test with Aimee Mann's *Save Me*, the accordion that lifts the track was a bit subdued, and Mann's voice lacked its dizzying dips and peaks. Nor did it take long for Bob Marley and the Wailers to tax the bass. But overall, they were capable of engaging all of the senses when desired and consistently pleasant, as though a satin sheet had been draped over the notes. The BluOS app, with its clear, intuitive layout and satisfying tactile feedback, gives easy access to major streaming subscriptions. It was so user-friendly I ended up running it on my iPhone, with Bluesound's Node2i streamer, to control several of the other speakers I tested. \$299 each; bluesound.com



DEVIALET PHANTOM REACTOR

Setup time: Less than 20 minutes

Ideal location: Home office

Looks like: A cannonball

Weight equivalent: A large cantaloupe

► It's one thing to say that 900 watts are packed into a speaker the size of a melon, but yet another to feel them. And mostly they're conveyed in the bottom end, where unexpectedly the tanklike Phantom Reactors make their mark with authority. In stereo, the mismatch of size and sound is startling at first—it's rare to see such a small piece of equipment capable of convincingly filling a large room. Bass was almost always effortless and distortion-free. The screeching prison gates on Chris Stapleton's *Death Row* played with ominous power, and Dan Zanes's *Wonder Wheel* conjured the irrepressible spirit of New York City. They felt a bit hemmed-in on Little Feat's live performance of *Willin'*, and Wynton Marsalis's trumpet on *Blood on the Fields* forfeited some presence and definition. But think of these as powerful, wireless boomboxes, achieving a reliable and satisfyingly uniform high-wattage sound. \$1,350 each; devialet.com



BOWERS & WILKINS FORMATION DUO

Setup time: 40 minutes, including stands

Ideal location: A medium-size room

Looks like: Postmodern periscopes

Weight equivalent: A case of seltzer

► I was floored by the chest-stirring bass these relatively small speakers produce from their swept-back cabinets and distinctive tweeters. They weren't the best at everything, including resolution or power, but what the speakers lacked in detail, they made up for with full-throttle, sensory involvement. Once I addressed a few internet-related hiccups, the Bowers & Wilkins Home app worked flawlessly. During the Grateful Dead's live recording of *Eyes of the World*, the speakers, in sync with the audiophile ideal, vanished. This open, airy soundscape held true on the strumming guitars of the Velvet Underground and on David Bowie's *Station to Station*, its virtual train chugging from one side of the room to the other. \$3,999; bowerswilkins.com



Kii THREE

Setup time: A few hours, including stands

Ideal location: Medium to large rooms

Looks like: A PC tower bound for MoMA

Weight equivalent: Old black-and-white TV

► These industrial-chic speakers are outfitted with six drivers—one on each side, two in the rear, and a midrange and tweeter on its face. Each also has a dedicated 250-watt amp and its own digital-to-analog

converter. The speakers can be tethered to a controller that serves as a preamp and volume control. The sound design and an array of adjustments allow for flexible placement in the room, resulting in breathtaking resolution and lightning-quick bass that never strains. *Calypso Minor* by Abdullah Ibrahim projected each instrument with crystalline purity. Electronic, acoustic, and orchestral pieces were equally sharp, detailed, and palpable. \$14,995; kiiaudio.com



DUTCH & DUTCH 8C

Setup time: Several hours, including stands

Ideal locations: Living rooms, dance clubs

Looks like: A superbuff shelf speaker

Weight equivalent: An armchair

► The most exhilarating, and exacting, of the bunch. Connecting a streamer required an inexpensive but discontinued adapter, plus a set of new cables. Programming distance to the walls and volume levels meant temporarily relocating my modem, which I had to cable into each speaker. Despite their modest 10-by-15-inch footprint, they weigh about 57 pounds apiece. But when I finally switched them on, what emerged was one of the most soaring home musical experiences I've had in a long time. Max Cooper's *Emergence* shook the walls. Beck's *The Golden Age* was layered with fresh detail. Percussive waves and flamenco-like riffs on *Duende* by Bozzio Levin Stevens etched a three-dimensional wall of sound. The 8cs benefit from being close to a wall, which enhances the 500-watt-powered woofers. The user interface is a work in progress, and room correction requires feeding a software program dozens of microphone measurements. But even unedited, these visceral, concussive monitors blasted the air and tested my floorboards and shutters. They moved everything—but mostly me. \$12,500; dutchdutch.com



Souvenirs In Song

You don't always need
expensive gear to conjure an
unforgettable musical memory
By Jennifer Flowers

I was watching zebras drink from a watering hole in the Rwandan wilderness when I turned to my safari guide and asked him to play me his favorite song.

Wherever I go, I collect “song souvenirs.” On one level, it’s an easy way to find common ground with people from other places, but the practice also never fails to firmly embed a place in my mind. Science backs me up, too: A 2015 study published in the neurology journal *Brain* found that musical memories are so strong, they can even be preserved in patients with advanced Alzheimer’s disease.

