

THE WALL STREET JOURNAL.

DOW JONES | News Corp *****

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What's News

Business & Finance

Amazon said it is raising the minimum wage it pays all U.S. employees to \$15 an hour, firing back at criticism over its compensation for warehouse workers. **A1**

◆ **The Fed is developing** new rules that would change how it defines a big bank and potentially lower regulatory costs for a broader number of institutions. **A2**

◆ **The central bank's policy statements have pruned language on rate guidance during Powell's tenure.** **A2**

◆ **Worries about GE's cash flow have led investors to fear the company will need to cut its dividend again.** **B1**

◆ **The Dow closed** at a record 26773.94, rising 0.5% as major indexes in other parts of the world struggled. **B13**

◆ **China-based Tencent's music-streaming service filed to go public in the U.S.** **B1**

◆ **The FDA conducted** a surprise inspection of Juul Labs' headquarters last week, seizing documents. **B1**

◆ **Hedge funds** in line to take control of Toys "R" Us intend to revive the business behind the brand. **B1**

◆ **Several big auto makers reported** steep declines in September U.S. sales. **B2**

◆ **Tesla met its third-quarter production goal for the Model 3** but struggled to get the cars to its customers. **B2**

◆ **A group led by Shell is** pressing ahead with a major Canadian LNG project. **B3**

◆ **PepsiCo's beverage sales** in its home market ticked up in the latest quarter. **B3**

World-Wide

◆ **Sen. McConnell pressed** to hold a vote on Kavanaugh as soon as possible, with the FBI expected to wrap up its probe into allegations against the Supreme Court nominee as soon as Wednesday. **A1**

◆ **Trump personally directed** an effort in February to stop Stormy Daniels from publicly describing an alleged sexual encounter with him, people familiar with the events said. **A1**

◆ **Two letters that arrived** at a Pentagon distribution center tested positive for the poison ricin, officials said. **A3**

◆ **North Korea is signaling** a tougher negotiating stance toward the U.S. ahead of a potential second summit. **A8**

◆ **Boris Johnson laid out** a challenge to May, touting his credentials to become the next U.K. prime minister amid rifts over May's Brexit plan. **A9**

◆ **The death toll from the** earthquake and tsunami that struck Indonesia's Sulawesi island has exceeded 1,200, with many more feared dead. **A8**

◆ **France froze assets of** Iran's intelligence agency and two agents in retaliation for an alleged Iranian terror plot on French soil. **A9**

◆ **Iraq's newly elected** president nominated a new prime minister after a compromise between rival Shiite factions. **A18**

◆ **The Nobel in physics** was awarded to an international trio of laser pioneers. **A3**

◆ **Four men who attended** the 2017 "Unite the Right" rally in Charlottesville, Va., were arrested on charges of breaking federal laws against rioting. **A3**

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Mail for Pentagon Triggers a Quarantine After Ricin Is Detected



SEALED SECURITY: Defense Department mail staff wear protective suits on Tuesday to screen mail at a distribution center for the Pentagon, where two letters tested positive for the poison ricin. The FBI said it would conduct further testing of the letters. **A3**

Kavanaugh Probe Nears Its End

WASHINGTON—Senate Majority Leader Mitch McConnell pressed Tuesday to hold a vote as soon as possible on

By Kristina Peterson,
Natalie Andrews
and Siobhan Hughes

Judge Brett Kavanaugh, with the FBI expected to wrap up its probe into allegations of sexual assault and misconduct by the Supreme Court nominee as soon as Wednesday.

Mr. McConnell was vague

on the timing of his next steps. While he made clear the FBI's findings wouldn't derail plans for a vote, he retained flexibility to address the concerns of three undecided GOP senators—Jeff Flake of Arizona, Susan Collins of Maine and Lisa Murkowski of Alaska.

Given the GOP's thin Senate majority, Mr. McConnell would need support of two of those three lawmakers if all Democrats vote against the judge.

"What I can tell you with certainty—we'll have an FBI

report this week, and we'll have a vote this week," Mr. McConnell, a Kentucky Republican, told reporters.

At a political rally in Mississippi late Tuesday, President Trump mocked the testimony of Christine Blasey Ford, a research psychologist who alleged Judge Kavanaugh sexually assaulted her at a Maryland house party when they were teenagers. Judge Kavanaugh, now 53 years old, has categorically denied the allegation.

It was the first time the

president has aimed direct public criticism at Dr. Ford.

"How did you get home?"

Mr. Trump asked, mimicking a questioner during last week's Senate Judiciary Committee hearing. "I don't remember," Mr. Trump said in mock response of Dr. Ford.

One of Dr. Ford's lawyers, Michael Bromwich, wrote on Twitter that Mr. Trump's comments were "a vicious, vile and soulless attack."

The Senate Judiciary Com-

Amazon Boosts Hourly Wage

Retail giant will raise minimum rate to \$15, fueling competition for holiday labor

By LAURA STEVENS

Amazon.com Inc. said it is raising the minimum wage it pays all U.S. employees to \$15 an hour, firing back at criticism over its compensation for warehouse workers and stoking competition for labor in the holiday-shopping period.

The new minimum wage will kick in Nov. 1, Amazon said Tuesday, covering more than 250,000 current employees, or more than 40% of its global workforce. An additional more than 100,000 seasonal-holiday employees will be granted the higher pay.

Exactly how big a financial commitment the announcement entails is difficult to assess. Starting hourly pay varies across Amazon's warehouses, though it is generally several dollars lower than \$15. Amazon is also giving hourly workers who made \$15 or more a raise, though it didn't specify the increase. But the company is doing away with certain incentive pay and stock compensation for hourly warehouse and customer-service employees, potentially helping offset the cost to the company of the wage increase.

Amazon, which has a market value of nearly \$1 trillion and revenue last year of \$178 billion, is increasing its minimum wage to \$15 an hour.

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◆ Heard on the Street: Good reason to lift pay..... B14

President Led Push To Silence Porn Star

By JOE PALAZZOLO
AND MICHAEL ROTHFIELD

President Trump personally directed an effort in February to stop Stormy Daniels from publicly describing an alleged sexual encounter with him, people familiar with the events said.

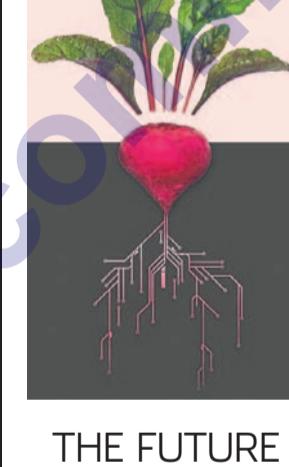
In a phone call, Mr. Trump instructed his then-lawyer Michael Cohen to seek a restraining order against the former adult-film actress, whose real name is Stephanie Clifford, through a confidential arbitration proceeding, one of the people said. Messrs. Trump and Cohen had learned shortly before that Ms. Clifford was considering giving a media interview about her alleged relationship with Mr. Trump, despite having signed an October 2016 nondisclosure agreement.

Mr. Trump told Mr. Cohen to coordinate the legal response with Eric Trump, one of the president's sons, and another outside lawyer who had represented Mr. Trump and the Trump Organization in other matters, the people said. Eric Trump, who is running the company with his elder brother in Mr. Trump's absence, then tasked a Trump Organization staff attorney in California with signing off on the arbitration paperwork, these people said.

Direct involvement of the president and his son in this year's effort to silence Ms. Clifford hasn't previously been reported. The accounts of that effort recently provided to The Wall Street Journal suggest that the president's ties to his company continued into this year and contradict public statements made at the time by the Trump Organization, the White House and Mr. Cohen.

Mr. Trump declined to answer questions Tuesday about whether he had directed his

INSIDE



THE FUTURE OF FOOD

JOURNAL REPORT, RI-10

A Hotter Planet Reprices Risk Around the World

Insurance industry is at the vanguard of evaluating a warmer future

By BRADLEY HOPE AND NICOLE FRIEDMAN

When a wildfire engulfed the Canadian oil-sands boomtown of Fort McMurray two years ago, it hit insurance company Aviva PLC out of nowhere.

The British firm had been active in Canada since 1835. Its actuaries long believed wildfire risk to homes in the area was almost nonexistent, it says. Yet flames on the town's outskirts roared across an area larger than Delaware, forcing 100,000 people to evacuate and leaving insurers with \$3 billion in damages to cover.

"That is not a type of loss we have experienced in that part of the world, ever," says Maurice Tulloch, the Toronto-based chief executive of Aviva's international insurance division. "The previous models wouldn't have envisioned it."

Aviva studied the incident and concluded

the wildfire was an example of how the earth's gradually warming temperature is changing the behavior of natural catastrophes. Aviva increased premiums in Canada as a result.

The effects of the planet's slow heating are diffuse. Predictions of the fallout are imprecise, and the drivers are debated. But faced with the prospect of a warming planet, the world of business and finance is starting to put a price on climate change.

The price of homes on the U.S.'s eastern seaboard battered by fiercer storms and higher seas is lagging behind those inland. The price of farmland is rising in North America's once-frigid reaches, partly because of bets it will become more temperate. Investors are turning fresh water into an asset, a wager in part that climate change will make it scarcer.

Insurers are at the forefront of calculating the price of climate change.

Please turn to page A10

Dandelions Ruin Your Yard but Could be the Future of Rubber

Many stamp out the weed, while its useful

cousin from Kazakhstan is hard to cultivate

By LUCY CRAYMER

Scientists have been tackling the vexing issue for decades, trying new tactics and engineering new equipment. Researchers have traveled to the high plains in Kazakhstan in pursuit. Companies and governments are spending heavily.

Their mission: Grow more dandelions.

"We wish it would grow more like a weed," said John Cardina, an agronomist at Ohio State University who came up with a specially designed seed sucker to make collecting the fluffy seeds less of a chore.

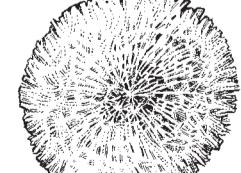
Many Americans spend time and money trying to

stamp out the persistent, yellow-flowered weed from their lawns. But businesses and academics have long been trying—and failing—to grow another type of dandelion.

Dr. Cardina is part of a team working with Goodyear Tire & Rubber Co., and Cooper Tire & Rubber Co. to turn the humble rubber dandelion plant—a cousin of the common weed—into a commercial source of rubber.

The problem isn't extracting the latex from the roots of dandelions—U.S. scientists figured that out during World War II when rubber from Asia was hard to get. Instead, the issue is getting enough dandelions.

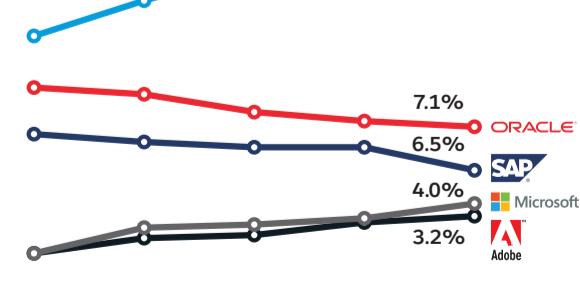
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Source: IDC, Worldwide Semiannual Software Tracker, April 2018.

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U.S. NEWS

Fed Considers Relaxing Rules for Banks

BY RYAN TRACY

WASHINGTON—The Federal Reserve is developing new rules that would change how it defines a big bank and potentially lower regulatory costs for a broader number of financial institutions.

As part of a series of rule changes under consideration, the Fed is preparing to revise asset size and other thresholds in its capital and liquidity rules, according to people familiar with the matter.

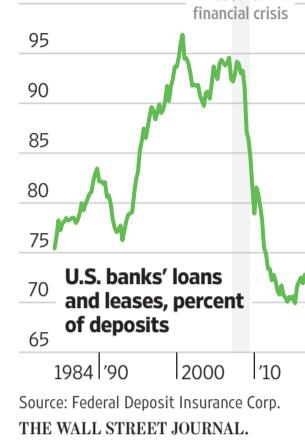
The changes could ease regulatory costs for some large U.S. banks, including Capital One Financial Corp., PNC Financial Services Group Inc. and U.S. Bancorp. It is less clear whether the changes would help gigantic businesses the Fed considers "systemically important" to the global financial system, such as Citigroup Inc. and Goldman Sachs Group Inc.

The proposed moves are part of the Trump administration's broader push to revisit bank rules it believes are overreaching. Critics of the changes say they dial back regulations intended to prevent a repeat of the 2008 financial crisis.

Likely candidates for the rule changes include the liquidity-coverage ratio, which requires banks to hold assets they can easily convert to

Hoarding Liquidity

Banks have been lending a historically low share of their deposits, though the overall value of loans has increased.



Source: Federal Deposit Insurance Corp.

THE WALL STREET JOURNAL.

Powell Says Risk Of Inflation Is Low

Federal Reserve Chairman Jerome Powell said he doesn't see evidence the labor market is at risk of overheating or of pressuring up prices.

In an address to business economists Tuesday in Boston, Mr. Powell pushed back against criticism that Fed officials' projections of sustained, very low unemployment are underestimating the prospect of inflation rising significantly above the central bank's 2% target.

The Fed raised its benchmark federal-funds rate last week to a

range between 2% and 2.25%. Officials' individual projections released after their policy meeting signaled most expected to lift rates by another percentage point through next year.

Their projections envisioned an unusually favorable set of conditions in which the unemployment rate holds below 4% over the next three years but inflation never rises much above the Fed's 2% target.

Mr. Powell conceded this outlook is "remarkably positive" and that the U.S. hasn't witnessed such a sustained spell since 1950. He nevertheless argued that these projections aren't too good to be true.

His speech suggested he

sees little urgency to accelerate the Fed's quarterly interest-rate increases or to signal a more restrictive policy path ahead.

Economists have long held that inflation rises as unemployment falls, and vice versa. The framework, known as the Phillips curve, has received greater scrutiny amid the low inflation of recent decades, but it remains popular within the Fed.

Mr. Powell's speech explained his view that the Phillips curve remains intact and the risk of surprise inflation low. "I do not see it as likely that the Phillips curve is dead, or that it will soon exact revenge" in the form of much higher inflation, he said.

The change gives the Fed an impetus to grant banks regulatory relief.

The new law separately allows the Fed to exempt banks with fewer than \$250 billion in assets from some tough rules, including annual "stress tests"—a change from the previous cutoff level of \$50 billion. It tells the Fed to take into account the size of banks as well as other "risk-related" factors.

In several of its rules, the Fed defines a big bank as one that holds more than \$250 billion in total assets or more than \$10 billion in foreign exposures on its balance sheet. Mr. Quarles has pointed out these thresholds were developed more than 10 years ago.

One regulation that relies on those thresholds is the liquidity coverage ratio, which was adopted after the 2008 financial crisis.

It requires banks to hold enough cash or easy-to-sell assets to cover a month's worth of liabilities. The idea is to prevent a repeat of 2008, when even strong banks faced collapse because they were too reliant on volatile, short-term funding.

The liquidity rule applies equally to all banks that trip either the threshold of \$250 billion in assets or \$10 billion in foreign exposures.

Central Bank Trims Text on Rate Plans

BY NICK TIMIRAO

above. Moreover, Mr. Powell expects policy to be driven by a variety of economic and financial conditions, not just by whether rates have hit neutral.

Accommodative "doesn't really say anything that's important to the way the committee is thinking about policy going forward," Mr. Powell said.

The Fed raised its benchmark federal-funds rate last week to a range between 2% and 2.25%. Officials' projections released after the meeting signaled most expected to lift rates once more this year.

That would leave the rate near the bottom of their estimates of neutral, which range from 2.5% to 3.5%.

Underscoring the lack of consensus, the Fed continues to publish the policy makers' varying estimates of economic growth, unemployment and inflation over time.

The latest changes in the statement highlight how policy could be entering a less predictable phase. When rates were unusually low, it was easier for the Fed to signal the likely rate path over time, because officials generally agreed on their upward direction.

"Now that interest rates are well away from zero and the economy is humming along, the case for strong forward guidance about future policy actions is becoming less compelling," said New York Fed President John Williams in a speech last week.

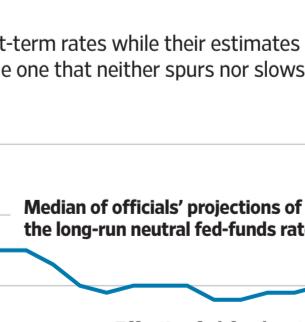
Paring forward guidance also could help Mr. Powell and his colleagues better gauge when policy is closer to neutral.

Mr. Powell said at a congressional hearing last summer he was paying close attention to bond-market signals about where neutral lies. Those signals are easier to detect if markets aren't being distorted by guesswork about the Fed's intentions. Too much forward guidance, in other words, can blur this signal.

Finding Neutral

Fed officials have been raising short-term rates while their estimates of the neutral federal-funds rate, the one that neither spurs nor slows growth, have drifted lower.

5%



Source: Federal Reserve

Red Tide Fears Shut Some Florida Beaches



BEACH PEEK: David Beyga slips under the caution tape after taking a look at a closed-off area in Palm Beach County on Tuesday.

U.S. WATCH

CRIME

Suspect Is Arrested Following Gun Theft

A suspect was arrested in one of the largest gun heists the Bureau of Alcohol, Tobacco, Firearms and Explosives has ever investigated, the agency said, while a second suspect has been identified but remains at large in the Chicago area.

Nearly 400 guns were recovered in Midlothian, Ill., a suburb of Chicago, shortly after the firearms were stolen from a United Parcel Service Inc. distribution facility in Memphis, Tenn., authorities said.

Taveyan Turnbo, 18, was arrested in connection with the theft. Roland Jackson, 24, is at large, according to the ATF, which is offering a reward of as much as \$5,000 for information regarding his whereabouts.

An attorney for Mr. Turnbo couldn't be located. The theft occurred early Sunday.

"UPS is cooperating with law enforcement and will not make further comments while their investigation is under way," a spokesman said.

—Byron Tau

RELIGION

Pope's Approval Rating Hits Low Point

Approval of Pope Francis among Roman Catholics in the U.S. has plummeted to a record low, according to a survey, as the pontiff contends with a series of

sex-abuse scandals.

The survey released Tuesday by the Pew Research Center showed 72% of American Catholics hold a favorable opinion of Pope Francis. The approval rating is the lowest of his pontificate, which began in 2013, and is down 12 points from the start of the year. His unfavorable rating, meanwhile, has more than doubled since January, to 20% from 9%.

The church has been hit recently by a series of sex-abuse scandals. A grand-jury report in August detailed the abuse of more than 1,000 children by clergy in Pennsylvania over more than a half-century.

—Ian Lovett

FEMA

Cellphones to Get Presidential Alert

Coming Wednesday to most American cellphones: a presidential text alert.

The Federal Emergency Management Agency plans its first test of a system for sending nationwide wireless messages to U.S. cellphones and some smartwatches. The drill is scheduled to start at 2:18 p.m. ET, followed two minutes later by a similar message sent through television and radio broadcasts. Some wireless alerts could be delayed by as much as 30 minutes.

The scheduled message will read, "THIS IS A TEST of the National Wireless Emergency Alert System. No action is needed."

—Drew Fitzgerald

CORRECTIONS & AMPLIFICATIONS

The first name of Aron Betru, managing director of the Center for Financial Markets at the Milken Institute, was misspelled as Aaron in a Markets article Monday about tax-advantaged opportunity zones.

The state of Wisconsin doesn't border Canada. A World News article Thursday about President Trump's trade policy incorrectly said that it does.

BlackRock Inc. recently led a \$50 million round of investment in Acorns, an online financial-services platform, to help it expand further. A Sept. 24 Innovations in Finance report article about wealth-management firms battling for

millennial customers incorrectly said BlackRock alone invested \$50 million in Acorns.

U.S. retailers are facing a period of historically low unemployment. A Sept. 18 Business & Finance article about hiring of seasonal workers incorrectly said record-low unemployment.

A graphic with a June 2 World News article about the economies of Southern Europe included a chart that showed the percentage of the unemployed who have been jobless for 12 months or more. The chart was incorrectly labeled as showing the share of the unemployed who have been jobless for 24 months or more.

Readers can alert The Wall Street Journal to any errors in news articles by emailing wsjcontact@wsj.com or by calling 888-410-2667.

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U.S. NEWS

Letters to Pentagon Test Positive for Ricin

By NANCY A. YOUSSEF

WASHINGTON—Two letters that arrived at a Pentagon distribution center have tested positive for the poison ricin and a “suspicious envelope” had been sent to the White House, defense officials and the Secret Service said Tuesday.

The letters sent to the Pentagon were addressed to Defense Secretary Jim Mattis and Adm. John Richardson,

the chief of naval operations, an official said.

It was unclear whether Mr. Mattis, who is traveling this week, and Adm. Richardson were notified about the letters.

The Secret Service confirmed Tuesday that it had intercepted an envelope on Oct. 1 that was addressed to President Trump but didn’t comment on whether the envelope contained ricin or was related to the letters sent to

the Pentagon.

“The envelope was not received at the White House, nor did it ever enter the White House,” the Secret Service said, adding that it was working with other law enforcement agencies to investigate the matter.

The Pentagon mail distribution center where the mail arrived Monday and was flagged isn’t in the building but nearby, the officials said. Be-

cause of that, none of the building’s roughly 20,000 employees were in danger.

The mail distribution facility, which is on Pentagon property but not connected to the main building, inspects each of the roughly 500,000 pieces of mail that arrive at the Pentagon annually, officials said.

The facility conducted one test on the two envelopes that arrived Monday, a defense of-

ficial said.

“It’s suspected to be ricin,” Pentagon spokesman Christopher Sherwood told reporters Tuesday.

Pentagon spokesman Army Col. Rob Manning said that all mail received at the mail-screening is “currently under quarantine and poses no threat to Pentagon personnel.”

The FBI is leading the investigation, along with the Pentagon Force Protection

Agency. The FBI said it took possession of the letters Tuesday and would conduct a second test to confirm the initial finding.

Ricin is a poison derived from castor beans and exposure to it can be deadly. According to the Centers for Disease Control and Prevention, if inhaled or ingested, ricin can cause vomiting, diarrhea and respiratory problems. There is no antidote.

Maine's Mill Towns Search For New Life

By JON KAMP

MILLINOCKET, Maine—The commercial street in the heart of this small town has a new ice cream shop. A local nonprofit plans to revamp a dilapidated building into a co-working space, and a graphic-design company bought an office.

These are welcome signs of life in this isolated, central Maine town, which is still suffering from the closure of a paper mill a decade ago. The mill dominated the local economy for more than a century, once employing thousands and covering most town bills. It has proven hard to replace.

“We were a one-horse town, the mill was everything,” said

“Fifty Shades of Grey” erotic novels. But the industry, hurt by declining demand, has been shedding jobs for decades.

Bucksport, Maine, has scored some successes while trying to rebound from a 2014 mill closure. Among them, Portland-based startup Whole Oceans is planning to build a salmon farm as early as next year, pending regulatory approval. Employment will be modest at first—at least 25 full-time workers on-site, far less than the mill’s 500 when it closed—but the fish farm will become Bucksport’s largest taxpayer, at an estimated \$1.2 million a year.

The town planned ahead for years before the mill closed, setting aside \$8 million, roughly a year’s worth of property-tax revenue for Bucksport, town manager Sue Lessard said. Geography also helps: Bucksport is near Bangor, the region’s commercial center.

To the north, Lincoln—once derided as “Stinkin’ Lincoln”—due to its mill’s exhaust—is trying to diversify its economy and rebrand itself as a recreation destination after the town’s mill closed about three years ago.

Goals include trying to turn a new drinking-water extraction site into a bottling operation. Economic development director Jay Hardy said he is upbeat about possibilities there. “I want to have 10 businesses that hire 50 people, rather than one business that hires 500,” Mr. Hardy said.

Last week, a coalition including local communities and the forestry industry issued a report highlighting goals to significantly boost the value of Maine’s forests, which could aid towns beset by closures.

Millinocket took a hard hit when it lost its mill, a metronome that set the pace of life for generations. When Eldon Doody moved there in 1974 for a job with former mill owner Great Northern Paper, it was hard to find parking on the main street, Penobscot Avenue.

Officials look to diversify economies once reliant on the paper industry.

Mike Madore, a retired special-needs educator who serves on the town council. “We need to do something, and we need to do it now.”

Five other Maine paper mills also closed in the past decade, upending small towns where the nation’s long-running economic recovery remains elusive. While Maine boasts a 3.2% unemployment rate as of August, such figures don’t reflect some communities’ still-healing wounds from recent manufacturing losses, economists said.

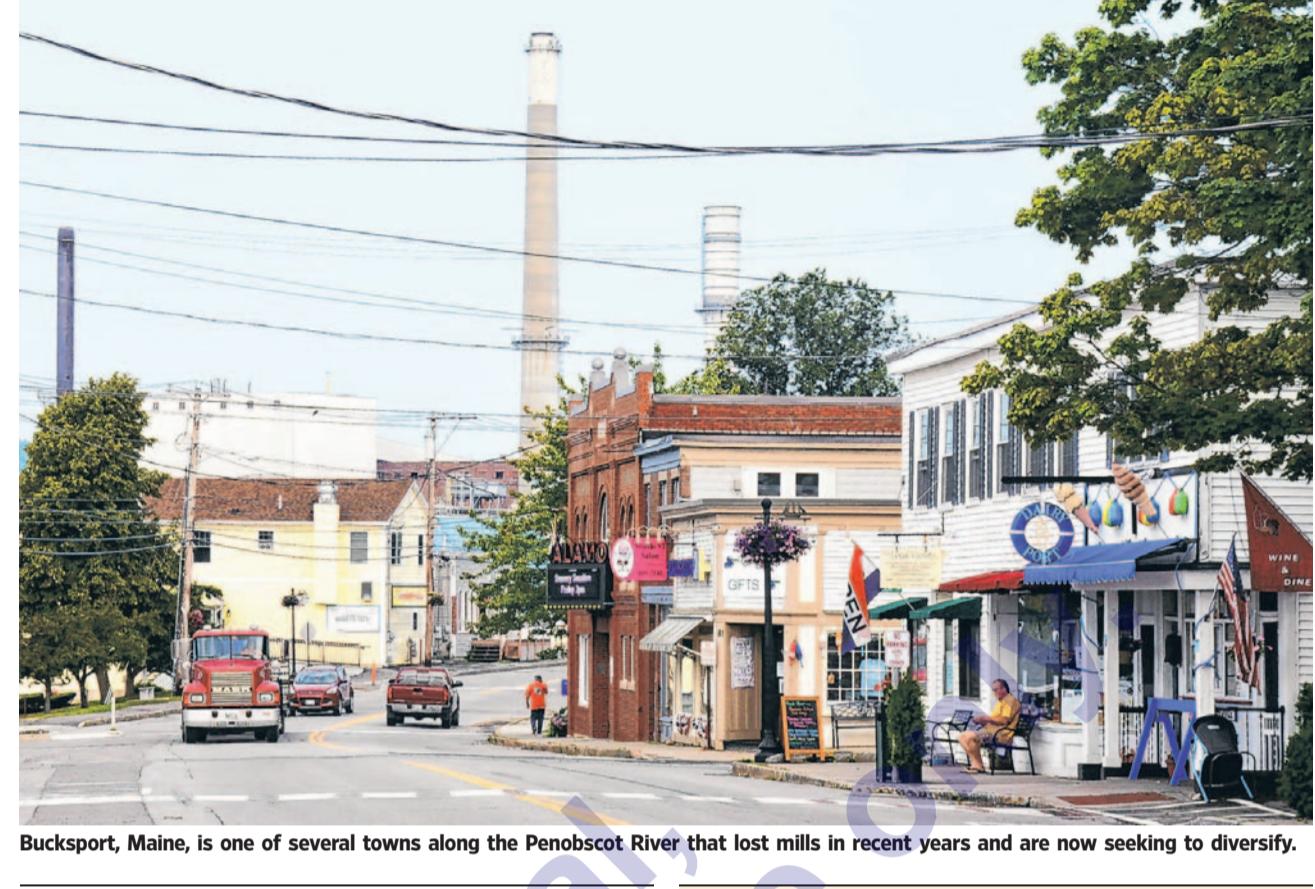
Some towns that lost mills are seeking smaller economic wins, wary of being too reliant on single industries. This should make their economies more sustainable, but “it’s a long path,” said Amanda Rector, Maine’s state economist.

Stretching back more than a century, riverside mills turned Maine’s trees into everything from newsprint and phone directories to, in East Millinocket, pages for the

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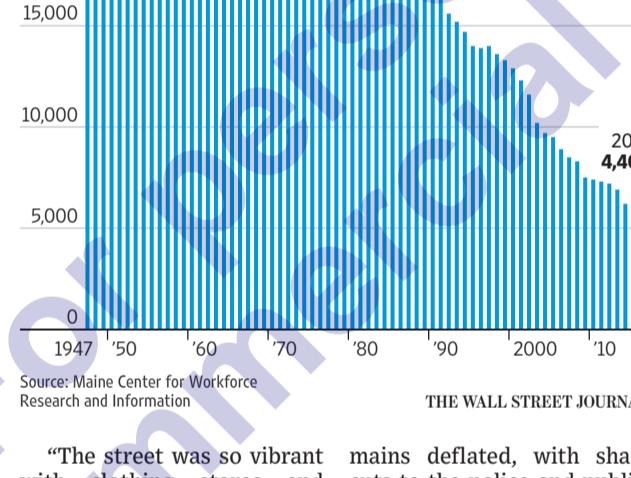
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Bucksport, Maine, is one of several towns along the Penobscot River that lost mills in recent years and are now seeking to diversify.

Out of Print

Average paper manufacturing jobs in Maine



Source: Maine Center for Workforce Research and Information

School Becomes A Second Career

Bill Chesley just started his second year teaching English at his old high school in East Millinocket, Maine.

“I want these kids of get everything they can out of that high school,” Mr. Chesley said. “Their future depends on it.”

He remembers when mill jobs were all but guaranteed for high-school graduates who wanted one, but that has changed dramatically.

This is an unexpected, second career for the 53-year-old, who was among the last employees when the paper mill

closed in Lincoln. He had started there after leaving college to help his ailing father, and wound up working for 26 years as a process technician.

Because he completed his college degree while working at the plant, and even earned a master’s degree in English, he had a leg up when he was laid off. With help from the Katahdin Region Higher Education Center, he began working on a teaching certification.

Mr. Chesley made \$45,000 in his last year at the mill, a good living wage in the area, the married father of two said. The plant’s specialty was deep-dyed tissue. “You would not believe the colors that we made,” he said. “It was an art form.”

The town is remote, but also a gateway to vast recreational areas. The natural splendor attracted John Hafford and Jessica Masse, a couple with two kids who run the graphic-design firm.

“Millinocket is Exhibit A of what happens to a community that was reliant on a single industry,” said Ms. Masse. Rebuilding with smaller pieces will take time, but she sees a payoff. “We want our kids 20 years from now to have the option of living here.”

Trio of Laser Pioneers Share Physics Nobel Prize

By ROBERT LEE HOTZ
AND JOANNA SUGDEN

The Nobel Prize in physics was awarded to an international trio of laser pioneers, including the first woman to earn the award in more than a half-century, who said she made her breakthrough as a graduate student “thinking outside the box.”

Donna Strickland, a physicist at the University of Waterloo in Canada, shared one-half of the 2018 Nobel Prize with her former graduate school supervisor Gérard Mourou, now at the École Polytechnique in France and the University of Michigan, for work they did together at the University of Rochester in New York.

While working on her Ph.D. thesis, Dr. Strickland and Dr. Mourou discovered how to amplify the intensity of laser light in ever-briefer pulses. That paved the way for precision eye surgery and cancer therapy, among the many innovations that take advantage of bursts of light measured in billions of a billionth of a second.

The Royal Swedish Academy of Sciences on Tuesday awarded the other half of the prize to Arthur Ashkin, an American physicist who, working at the storied Bell Labora-



BRENDAN McDERMID/REUTERS



PETER POWER/REUTERS



CHARLES PLATIAU/REUTERS

Arthur Ashkin

Donna Strickland

Gérard Mourou

tories in New Jersey, developed a way to use laser light as tweezers to grip viruses, bacteria and living cells.

His breakthrough came in 1987, when he was first able to hold living bacteria using the radiation pressure of laser light much like a Star Trek tractor beam. Dr. Ashkin, now 96 years old, told Nobel officials that he might not be available for interviews about the award because he is very busy working on his next scientific paper. By the academy’s calculation, he is the oldest person to ever receive the prize.

Together, the trio’s work has revolutionized laser physics, showing “how a blue-sky discovery in science may transform our daily lives,” said Olga Botner, a particle physicist at Sweden’s Uppsala University and chair of the Nobel

committee for physics that made the selections.

“We move ordinary stuff with our fingers; now modern scientists use light to handle atoms and molecules,” said physicist Robert Dijkgraaf, director

think is the future—manipulating the world around us on the molecular level. We will build machines the size of living matter,” Dr. Dijkgraaf said. “And you need these instruments to do this.”

In more than a century of the Nobel Prizes, 49 women have been awarded the coveted prize for achievements in chemistry, medicine, economics and other prize categories. But only two of those have been in physics: Marie Curie shared the Nobel Prize in physics in 1903; sixty years later, Maria Goeppert Mayer shared it in 1963.

Reacting to news of her award Tuesday, Dr. Strickland sounded surprised that so few women had received the physics award. “Obviously we need to celebrate women physicists because we are out there,” she

of the Institute for Advanced Study in Princeton, N.J. “With these techniques, you can use laser beams to halt a molecule. You can shoot laser pulses to pinch off one particular atom.

“These instruments allow us to go into what I really

“said. “I am honored to be one of those women and I hope there will be more.”

Dr. Ashkin was born and raised in Brooklyn, the second son of parents who came to the U.S. from the Black Sea port of Odessa. His father ran a dental laboratory on New York’s Lower East Side. According to Dr. Ashkin’s biography, his older brother, a physicist on the Manhattan Project to build the atomic bomb, helped inspire his pursuit of a life in science.

He studied physics at Columbia University and earned his Ph.D. at Cornell University. With degrees in hand, he went to work at Bell Labs outside New York, where he was almost fired at the end of his first year when he couldn’t prove a supervisor’s pet theory.

“Fortunately, my department head saved me, and eventually I found my own way,” he recalled at a 2014 Optical Society symposium.

There he stayed for 40 years and, according to the journal Optics & Photonics, conducted laser experiments that laid the groundwork for Nobel Prizes awarded to colleagues in 1997 and 2001, in addition to his own prize awarded Tuesday.

Reacting to news of her award Tuesday, Dr. Strickland sounded surprised that so few women had received the physics award. “Obviously we need to celebrate women physicists because we are out there,” she

Long retired, he stills works in his laboratory at home.

Neither the men nor their lawyers could be reached for comment.

Four Men Charged in 2017 Virginia Violence

BY CAMERON MCWHIRTER

Four men who attended the “Unite the Right” rally in Charlottesville, Va., in August 2017 were arrested Tuesday on charges they violated federal laws against rioting, prosecutors said.

Officials said federal agents arrested Benjamin Drake Daley, 25 years old, Thomas Walter Gillen, 34, Michael Paul Misellis, 29, and Cole Evan White, 24, all from California. Each was charged with one count of conspiracy to violate the federal riots statute and one count of violating that statute.

Thomas Cullen, U.S. attorney for the Western District of Virginia, said the men belong to an anti-Semitic, racist group, and were “serial rioters” at events in California and Charlottesville.

Investigators have evidence of the men committing violence against counterprotesters with “no provocation,” Mr. Cullen said.

Neither the men nor their lawyers could be reached for comment.

U.S. NEWS

Nafta Redo Softens Threat to Economy

By JOSH ZUMBRUN

The successful rewrite of the North American Free Trade Agreement lifts a cloud hanging over a significant portion of the U.S. economy by eliminating a Trump administration threat of 25% tariffs on auto imports from Mexico and Canada, two of the biggest sources of cars sold in the U.S.

During the final stages of the Nafta negotiations, which culminated over the weekend in the new U.S.-Mexico-Canada Agreement, or USMCA, President Trump repeatedly threatened to impose the stiff auto tariffs if the countries couldn't come to an agreement. The threats raised concerns among automobile industry executives and economists who cautioned

widespread damage would result if tariffs were applied to the roughly \$360 billion in autos and auto parts that the U.S. imports each year.

In agreeing to the revised treaty, Mexico and Canada secured side agreements that would largely exempt them from the tariffs, should they take effect on imports from other countries. Similarly, the threat of tariffs has spurred the European Union and Japan to step up their trade talks with U.S. negotiators.

So long as the threats result in talks instead of tariffs, economists say the potential hit to the U.S. economy is diminished considerably. "If you look at the results: Did it get them to the table? Yes. Did it increase their blood pressure? Yes,"

said William Reinsch, a senior adviser at the Center for Strategic and International Studies.

When Mr. Trump first threatened tariffs on autos, it sent shock waves through the industry. Of all his trade

Tariffs on autos from Canada and Mexico would have boosted prices, led to job cuts.

threats, the auto tariff was the single largest, a fact Mr. Trump himself repeatedly acknowledged, saying that "cars are the big one."

The auto industry noted the

Trump administration's willingness to back up its threats with action, at least some of the time. The administration has imposed tariffs on the entirety of the global steel and aluminum industry, only exempting countries if they agreed to restrictive quotas instead. The administration has also moved forward with tariffs on about \$250 billion of Chinese imports.

The Center for Automotive Research has estimated the 25% tariffs on all imports of autos and auto parts would have raised vehicle prices by \$4,400 and cost the U.S. about 715,000 jobs.

Higher auto prices would mean consumers would have less for other purchases, denting other sectors of the econ-

omy as well. The result: The tariffs could have shaved about \$60 billion off U.S. gross domestic product, enough to slice about 0.3 percentage point off the U.S. growth rate, with the damage highly concentrated in the auto industry, CAR said.

Such estimates led to unified opposition from the auto industry. When the Commerce Department held its public hearings on the proposal, all but one of the 43 groups that asked to testify spoke out against the tariffs. The only group to offer qualified support was the United Auto Workers.

All told, the U.S. imported \$178 billion of autos and auto parts from Canada and Mexico in 2017. Under the new Nafta deal, the U.S. agreed that even if they move forward with the

auto tariffs, Canada's and Mexico's current level of imports—as well as an added buffer—would be exempt.

The tariff threats have also brought the EU and Japan to the negotiating table. The U.S. imported \$62 billion of autos and auto parts from the EU in 2017, and \$55 billion from Japan.

For now, with Canada and Mexico spared, the U.S. economy has avoided the most extreme scenario. The CAR study estimated that, with Canada and Mexico exempt, but 25% tariffs still hitting imports from the rest of the world, the average vehicle price would rise by \$1,760 and the U.S. would lose 197,000 jobs.

◆ U.S. auto sales weakened in September B2

Trump Led Hushing of Actress

Continued from Page One
son and Mr. Cohen to pay Ms. Clifford earlier this year, saying: "I don't even know what you're talking about."

The White House referred a request for comment to the president's outside counsel. Jay Sekulow, a lawyer for Mr. Trump, declined to comment. A person close to the situation said Eric Trump had acted as the president's son and not in his role as a company executive. The Trump Organization declined to comment. Lanny Davis, a lawyer for Mr. Cohen, declined to comment.

In March, the Trump Organization denied any role in the arbitration, saying its lawyer assisted in her "individual capacity." At that time, the White House issued blanket denials when asked about a hush payment to Ms. Clifford, directing questions to Mr. Cohen, who had called the deal a private transaction between himself and the former adult-film actress. Mr. Trump has denied a sexual encounter with Ms. Clifford.

The Journal revealed on Jan. 12 that Mr. Cohen paid Ms. Clifford \$130,000 before the 2016 presidential election to keep silent about the alleged sexual encounter. In a phone call about a month later—as Ms. Clifford made plans to tell her story despite the nondisclosure agreement—Mr. Trump told Mr. Cohen to enforce the contract in arbitration and indicated he would pay legal costs. "I'll take care of everything," the president said, one of the people familiar with the conversation said.

Mr. Cohen had a second phone conversation with Mr. Trump about the arbitration



Eric Trump, above, was said to have acted as the president's son, not as a company executive, in the response to Stormy Daniels, below.



days later in the Manhattan office of Lawrence Rosen, the outside lawyer, the person said. At the time of the conversations, the White House and Mr. Trump were dealing with the mass shooting in Parkland, Fla., and charges filed by special counsel Robert Mueller against 13 Russians accused of meddling in the 2016 election.

Jill Martin, a Trump Organization lawyer, was listed as counsel on the arbitration paperwork filed in Orange County, Calif., on Feb. 22. Five days later, an arbitrator issued a restraining order against Ms. Clifford, who ignored it and proceeded with her plans to discuss the alleged affair publicly.

Ms. Martin was asked to sign off on the arbitration documents by Mr. Rosen, who told her the request came from Eric Trump, according to the people

familiar with the matter. Mr. Rosen's firm prepared the documents for the arbitration proceeding, but an attorney licensed in California—one of the venues stipulated for resolution of any dispute under the contract—had to sign off on them while Mr. Rosen's application to participate in the matter as an out-of-state lawyer was pending, Mr. Rosen said in an interview this week.

When the Journal contacted

Ms. Martin and the Trump Organization in March about her involvement in the arbitration, she sought out Eric Trump for advice on how to respond, according to the people.

Eric Trump then approved a statement to the Journal drafted by Ms. Martin with input from Mr. Rosen and Alan Garten, the Trump Organization's chief legal officer, these people said. The statement said Ms. Martin had facilitated the filing of the arbitration "in her individual capacity" and that "the company has had no involvement in the matter."

Ms. Martin didn't respond to a request for comment.

On March 6, Ms. Clifford sued Mr. Trump and Essential Consultants LLC, the company Mr. Cohen used to pay her, in Los Angeles County Superior Court. She asked a judge to in-

In a May 3 tweet, Mr. Trump said the nondisclosure agreement with Ms. Clifford was "used to stop the false and extortionist accusations made by her about an affair."

In August, Mr. Cohen pleaded guilty to felony violations of election laws in connection with payments to Ms. Clifford and a former Playboy model, Karen McDougal. Mr. Trump has also denied her allegations of an affair with him.

Mr. Cohen, whose sentencing is scheduled for December, said during his plea hearing in federal court that Mr. Trump directed him to silence Ms. Clifford and coordinate a hush payment to Ms. McDougal "for the principal purpose of influencing the election" in 2016.

—Rebecca Ballhaus contributed to this article.

Companies Curb Political Spending

By THEO FRANCIS

The biggest publicly traded companies are increasingly limiting spending on elections and other political activity, a new report has found.

The report is the fourth annual analysis of political-spending policies at S&P 500 companies from the Center for Political Accountability, a nonprofit organization in Washington that advocates better disclosure of corporate political activity.

Among the 414 companies that have remained in the S&P 500 since 2015, increasing numbers are either prohibiting or fully disclosing direct contributions to candidates, and contributions for election-related use to trade associations, so-called 527 groups and other nonprofits.

About 36% of the S&P 500, or 176 companies, have said they won't engage in at least one form of spending on political activity, up from 32% a year ago and a quarter in 2015, the report found.

Some 132 said they forgo so-called independent expenditures, such as when companies fund ads or events supporting or opposing a candidate or party. That is up 10% over last year, and almost 60% from 2015. (Such spending can't be coordinated with candidates or parties.)

Contributions to state candidates and party committees are

prohibited at 107 companies, while 80 bar contributions to 527 political organizations. Just 35 companies prohibit contributions to trade associations for influencing elections.

Ten companies in the index reported engaging in no corporate political spending, including Goldman Sachs Group Inc., International Business Machines Corp. and Schlumberger Ltd.

A spokesman for Schlumberger said it was a strategic decision not to use its assets or funds for political purposes.

"Although we may engage in direct dialogue with public policy decision makers, we do not use lobbyists or seek to bring about a particular outcome or decision," he said.

A spokesman for IBM declined to comment beyond confirming the company's policy.

A Goldman spokesman declined to comment.

A January 2018 statement on Goldman's political and policy activity notes that it asks trade associations not to use its contributions to influence elections.

More companies are also requiring senior managers or a committee of the company's board to review or approve various kinds of political spending, the report found.

Some of the group's benchmarks for disclosure of political spending have slipped, however. The number of all S&P 500 companies with a webpage dedicated to political spending

spending. In many cases, the companies agree to improve disclosure if the proxy proposal is dropped.

This year, the center took six companies to task for no longer complying with such agreements made in the past, and called out 14 companies for "backsliding," or scoring substantially worse on its measures this year than previously.

The group said CSX Corp. failed to post a report on 2017 political spending, despite a 2012 agreement with the New York State Common Retirement Fund to make disclosures.

A CSX spokeswoman said it inadvertently failed to post its full report, and it did so on Monday morning. "CSX is fully committed to the disclosure of all political spending," the spokeswoman said in an email.

The group said Lowe's Cos. had omitted from a corporate report a previous statement that it doesn't contribute to candidates or political campaigns, or to various nonprofit groups for political purposes. In 2013, the company entered into an agreement with the New York City Employees' Retirement System to disclose political spending.

A Lowe's spokesman said the company still doesn't contribute to political campaigns or candidates, or to nonprofit groups for political purposes, and that it published a streamlined version of its report for 2017.

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U.S. NEWS

Kavanaugh FBI Inquiry Nears End

Continued from Page One

mittee chairman sent a letter Tuesday to Dr. Ford's attorneys asking for evidence buttressing her claim of sexual assault, writing that her allegations have "put Judge Kavanaugh on trial before the nation."

In his letter, Sen. Chuck Grassley (R., Iowa) said that Dr. Ford's attorneys have withheld evidence that senators need to evaluate the allegations before voting on Judge Kavanaugh's nomination.

He requested material covering three separate areas: notes from Dr. Ford's therapy sessions; recordings of the lie detector test she took; and exchanges she had with the news media.

Dr. Ford's lawyers didn't respond to a request for comment Tuesday night.

The letter raises a separate issue involving Dr. Ford's truthfulness. When she testified at the Judiciary Committee hearing last week, Dr. Ford was asked if she had ever talked to anyone beside her attorneys on how to take a lie-detector test.