On this day, though, I also wanted to lighten the mood. Between sightings in Akagera National Park, my guide, Johnston Mbanzamihiho, had been telling me about his time fighting in the Rwandan Patriotic Front against the perpetrators of the country’s 1994 genocide.

He opened his phone and cued up *Ntawamusimbura*, a sentimental track sung in Kinyarwanda by the local singer Meddy. It has a lightly autotuned but vulnerable Ed Sheeran-like vibe; the title means “No one can replace her,” Mbanzamihiho translated. As he closed his eyes and swayed with his arms outstretched, I joined him, knowing that every time I heard this song later, it would transport me straight back to this moment on the savanna.

Music has helped me break barriers and build relationships abroad since childhood. As an expat in Singapore, I’d listen to

my Scandinavian friends play Bo Kaspers Orkester’s Swedish smooth jazz on CD players in the school cafeteria, imitating lyrics I barely understood. Studying abroad in Italy, I became enamored with Jovanotti, a tattooed pop sensation who has Bruce Springsteen levels of success in his country but barely registers in America. I’ve danced with a Tokyo-based friend to Japanese indie darling Cocco (imagine Fiona Apple with a rock twist) and bonded with a Brazilian in São Paulo over the soulful and raspy Maria Gadú.

These non-Anglophone tracks can be hard to find outside their home countries. For decades, the deep-pocketed music industries of the U.S. and the U.K. have spread their cultural influence by monopolizing marketing, concert tours, distribution, and airtime.

Jason King, director of global studies at NYU’s Clive Davis Institute of Recorded Music, calls this a kind of “musical imperialism.” But that’s begun to change in recent years, especially as our pathways to music discovery have become less homogenized, he says. “People are exposed to more music these days than ever before through apps like Instagram or TikTok.”

In September, Billboard changed its format and rolled out two Global Charts—one of which excludes U.S. hits entirely—because many of the biggest pop stars are now cropping up outside the States. These new charts base their lists exclusively on song sales and streams, not radio play. Also this year, BTS became the first Korean group to reach No. 1 on Billboard’s flagship Hot 100 chart, and Nigeria’s Afrobeat king, Burna Boy, collaborated with Beyoncé on *Black Is King*, catapulting him to global fame.

Still, it took a plane ride to France (and the help of Shazam) for me to discover Angèle in a Paris boutique in 2019. The young Belgian artist has swept the Francophone charts with her sensual, Billie Eilish-like voice. I fell hard for her feminist song *Balance Ton Quoi*, a bold and cheeky affirmation of France’s version of #MeToo, known as #balancetonporc, or “rat out your pig.”

Later that trip, at the chef’s counter of the ebullient Israeli restaurant Balagan, my attention pingponged from an herbaceous *fattoush* salad to the Yael Kraus bossa nova-style covers of popular Hebrew songs playing over the speakers. The whole internationalness of it all was intoxicating: A Tel Aviv-born, Brooklyn, N.Y.-based artist with a Brazilian sound was playing in a French restaurant serving Middle Eastern food.

The best song souvenirs serve as a kind of cultural exchange, spontaneously acquired and reliant on mutual curiosity with locals. At least, that’s what happened with my Rwandan safari guide. After Meddy’s ballad wrapped, he began scrolling through his phone again, looking for another song.

His pick? *Africa*, by Toto. As soon as those all-too-recognizable opening notes began, we both started laughing. Never mind that the 1982 classic paints the entire continent with a White gaze, or that Mount Kilimanjaro is too far from the Serengeti to rise above it. Mbanzamihiho was returning the favor with music familiar to my American ears, and, in the process, guaranteed I’ll never hear it the same way again. **B**

Loud and Clear

Optoma's short-throw projector brings the noise already built in. *Photograph by Janelle Jones*



↑
A 40-watt sound bar inside has two full-range aluminum drivers and two woofers

Unless you're heading to the drive-in theater, it's abundantly clear that, if you want to see a movie on a big screen in the next few months, you'll probably have to do it yourself. The simplest solution is an all-in-one ultrashort-throw projector. Rather than being mounted across the room on the ceiling, as most standard models require, the \$3,699 CinemaX P1 (pictured)

and the new \$3,299 CinemaX P2 from Taiwan-based Optoma Corp. can sit 7 inches from the wall and cast a clear image that measures over 7 feet diagonally from corner to corner. Both max out at 120 inches. The difference maker is the P1's integrated 40-watt NuForce sound bar, which renders dialogue clearly while packing enough volume into every explosion to rattle the windows—but not the picture.