"Never," she said.

Asked if she had discussed with anyone tips in taking a polygraph, she said, "No."

In seeking the lie detector records, Mr. Grassley said that the committee had gotten a sworn statement from an unnamed former boyfriend of Dr. Ford. The statement was reviewed by The Wall Street Journal.

The writer, whose name was redacted, said that he dated Dr. Ford from 1992 to 1998, found her to be "truthful" and that he had no ill will toward her.

He said that while they were dating, Dr. Ford lived with a female friend. That person was interviewing for a federal job. The writer said he witnessed Dr. Ford help her friend prepare to take a lie-detector test.

Because of her background in psychology, the writer said, Dr.



GOP Sens. Lisa Murkowski, left, and Susan Collins, wearing glasses, are undecided on whether to vote to confirm Judge Brett Kavanaugh.

Ford was able to help her friend understand "what to expect," and how polygraphs worked," putting her mind at ease about the forthcoming test.

In his letter, Sen. Grassley wrote that Dr. Ford's testimony at the hearing "raises specific concerns about the reliability of her polygraph examination results. The Senate therefore needs this information."

On Tuesday, Mr. McConnell sidestepped questions on how long senators would have to review the Federal Bureau of Investigation's findings and when he would hold a required procedural vote to set up the final confirmation.

It remained unclear whether the public would have access to the FBI findings. Mr. McConnell said only senators would be able to see them, but his No. 2, Sen. John Cornyn (R., Texas), said "there does need to be some sort of public statement, if not the reports themselves."

The Democrats' Senate leader, Chuck Schumer of New York, called for the FBI to brief senators on their findings at least 24 hours before a vote.

"Why are our Republican

colleagues so afraid of making this public?" he said. "Almost every step they take, it seems they have something to hide." Democrats are pushing for the probe's results to be public.

By Tuesday evening, FBI agents had interviewed three people who Dr. Ford said were

It remained unclear whether the public would have access to the probe's findings.

at the gathering on the night of her alleged assault. The bureau had also questioned two friends of Judge Kavanaugh referenced in a 1982 calendar, Tim Gaudette and Chris Garrett, known as "Squi," according to their lawyers. Judge Kavanaugh's calendar indicated that on July 1, 1982, he went to "Timmy's" house for "skis w/ Judge, Tom, PJ, Bernie, Squi," which he told lawmakers was a reference to brewskis, or beers, at Mr. Gaudette's home.

The FBI has also spoken to Deborah Ramirez, a Yale University classmate who told the New Yorker that Mr. Kavanaugh exposed himself to her when they were in college. The judge has denied that allegation.

Ms. Ramirez's attorney said Tuesday that the FBI spoke to his client for more than two hours on Sunday, but that he was concerned that investigators hadn't yet contacted the more than 20 people Ms. Ramirez had told them could corroborate her account.

Democrats have made it clear they are likely to raise questions about the scope of the probe if they believe it is incomplete.

Mr. Trump, while praising the nominee, has said the FBI should conduct a comprehensive probe and that its findings could affect his support. He said it wouldn't be "acceptable" if it emerged that Judge Kavanaugh had lied to Congress.

The president had been advised not to criticize Dr. Ford and had displayed restraint after her testimony last week before the Judiciary Committee.

But on Tuesday night at the

rally in Mississippi, Mr. Trump criticized gaps in Dr. Ford's retelling of the alleged sexual assault at a house party in a Maryland suburb of Washington in the early 1980s.

"How'd you get there? I don't remember...Where is the place?...I don't remember...How many years ago was it? I don't know," Mr. Trump said, mocking Dr. Ford's testimony as the crowd cheered.

"Upstairs, downstairs, where was it? I don't know. But I had one beer. That's the only thing I remember."

Mr. Ford couldn't recall certain details, but she testified that she was "100 percent" certain that Judge Kavanaugh was her attacker, which he vehemently denies.

Mr. Bromwich, Dr. Ford's attorney, wrote on Twitter after Mr. Trump's remarks: "Is it any wonder that she was terrified to come forward, and that other sexual assault survivors are as well? She is a remarkable profile in courage. He is a profile in cowardice."

—Peter Nicholas
and Alex Leary
contributed to this article.

Watchdog Faults U.S. Policy At Border

BY ANDREW DUEHREN

Migrant children separated from their parents under the Trump administration's "zero tolerance" policy at the border frequently spent days in government facilities designed for short-term use as the Department of Homeland Security struggled to track and reunify families, according to a report by an internal watchdog released Tuesday.

The report, compiled by the Department of Homeland Security's Office of Inspector General, delineates the difficulties the department faced enforcing the administration's zero tolerance policy, which called for the criminal prosecution of adults entering the U.S. illegally. Because children can't be held in criminal custody, more than 2,000 children were separated from their parents at the border in May and June. President Trump rolled back the policy at the end of June. The report determined that "DHS was not fully prepared to implement the Administration's Zero Tolerance Policy or to deal with some of its aftereffects."

Members of the Office of Inspector General visited facilities in Texas from June 26 to June 28. Under government guidelines, Customs and Border Protection can hold children for up to 72 hours before sending them to the HHS Office of Refugee Resettlement. The government "exceeded the 72-hour period in many instances," the report found. One child was held in these facilities for 25 days.

"The findings of OIG report illustrate the difficulties in enforcing immigration laws that are broken and poorly written," Katie Waldman, a Department of Homeland Security spokeswoman, wrote in an emailed statement.

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New York Reviews Trump Tax Allegations

BY JIMMY VIELKIND

The New York State Department of Taxation and Finance said Tuesday that it is reviewing allegations made in a New York Times report that President Trump's father transferred money to him and his siblings through complex tax arrangements.

The Times reported on Tuesday that during the 1990s, Fred Trump and Donald Trump engaged in a series of transactions to pass income and real-estate assets from father to son while limiting tax liability. Citing confidential tax records it reviewed, the Times reported that over his lifetime, Mr. Trump received at least \$413 million in today's dollars from his father, a New York City landlord who built a real-estate empire from scratch.

James Gazzale, a spokesman for the state's Department of Taxation and Finance, said the allegations in the Times article are under review and his agency is "vigorously pursuing all appropriate avenues of investigation."

Charles Harder, an attorney for Mr. Trump, didn't immediately return a call and email seeking comment on the tax department's review. In a statement to the Times, Mr. Harder said there was "no fraud or tax evasion" involving Fred Trump.

"Fred Trump has been gone for nearly twenty years and it's sad to witness this misleading attack against the Trump family," White House press secretary Sarah Sanders said in a statement Tuesday evening. "Many decades ago the IRS reviewed and signed off on these transactions."

The Department of Taxation and Finance is a state-level version of the Internal Revenue Service.

Visas Halted for Foreign Officials' Partners

BY JESSICA DONATI

WASHINGTON—The Trump administration has ordered the State Department to stop issuing visas to unmarried same-sex partners of foreign officials working in the U.S., officials said Tuesday.

U.S. officials said the new rule was introduced in July to match the State Department's policy for its own staff abroad.

"It is a recognition and a codification of the fact that same-sex marriage is legal in the United States," one of the administration officials said.

LGBTQ advocates said the decision ignored the reality that many same-sex couples may be reluctant to marry over fears about persecution and other concerns in their home countries. Many nations treat same-sex relationships

as a criminal offense, punishable by death in some cases.

The U.S. officials said the new policy would affect about 105 families in the U.S., including about 55 families linked to international organizations. Those couples would be required to marry in the U.S. to maintain their visas. The officials declined to say how many came from countries where same-sex marriage was a leg-

gally punishable offense.

Critics said the new policy was unfair and would make it difficult for same-sex partners of many future diplomats or officials to obtain visas.

"Needlessly cruel & bigoted: State Dept. will no longer let same-sex domestic partners of UN employees get visas unless they are married," said Samantha Power, a former U.S. ambassador to the United Na-

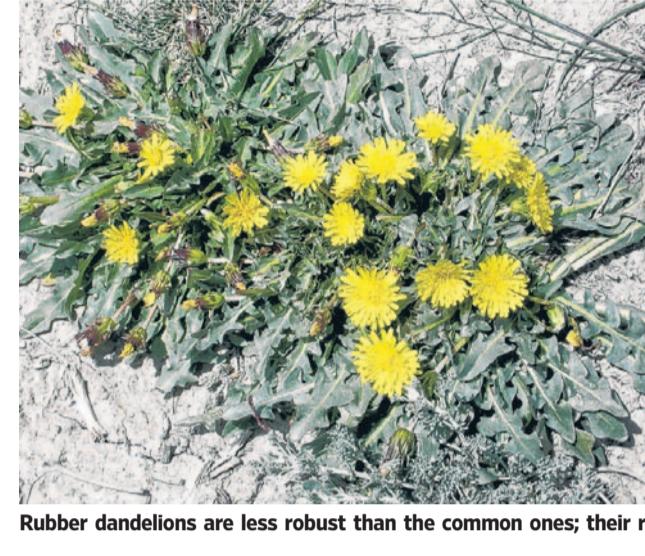
tions, on Twitter.

Unmarried opposite-sex partners didn't have the same benefits. Under the new rules, all couples will be treated the same, as legally, same-sex couples have an equal opportunity to marry in the U.S.

"This is certainly not an attack. It was not meant as an attack; it is not meant to be punitive," the administration official said.

Scientists Cultivate Dandelions

Continued from Page One



Rubber dandelions are less robust than the common ones; their roots can be used to make rubber.



cades later, the trials, and tribulations, continue there. Richard Roseberg, an agronomist at Oregon State, started working with the plants in 2008. They grew when he popped the seeds into a petri dish. Then he headed out into the fields.

"We thought this will be a piece of cake," said Dr. Roseberg. It wasn't. Across half an acre, only three or four patches looked good and the rest was largely bare.

Like lawn lovers, scientists are wary of the common dandelion encroaching on their work—and they are quick to point out the crop won't be ruining yards around the country. "I'm more worried about what they have in their yard infiltrating and contaminating my research plot," said Dr. Roseberg.

Germany's Continental AG has showcased a new tire embossed with dandelions that it hopes to mass produce within the next decade.

Some projects are cloaked in secrecy. The team that tried growing dandelions on acres on a corner of a carrot farm in western Ohio, Farmed Materials, won't talk about its work, citing nondisclosure agreements.

Katrina Cornish, who leads the alternate rubber production program at Ohio State, sees dandelion-rubber-soled running shoes as more likely than tires in the near term. "You can't just go straight to tires," she said. "You need to at least do bicycle tires first."

but still left him with another problem: not enough dandelions in each field. He is now trying a more free-form approach, scattering the seeds and hoping they take where they land and produce enough ground cover that unwanted weeds don't pop up in between.

"It's really susceptible to most of the herbicides that we use," said Dr. Cardina. Rubber dandelions are less robust than the common ones and grow slowly above ground. The plants' leaves are less pointy and the flowers a more lemon-yellow color.

People are already "emotionally charged about dandelions" because of "extraordinary concerns about having a little bit of yellow in their carpet of green" lawn, said Dr. Cardina, and researchers don't

want them confusing the rubber type with the common variety.

An EU-wide project coordinated by the Dutch Wageningen University and Research institute nearly wilted before it started. In 2008, when scientists started a push to commercialize the crop, they withdrew dandelion seeds from seed banks across Europe. These were planted and started sprouting. All looked good until Jan Kirschner, an expert in the dandelion, studied the plants.

"It was horrible—it wasn't the right plant," said Ingrid van der Meer, who coordinates a successive European Union alternative rubber project. The seeds stored by scientists since research began in the 1930s were a species of dandelion, just not the correct one.

This set off a three-week expedition to the high plains in southeast Kazakhstan, which border both China and Kyrgyzstan, to find replacement plants.

They were lucky and found the plant, known by the local population historically as something like a chewing gum, said Dr. Kirschner, a botanist at the Institute of Botany, Academy of Sciences in the Czech Republic, who led the effort. While often referred to as the Russian dandelion, it grows only in Kazakhstan, according to Dr. Kirschner.

The plant, which has the same distinctive yellow flowers of its more common cousin, also goes by the more utilitarian name "rubber root."

Near Klamath Falls, Ore., rubber dandelions were first grown in the 1940s. Seven de-

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WORLD NEWS

France Freezes Iranian Assets

By MATTHEW DALTON

PARIS—France froze assets of Iran's intelligence agency and two agents in retaliation for an alleged Iranian terror plot on French soil, seeking to punish Tehran for planning terror activities in Europe even as the French government tries to salvage the Iran nuclear deal.

The freeze will apply for at least six months to two officials—Assadollah Asadi and Saeid Hashemi Moghadam—who European authorities allege were involved in the foiled attack, and the internal security directorate of Iran's intelligence ministry.

Foreign Ministry spokesman Bahram Ghasemi denied accusations of Iranian involvement in the bomb plot, the ministry's website said.

The plot targeted the annual meeting of the National Council of Resistance of Iran, an umbrella organization of Iranian opposition groups whose main backer is the Mujahedin-e Khalq, or MeK.

The meeting typically draws a roster of U.S. politicians with hawkish views on Iran but who no longer hold office and lack direct influence over U.S. policy. This year, however, the headline speaker was Rudy Giuliani, one of President Trump's personal attorneys and a close informal adviser.

On June 30, the morning of the meeting, Belgian police arrested an Iranian-born couple in Brussels carrying more than a pound of TATP, a powerful homemade explosive, in their car. Belgian authorities alleged that the couple was planning to drive to the meeting outside Paris in Villepinte, France, and detonate the explosives.

German police arrested Mr. Asadi, who was stationed as a diplomat at the Iranian Embassy in Austria, as he was driving back from Luxembourg. Prosecutors allege that Mr. Asadi gave the bomb to the Iranian couple at a meeting in Luxembourg. A German court has authorized Mr. Asadi's extradition to Belgium, refuting arguments Mr. Asadi should be allowed to return to Iran because of his diplomatic immunity.

Mr. Moghadam is a senior intelligence official in Tehran who gave orders in the operation, a French official said.

May's Rival Poses Brexit Challenge

By MAX COLCHESTER
AND JASON DOUGLAS

BIRMINGHAM, England—British Prime Minister Theresa May's archrival Boris Johnson laid out a challenge to her leadership, touting his credentials to become the U.K.'s next leader amid a deep rift within the Conservative Party over the government's approach to Brexit.

At the annual conference of the Conservative Party, to which both Mr. Johnson and Mrs. May belong, Mr. Johnson repeatedly attacked the prime minister's plan for quitting the European Union.

Mr. Johnson, who quit as Mrs. May's foreign secretary in July, said Tuesday he was seeking "to try with all humility to put some lead back into the collective pencil."

In a wide-ranging speech touching on such issues including health care and housing, the wild-haired Mr. Johnson spelled out his vision for Britain. But at the heart of his manifesto lay a promise to ditch Mrs. May's Brexit plans, which he said would result in the U.K. being "paraded in manacles."

The criticism of Mrs. May comes amid deep divisions within the party over Brexit and the prime minister's weak hold on power.

With the U.K.'s exit from the EU less than six months away, lawmakers are jostling to position themselves should Mrs. May's negotiations with the bloc stumble, forcing her from office.

Few expect Mrs. May to survive long after the U.K.'s exit in March, given the opposition to her plan to retain close ties to the bloc after Brexit.

As a result, a number of her fellow Tories have been laying out their positions for an eventual challenge to her lead-



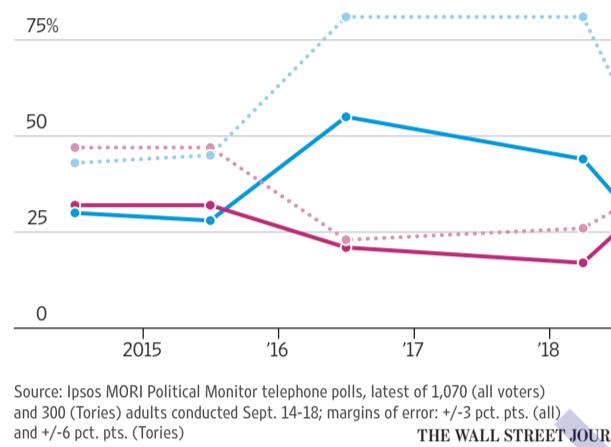
Boris Johnson speaking Tuesday in Birmingham during the Conservative Party's annual conference.

ANDREW PARSONS/IMAGES/ZUMA PRESS

Popularity Gap

British Prime Minister Theresa May is still seen as the best Conservative leader.

On balance, do you agree this person has what it takes to be prime minister?



Source: Ipsos MORI Political Monitor telephone polls, latest of 1,070 (all voters) and 300 (Tories) adults conducted Sept. 14-18; margins of error: +/-3 pct. pts. (all) and +/-6 pct. pts. (Tories)

Soviet Union. Treasury Minister Philip Hammond laid out an economic plan that aimed to counter the socialist proposals put forward by the opposition Labour Party.

Dominic Raab, chief of Mrs. May's Brexit strategy, offered a moving tale of his father's escape from the Nazis. He later denied that he was seeking to replace Mrs. May.

In an interview with the BBC, Mrs. May said she plans to remain prime minister for the long term and appealed for the Tories to support her Brexit plan. She will give the closing speech to the conference Wednesday.

Despite the threat to her leadership, Mrs. May has lasted far longer than many predicted, in part because few of her rivals want the difficult task of leading the U.K. through the tortuous Brexit negotiations.

Indeed, rivals such as Mr. Johnson don't appear to have enough support to topple her before Britain is due to leave the EU.

The complex negotiations are heading into the final stretch, as a deal needs to be

ratified by March. Party members are at odds over the degree to which the U.K. should remain tightly bound to the EU or should seek a sharp break that would allow it to strike trade deals with other countries.

Mrs. May's plan—which would allow the U.K. to sell goods tariff-free to the EU—has already been rejected by the EU and several prominent members of her own party.

To loud applause, Mr. Johnson on Tuesday called for the Brexit negotiation to be ditched and for the U.K. to break away from the EU as soon as possible so it could hammer out trade deals with other countries.

He slammed Mrs. May's strategy. "It's not taking back control, it's forfeiting control," he said.

Given the deep divide among Conservatives over Brexit, the party will struggle to agree on a candidate to succeed Mrs. May, said Anand Menon, professor of politics at Kings College London. "They can be as dissatisfied with the prime minister as they like but they need to have an alternative," Mr. Menon said. "There's no unity candidate."

Among Conservative Party members, Mr. Johnson is by far the most popular successor for Mrs. May, according to a poll published Monday by the Conservative Home website. Over a thousand members packed a hall to hear him talk Tuesday, with some lining up for hours to secure a seat.

But while the former foreign secretary is a hit with the party's base, many senior Conservative lawmakers are loath to see him in the top job. "He is a court jester," said one on the sidelines of an event. A series of younger lawmakers, like the 44-year-old Mr. Raab, are seen as capable but as yet untested.

Top Macron Ally Will Leave French Cabinet

By SAM SCHECHNER

mediately and has informed Mr. Macron of his plans.

The declaration raised pressure on Mr. Macron to replace the prominent minister, who had previously said he planned to resign next year to run for mayor of his hometown of Lyon in 2020.

"I don't want the fact that I'll be a candidate somewhere soon to disturb the functioning of the interior ministry,"

Mr. Collomb said Tuesday.

Representatives from Mr. Macron's office and the French Interior Ministry didn't respond to requests to comment.

Mr. Collomb is a central figure in Mr. Macron's political firmament. Before backing Mr. Macron's 2017 presidential campaign, Mr. Collomb was a pro-business heavyweight in the Socialist Party. That allowed Mr. Collomb to

act as a bridge to many former socialists in Mr. Macron's party who are unhappy with his right-leaning policies.

Public support is sliding for the government's pro-business agenda. Voters and politicians on the left have grown restive over the government's focus on passing tax cuts, labor-market overhauls and a tough new immigration law that Mr. Collomb had shep-

hered through Parliament.

In August, Nicolas Hulot, a popular TV host and environmental campaigner, quit as environment minister by announcing his decision in a live radio interview.

Government resignations have taken a toll on Mr. Macron's approval rating, which has fallen as low as 29% in September compared with 50% at the start of the year.

FROM PAGE ONE

Amazon To Raise Its Wage

Continued from Page One

billion, can absorb the added costs, analysts said. The goodwill gained with politicians and workers could outweigh any hit to profitability, and such a move gives Amazon a possible advantage in hiring tens of thousands of workers during a competitive holiday season and in a low-unemployment environment.

More broadly, Amazon's commitment provides fresh evidence that the strong job market is pressuring businesses to bid up wages for lower-skilled workers and spreading the benefits of a long-running economic expansion more widely. Meanwhile, politicians in several states have approved a boost to hourly pay. In California, the state's minimum wage is set to rise to \$15 an hour in 2022.

Amazon Chief Executive Jeff Bezos used the announcement to go on the offensive against rivals as well as politicians and others who have questioned the company's treatment of workers.

"We listened to our critics, thought hard about what we wanted to do, and decided we want to lead," said Mr. Bezos in a statement. "We're excited about this change and encourage our competitors and other large employers to join us."

Amazon's sheer size and market dominance have made it a corporate target of politicians on the left and right. Critics say the company mis-treats its workers and doesn't

Upping the Ante

Amazon's new minimum hourly wage for its U.S. workers could make hiring more difficult for competitors as the holidays approach.

Minimum wage by company

Amazon	\$15.00
Costco	14.00
Target	12.00
Walmart	11.00

Minimum wage by state

Washington, D.C.	13.25
Washington	11.50
California	11.00
Massachusetts	11.00
Oregon	10.75
Arizona	10.50
Vermont	10.50
New York	10.40
Colorado	10.20

Note: State wages are as of July 1, 2018

Sources: the companies (company wages); Department of Labor (state wages); State of California Department of Industrial Relations (California wage)

THE WALL STREET JOURNAL.

pay its fair share in taxes; they also criticize it for its impact on the broader economy and traditional retailers.

Analysts said the wage changes are likely to result in a small ding to profitability. A 50-cent raise an hour across 250,000 employees, for example, would imply a posttax impact on operating profit of about \$200 million, or 1% or 2%, according to Colin Sebastian, an analyst with Robert W. Baird & Co.

But Amazon's revenue growth is so strong—consistently hovering around 40%—that it has managed to post record profits even in periods of heavy investments. In July, the company reported its quarterly profit topped \$2.5 billion for the first time on nearly \$53 billion in revenue.

On Tuesday, Mr. Sanders struck a different tone. "What Mr. Bezos has done today is not only enormously important for

Amazon's hundreds of thousands of employees, it could well be a shot heard around the world," said Mr. Sanders, who unsuccessfully sought the Democratic presidential nomination in 2016. "I urge corporate leaders around the country to follow Mr. Bezos's lead."

Amazon's announcement comes as the retail and logistics industries are kicking off their hiring for the year-end holidays, and experts in those fields say the e-commerce giant may have gained a leg up in competitive labor markets.

Minimum pay of \$15 an hour puts the online retail giant in the top 25% for starting wages for general warehouse jobs in the U.S., said Brian Devine, senior vice president of the logistics-staffing company ProLogistix. "This will impact

every other company's ability to attract and retain workers."

U.S. retailers are already scrambling to find enough workers to staff stores. Target Corp. has said it plans to hire 120,000 seasonal workers. For their warehouses, United Parcel Service Inc. has said it would hire about 100,000 seasonal workers, while FedEx Corp. has said it would take on 55,000.

Amazon said its salary increase will cover part-time and temporary workers hired by agencies. It also covers recently acquired Whole Foods Market employees, where an effort is under way to unionize.

Wages in several low-skill occupations including warehouse workers, retail clerks and restaurant waiters are rising at a faster rate this year than

5.1% in July.

In all, there are more available jobs in the U.S. than unemployed workers ready to take them. There were a record-high 6.9 million job openings in July, including 757,000 in retail and 299,000 in the category that includes transportation and warehousing.

Average wages for non-supervisory warehouse employees rose 4.6% in July from a year earlier to \$17.87 an hour, according to the Labor Department. Wages for restaurant staff increased 4.2%, to \$12.88 an hour. Hourly pay for retail workers rose 4% in August from a year earlier, to \$15.96. Those gains outpace the average 2.9% for private-sector workers.

Amazon's wage increase may pressure competitors by sponging up job candidates, and that could spill to other sectors.

—Eric Morath

and Lauren Weber

overall hourly pay, according to Labor Department data.

Several large retailers have raised their minimum wages in the tight labor market. Walmart Inc., which employs 1.5 million people in the U.S., in January said it would raise starting hourly pay to \$11 for all U.S. employees. That followed a similar move by Target, which raised its starting hourly pay to \$12 in September, from \$11 last year, and set plans to lift it to \$15 by 2020.

Low-wage workers are more likely than higher-wage workers to jump from job to job for better pay when unemployment is low, economists said, making them among the bigger beneficiaries at this stage of a business cycle.

—Eric Morath

contributed to this article.

FROM PAGE ONE

Hot Planet Reprices Risk

Continued from Page One

the impact. "We don't discuss the question anymore of, 'Is there climate change,'" says Torsten Jeworrek, chief executive for reinsurance at Munich Re, the world's largest seller of reinsurance—insurance for insurers. "For us, it's a question now for our own underwriting."

For the most part, insurers are acting on climate change by building models that aim to better estimate the impact. That leaves the industry with the tough question of how to reflect in premiums the new understandings of the underlying risk.

"It takes a lot of premium, a lot of margin, to account for this increased uncertainty, and I'm not sure we're doing a good job of reflecting this and charging appropriately for it," said Marc Grandisson, chief executive of insurer Arch Capital Group Ltd., at an industry conference Thursday. "We need to incorporate a greater range of possible outcomes into our pricing."

Arch has written less property-catastrophe reinsurance in recent years as prices have dropped and as industry results have been volatile, in part due to losses attributed to climate change, Arch spokesman Donald Watson says.

After the Canadian wildfire, Aviva's changes to its risk models filtered into its home-insurance premiums in Canada, which increased by roughly 6% since 2016, partly because of its research into catastrophe risks.

For most insurers, rates aren't rising—yet. A flood of capital into the industry from pension and hedge-fund investors, driven by low interest rates, has increased competition and pushed down property-catastrophe reinsurance prices in the past decade.

And property insurance and reinsurance contracts typically last one year, so an insurer can recalibrate yearly as risks change. "Global warming may be occurring. Probably is," says Warren Buffett, chief executive of Berkshire Hathaway Inc., which has a major reinsurance business. "But it hasn't hurt the reinsurance industry. And people are pricing still as if it won't, on a one-year basis."

If reinsurance contracts covered 30 years, he says, "I'd be crazy not to" include the risks.

'Cost for inaction'

Understanding how weather is changing is laborious and plagued by the same uncertainty that prevents weekly forecasts from being precise. The genesis of a major hurricane, say, depends on factors such as wind shear—the wind pattern that gives hurricanes a whirling shape—not just the warming surface temperature that fuels it. One changing factor may make a storm more likely to be dangerous, but another could shift it on a path away from land or cities.

Big insurers are expanding teams of in-house climatologists, computer scientists and statisticians to redesign models to incorporate the effect of the warming earth on hailstorms, hurricanes, flooding and wildfires. Insurers such as Swiss Re Group say hurricanes like Harvey and Florence, which caused widespread flooding, could represent a more common occurrence in the coming decades.

Climate change may be gradual, but the effects are volatile, meaning a company could become exposed to a large, unexpected hit if it doesn't understand the changing risks, says Junaid Seria, head of catastrophe-model research and development and governance at Paris-based reinsurer Scor SE.

"We're in the camp that believes you can have an increased potential for an outsized loss in a single year," he says. "There's a cost for inaction."

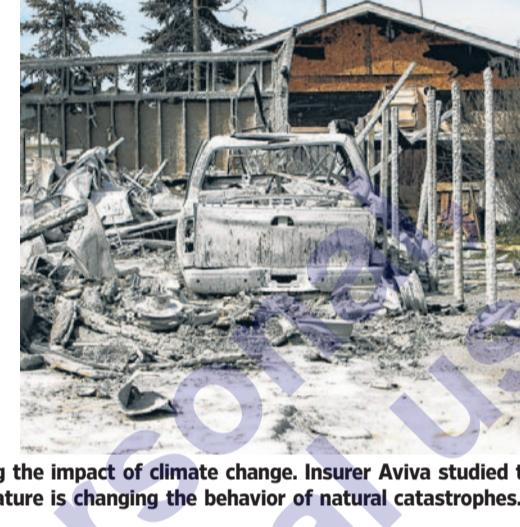
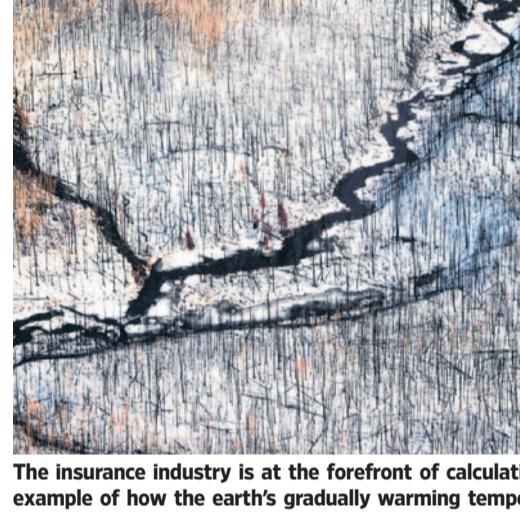
The industry has historically changed after big disasters. Natural-catastrophe modeling took off after Hurricane Andrew struck Florida on Aug. 24, 1992, causing an estimated \$15.5 billion of insured losses. Thirteen insurance companies were ordered liquidated, according to ratings firm A.M. Best Co.

Catastrophe models—computer algorithms that analyze disasters and property data to predict losses—grew more sophisticated over time. Their secret sauce was building databases of weather events going



'That is not a type of loss we have experienced in that part of the world, ever...The previous models wouldn't have envisioned it.'

Maurice Tulloch, chief executive of Aviva's international insurance division in Toronto, referring to the Fort McMurray wildfire causing more than \$3 billion in insured damages.



The insurance industry is at the forefront of calculating the impact of climate change. Insurer Aviva studied the Fort McMurray wildfire, above, and concluded it was an example of how the earth's gradually warming temperature is changing the behavior of natural catastrophes.

back decades.

Climate change upends that strategy because scientists broadly believe the future is likely to be very different from the prior decades that are the basis for these models. The climate has grown about 1.8 degrees Fahrenheit warmer since the late 19th century. A consensus of scientists puts blame substantially on emissions of greenhouse gases from cars, farms and factories.

The team of 35 scientists and engineers at Swiss Re who test and update its internal catastrophe models found that the decades of torrential rainfall that had long been a part of the model were no longer useful for predicting risks in some regions, because rain now falls so much more heavily and frequently there. They now use just the past 25 years, Swiss Re says.

Using a shorter observation period has shown a higher rate of torrential downpours resulting in property damage in many parts of the world. That has made rainfall a higher-priority peril for Swiss Re, the company says.

AIR Worldwide, a unit of Verisk Analytics Inc. that sells catastrophe models to insurers, since about 2010 has limited many of its models to the most recent 30 to 35 years of data, says director of meteorology Peter Sousounis. It previously used data going back to as early as 1951. For capturing both longer-term and shorter-term trends, he says, "we feel that that's a good compromise."

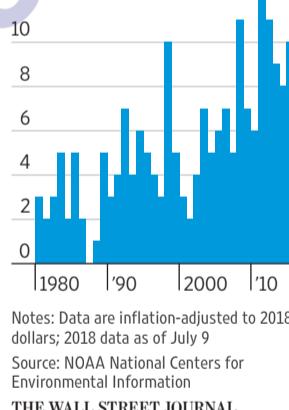
There has been an acceleration of studies over recent years by university and government researchers using statistical techniques—broadly called attribution science—that show the correlation between the changing climate and the characteristics of individual weather events. They use the same techniques to show the burning of fossil fuels can be a driver of those results.

Insurers such as Munich Re are analyzing those studies and conducting research to focus on the potential for increased losses to the insurer that could reduce its profits. "We can only accept risk and put risks on our books if we understand them properly," says Ernst Rauch, Munich Re's global head of climate and public-sector business development. That, he says, is "why we are so interested in climate change."

Munich Re researchers found a significant increase in storms

Disaster Count

Natural disasters causing at least \$1 billion in total damages



Notes: Data are inflation-adjusted to 2010 dollars; 2018 data as of July 9
Source: NOAA National Centers for Environmental Information

unarmored oil and gas infrastructure in the Persian Gulf."

Markus Stowasser, head of catastrophe research and development at Allianz SE's reinsurance unit, says computer simulations show an increase in the probability of "extreme gray swan events," expected but rare phenomena such as hurricanes, forming in the Persian Gulf. ("Black swan" events are both unexpected and rare.) The simulations show such events still don't seem likely near-term.

The water peril

Insurers' most immediate climate peril is water. More heat means more moisture held in the atmosphere and greater precipitation. Melting ice is pushing up sea levels. A 2013 study in the journal Nature projected average flood losses for the world's 136 biggest coastal cities could rise from \$6 billion a year in 2005 to \$52 billion a year by 2050 due to increased population and development.

When taking climate change and a sea-level rise into account, flood losses could exceed \$1 trillion a year by 2050, the study concluded, unless the cities invested about \$50 billion

annually in adapting.

Hurricanes historically caused wind damage. But Hurricane Harvey, which hit Texas in August 2017, spent weeks absorbing 33 trillion gallons of water, according to the National Oceanic and Atmospheric Administration. It dumped more than 60 inches of rain and caused tens of billions of dollars in flood damage.

The probability of a Texas storm dropping about 20 inches of rain was about 1% a year between 1981 and 2000, but will likely increase to 18% a year by 2100, according to a 2017 study by Kerry Emanuel, an MIT professor of atmospheric science who says changing climate conditions are driving the trend.

"As the atmosphere warms, we see great rainfall rates," says Marla Schwartz, atmospheric-perils specialist at Swiss Re. Referring to Harvey, she says: "We might expect to see something more often like that in the future."

Hurricane Florence, which hit North Carolina last month, behaved similarly to Harvey and dropped more than 30 inches of rain on parts of the state.

Increased flood damage also presents an opportunity to insurers. As more regions become exposed to flooding, insurers expect the market for flood insurance to grow. Much of Harvey's flood damage wasn't covered, insurers say, because the industry has historically excluded floods from residential policies. "What we call the protection gap is still huge," says Edouard Schmid, group chief underwriting officer at Swiss Re. "We of course want to offer solutions around risks, including climate risks."

Changing risk probabilities may make some areas uninsurable altogether, or at least so risky the cost would be prohibitively expensive for insurance buyers, executives say.

Allianz, one of the world's largest insurers, says it sold the retail business of U.S. insurer Fireman's Fund Insurance Co. in 2015 in part because climate change is increasing the risk of losses to coastal homes in California and Florida.

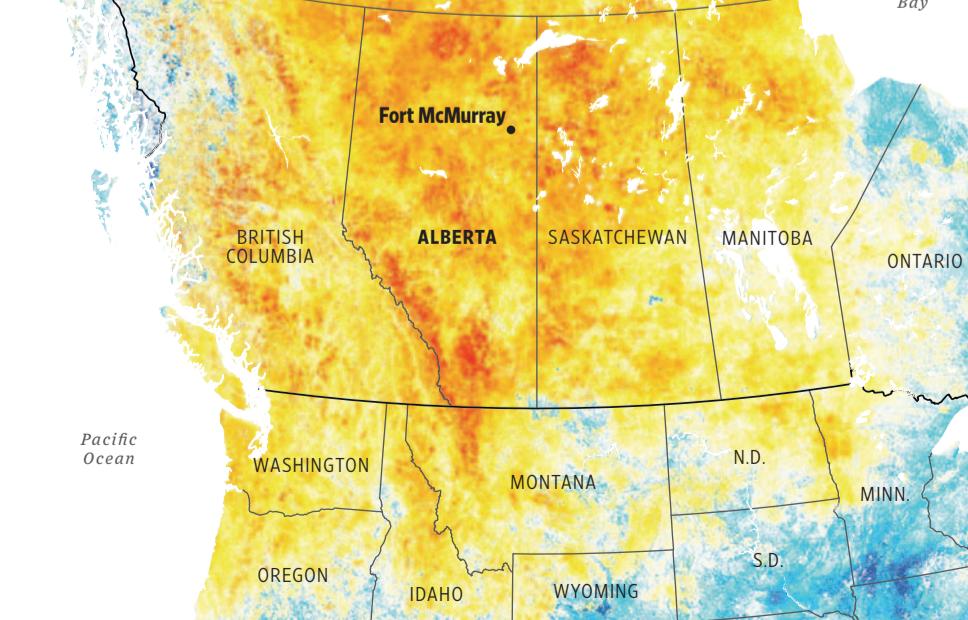
"Coastal flooding will clearly become a bigger issue in the long term," Swiss Re's Mr. Schmid says. "We can offer protection for hurricane losses or flood losses or other perils, but if certain coastal areas are so exposed, insurance becomes no longer viable. It becomes even uninsurable."

Fuel to the Fire

Unseasonably hot conditions contributed to the severity of the Fort McMurray wildfire in 2016, according to NASA scientists.

Mean surface temperature, April 26 to May 3, 2016

Difference from 2000-10 average, in degrees Celsius



Hudson Bay
Pacific Ocean
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
MANITOBA
ONTARIO
WASHINGTON
OREGON
IDAHO
MONTANA
N.D.
MINN.
S.D.
THE WALL STREET JOURNAL.

GREATER NEW YORK

Republicans Criticize Felon Voting Rights

Cuomo initiative is politically motivated, potentially dangerous, GOP lawmakers say

By JIMMY VIELKIND

Republicans are attacking an initiative by New York Gov. Andrew Cuomo to restore the voting rights of former felons, holding hearings and releasing a new digital advertisement accusing him of prioritizing sex offenders over other voters.

Between April and September, 30,666 parolees received a conditional pardon allowing

them to vote, a member of Mr. Cuomo's cabinet revealed this week. It is unclear how many of those people have registered, said representatives for the State Board of Elections. Previously, those convicted of felonies in New York could vote only after completing parole.

The governor, a Democrat seeking a third term in November, and his team cast their effort as necessary to combat the effects of mass incarceration, and said disenfranchising voters disproportionately impacts racial minorities.

Civil rights groups and public defenders have applauded Mr. Cuomo's move, which is in

line with more than a dozen other states.

But Republicans have seized on the issue. The Republican State Committee released an advertisement highlighting four recent parolees, including Herman Bell, who killed two New York City police officers in 1971 and was released from prison in April after 39 years of incarceration.

"It is a travesty that the governor decided to do this," Senate Majority Leader John Flanagan, a Republican, told reporters Tuesday, after a hearing on Long Island.

Mr. Cuomo wanted "violent felons" to vote because he had

faced a "tough" Democratic primary last month against Cynthia Nixon, Mr. Flanagan said. Mr. Cuomo defeated Ms. Nixon by a 30-point margin.

In hearings—one on Monday in Albany and one on Tuesday on Long Island—Mr. Flanagan's colleagues heard testimony from police union leaders and a former member of the New York parole board, as well as from advocates and relatives of crime victims.

They denounced the pardons and expressed outrage about recent decisions by the parole board to release inmates such as Mr. Bell. Mr. Cuomo himself had opposed

Mr. Bell's release, but the governor's representatives said the parole board is an independent body whose members are confirmed by the state Senate.

Several speakers at the hearings said Mr. Cuomo's initiative would bring registered sex offenders into schools, which comprise about 27% of the polling places in the state, according to Todd Valentine, co-executive director of the Board of Elections.

Officials in Mr. Cuomo's administration didn't appear at the hearings but submitted written testimony. Anthony Annucci, acting commissioner of the state's Department of

Corrections and Community Supervision, wrote that sex offenders are restricted in voting hours. During the recent primary, 11 paroled sex offenders asked to vote and only two were approved, he said.

Mr. Annucci wrote that the plan was "the next logical step for this state to further promote" former felons' reintegration into society.

Democrats in the state Senate said the hearings are politically motivated and declined to participate.

Tyrone Stevens, a spokesman for Mr. Cuomo, said Mr. Flanagan's comment "reeks of desperation."

Animal-Rights Group Sues to Spring Happy the Elephant From Bronx Zoo

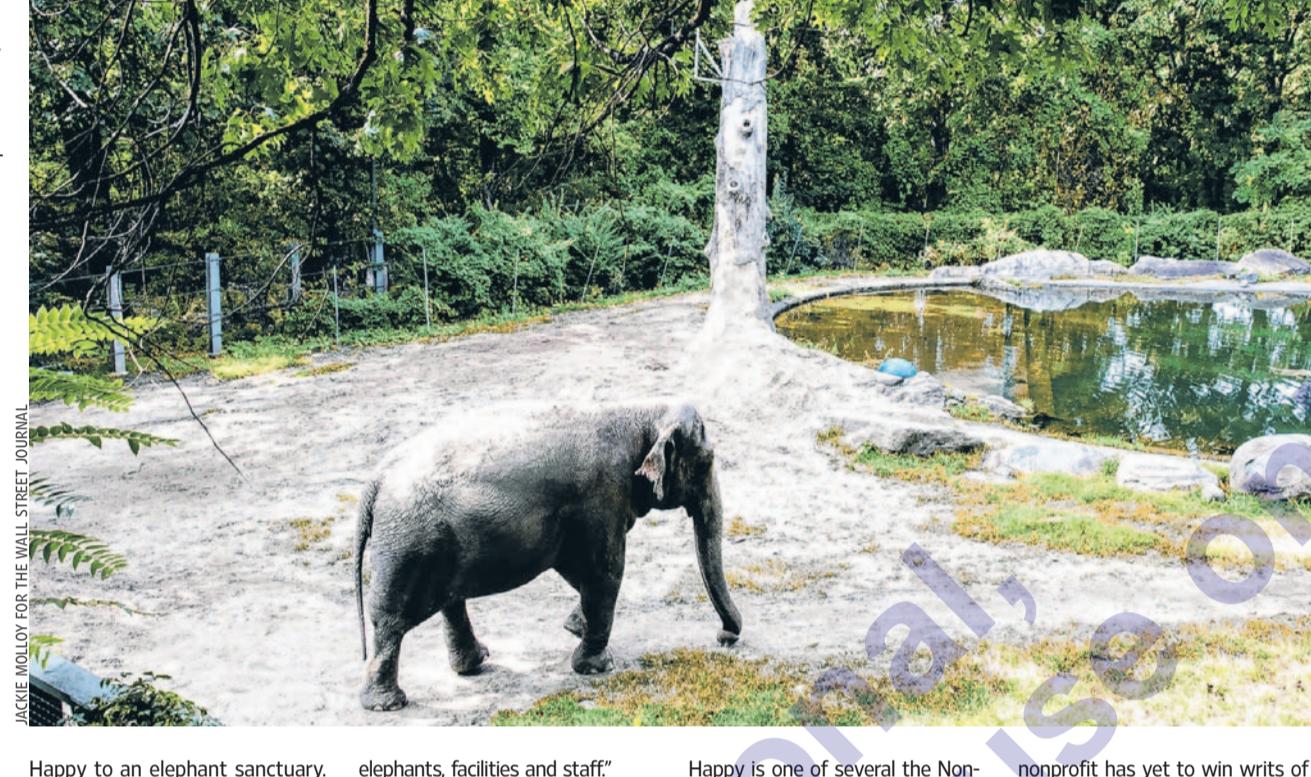
Happy, a 47-year-old Asian elephant, once played alongside her companion, Grumpy, in an exhibit at the Bronx Zoo. But for more than a decade, Happy has lived alone.

The elephant's well-being has been questioned for years by animal advocates, the media and an online petition that claimed Happy was held in solitary confinement. But on Tuesday, animal-advocacy group the Nonhuman Rights Project took the first legal action on Happy's behalf, arguing she is an autonomous being illegally held in captivity. The suit names as defendants Jim Breheny, the Bronx Zoo's director, and the Wildlife Conservation Society, which runs the zoo.

"Happy did not look happy," said Steven Wise, the group's president and an animal-protection law expert, who saw the elephant Tuesday. "Elephants are not meant to live alone."

Mr. Wise's group seeks a writ of habeas corpus—or the right to challenge one's confinement in court—a legal remedy more commonly used for prisoners and slaves. The group filed its suit in state Supreme Court in Orleans County, N.Y., because it views the resulting intermediate appeals court as receptive to its argument.

The group wants to move



JACKIE MOLLY FOR THE WALL STREET JOURNAL

Happy to an elephant sanctuary.

Mr. Breheny, the zoo director, said in a statement: "The Nonhuman Rights Project is exploiting the Bronx Zoo elephants to advance their own failing cause in the courts as they put forth ludicrous legal arguments and lies about our

elephants, facilities and staff."

The zoo has said it would no longer house elephants after its current animals die.

Mr. Wise said the zoo has two other elephants, Maxine and Patty, who

in 2002 critically injured Grumpy.

The lawsuit on behalf of

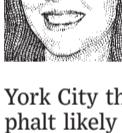
Happy is one of several the Non-human Rights Project has brought on behalf of animals, including chimpanzees. The group argues that certain animals should be considered legal "persons," a status that grants them certain rights, and not "things." While the

nonprofit has yet to win writs of habeas corpus on behalf of its animal clients, Mr. Wise believes it has made legal headway. In May, New York's Court of Appeals declined to hear one of its cases but one judge offered his support.

—Corinne Ramey

METRO MONEY | By Anne Kadet

Recycled-Asphalt Company Sees Open Road Ahead



If your street is among the 1,322 lane miles getting paved by New

York City this year, the asphalt likely was produced largely from crushed stone mined from New Jersey quarries and sticky black oil shipped from distant refineries. But not if it came from Green Asphalt. At this Queens startup, asphalt is produced entirely from used pavement milled off local lanes.

"We are using material from the city streets and putting it back on the city streets," says Nima Roohi Sefidmazgi, the company's vice president and head of business development.