THE COMPETITION

- The Sony VPL-VZ1000ES remains, more than three years after its release, the only ultrashort-throw projector to offer native 4K resolution. At \$15,000, that level of image quality doesn't come cheap, and it doesn't come with speakers, either.
- Samsung Electronics Co.'s new Premiere line of ultrashort-throw projectors includes the \$6,500 LSP9T

model, which can beam a 130-inch image and comes with a built-in 40-watt, 4.2-channel audio system.

- For those with tight spaces and tighter budgets, the \$2,800 VAVA VA-LT002 can project a 100-inch image while only 7 inches away from a wall. An integrated Harman Kardon sound bar won't provide surround sound, but with 60 watts of power, it performs admirably.

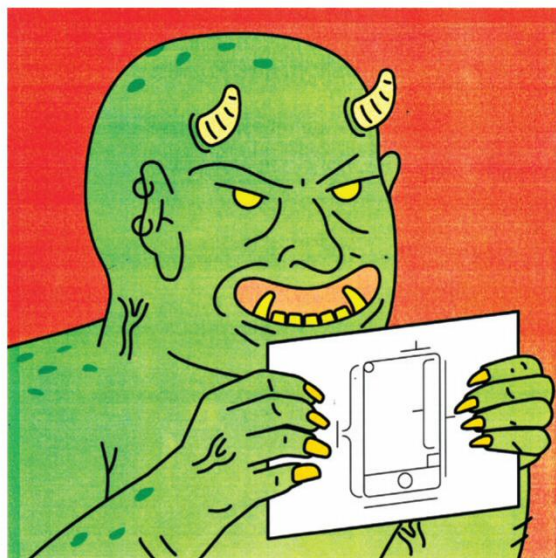
THE CASE

Built-in speakers are not unique for projectors, but ultrashort-throws are somewhat better suited to serve as sound systems because you set them up against the wall in front of the viewer, rather than behind or above. Optoma has the most complete package, with charcoal gray fabric and a minimalist body that looks good enough

to prominently display. Plus, the 3,000-lumen light source and 1,500,000-to-1 contrast ratio mean your films will be projected with cinemaworthy levels of detail, even if your screening room is not a perfectly blacked-out home theater. \$3,699; optoma.com

Apple Pushes Back Against Patent Trolls

By Joe Nocera



Seven Networks LLC v. Apple Inc.

Case #2:19-cv-00115
U.S. District Court

● Speaking of Fortress: Theranos Inc. (yes, Theranos) had valid patents that Fortress bought in 2018. This year one of its trolls sued BioFire Diagnostics LLC. But BioFire was about to release three Covid-19 tests featuring the technology. Oops! Fortress now lets companies use the patents in Covid tests for free.

● “Efficient Infringement”: Because of a 2006 Supreme Court ruling, small companies rarely get infringing products off the market. Big companies such as Google—and Apple—routinely infringe on patents because the worst that’s likely to happen is that they’ll have to pay damages. That’s called “efficient infringement.”

1 THE ORIGIN For decades, the preferred venue for patent holders and patent trolls—entities whose main asset is their large patent portfolio—to sue a big company was the Eastern District of Texas. With good reason. Apple Inc., for instance, was hit with a \$439 million judgment in one case brought by VirnetX Holding Corp., and it’s appealing a \$503 million verdict in a second case. So it was only natural, when Seven Networks LLC wanted to file a patent suit against Apple in 2019, that it went straight to the Eastern District.

2 THE CASE Seven Networks alleged that every iPhone since the iPhone 4, every iteration of the Apple operation system since OS 9, and every iPad, Apple Watch, and MacBook violated a dozen or more of its patents. It also noted that Apple sold these products in the Eastern District. This mattered because in 2017 the Supreme Court had ruled that patent holders had to file their suit in a place where the defendant conducted business.

3 THE COUNTERSUIT Seven Networks is a unit of the giant investment firm Fortress Investment Group LLC, which controls other “patent assertion entities.” Seven months after being sued by Seven Networks, Apple joined forces with Intel Corp. to file a lawsuit in California against Fortress. Noting that one of Fortress’s trolls had filed more than 130 infringement lawsuits in the space of two years, Intel and Apple alleged that Fortress was funding an “anticompetitive patent aggregation scheme.” Fortress staunchly denies the charges.

4 THE SETTLEMENT Apple closed the two stores it had in the Eastern District. That meant it would be much harder to sue Apple for patent infringement there. Then, earlier this month, it settled with Seven Networks. But that’s hardly the end of the litigation. Apple is now banking on its California lawsuit against Fortress to push back against patent trolling. It will be an uphill battle, as Apple and Intel are using novel legal theories, and the U.S. Department of Justice is siding with Fortress. But at least it won’t be decided in the Eastern District of Texas. **B** —Nocera is a columnist for Bloomberg Opinion



YES WE CAN TRADE

Ready to trade the US election?

Discover our analyses by candidate and leverage ideal trading conditions with the Swiss leader in online banking.

swissquote.com/us-election

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