Last week, Mr. Roohi Sefidmazgi took me on a tour of the small plant in Long Island City overlooking Newtown Creek, starting with its ashy mountains of rubble. The New York City Department of Transportation and private construction firms pay to drop more than 100,000 tons of millings at the plant every year.

An earth mover dumped a load of rubble into a waiting crusher. "It could have come from Martin Luther King Jr. Boulevard in the Bronx!" the

young scientist marveled. After the city passed a 2015 law mandating at least 30% recycled asphalt in pavement used on most government projects, area plants converted to accommodate the new specifications. But Green Asphalt remains the only plant in the city producing 100% hot-mix recycled asphalt.

Production is a simple affair. Crushed millings pour from a towering hopper and up a conveyor belt into a 20-foot spinning drum to be heated over a giant flame. The hot mix is rejuvenated with soy oil and transported up a second belt into a silo before it is fed into waiting trucks.

"It's not rocket science," says Mr. Roohi Sefidmazgi.

But figuring out how to make decent pavement entirely from reclaimed millings was a struggle. Mr. Roohi Sefidmazgi, who literally has a Ph.D. in asphalt, says the company spent years after its 2011 launch experimenting with crushing methods, temperatures, material mixtures and filtration devices to develop its patent-pending processes.

The work was dirty and frustrating. But Mr. Roohi Sefidmazgi didn't mind. "I



BESS ADLER FOR THE WALL STREET JOURNAL

Asphalt being prepared at Green Asphalt. The company produces more than 100,000 tons a year, enough to pave 120 miles of road.

love asphalt," he says.

Green Asphalt got its big break in 2015, when the city approved its products for use by both the DOT and private contractors handling city projects. Richard Jones, director of specifications for the city's Department of Design and Construction, says recycled asphalt has many advantages. Its use preserves resources, for instance. "We'd like to see it increase," he says.

Green Asphalt produces 150 tons an hour and more than 100,000 tons a year—enough to pave 120 miles of road. Its pavement covers stretches of College Point Boulevard in

Queens, for example.

Still, that's small potatoes in the asphalt world. The area's largest plant, the DOT-owned Hamilton Avenue Asphalt Plant, can produce 450 tons an hour and up to a million tons a year—enough to resurface 1,000 lane miles.

And Green Asphalt's largest customer remains C.A.C. Industries, a construction firm in Queens. Green Asphalt's president and founder, Michael Capasso, owns and runs both companies.

Asphalt that is 100% recycled is still considered "the

bleeding edge of the industry" and rarely is used in the U.S., says Joseph Shacat, director of sustainable pavements for the National Asphalt Pavement Association (NAPA).

Traditional asphalt makers can't produce the product without investing in an expensive plant conversion, he says. And New York is the only major U.S. city to have approved its use. The material is still seen as risky by more conservative agencies. What if a street paved with 100% reclaimed asphalt doesn't perform? "No one wants to be the official that approved that design," Mr. Shacat says.

Third-party lab tests show that local streets paved with 100% recycled asphalt are performing on par with those paved with standard mixes, Mr. Roohi Sefidmazgi says.

And Green Asphalt's product offers one obvious advantage: price. To produce one ton of virgin asphalt, you need about \$10 worth of stone and \$18 worth of binder, according to averages from NAPA. Because Green Asphalt doesn't buy these materials, it typically charges about 30% less than the \$70 a ton demanded for standard asphalt, Mr. Roohi Sefidmazgi says.

anne.kadet@wsj.com
—Associated Press

New York state will now allow people to take pets on any kind of public transportation when evacuating during an emergency. The new policy ensures residents don't have to choose between their companion animal and their personal safety during hurricanes or other disasters, officials say.

Previously, some public-transit agencies allowed pets during evacuations, while others, such as the Port Authority, didn't.

Democratic Gov. Andrew Cuomo signed the change into law on Tuesday. His office noted that during superstorm Sandy, people who refused to evacuate because of their pets had to later be rescued.

—Associated Press

NEW JERSEY

State Suspends New Craft Brewery Rules

New regulations to limit the number of events craft breweries in New Jersey can hold were put on ice Tuesday.

Shortly after the state's Division of Alcoholic Beverage Control issued rules on Sept. 21 limiting the state's roughly 90 microbreweries to 25 on-site activities a year, the office said it was suspending the regulations. ABC Director David Rible said the division would work with stakeholders to understand concerns, and consult with lawmakers about potential changes.

The reversal comes after the initial rules led to some push-back from legislative leaders.

—Associated Press



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LIFE & ARTS

BY AMY DOCKSER MARCUS

Blair and James are trying to start a family. Like many parents, they hope their future offspring will be healthy. They'd also like the baby to have blue eyes.

The couple, both 35, describe themselves as type-A personalities who research everything. When they decided to try for a baby, they looked into DNA testing to rule out disease-causing genetic mutations they might pass along to their child. Then they learned about a test that might help predict a future baby's eye color.

Blue eyes, says James, who has brown eyes, "is icing on the cake." (The couple asked not to reveal their last names to maintain their privacy.)

Many prospective parents already use DNA testing to check for potential genetic anomalies that could lead to serious medical conditions. But as technology advances, they may also learn about characteristics that have less bearing on a future child's health, like eye color.

In the area of reproductive medicine, parents wield great discretion in making decisions about their future children. But the notion that parents might someday select embryos based on what some deem as aesthetic preferences—a future child who is a certain height or good at sports or looks a certain way—raises challenging ethical questions. Perhaps, some ethicists argue, DNA testing will create a society that further values certain types of children more than others.

Many in vitro fertilization clinics that once offered genetic testing of embryos to prevent sex-linked medical disorders now also allow prospective parents to select the gender of the embryo because of a personal preference.

Eye color pushes the debate further. Like many human traits, it isn't determined by a single gene, but a complex interaction of many genes. The test that Blair and James took emerged from work done by forensic scientists trying to predict eye, hair and skin color for unknown suspects in criminal cases for which minimal amounts of DNA is available. In published papers, these researchers determined that testing for six key DNA markers allowed them to predict if someone had brown or blue eyes with greater than 90% accuracy.

The scientific advances enabling predicting traits that involve multiple genes go beyond eye color. A company called Genomic Prediction received regulatory approval in New Jersey in September to market its Expanded Pre-Implantation Genomic Testing in many states. It will cost \$400 per embryo. Genomic Prediction says it can accurately predict which embryos are at high risk for complex health conditions, like diabetes or cardiovascular disease.

Researchers at the company demonstrated how the approach could be used to predict height in a paper published this year in the journal *Genetics*. Someday, new techniques might allow predicting the likelihood of an embryo's future academic potential.

In a blog post, Stephen Hsu, a

founder of Genomic Prediction, posed an ethical question: An IVF doctor has two healthy, viable embryos and must choose which to implant. One has a hypothetical risk score that indicates the embryo is at high risk for struggling academically in school. The second embryo has a score indicating the future child likely won't struggle. Do you tell the parents?

"It seems ethically not defensible to withhold the information from the parents," he says, "and ethically defensible to reveal it to

HEALTH & WELLNESS

Is It Ethical To Choose Your Baby's Eye Color?

Fertility clinics are starting to offer parents new options, including DNA tests that may predict whether a future baby's eyes are blue or brown



PHOTO ILLUSTRATION BY THE WALL STREET JOURNAL/ISTOCKPHOTO

them."

Some IVF doctors say it's too soon to routinely offer people risk scores about their embryos. Mandy Katz-Jaffe, a reproductive geneticist and scientific director at CCRM, a Denver fertility clinic, says that outcomes are often a mixture of genetics and environment. Moreover, the data sets upon which the algorithms are based involve geographically and demographically narrow groups.

Nathan Treff, chief scientific officer of Genomic Prediction, says

the company is only offering risk predictions involving disease and has no plans to predict an embryo's eye color or level of educational attainment. "It is not always black and white what people consider a disease," he says, "but we pay attention to what the community thinks is ethical."

Jeffrey Steinberg, founder of the Encino, Calif.-based Fertility Institutes, believes his group is the only one offering the test Blair and James took. His team is working to develop the technology to test

TRENDING

'THERE THERE,' A LITERARY HIT

BY TOBIAS GREY

FOR HIS DEBUT novel "There There," in which a dozen Native Americans of varying ages and back stories converge on an Oakland, Calif., powwow, Tommy Orange was determined to veer away from what he considered "the sad, stoic, dumb Indian" stereotype.

Instead, he wrote characters such as Orvil, a boy who teaches himself Indian dances by watching YouTube videos, and Daniel, whose friends plan to rob the powwow using guns he has learned to make from a 3-D printer.

Mr. Orange, who is half-Cheyenne and born and raised in Oakland, set out to write "There There" about urban, as opposed to reservation-dwelling, Native Americans, he says. "That seemed like a gaping hole for me to fill by representing the American experience in this way."

The 36-year-old had previously published a few short stories in magazines, but "There There" took off after Knopf published it in June. The company says it has

sold more than 140,000 American copies in hardcover, e-book and audio formats. It spent 11 weeks on the New York Times best-seller list for hardcover fiction. In September, it was named to the longlist for this year's National Book Award for fiction.

The name "There There" nods to a Radiohead song as well as Gertrude Stein, who in her 1937 book "Everybody's Autobiography" wrote about her childhood home in Oakland being torn down.

"There is no there there," she wrote.

"I immediately saw a parallel there with the Native experience," says Mr. Orange, "especially the experience of urban Indians trying to feel like you belong to a people growing up in a city and not on a land that is yours."

Mr. Orange, a graduate of the Institute of American Indian Arts in Santa Fe, N.M., who now teaches there, cites "a really good year" for Native American literature. He points to Terese Marie Mailhot's memoir "Heart Berries," a finalist for the Hilary Weston Writers' Trust Prize, a major non-

fiction award in Canada; and Billy-Ray Belcourt's "This Wound Is a World," which won the Griffith Poetry Prize earlier this year.

Other Native American and indigenous writers have lent their support to "There There." "He has extended the understanding of where Native people actually live in this country," says novelist Lou-

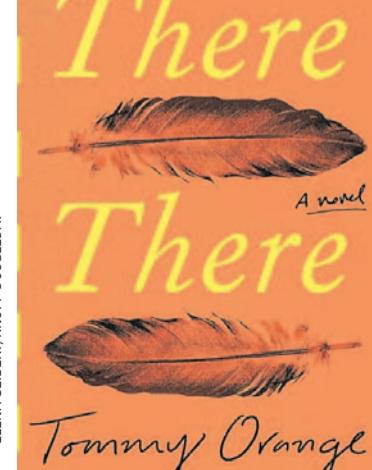
ise Erdrich, a National Book Award winner and Pulitzer finalist. "A lot of people think that reservations contain all Native people."

Knopf declined to say how much it paid for "There There," but it landed the book after beating a dozen U.S. publishers at auction.

Mr. Orange is now working on



'There There' author Tommy Orange



Why It's Working

The Book: "There There"

The Plot: Native Americans recount the ups-and-downs of their interlocking lives, as they prepare to congregate for an ill-fated powwow in Oakland, Calif.

The Reaction: "There There" has sold over 140,000 copies and been longlisted for the National Book Award (the winner will be announced Nov. 14). It became a hit thanks to positive reviews and word-of-mouth recommendations.

The Formula: A contemporary, multivoiced story that avoids teepees and smoke signals.

two more novels, also set in Oakland, and trying to get used to the attention he is receiving.

"You get one piece of good news and that feels good for a while," he says. "But when it keeps coming, you sort of get shocked into numbness. Everybody having an opinion about you does not always feel great."

Still, Mr. Orange acknowledges it is better than being panned or ignored. "I just try to stay grateful," he says, "and I run a lot more now, as it's a lot to think about."

LIFE & ARTS



DAVID WALTER BANKS FOR THE WALL STREET JOURNAL

MY RIDE | By A.J. Baime

Don't Mess With This 'Nuclear Carrot' Corvette



Jeni Yeakel-Swanson, a real-estate lawyer in San Diego, on her 1964 Chevrolet Corvette "Nuclear Carrot" race car, as told to A.J. Baime.

When I was growing up, my dad, Fred Yeakel, raced a 1957 Corvette. I went to races with him, and when I was old enough, I told him, "Dad, I want to drive!" He said, "First you have to learn how to work on the car."

He taught me all about how that 1957 Corvette worked, and ultimately, I started driving on a race-track. I said, "There's no horsepower in this car." He said, "You don't need horsepower to drive well. Learn to drive well, then we will add horsepower." Which is exactly what we did.

In 2007, he found the car pictured here in an ad in Vintage Mo-

torsport magazine. It was painted red and the owner had it in storage outside Milwaukee.

When we bought it, it came with documentation on its history. An Illinois-based driver had purchased the vehicle (it had been a theft recovery) and built it out as a race car in the 1960s. A piece of the front was missing, so he used parts he got from a junkyard.

Using old photos, my dad restored the car to what it had been in the 1960s. He was driving a Bill Thomas Cheetah race car at the time, and I like to think that he bought the Corvette for me. I have been the primary driver and my name is painted on the car next to the original sponsor from the 1960s—Tero Corvette of Rolling Meadows, Ill.

We started going to races up

and down the West Coast, from San Diego to Portland, Ore. We trailerd our cars together, had our pits side by side, and sometimes even raced against one another. Along the way, a family friend, Mike Scott, gave the car its nickname: Nuclear Carrot.

Last year, under my dad's supervision, I rebuilt the 327 V8. I took it apart and put it back together with new rods, pistons, the works.

Our next race will be at Sonoma Raceway, in the spring. To get the car ready, I will drive from San Diego on Saturdays to Anaheim, where the car resides.

Sometimes my husband, daughter and best friend, Leslie Verfaillie, will come, and my dad will be there. I love to race and I love working on this car, but what I love most is doing those things with my family.

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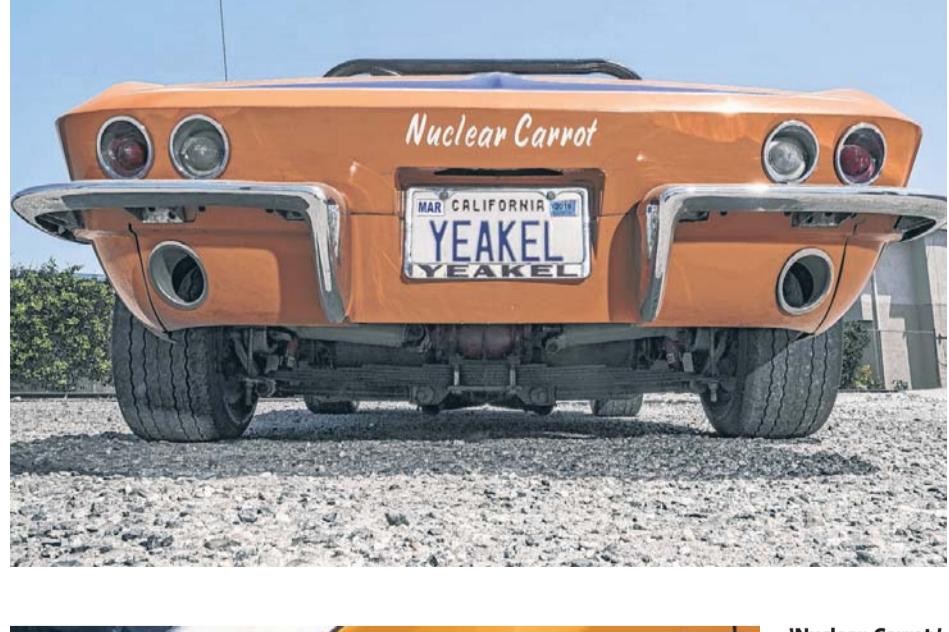
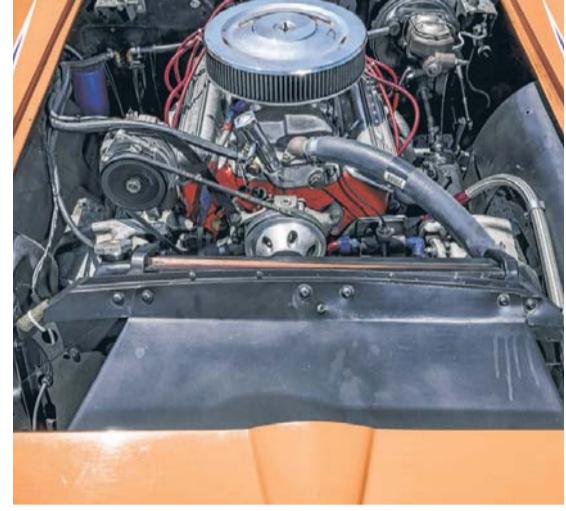
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Jeni Yeakel-Swanson, a lawyer, with her 1964 Chevrolet Corvette. She rebuilt the 327 V8 engine, right. Above, an antenna accessory.



'Nuclear Carrot,' above, is the nickname for the car. The driver's name, left, is on the door. The front bodywork, above left, comes from a different Corvette.

LIFE & ARTS



ART REVIEW

Where Memories Dwell

Sculptor Rachel Whiteread draws on her past to create often-monumental works

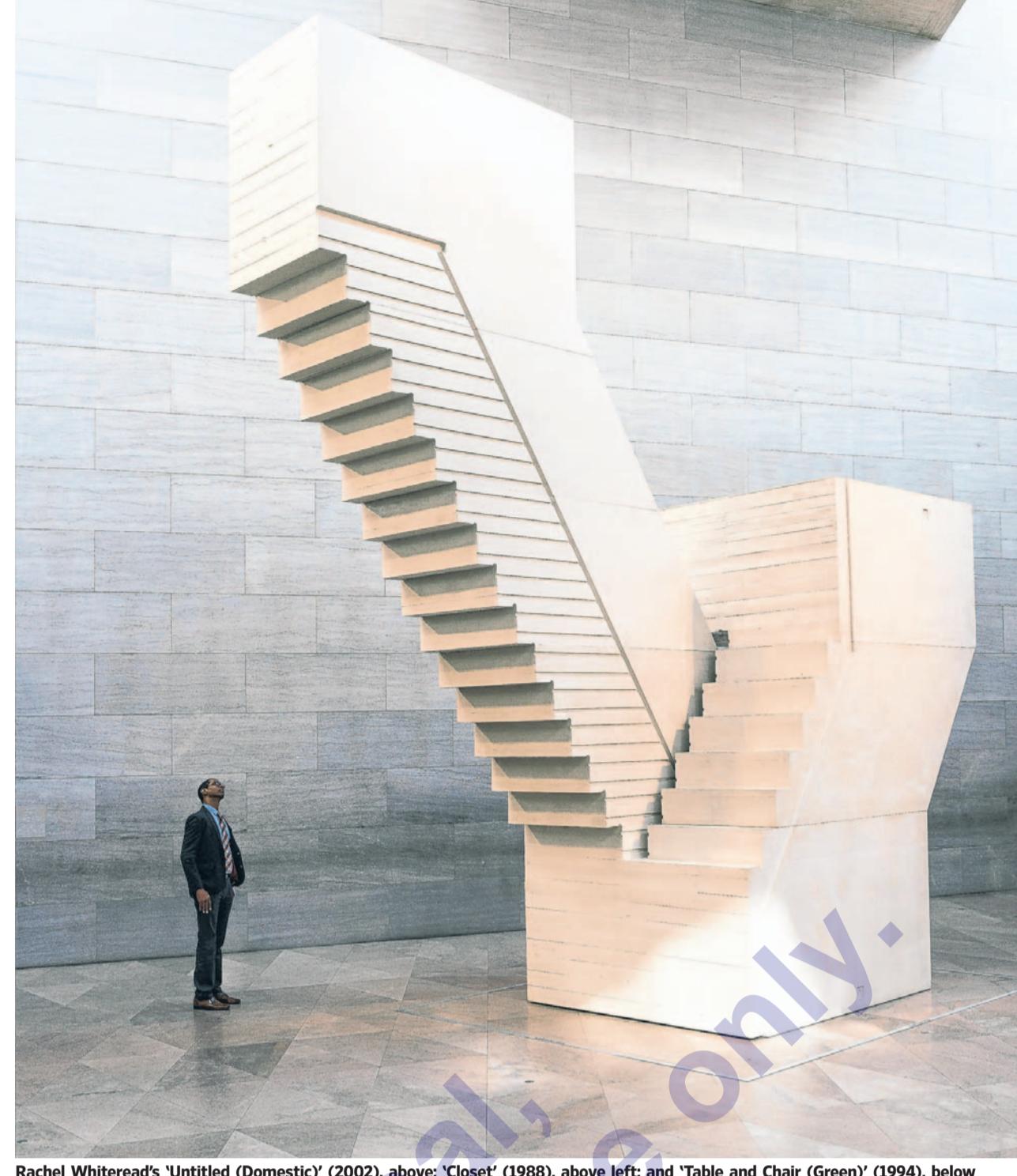
BY ERIC GIBSON

'GREATEST LIVING British artist' is among the most abused accolades in art criticism. The one person who deserves it is sculptor Rachel Whiteread, now the subject of a retrospective at the National Gallery of Art.

"Rachel Whiteread," which travels to the Saint Louis Art Museum after Washington, was jointly organized by the Gallery's Molly Donovan and

Ann Gallagher of Tate Britain, where it began its international tour last fall. It features some 100 sculptures and drawings. The list includes "Closet" (1988), a plaster cast of the interior space of a wardrobe wrapped in black felt to evoke the artist's childhood habit of hiding in closets, and the 1995 model for her acclaimed "Holocaust Memorial" (2000) in Vienna's Judenplatz.

Generationally, Ms. Whiteread (b. 1963) is one of the Young British Artists, seen



Rachel Whiteread's 'Untitled (Domestic)' (2002), above; 'Closet' (1988), above left; and 'Table and Chair (Green)' (1994), below

here in the notorious "Sensation" exhibition in 1999. Temperamentally, however, she couldn't be more different from that group, lacking for example the drive-by irony of a Damien Hirst. Ms. Whiteread is old school: Her art expresses something personal and deeply felt.

Ms. Whiteread came to three dimensions via two, after learning the casting process while a painting student at Brighton Polytechnic in the 1980s. She then studied sculpture at the Slade School of Art in London. The painter's eye endures, however, in her fondness for color in some of her sculptures.

Another formative experience surely came earlier. As a child she helped her father lay the concrete floor when he converted the basement of the family home into a studio for Ms. Whiteread's artist mother. This likely would have opened her eyes to interior spaces and the way surfaces define them. That, at any rate, became her direction—articulating a vision of the world as so many containers rather than, as sculptors generally have, space-displacing solids. (She has spoken of wanting to "mummify the air in the room.")

Ms. Whiteread's breakout work, included here, was "Ghost" (1990), a plaster cast of the living room of a North London house of the kind she grew up in. A roughly 8-by-11-by-10-foot monolith,

most distinctive feature is a floor-level protrusion on one side—the hollow of the fireplace. Her next major work was "House" (1993), a concrete cast of the inside of an entire London house, subsequently torn down, that she exhibited at the original site. It, too, was later demolished. (A video in the exhibition documents its creation and destruction.)

Perhaps because, like "Closet," "Ghost" and "House," so much of her private work is rooted in memory, Ms. Whiteread is about the only contemporary artist I can think of who is up to the challenge of creating meaningful public monuments and memorials.

Much has been made—to much, in my view—of Ms. Whiteread's allegiances to the Minimalist and Post-Minimalist movements of the 1960s and 1970s: primarily in the abstract, geometric nature of her vocabulary. Overlooked in all this is the way she uses her materials—the white of the plaster and translucence of the resin—to impart a ghostly, otherworldly character to her sculptures, a mood that traces its roots to the dream world of the Surrealists.

In front of a work of Ms. Whiteread's the initial impulse is to reverse-engineer it in one's mind, to trace its shapes back to the original space from which the sculpture was cast. But it's impossible; you quickly hit a dead end. Mirror writing is one thing, three-dimensional form quite another. That's good though, since it allows the sculpture to move beyond the status of mere replica as other meanings and associations emerge.

Take "Untitled (Domestic)" (2002). This enormous work, some 22 feet tall and resembling an asymmetrical V on a base, is a cast of the negative space of a fire escape staircase. (Kudos to Ms. Donovan, who has wittily installed it near an actual flight of steps.) But little is parsable beyond that, so other aspects come into view. It quickly asserts itself as a stunning abstract sculpture, its authoritative presence and audacious forms, one of them boldly cantilevered out and up, ensuring

that it commands every cubic inch of the surrounding space. At the same time its monumentality, truncated appearance and pattern of notches and surface striations com-

efforts here fail to carry. An exception is her series of doors, placed on the floor leaning against the wall. Some take their titles from the dates of their source dwellings, making the sculptures the record of specific places. Yet through her choice of material, resin, she elevates them into metaphors of passage. They become at once barriers and portals: the former because of their manifest physicality; the latter because the resin's translucence makes them penetrable by our vision. Of such modest processes and premises is poetry made.

Mr. Gibson is the Journal's Arts in Review editor.

Rachel Whiteread
National Gallery of Art, through Jan. 13, 2019



Rachel Whiteread's 'Ghost' (1990), above, and 'Due Porte' (2016), top



bine to suggest an ancient architectural fragment recovered from some desert ruin.

Ms. Whiteread's work would seem to require a certain minimum scale to be effective; some of her smaller

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SPORTS

NBA

The Future of Basketball Is Soccer

The power of star players to dictate when, where and with whom they want to play is becoming common in the NBA

BY BEN COHEN
AND JOSHUA ROBINSON

KAWHI LEONARD spent most of last winter unable and then unwilling to do his job.

He played only nine games before he was shut down with an injury, and he refused to return to the court even after the San Antonio Spurs declared him ready to play, waiting for clearance from his own doctors that never came. After the sort of drama the NBA's most stable franchise had managed to avoid for two decades, Leonard made it known that he no longer wanted to be with the Spurs. A meaningless game on Jan. 13 would be his last in a San Antonio uniform.

Meanwhile, more than 4,000 miles away in London, Alexis Sanchez found himself in a similar position: highly talented, spectacularly paid and desperate to play for another team. The turbocharged Chilean forward openly sulked during Arsenal games to force a move. He eventually got what he wanted. Twenty-four minutes of a scoreless game on Jan. 10 would be his last appearance in an Arsenal jersey.

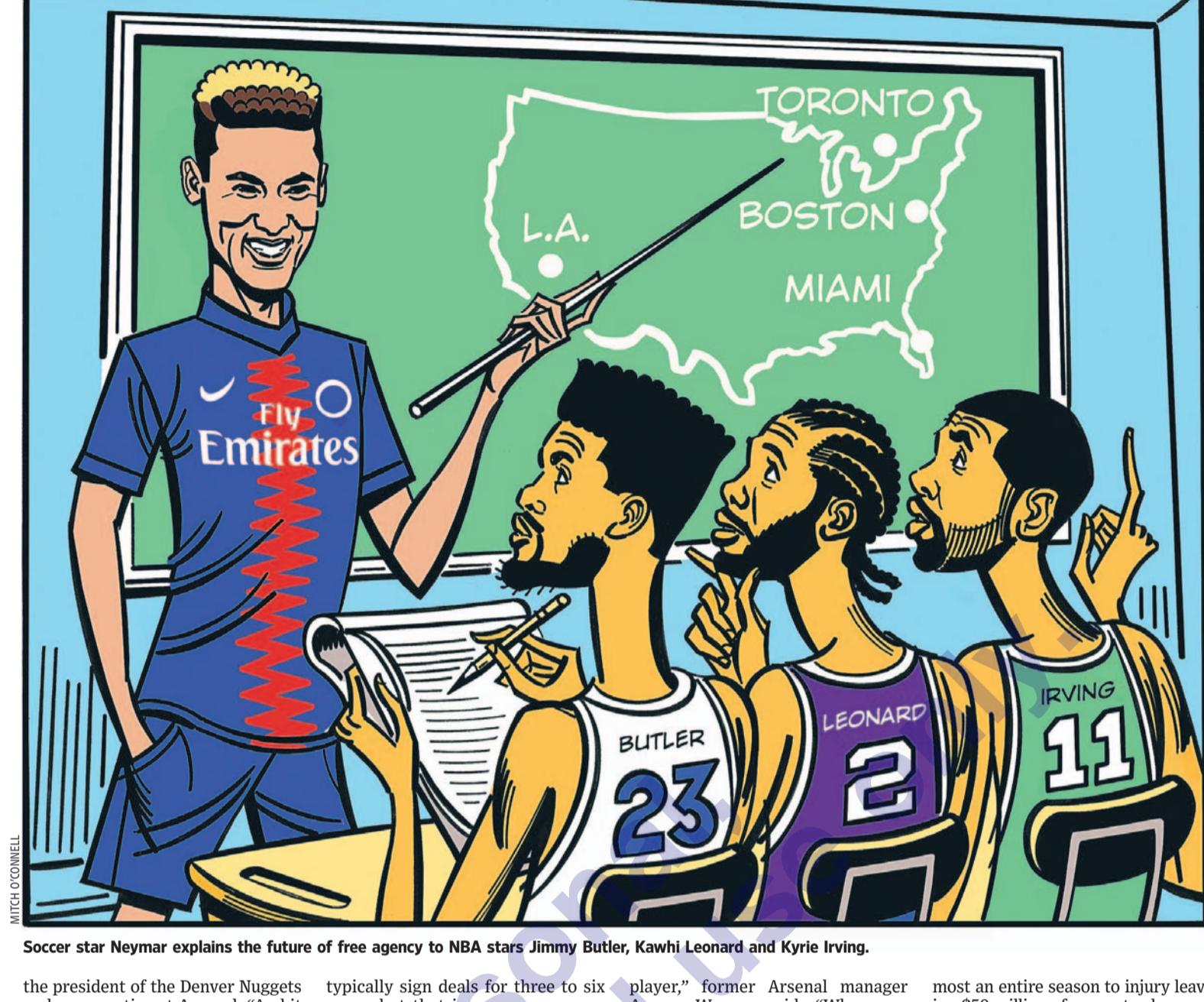
Players who can dictate when, where and with whom they want to play have long been a part of European soccer. But now these demands are becoming common in another sport across the ocean. The NBA is turning into the English Premier League in sneakers.

Minnesota Timberwolves star Jimmy Butler became the latest star to unleash chaos when, less than a week before training camp, he told his bosses that he does not intend to stick around when he's a free agent next year, launching the frenzy of rumors, speculation and trade proposals that has become as much a part of the modern NBA as centers shooting 3-pointers. Butler still hasn't been traded and still hasn't reported for work. What happens next is anyone's guess—which is why the entire NBA is guessing.

NBA players who were good enough to get their way have been taking advantage of their leverage ever since Kareem Abdul-Jabbar took his talents far away from Milwaukee in the 1970s. But they have flexed their power in the last two years like almost never before.

Leonard, Butler and Kyrie Irving won't technically be free agents until next summer, but all of them forced their teams to deal them. The result of their power plays is a parallel reality to what's happening on the court. This perpetual threat of player movement has become a sport unto itself.

"The fan interest in player movement is so high in the NBA and Premier League," said Josh Kroenke, who has his feet in both worlds as



Soccer star Neymar explains the future of free agency to NBA stars Jimmy Butler, Kawhi Leonard and Kyrie Irving.

the president of the Denver Nuggets and an executive at Arsenal. "And it definitely doesn't hurt the leagues to even have rumors out there."

Basketball and soccer have more in common than you might think. Two sets of Premier League owners also run NBA teams, LeBron James has a stake in Liverpool and NBA players are routinely among the tallest guests in Premier League luxury boxes.

They swing through Europe in the summer, drop a small fortune at Balenciaga and swap jerseys with some of the only athletes on earth who rival their international celebrity.

The power of these star players, athletes with increasingly large paychecks and valuable international brands, means the NBA might want to study the Premier League for some clues about its future.

It has long been common knowledge in Europe that contracts are merely suggestions. Soccer players

typically sign deals for three to six years, but that in no way means a player will be tied to his club for that long. Team A can swoop in with a cash offer to Team B, and Team B is free to tear up the contract and sell, provided the player finds his new destination and salary agreeable.

Once a contract enters its final two years, everyone involved gets antsy. Negotiations begin over possible renewals. If the player is ready to move on, his club starts looking for potential suitors. It all comes down to one simple calculus: sell the player while he is under contract or risk losing him for free when that contract expires.

Arsenal thought about making Sanchez play until his contract ran out at the end of last season. But with his market value north of \$30 million, the decision to cash in became a no-brainer.

"It's always sad, but there's the economic reality and the will of the

player," former Arsenal manager Arsene Wenger said. "When you can't extend a player in the last year of his contract, you have no choice but to let him go."

There are no such transfer fees in the NBA. But the possible combinations of players and draft picks required to make deals only makes the potential for those blockbuster trades all the more captivating.

It no longer matters as much that the NBA prohibits players from publicly demanding a trade. Irving privately asked to be traded from Cleveland and away from LeBron James when he still had two years left on his deal, and Leonard politely informed the Spurs that he would greatly appreciate playing for another team when he still had one year left on his deal. It was clear that he would not re-sign the supermax contract extension that only the Spurs could offer him—a remarkable example of a player who missed all

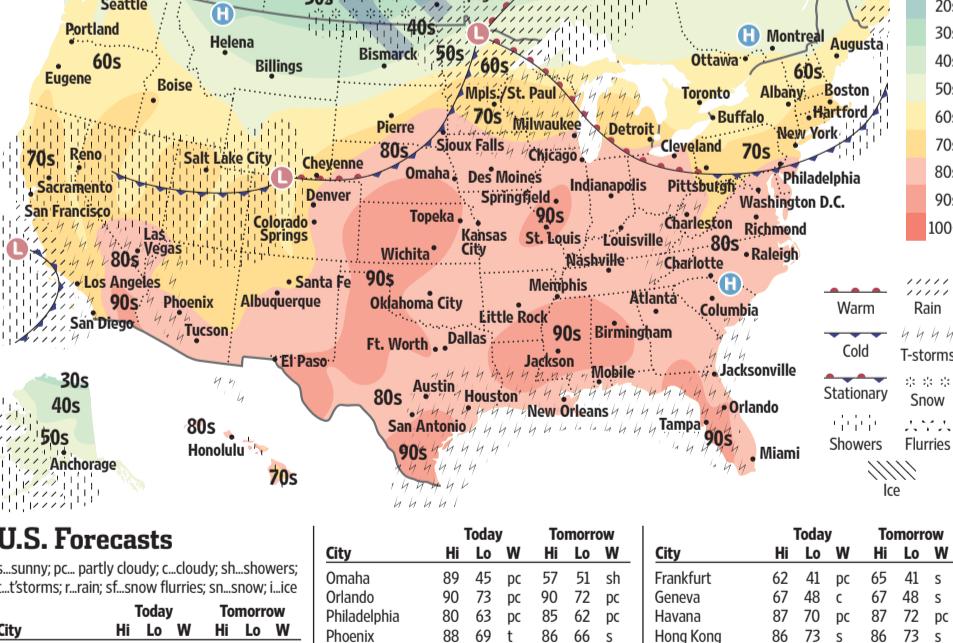
most an entire season to injury leaving \$50 million of guaranteed money on the table.

It was a reminder that the NBA has not matched the unhinged capitalism of the Premier League. What the players on the American side of the Atlantic Ocean do is driven as much by control as money.

The truth is that NBA free agency no longer starts on July 1 and ends when players technically sign with their teams. Teams have incentives to make sure their employees are always pleased: One transcendent player can transform a whole team as in no other American sports league. The dynamics of soccer, however, mean that a single big-money player's ability to change a club's fate is far more limited.

Alexis Sanchez, the striker who pouted his way out of Arsenal, is currently riding the bench for Manchester United. He has zero goals this season.

Weather



U.S. Forecasts

s...sunny; pc...partly cloudy; c...cloudy; sh...showers;

t...storms; r...rain; sf...snow flurries; sn...snow; l...ice

City Today Hi Lo W Tomorrow Hi Lo W

Anchorage 56 47 sh 53 43 r

Atlanta 89 70 s 90 70 s

Austin 89 72 pc 89 72 pc

Baltimore 81 62 pc 85 63 pc

Boise 70 50 pc 59 37 r

Boston 71 58 pc 78 58 pc

Burlington 60 51 c 70 41 r

Charlotte 87 69 s 90 69 s

Chicago 84 58 c 61 53 pc

Cleveland 80 71 c 81 50 t

Dallas 88 73 pc 89 73 pc

Denver 81 41 s 65 48 c

Detroit 77 69 c 71 45 sh

Honolulu 88 75 pc 87 75 pc

Houston 87 74 pc 87 75 t

Indianapolis 86 71 pc 77 60 t

Kansas City 88 57 pc 62 57 sh

Las Vegas 85 67 t 81 66 pc

Little Rock 89 71 s 89 71 s

Los Angeles 73 63 r 74 62 pc

Miami 89 77 pc 88 79 sh

Milwaukee 80 50 t 58 49 pc

Minneapolis 78 39 t 53 44 pc

Nashville 87 69 pc 89 70 s

New Orleans 89 76 pc 90 73 t

New York City 76 63 pc 80 59 pc

Oklahoma City 86 71 pc 86 70 pc

International

Today Hi Lo W Tomorrow Hi Lo W

City

Amsterdam 59 52 pc 64 49 c

Athens 77 66 pc 78 63 pc

Baghdad 105 75 s 103 73 s

Bangkok 92 78 t 90 77 t

Beijing 79 48 s 79 51 s

Berlin 56 43 pc 60 45 pc

Brussels 59 49 s 64 46 pc

Buenos Aires 45 s 67 45 s

Dubai 100 82 s 97 84 s

Dublin 62 52 c 61 44 c

Edinburgh 59 51 sh 61 41 r

The WSJ Daily Crossword | Edited by Mike Shenk



AIRING THE HOUSE | By Brian Thomas

- | | | |
|---|--|---|
| Across | 27 Japanese honorific | 57 "My Children! My Africal!" playwright Fugard |
| 1 Removed | 28 See 30-Down | 59 Engraver Albrecht |
| 6 Ultimate Waffle Stack seller | 31 Many a police car, familiarly | 60 "Deck the Halls" contraction |
| 10 See 9-Down | 35 Lead | 61 Argue pedantically |
| 13 Volume bit | 37 What a green flag marks? | 63 Fabled figure? |
| 14 Point at which a curve intersects itself | 38 Bro's kin | 65 Some antique autos |
| 15 Mount Merapi's island | 40 Keyboard Cat, e.g. | 66 He broke with Stalin in 1948 |
| 16 Altiplano animal | 41 Buzz in space | 67 \$\$\$ |
| 17 Brushback pitch, informally | 44 Suburbia feature | 68 Sushi choice |
| 19 Put on | 47 Director Anderson | 70 Warmly welcome |
| 20 Corrida creatures | 48 Impress greatly | |
| 22 Perspective intro | 50 Tylenol target | |
| 23 One side of the Iron Curtain | 51 It includes a tiger, a monkey, a dragon and nine more | |
| 26 Little nibbles | 54 Zsa Zsa Gabor | |

► Solve this puzzle online and discuss it at WSJ.com/Puzzles.

Down

- | | |
|---|--|
| 1 Commercial duck's utterance | 31 Wad of Skoal |
| 2 Salk's conquest | 32 Filmography listing |
| 3 One may be laser-activated | 33 Hardly avant-garde |
| 4 Canyon feature | 34 POTUS, militarily |
| 5 Perfectly | 36 Revise |
| 6 Desperate, perhaps | 39 Police force paragon |
| 7 Hostess's equivalent of Drake's Yodels | 42 Promising words |
| 8 Some lyric writers | 43 Denial from Dumas |
| 9 With 10-Across, a foreign correspondent | 45 Kick back |
| 10 Key numbers? | 46 Museum model |
| 11 Nike competitor | 49 Result of prank pulling, perhaps |
| 12 Like some lingerie | 52 Brewer's buy |
| 13 Gentle way in Japanese | 53 Orchestral offering |
| 14 Heffalump's creator | 54 Words to soothe a toddler |
| 15 Hogwash! | 55 Garlicky spread |
| 16 Groundskeeper's need | 56 "Gavel-to-gavel" broadcaster, and a hint to six long answers in this puzzle |
| 17 Showring, in a way | 57 4,840 square yards |
| 18 Tawny cat | 58 Second person in the Bible |
| 19 Tasty | 62 Post-fourth-qtr. periods |
| 20 Corrida creatures | 64 Goddess of the dawn |

Previous Puzzle's Solution

HUSBAND	SGT	TIMP
INCISOR	CIAN	NOR
VIRGINIA	HAM	ALA
EXACT	VOOM	SWAY
MAINELLO	LOBSTERS	
TSA	LITE	
AGO	TACT	ANJOU
TREVIT	ONES	CODE
BRAM	THAN	
TEXASBARBECUE		
OLEG	IRAE	HARPO
PUN	STATE	DINNER
ADO	ROM	PRECISE
ZEN	IFA	STREETS

OPINION

How GE Unraveled

BUSINESS WORLD
By Holman W. Jenkins, Jr.

chief packing.

General Electric's stock is up nearly 8% since the board canned John Flannery on Monday, a sizeable return on a binary decision, but the stock price probably is not finished driving the dismantlement of this once-storied conglomerate.

Understandably, reporters emphasize the dramatic fall in GE's market cap, from a company worth \$600 billion 18 years ago to barely \$100 billion today. But GE shrank partly through sales, having dumped its giant finance arm, its NBC network TV business, and much else.

The really stunning fall is the loss of \$175 billion in value in its current set of businesses in 20 months. How did this debacle happen?

In a company that's nowadays focused on making big machines for other companies, the GE Power business has become the new problem child. The world needs electricity—consumption is expected to grow 30% over the next 22 years. The power unit routinely produced 20% profit margins. But mistakes compound fast in a competitively and technologically demanding industry.

Writer Peter Behr impressively described the complexity of these machines in a March edition of the trade publication E&E News. Teeth-

ing problems are to be ex-

pected, but now customers have another reason to look elsewhere.

The good news is that there's a natural bottom of sorts. GE has a large installed base of turbines whose owners need continuing support. The renewables binge looks like a bit of a bubble in which investment in wind and solar exceeded investment in conventional power plants needed to back them up. Plus, there are

GE made an ill-timed purchase of France's Alstom in 2015. When the expected upswing in turbine sales turned into a downswing, GE was slow to notice or react, perhaps partly due to promises made to the French government to expand employment.

Orders fell precipitously. Cost-cutting was required, and so were painful choices about whether to slow investment in new technology. All this could only be discouraging to customers making long-lasting, high-risk decisions about whose turbines to buy. By the count of UBS, GE's share of new turbine sales fell to 11% this year from its historical share of nearly 50%.

Then more bad news arrived in recent weeks, about deteriorating fan blades in GE's new HA line of power turbines, built and tested out the wazoo to withstand high pressures, temperatures and speeds while promising users lowered operating costs.

Writer Peter Behr impressively described the complexity of these machines in a March edition of the trade publication E&E News. Teeth-

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only three major players, and the other two, Germany's Siemens and Japan's Mitsubishi Hitachi, are unlikely to ramp up investment enough to absorb GE's market share.

Mr. Flannery, GE's departing chief, leaves the job after 14 months. Last year he was portrayed as hardheaded. This year he is portrayed as slow-moving. The real problem is that the decisions are even harder to make and execute when a company knows shareholders have lost confidence in management.

Missteps quickly compound, and then the stock market takes charge.

Mr. Flannery's replacement is Larry Culp, an outsider who successfully overhauled Danaher Corp. Maybe he will do a better job than Mr. Flannery of identifying which subordinates can get the job done. Maybe Mr. Culp will goad them more effectively. But GE Power will still need to cut prices and somehow fund itself while trying to right the ship, defend its market share and deter rivals.

A conglomerate's virtue is supposedly the ability of unrelated or partly related businesses to help each other through tough times. The downside is that the stock price of a big and complex company is unlikely to register buried problems until they are far advanced. GE's stock price

long ago decided the conglomerate function wasn't working.

Under legendary CEO Jack Welch, some derided GE as a "faith stock" but his team earned the market's confidence showing they were on top of problems and reacted quickly to poor performance.

Jeffrey Immelt led the company for 16 years. Despite sweeping changes he made to GE's business model, Mr. Immelt never regained the market endorsement that Mr. Welch enjoyed. The quest ever since has been for a business mix to which the market will say "yes."

Under the departing Mr. Flannery, the company had already moved or was moving to get rid of its lightbulb, locomotive and recently bulked-up oil-field services businesses, its remaining financial businesses, and even (in a final fit of Flannery desperation) its profitable medical-device business.

Wall Street expects Mr. Culp, the new guy, to accelerate these efforts but otherwise stick to the plan. GE's aircraft-engine, power-turbine and renewable-energy businesses will remain under one roof, which everyone seems to think is sensible.

Then again, GE's recent history has been a plodding, slow-motion hunt for a structure the market will endorse. It's not impossible that these units eventually will be separated too. The stock price has been running the show at GE since Mr. Immelt was asked to leave just over a year ago. The stock price will continue to decide.

A Few Steps Toward a Steadier U.S. Politics

POLITICS & IDEAS
By William A. Galston

"Chris, this is tearing our country apart." With these words addressed to his Democratic friend Sen. Chris Coons, Republican Sen. Jeff Flake began a process that pulled American politics back from the brink. The agreement to authorize a limited FBI investigation of the allegations against Judge Brett Kavanaugh was a modest victory for decency and common sense.

But the underlying problem remains. Partisan antipathy has reached the level that led to physical altercations and murderous attacks on the floor of the House and Senate in the run-up to the Civil War.

Democrats complain about Merrick Garland; Republicans counter with Robert Bork. I am past caring who started the fight. We cannot go on this way. Both sides must stand down before it is too late.

I don't expect President Trump to withdraw his nomination. Nor do I expect the FBI inquiry to change many minds. This battle is fully joined, and it will be fought to its conclusion.

My point is broader, with a longer time horizon. Americans must at last begin to de-escalate the partisan warfare that is undermining our capacity to act in common for the common good.

Pie in the sky? Not neces-

sarily. Here are some steps that could move U.S. politics in the right direction.

First, Congress must again function in a way that provides a fair hearing to the minority party. Adopting the "Break the Gridlock" package of rules reforms backed by the House's bipartisan Problem Solvers Caucus would lessen congressional leaders' dependence on ideological groups within their own parties. Candidates for speaker should pledge to support such reforms.

Second, though gerrymandering isn't the sole or even principal cause of hyperpartisanship in the House, restraining it would reduce polarization. Voters should choose their elected representatives, not vice versa. Every state should adopt a nonpartisan redistricting commission. If necessary, Congress should pass a law mandating this practice.

Third, party leaders must de-escalate the battle over the judiciary. Every nominee deserves a hearing and an up-or-down vote. "Advice and consent" is one thing; refusal even to consider nominees is quite another. There is nothing in the Constitution that warrants holding judicial nominations hostage to the political cycle.

The Constitution specifies that all federal judges will hold their offices "during good behavior," which means that appointments are for life absent egregious misconduct. This means that judicial appoint-

ments can continue to influence the direction of the country for decades after the presidents who nominated them and the senators who confirmed them have passed from the scene.

The considerations that led the Founders to choose this course have been overtaken by events as the political reach of judges has increased. We need a constitutional amendment that limits federal judges to single 18-year terms. In the long run, this would mean that

The Kavanaugh crisis shows the need to restore bipartisanship and lower the stakes.

each president would have the opportunity to make two Supreme Court appointments every four years, and the dead hand of the past would no longer govern the future.

It is also time to reconsider the outsize role that the Supreme Court has assumed in our national life. In my view—and I address this to my fellow liberals as well as to thoughtful conservatives—we need an extended period of judicial minimalism in which the court rules modestly and incrementally, with maximum respect for precedent and settled law.

Narrow majorities cannot resolve deep cultural disputes and should not try to do so. Legislation may be slower, but it is surer, and it makes room

for local differences within the federal system. But so long as we lack a functioning national legislature, both the executive and the judiciary will have motive and opportunity to overstep their due bounds.

Absent leadership from the top, efforts to cure the mischiefs of factionalism won't get very far. Republicans will probably renominate a president who uses division as a governance strategy, while Democrats must choose to elevate either a partisan warrior or a candidate who will be willing to prioritize de-escalating the conflict.

Our country is deeply divided, and also evenly divided. For the foreseeable future, neither side can hope to score a definitive victory over the other. We have only two options: honorable compromise or an endless cycle of overreach and retribution.

In 2008 John McCain wanted to reach across the party line to select his presidential running mate. Only the prospect of a revolt at his party's convention dissuaded him. Is it too much to hope that at least one candidate for the 2020 Democratic nomination will advocate such a unifying choice?

There is a latent majority coalition stretching from the center-left to the center-right that could resolve stalemates disputes over immigration, infrastructure, trade and much else. The country is looking for a leader with the vision and skill to lead it.

BOOKSHELF | By Fergus M. Bordewich

Anticipating The Apocalypse

Looming Civil War

By Jason Phillips
(Oxford, 320 pages, \$34.95)

A head of the actual fighting, Americans thought of the Civil War in many ways: as an adventurous lark, as a class war between competing labor systems, as an avenging act of God. In "Looming Civil War," Jason Phillips delves into the mid-19th-century American psyche to explore its dreams, fantasies and nightmares. "Before the Civil War was fought or remembered," he writes, "it was imagined by thousands of Americans who peered at the horizon through an apocalyptic atmosphere."

Mr. Phillips, a professor of Civil War Studies at West Virginia University, paints a landscape peopled by a diverse cast of Americans: farmers and poets, thinkers and visionaries, slaves and free citizens. (Strangely, he ignores professional soldiers and politicians, except for Abraham Lincoln.) This rich human dimension is the greatest strength of "Looming Civil War." Less appealingly, the author works hard to fit the world he conjures into two reductive categories: a mentality of "anticipation," which confidently "approached modernity from the world of finance"; and an attitude of "expectation," according to which the war was an outsize moral reckoning, often religious in nature. Thus some Americans imagined themselves racing into an open and opportunity-filled future that they had the power to shape, while others waited for the future to approach them, driven by forces beyond human ability to control or fully comprehend.

Central to Mr. Phillips's approach is his arguable claim that a "short war myth"—the idea that Americans naively rushed into what they thought would be a brief engagement—has wrongly dominated writing about the Civil War. Although a vast number of Americans did in fact expect the war to last a mere matter of months—at one point in 1861 the War Department even stopped accepting recruits because it believed they wouldn't be needed—a host of other Americans foresaw "a horrible conflict," as Mr. Phillips persuasively shows. But then he lapses into the kind of jargon that not infrequently mars the book, observing: "The short war myth has also romanticized, whitewashed, and masculinized Civil War history. The myth privileges the rosy anticipations of politicians and soldiers over the dark expectations of women, African Americans, and civilians who felt dragged into a terrifying future by extremists from both regions. This problem not only erases how millions of Americans imagined the war but also homogenizes their temporalities."

When Mr. Phillips gets out of his own theoretical way and gets down to what Americans said, thought and did, he is a lot more readable and interesting. He has a sharp eye for the telling detail. After John Brown's bloody 1859 raid, for instance, the B&O railroad sold his pikes to passengers from its Harper's Ferry office in West Virginia until a company official decided that the pikes contributed too much to an

As war approached, feeling ran from eagerness to dread. Louisa May Alcott said she yearned for battle 'like a warhorse when he smells powder.'

atmosphere of paranoia. And the range of Mr. Phillips's research is prodigious. Drawing upon a vast archive of letters and diaries, he presents a startlingly warlike and "anticipatory" Louisa May Alcott, who declared in April 1861 that she yearned "for a battle like a warhorse when he smells powder," and young Arthur Carpenter, an Indiana shoemaker's apprentice, who wished for a long struggle that would purge the nation "of some of its filth and dead heads."

Emily Dickinson, Mr. Phillips says, shared a posture of "expectancy" with the fatalistic President Lincoln, but unlike him she denied that God had stage-managed the war. "She felt the future like a fated bullet," Mr. Phillips writes. "The dreadful suspense of waiting for its arrival was worse than the future itself, worse than death." Provocatively, he evokes the railroad and the telegraph as physical embodiments of the new ways in which Americans were being propelled, helter-skelter, into an uncertain future. For Dickinson, he writes, "the future spoke in Morse code—sudden, cryptic, and devastating." The lines of her verse, "like telegraphy, compressed language to a spare economy that permitted multiple meanings."

One of the more remarkable "anticipators," to whom Mr. Phillips repeatedly returns, was Edmund Ruffin of Virginia, who figures as no more than a bit player in more conventional histories but here looms appropriately large. Handsome, affluent and passionately devoted to slavery, Ruffin was well-known in his day as a progressive agronomist. He was also the author of a visionary 300-page novel called "Anticipations of the Future," published in 1860, which prophetically foretold secession and civil war—and, as he imagined, Southern independence. In Ruffin's tumultuous imagination, the North would eventually invade the South with armies of abolitionists bent on butchering men, women and children, but the North's Negro troops would desert en masse to return happily to their former masters, leaving the Yankees to ignominious defeat.

In the run-up to the war, Ruffin became a sort of reactionary Zelig, stumping the South as an apostle of secession, turning up at John Brown's hanging, firing the first shot against Fort Sumter, marching into combat at the First Battle of Bull Run. Things didn't go as he hoped, of course. The war's outcome violently disproved his belief that he could "read the future through reason." A few weeks after Lee's surrender, he blew his brains out.

Ruffin's story is merely one illustration of Mr. Phillips's contention that Americans projected onto the war—well before it began—an array of desires, obsessions, needs and fears. Of antebellum Americans he says that their biggest miscalculation "was not the length or nature of the war but rather humanity's ability to control it." This is a wise and fair assessment. Despite his stumbles, Mr. Phillips provides us with a new and often original understanding of how Americans of the 1860s grappled with their fate, offering a multitude of voices that we are rarely privileged to hear.

Mr. Bordewich's most recent book is "The First Congress: How James Madison, George Washington, and a Group of Extraordinary Men Invented the Government."

Trump Is Right About China Trade

By Mark Louchheim

The conventional wisdom about manufacturing is wrong. It isn't a lost cause, and the U.S. isn't destined to become a pure "service economy." In fact, new technologies including numerical controls, lasers and robotics have propelled a renaissance in American manufacturing. My Los Angeles-based bathroom-accessory and toilet-partition company has benefited from this, investing continually in our facilities, technology and best practices to remain globally competitive.

Nonetheless, our company is effectively shut out of China—a vast and growing market—due to its 25% tariffs on our exported products. In contrast, duties on competing goods from China to the U.S. range from 2.5% to zero. I love free trade, but fair trade

is also important.

President Trump's tariffs may harm major multinational manufacturing companies that have significant operations in China and companies that import products from China. But for many small and medium-size manufacturers such as ours,

which create most of our products at home, the tariffs have minimal impact. There is no better time to level the playing field with China than now. The economy is growing quickly and it can absorb the short-term pain from reciprocal tariffs. The U.S. is in a strong negotiating position because of

its large trade imbalance. The U.S. exports about \$130 billion worth of goods to China annually, while China exports \$506 billion worth of goods to the U.S. That means a larger share of Chinese output can be hit with U.S. tariffs than vice versa.

Another advantage is that a large portion of U.S. exports to China is commodities, like agricultural goods, that have markets all around the world. In contrast, Chinese exports to the U.S. are largely manufactured products, which would be more difficult to sell elsewhere.

China has more to lose in a trade war despite its bluster about not negotiating.

If America's goals are to stop unfair competition from China, preserve our manufacturing base, and open China's markets to our products, we need to look toward the long term. Over time, a level play-

ing field with fair trade and protection of intellectual property will be a good thing for U.S. manufacturers—especially those that continue to invest in new technologies. It's worth a bit of friction with China over the short term to get there.

Elite opinion is overwhelmingly opposed to Mr. Trump's China strategy, based on the assumption that U.S. manufacturing is doomed no matter what. But leaders at manufacturing companies like mine know that pressing for fair competition can help ensure the continued vitality of our industry.

Mr. Louchheim is president of Bobrick Washroom Equipment Inc., a 112-year-old Los Angeles-based manufacturing company with plants in five U.S. states, Canada and the U.K.

OPINION

REVIEW & OUTLOOK

A Vote on Judicial Independence

After angering teachers unions, the Arizona Supreme Court finds itself in an unexpected—and unwarranted—political fight. Two Justices, Clint Bolick and John Pelander, are on the ballot this fall for retention elections. Usually such votes are sleepy affairs, and no jurist on Arizona's high court has ever lost one. But unions and liberals want to make a political example this time.

Recall that after Arizona's teachers went on strike this spring, Governor Doug Ducey signed a plan to raise their pay 20% by 2020. Workers in the private economy would love that kind of bump, but the education-industrial complex wasn't satisfied. Petitions were soon circulating to put a huge tax increase on November's ballot, with 60% of the funds for teacher salaries.

Arizona's income tax has a top rate of 4.54%, starting at \$155,159 for individuals. The initiative proposed nearly doubling that rate. A new 8% bracket would begin at \$250,000. And a 9% rate—the nation's fifth-highest, surpassing New York and New Jersey—would start at \$500,000. That kick would send Arizona's snowbirds flying for a friendlier perch.

The problem was the initiative's sloppy drafting. First, the 100-word summary bungled its description of the math. It said the measure would raise the top tax rate "by 4.46%." As even an average copy editor would point out, it's really an increase of 4.46 percentage points. A lawsuit, backed by the state's Chamber of Commerce, argued that the petition "misled signers" by describing a near doubling of the tax rate as merely "modest adjustments." That is a simple statement of fact due entirely to the errors of the drafters.

Second, the initiative didn't clearly take into account Arizona's indexing of tax brackets for inflation, which began in 2015. For example, one bracket used to cover individual income from \$50,001 to \$150,000, but those figures now have ticked upward. The initiative's text simply duplicated the old numbers, without any new ref-

erence to inflation. It looks like a drafting error. But the effect would be to eliminate indexing, while rolling back the adjustments from recent years—in other words, a tax increase on pretty much everybody.

Citing the confusion, the Supreme Court threw the initiative off the November ballot in late August with a terse injunction order to meet the demands of election timing. The full opinion will be published in the next few weeks, so there's no tally yet of how each Justice voted.

But someone on Mr. Ducey's re-election campaign told a reporter the court split 5-2. Critics seized on the ruling—and the purported leak to the Governor's staff—as reason to vote "no" on Justices Bolick and Pelander. A letter to the Arizona Daily Star vented that "Clint Bolick doesn't think voters are smart enough to vote on the Invest in Ed ballot proposition."

Justices Bolick and Pelander say they had nothing to do with any leak, and we still don't know which way they voted. Meantime, the state's Commission on Judicial Performance Review agreed unanimously that they meet the court's standards, and a survey of attorneys gave both men straight As in categories such as legal ability, integrity and temperament.

Justice Pelander tells us that after decades as a judge he's disturbed by the insinuation that the court was playing politics. "We as judges do not view issues or decide cases by looking through a political lens," he says. This misguided notion, he adds, is "not only wrong, but it's really dangerous." Justice Bolick adds that "a retention election fought over anger about an opinion would have the inevitable effect of injuring judicial independence."

Proponents of the ballot measure can fix its wording and try again, though the onerous tax increase would be economically destructive. But if Arizonans join the union left in booting two qualified jurists off their Supreme Court, the damage to the judiciary won't be so easy to repair.

Unions in Arizona are trying to boot two state Supreme Court Justices.

Amazon's \$15 Political Insurance

Jeff Bezos didn't become one of the world's richest men by missing a business opportunity, and on Tuesday the Amazon CEO showed he also has impeccable political timing. His decision to raise Amazon's minimum wage to \$15 an hour will buy the tech company some political insurance while also helping it steal workers from smaller competitors.

The decision is great news for Amazon workers and is probably overdue given the company's success. Starting Nov. 1, the company will raise the pay of some 250,000 workers, including part-time, seasonal and temp workers hired by other agencies. Amazon will stop giving stock options to some warehouse workers, but the company says its hourly operations and customer-service employees who already earn \$15 will also get wage bumps.

Amazon's timing is shrewd given the tight national labor market that has companies competing for the best employees. Amazon expects to hire 100,000 temporary workers for this holiday season alone, and the \$15 wage will make it harder for competitors to retain workers who make less.

That may explain why Mr. Bezos also announced that Amazon will now lobby Congress to raise the national minimum wage from \$7.25

an hour. If Amazon is already paying \$15, it's no competitive sweat for Mr. Bezos to look virtuous for the media and politicians. Amazon is rapidly automating—an e-commerce warehouse in China has only four human employees—and its competitors lack Amazon's scale and far lower cost of capital.

Mr. Bezos's \$15 wage would be a lot more praiseworthy if he hadn't combined it with a plea for government to raise the labor costs of his competitors. Beware when big business conspires with big government.

Speaking of government, Amazon's wage increase may also buy some insurance against a looming assault from Congress. Bernie Sanders, the Vermont socialist and likely presidential candidate in 2020, has introduced the Stop Bezos Act that would tax Amazon to finance government transfer payments like food stamps. Bernie tweeted Tuesday that Amazon's \$15 minimum wage is "a big step forward for workers across the nation." Mr. Bezos also wants to hold off the federal antitrust cops, but that may cost more than \$15 an hour.

Politics aside, Amazon's wage increase wouldn't be possible if the U.S. economy hadn't risen out of its eight-year Obama doldrums. As always, the best way to raise living standards is faster growth, not political coercion.

Merging Onto the Belt and Road

All of Washington these days is scrambling to counter a rising China, and the awakening is necessary. The problem is that it too often is leading to bad policy that imitates China's behavior rather than playing to American strengths. Take a market-distorting development finance expansion now moving through Congress.

The House last week passed a measure to merge several existing development finance agencies into the U.S. International Development Finance Corporation as part of reauthorizing the Federal Aviation Administration. The bill now before the Senate would expand the Overseas Private Investment Corporation (OPIC), raising its direct lending, loan guarantee and risk insurance portfolio cap to \$60 billion from \$29 billion, as well as giving it new finance tools like owning equity stakes in projects.

The higher lending ceiling is being sold as an alternative to China's predatory development loans that have ensnared countries from Malaysia to Pakistan in multibillion-dollar Belt and Road projects. Florida Rep. Ted Yoho, a co-sponsor, summed up the logic in August: "People are waking up to what China is doing and see that we have to counter that."

Fair enough, but the first problem with this strategy is OPIC's record. The organization has veered far from its original purpose of financing U.S. investment in developing markets that private companies consider too risky without government support.

The agency's stated mission is contradicted by what supporters tout as its shining virtue: profitability. The organization boasts a low default rate and a yearly profit that has put \$8.5 billion toward deficit reduction in the last 40 years—an argument currently used in the ex-

pansion effort to placate deficit hawks. But if financing companies that go into the world's poorest and least politically stable quarters were profitable, private business would do it.

OPIC's secret is that a large chunk of its financing goes where it's not needed. According to a May 2018 Heritage Foundation report, nearly half

of the value of OPIC's outstanding commitments to individual countries are in high-income or upper-middle income countries. OPIC's larger successor would bar high-income projects but could still cover upper-middle income countries if support is "highly developmental," whatever that means.

Current beneficiaries include financing for 22 Wendy's restaurants in Georgia and Papa John's franchises in Russia. Does selling pizza in St. Petersburg require taxpayer backing? This looks more like corporate welfare akin to the Export-Import Bank. The Trump Administration says it wants to end Chinese state subsidies to business, but the antidote isn't more subsidies for U.S. business.

The best way to push back against Beijing's debt traps is what the Trump Administration has already pulled out of Asia: multilateral trade and investment agreements. Consider Malaysia, which wants to extricate itself from more than \$20 billion of Belt and Road projects. Kuala Lumpur and its neighbors lost leverage against Beijing when the U.S. pulled out the Trans-Pacific Partnership, and Washington lost a chance to write the Asia trade and investment playbook in an agreement that doesn't include China.

The new version of OPIC is likely to pass, but there's still a chance that Mr. Trump could veto the overall aviation bill. The urge to do something in the competition with China is no excuse for passing bad ideas.

Congress tries to counter China by aping its bad ideas.

LETTERS TO THE EDITOR

The Continuing Saga of Judge Kavanaugh

Regarding your editorial "Another Kavanaugh Flakeout" (Sept. 29) and other Journal opinion pieces: Watching Christine Blasey Ford tell her letter to Senator Dianne Feinstein ended up being disclosed to the public, I think Ms. Ford has been victimized twice. By her account, she was a victim of adolescent hormones in that upstairs bedroom 36 years ago but remained silent for years. With her July letter she broke her silence but proceeded cautiously, wishing to remain anonymous.

It appears someone on Sen. Feinstein's staff outed Dr. Ford. She was again victimized, only this time it was political hormones that couldn't restrain themselves. Whether in that bedroom long ago or in Washington's halls of power, her private pleas were callously ignored and a sexually abused woman was exploited again.

KEN RICCI
Larchmont, N.Y.

As U.S. citizens, taxpayers and voters who respect the civilizing rule of law, we should all thank Sen. Jeff Flake for his abiding honor, decency and courage, against enormous pressure few will ever know or imagine, to call for an FBI investigation into the allegations against Judge Brett Kavanaugh.

MIKE SCOTT
Lafayette, Calif.

If allegations of sexual abuse, dishonesty and more were brought up in any corporate hiring process, a board or CEO would be severely remiss not to seriously investigate them, if not to outright dismiss the candidate and move on to others. And if the candidate reacted with petulance, outrage, bluster and eva-

sion during the interview, even if innocent, his (or her) fitness for such an important and stressful position would be even further questionable. Any board I have served on would reject such a candidate—especially as there would likely be others far better suited for the job.

STEVE HEILIG
San Francisco

I have been both sexually assaulted and wrongly accused. I'm hard pressed to say which was worse.

KATE JOHNS
Hurricane, Utah

The U.S. Senate has turned into the Jerry Springer show.

SUSAN CHARNAS
Lakewood Ranch, Fla.

Since 1989 numerous inmates have been exonerated of murder or sexual assault charges, primarily by the discovery of objective DNA evidence (362 according to the Innocence Project). Many of the sexual-assault convictions involved victims who had sworn in court that there was absolutely no doubt in their minds that the accused had sexually assaulted them. The victims were 100% sure that the accused was the assailant.

The falsely accused, completely innocent inmates had spent years or even decades in prison.

IVARS LACIS
Peachtree City, Ga.

I really think that President Trump should nominate Hillary Clinton to the Supreme Court so an investigation of her can finally get started.

MICHAEL ADLER
Miromar Lakes, Fla.

No, Nixon Did Lobby the South Vietnamese

In his Sept. 22 letter, director of the Nixon Foundation John H. Carley says that Edward Kosner, in his Sept. 1 review of my new biography "Hubert Humphrey: The Conscience of the Country," states that in 1968 President Lyndon Johnson kept from Democratic candidate Humphrey intelligence that Republican nominee Richard Nixon was secretly urging the South Vietnamese to "stall the peace talks" in Paris until he became president and could "get them a better deal." Mr. Carley claims that "Humphrey was fully aware of the claim against Nixon" but "there was no evidence to support it."

The truth is the opposite. Johnson knew from government wiretaps that Nixon campaign operatives were urging South Vietnam's government to stall the Paris negotiations. Johnson called Republican Sen. Everett Dirksen of Illinois on Oct. 31, 1968 to complain that Nixon and his aides were playing "dirty pool," and on Nov. 2 to warn

that the Republican candidate was engaged in "treason." Dirksen replied, "I know."

Assistant Secretary of State William Bundy briefed Humphrey on Nov. 3, 1968—two days before the election—and wrote that he wondered "if I should have blown the whistle" on Nixon. He didn't, chiefly because he knew Johnson wouldn't provide copies of the tapes necessary to prove the charges against Nixon.

My book demonstrates that Johnson consistently undermined his vice president's campaign in belief that Nixon, as president, would negotiate a tougher settlement with North Vietnam than Humphrey. But Johnson's other concern was that if Nixon blocked the start of serious negotiations the Texan wouldn't be able to claim later that he had started the nation on the road to peace.

ARNOLD A. OFFNER
Newton, Mass.

Weimar and Seeing What You Want To See

Regarding Joseph Joffe's "Is Germany Slouching Toward Weimar Again?" (op-ed, Sept. 24): While the exact conditions facing Weimar Germany will never be repeated, the fact that Germans still believe many of the excuses for its failures is troubling. A case in point is the belief among so many Germans that the amount of reparations their nation was forced to agree to pay was unfair. But the Germans imposed a similar demand on the Russians for a far greater sum in 1917. And they well knew that their nation had imposed and received a substantial sum in reparations from France as a consequence of the Franco-Prussian War in 1871. In both cases it was the

other country, not Germany, that had suffered war damage.

Blaming the 1923 German hyperinflation on its reparations obligations, of which relatively little was actually paid (even though by 1928, German per capita income was among the highest in Europe), is also invalid. The cause of the hyperinflation was the massive debt Germany had incurred to finance the war, relying on borrowing in the bond market rather than on tax receipts. Ironically, the Germans had planned to make good on their war debts by imposing reparations in the amount of \$85 billion on the expected-to-be defeated Allies, compared with the \$33 billion that the Allies subsequently assessed on Germany in 1919.

The underlying problem is that in the Weimar period Germans were willing to believe whatever advanced their interests, even when the arguments supporting those beliefs were clearly invalid. After reading Mr. Joffe's piece, one wonders if this might still be the case.

VICTOR CHOLEWICKI
Washington

Pepper ... And Salt

THE WALL STREET JOURNAL



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DAVID PEARCE
Tucson, Ariz.

OPINION

Brett Kavanaugh's Righteous Anger

By Orrin Hatch

A notable shift occurred in the left's anti-Kavanaugh campaign over the weekend. Attention has turned away from Christine Blasey Ford's allegations of sexual assault—the entire reason for last week's hearing and the ensuing delay in Judge Brett Kavanaugh's confirmation vote—and toward his behavior at the hearing.

We're starting to see arguments like the following: Even if Judge Kavanaugh is innocent, what he said at the hearing, and how he said it, is disqualifying.

His foes seem to think a good judge would respond like a robot to scurrilous personal attacks.

This is rich. The hearing occurred in the first place only because of Democratic duplicity. It occurred only because Senate Democrats sat on Ms. Ford's allegations for six weeks rather than referring them to committee investigators, as they should have done immediately. It occurred only because Ms. Ford's lawyers—recommended to Ms. Ford by Senate Democrats—refused to tell their client of our invitation to testify privately in California, as she said she preferred.

That Judge Kavanaugh had the temerity to defend himself vigorously is now being counted as a strike against him. Over and over we hear him described as "angry," "belliger-

ent" or "partisan," followed by the claim that his conduct at the hearing shows that he lacks a judicial temperament. Even "Saturday Night Live" got in on the action.

You've got to be kidding me. Do the people making this argument really expect a man who until five seconds ago had an unblemished reputation to sit passively while his reputation is viciously and permanently destroyed? While he is accused of the most horrific and obscene acts imaginable? Judge Kavanaugh's critics seem to be aghast that he is a human being who is unwilling to take slander lying down.

Had Judge Kavanaugh sat dispassionately through Thursday's hearing and denied the allegations weakly, his critics would have taken his lack of forcefulness as proof of guilt. We all know this. We're not stupid. Spare us the pearl-clutching.

More to the point, this whole "temperament" argument is a non sequitur. Obviously Judge Kavanaugh would recuse himself if his own case came before the court. We're told that a man who reacts with understandable indignation when he is falsely accused cannot be a dispassionate arbiter of disputes involving third parties.

But we don't need to guess about how Judge Kavanaugh behaves when he's actually on the bench. He has a 12-year track record. And here's what the American Bar Association had to say about him after interviewing more than 100 fellow judges and lawyers who know and have appeared before him: "Lawyers and judges overwhelmingly praised Judge Kavanaugh's judicial temperament."

Then there's the matter of Judge



WIN MCNAMEE/POOL/ZUMA PRESS

Judge Kavanaugh testifies before the Senate Judiciary Committee Thursday.

Kavanaugh's alcohol consumption. Not since Prohibition have so many news outlets reported on drinking habits with such interest.

Countless articles have been written about how Judge Kavanaugh "lied" about his high-school and college drinking at the hearing, thereby calling into question his honesty. These articles claim the judge portrayed himself as a "choirboy" who, in the words of the New York Times, enjoyed "a beer or two as a high school and college student." Then they hit back with quotes from college acquaintances who say they saw the judge drink quite a lot.

This is known in the business as a straw man. Judge Kavanaugh never claimed he always drank in moderation. To the contrary, he admitted, "Sometimes I had too many beers." If Judge Kavanaugh's opponents want to claim he lied about his drinking when he was younger, perhaps they

should stop lying about what he actually said.

A slightly different straw man concerns Judge Kavanaugh's statements at the hearing that he never blacked out from drinking. The Times and others have gathered testimonials from classmates who say they heard the judge "slur his words" and saw him "staggering" from alcohol consumption, as if this were proof that he blacked out from drinking. But of course Judge Kavanaugh never denied that he slurred his words or staggered. He said he never blacked out. Even a teetotaling Mormon knows the difference.

What's going on here is obvious. Having failed to bring down Judge Kavanaugh with unsubstantiated allegations of sexual abuse, his opponents are now trying to call into question his character in defending himself from those allegations. It's the ultimate set-up job. If the initial

charges don't work, we'll destroy him when he defends himself. The good judge is damned no matter what he does.

This is further evidence that this whole sordid saga was never about the truth. It was never about justice for Ms. Ford. It was always and only about defeating Judge Kavanaugh by any means necessary. If the claims about sexual assault—a serious and important topic that deserves respectful consideration, not this farce—fail to stick, we'll take him down with straw men about drinking and nitpicking about yearbooks.

The latest claim is that Judge Kavanaugh lied when he testified that he first learned about Deborah Ramirez's allegations of lewd conduct from "the New Yorker story." NBC News reports he might have discussed the matter with fellow Yale alumni before the story's publication. In fact, he testified he'd heard "that she was calling around to classmates trying to see if they remembered" the events she described. The New Yorker quotes him denying the allegations—so it seems a fair conclusion he learned of the precise claim from the New Yorker story as it was being prepared for publication.

He also reportedly threw ice at someone in a bar in 1985. So there's that.

I for one have had enough of this charade. Judge Kavanaugh is a good man and a good judge who doesn't deserve this treatment or anything like it. What he does deserve is confirmation.

Mr. Hatch, a Utah Republican, is president pro tempore of the U.S. Senate and a member of the Judiciary Committee.

The Justices Can Undo a Constitutional Catch-22

By Ilya Somin

Rose Mary Knick lives on a 90-acre plot of farmland in Pennsylvania that her family has owned since 1970. But according to the local government, the property isn't entirely hers. In 2012 it enacted an ordinance requiring owners of "cemeteries" to allow unrestricted public access to their land and submit to inspections. In April 2013, a township code-enforcement officer searched Ms. Knick's land without her consent, concluded that some stones there were actually grave markers and deemed part of the area a "cemetery" subject to the law. If Ms. Knick refuses access to inspectors or anyone else, she could be fined up to \$600 a day.

On Wednesday the Supreme Court hears oral arguments in *Knick v. Township of Scott*. The justices have an opportunity to ensure that people whose property rights have been violated by state and local governments can get their day in federal court

same as victims of violations of other constitutional rights.

In most situations, giving outsiders a blanket right to trespass on private land counts as a taking under the Fifth Amendment, and the government must pay the owner

A 1985 ruling makes it all but impossible to have certain takings cases heard in federal court.

"just compensation." Yet a misguided Supreme Court decision prevents federal courts from even considering Ms. Knick's case. Although she is before the high court, no federal judge has considered her case on the merits.

Ms. Knick is not alone. The town of Ponce Inlet, Fla., encouraged homeowners Simone and Lyder Johnson to spend several million dollars preparing to develop 10

properties they owned in the area, only to forbid the development after the balance of power on the Town Council shifted in favor of the project's opponents.

The roadblock standing in Ms. Knick's, the Johnsons' and so many others' way is *Williamson County Regional Planning Commission v. Hamilton Bank* (1985). Under this precedent, a plaintiff who claims the government has taken his property by regulation cannot file a case in federal court until he has first obtained a "final decision" from state regulatory agencies and has "exhausted" all possible state-court remedies. Even then it is often impossible to bring a federal case, because procedural rules generally bar federal judges from reviewing cases decided in state court.

In a traditional eminent-domain case, government takes the property outright and there is no dispute: it owes compensation. "Inverse condemnation" cases of the sort governed by *Williamson County* arise when the government restricts

property rights but denies any taking has occurred. The owner then has to prove it has to obtain compensation.

Williamson County is a Catch-22 for property owners victimized by state or local governments. They cannot file claims in federal court unless they go to state court first. But the very act of getting a decision from a state court bars them from getting into federal court afterward. No such rule has ever been applied to other constitutional rights. Plaintiffs who claim that state or local governments have violated their rights to freedom of speech, freedom of religion or equal protection are not required to "exhaust" byzantine state remedies before bringing a federal case.

The standard justification for *Williamson County* is that a state or local government has not really "taken" property until its actions have been finalized by a regulatory agency and upheld by state courts. By the same reasoning, one could argue that a state has not really "censored"

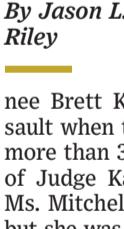
speech or "suppressed" religion until bureaucrats and judges uphold the policy in question.

In many cases, there may be little difference between state and federal courts. But in some, particularly when the issues are difficult and unclear, state courts may be biased against property owners because judges have close connections to the government officials who are defending their actions. This is an especially pronounced risk in the many states where judges are elected.

The time has come for the court to overrule a badly flawed precedent and give takings claims the same access to federal court available for violations of other constitutional rights.

Mr. Somin is a law professor at George Mason University and an adjunct scholar at the Cato Institute. He is author of "The Grasping Hand: Kelo v. City of New London and the Limits of Eminent Domain," and co-author of a friend-of-the-court brief in the Knick case.

The Mitchell Memo's Devastating Conclusions



Rachel Mitchell, the outside prosecutor hired by Senate Republicans, took some heat last week for the methodical manner in which she questioned Christine Blasey Ford, the college professor who has accused Supreme Court nominee Brett Kavanaugh of sexual assault when they were in high school more than 35 years ago. Supporters of Judge Kavanaugh had expected Ms. Mitchell to be more combative, but she was more interested in being thorough. Now we know why.

On Sunday Ms. Mitchell sent senators a nine-page memo outlining her assessment of Ms. Ford's testimony, and the portrait she paints of the accuser is devastating. Ms. Mitchell writes that Ms. Ford "has not offered a consistent account of the alleged assault"—when it hap-

pened and what occurred—and has even "struggled to identify Judge Kavanaugh as the accuser by name."

"A 'he said, she said' case is incredibly difficult to prove," writes Ms. Mitchell. "But this case is even weaker than that. Dr. Ford identified other witnesses to the event, and those witnesses either refuted her allegations or failed to corroborate them." One of those supposed witnesses is Leland Keyser, a lifelong friend of Ms. Ford, whose attorney has stated: "Simply put, Ms. Keyser does not know Mr. Kavanaugh and she has no recollection of ever being at a party or gathering where he was present, with, or without, Dr. Ford."

Sexual-assault victims, we are told, sometimes experience memory lapses, and given the amount of time that has passed since the alleged event occurred in the early 1980s, it's no surprise that Ms. Ford doesn't remember every

detail. What's remarkable is how Democrats on the Senate Judiciary Committee have attempted to turn her inconsistent statements and memory lapses into a virtue. By their logic, the hazier the recollection, the more credible the allegation.

The outside prosecutor demonstrates that Ford's allegations against Judge Kavanaugh don't stack up.

Ms. Mitchell, who has been prosecuting sex-related and other crimes for nearly a quarter-century, isn't buying it. Whether the witness looked or sounded like someone who believed what she was saying matters less than whether her account can be corroborated. Ms. Ford's memory loss seems rather

selective and her inconsistencies have piled up—not only over the past three decades but also over the past three months. In early July she told the Washington Post that the assault occurred in the "mid-1980s." Later that month, she told Sen. Dianne Feinstein that it occurred in the "early 80s." By September, Ms. Ford was convinced that she was attacked in the "summer of 1982." "While it is common for victims to be uncertain about dates," writes Ms. Mitchell, "Dr. Ford failed to explain how she was suddenly able to narrow the time-frame to a particular season and particular year."

Ms. Ford, who possesses two master's degrees and a doctorate, claims that she knew how to contact her congresswoman but not her senator. She says she struggled academically in college due to the assault, but makes no claim of struggling through her final two years of high school. Even her age

at the time of the alleged incident has varied in her descriptions over the years. In 2013 she told a therapist it happened in her "late teens." Now she says it happened when she was 15. And so on.

Majority Leader Mitch McConnell said Monday that the Senate will start voting this week on the nomination, and let's hope he means it this time. Judge Kavanaugh has denied Ms. Ford's allegations, and the other women who have come forward have been even less credible. The only thing we seem to have established is that Judge Kavanaugh drank—sometimes to excess, when he was young—which he doesn't deny and which isn't evidence that he sexually assaulted Ms. Ford or anyone else.

Assenting to the FBI investigation was a mistake. The Republicans know that it is a mostly redundant exercise intended to postpone a vote until after the midterm elections, not determine what did or didn't happen 36 years ago. Agents are re-interviewing people who were already contacted by Senate staffers. Judge Kavanaugh's six previous background checks over the past 25 years have turned up nothing, let alone something this serious. What would be fishy is if the seventh background check turned out any differently.

Predictably, Democrats have used the delay to argue that a one-week investigation is insufficient and that the probe's scope is too limited. They've also decided, based on Judge Kavanaugh's response to some of the allegations, that he lacks the right "temperament" for a Supreme Court justice. The bigger concern for the country might be the temperament of Senate Democrats who are so willing and eager to dispense with due process in order to prevent President Trump from filling a Supreme Court vacancy.

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Notable & Quotable: Maçães

Portuguese political scientist Bruno Maçães in a Sept. 26 interview with Tyler Cowen:

Cowen: Is the United States today capable of making a fundamental break with the past?

Maçães: I think it is. . . . Trump and everything else that is happening here shows that there is a deep discontent and an attempt to look for other ways, which may turn out, and almost inevitably will turn out, to be misguided at first. But in the end, it may work out. . . .

Cowen: Going back to the United States, which is the segment or part of American society that's still most adventurous, least complacent?

Maçães: The politics is wonderful. For a European, I have to say—almost

everyone in

WORLD NEWS

Iraq President Picks Compromise Premier

Deal between rival Shiite factions follows broad public protests, rejection of incumbent

BAGHDAD—Iraq's newly elected president nominated a new prime minister after a compromise between rival Shiite factions that ended weeks of soaring tensions.

*By Ali Nabhan,
Ghassan Adnan
and Isabel Coles*

President Barham Salih on Tuesday asked Adel Abdul Mahdi to form Iraq's next government, nearly five months after an election in which the U.S. and Iran backed rival political factions.

Iraqis this summer demonstrated against poor public services. Those rallies flared into violent rejections of the entire political class, prompting Iraq's most influential Shiite cleric, Ayatollah Ali al-Sistani, to rule out the incumbent Prime Minister Haider al-Abadi, whose prospects were already fading.

Veteran Shiite politician Ibrahim Bahr al-Uloum said



Newly designated Prime Minister Adel Abdul Mahdi, second left, walked with newly elected President Barham Salih, center, on Tuesday.

KHALID AL-MOUSLY/REUTERS

the popular anger and pressure from Mr. Sistani had spurred rival Shiite parties to agree on Mr. Abdul Mahdi as a compromise candidate.

The new government will face a daunting list of domestic and regional challenges af-

ter Iraq recently emerged from three years of war with Islamic State that devastated parts of the country. Islamic State already has reverted to insurgency and tensions between the U.S. and Iran are escalating as the Trump administration

seeks to isolate Tehran.

Following the May 12 election, their rivalry escalated dangerously in Iraq when protesters in Basra in September torched the Iranian consulate and rockets were fired at U.S. diplomatic missions. The U.S.

blamed Iranian proxies for the attacks and last week closed its consulate in Basra. Iran, in turn, has accused the U.S. of instigating protesters to burn its consulate.

Mr. Abdul Mahdi is seen as a moderate who can balance

Iraq's interests with those of the U.S. and Iran, some analysts and politicians say.

He entered the political process after the U.S.-led invasion of 2003 as part of the Iran-sponsored Supreme Council for the Islamic Revolution, but also has good relations with the U.S.

The U.S. ambassador to Iraq, Douglas Silliman, congratulated Mr. Abdul Mahdi on his nomination on Twitter: "The USA will work with the future PM to help his government meet the needs and aspirations of all the people of Iraq."

Mr. Abdul Mahdi now has 30 days to present a cabinet, which requires a majority of votes from the assembly.

The May 12 election was marred by allegations of fraud and produced no clear winner. Shiite parties split into two camps, resulting in deadlock between parties clustered around Mr. Abadi, who the U.S. had hoped would win a second term, and the other dominated by factions with close links to Iran.

Once Mr. Abadi was sidelined, the way was paved for an agreement, said Kirk Sowell, who runs a newsletter on Iraqi politics.



Mr. Khashoggi said he feared for his safety when he left Saudi Arabia.

Saudi Critic Appears To Be Held in Consulate

By MARGHERITA STANCATI

A prominent Saudi journalist and political commentator who criticized the government hasn't been heard from since entering Saudi Arabia's consulate in Istanbul, said his fiancée, in what appears to be the latest effort by the kingdom to stifle dissent.

Jamal Khashoggi, 59 years old, entered the Saudi consulate at around 1 p.m. on Tuesday, and hasn't emerged from the building since, said the fiancée, who accompanied him there. "I have been waiting in front of the Saudi consulate for nearly 12 hours," she said. "We were trying to marry."

Mr. Khashoggi couldn't be reached to comment. Saudi government representatives didn't respond to requests to comment. A person who answered the phone at the Saudi consulate in Istanbul, Turkey, said he had no information about Mr. Khashoggi. Turkish authorities didn't respond to messages seeking comment.

Mr. Khashoggi had an appointment at the Saudi consulate on Tuesday to collect paperwork related to his divorce, his fiancée said. The woman, a Turkish citizen, said she

wasn't allowed inside the building and has received no information on her partner's status from Saudi authorities.

Mr. Khashoggi became one of the most outspoken critics of the Saudi government under the leadership of Crown Prince Mohammed bin Salman. He repeatedly denounced a far-reaching campaign of arrests that targeted perceived dissenters, from influential clerics to women's rights activists.

Mr. Khashoggi left Saudi Arabia last year to live in Washington, D.C. There, he has written columns for the Washington Post's opinion pages.

"It was becoming so suffocating back at home that I was beginning to fear for myself," he told The Wall Street Journal shortly after leaving his home country.

Prince Mohammed, Saudi Arabia's de facto ruler, is behind some of the kingdom's most liberal reforms in decades, from allowing women to drive to lifting the ban on cinemas. But under his watch, the Saudi government has also shown a zero-tolerance approach to dissent, with dozens of high-profile Saudis in jail, among them some of the country's best-known women's rights activists.

WORLD WATCH

NATO U.S. Envoy Threatens Russia Over Missiles

The U.S. ambassador to NATO said Washington could choose to "take out" new Russian missiles that Western allies say violate a nuclear-arms ban, if Moscow fails to comply with the Cold War-era treaty.

"They are on notice," U.S. Ambassador Kay Bailey Hutchison said Tuesday. She said in a Twitter message later that she wasn't referring to a pre-emptive strike. The State Department said she was referring to U.S. work on "improving our overall defense and deterrence posture."

Still, Mrs. Hutchison's news conference produced diplomatic shock waves, with Russian Foreign Ministry spokeswoman Maria Zakharchova citing the "danger of such aggressive rhetoric," in comments reported by the Russian news agency TASS.

—Emre Peker

AFGHANISTAN Suicide Bomber Strikes Election Rally

A suicide bomber killed at least 13 other people in an attack on an election rally in Afghanistan on Tuesday, local officials said, highlighting security challenges ahead of parliamentary elections this month.

At least 30 people were wounded in the attack in the eastern province of Nangarhar, according to local officials. Several of the wounded are in critical condition, said Attaullah Khogyani, a spokesman for the provincial governor. According to Mr. Khogyani, the bombing took place in Kama district, where supporters of Abdul Nasir Momand, an independent candidate, gathered to pledge their support for him in the elections.

No group has claimed responsibility for the attack but both the Taliban and a local affiliate of Islamic State have a strong presence in the province.

—Ehsanullah Amiri

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THE WALL STREET JOURNAL.

Wednesday, October 3, 2018 | B1

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GE Cash Fears Rise, Rating Falls

By THOMAS GRYTA

As a new leader takes over at **General Electric Co.**, worries about cash flow have led investors to fear the conglomerate will need to cut its once-reliable dividend yet again.

The concern, analysts say, comes from a \$23 billion write-down in its biggest business—which makes power turbines—and a warning that cash flow is going to be softer than expected.

S&P Global Ratings on

Tuesday downgraded its long-term credit rating on GE by two notches to BBB-plus, putting the struggling industrial company three notches above junk debt. Both Moody's Investors Service and Fitch Ratings warned they, too, were preparing to lower the company's credit ratings, with Moody's noting it may lower GE by more than one notch.

"GE has a sound liquidity position, including cash and operating credit lines," a spokeswoman said. "We re-

main committed to strengthening the balance sheet."

Tuesday, yields of GE bonds rose as prices fell and investors demanded higher compensation for holding debt from the conglomerate. The yield on the firm's 30-year bond jumped almost half a percentage-point, hitting an intraday high of 6.3%, according to data from MarketAxess. GE's debt represents about 1% of a widely followed investment-grade corporate bond index and \$534 million of the

bonds traded after the ratings actions, more than any other company's debt.

Before the financial crisis, GE was one of the few non-financial companies to hold a coveted AAA rating. After five decades, it lost that designation in 2009 amid troubles in its GE Capital financial services business. Before the latest downgrade, S&P's rating on GE was single-A.

GE named Larry Culp as CEO on Monday, replacing John Flannery after just 14

months and less than a year since Mr. Flannery cut the dividend payout in half to 48 cents a year. Mr. Flannery revealed that GE hadn't produced enough annual cash flow to pay its dividend for years. But even the reduced dividend payout of \$4.2 billion may need to be cut or eliminated, analysts say.

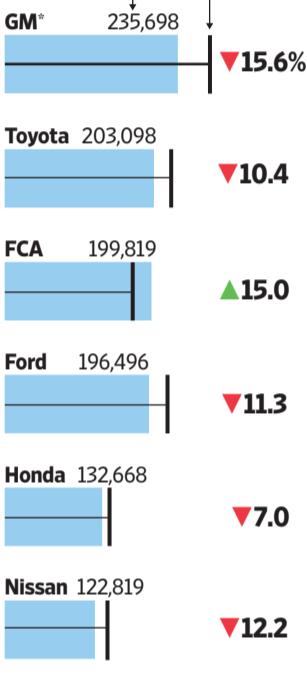
"I think that will come from going to the dividend first," said UBS analyst Steven Winkler, who also expects Mr. Flannery to cut the dividend.

Please turn to page B2

Auto Sales Weaken as New Trade Pact and Tariffs Loom Over Industry

Fiat Chrysler was an exception last month, reporting a 15% increase in U.S. sales.

Vehicle sales for September



*Analyst estimates
Source: the companies
THE WALL STREET JOURNAL.



UNDER THE HOOD: U.S. auto sales dropped 6% in September from a year earlier, which analysts attributed to there being one less selling day last month and a surge in sales in September 2017 as buyers rushed out to replace hurricane-damaged vehicles. B2

FDA Seizes Documents at E-Cigarette Firm

By JENNIFER MALONEY

The Food and Drug Administration conducted a surprise inspection of **Juul Labs Inc.**'s San Francisco headquarters last week as U.S. health officials combat what they call the harmful and surging use of e-cigarettes by youngsters.

FDA inspectors collected more than 1,000 pages of documents at the e-cigarette startup's offices, focusing on sales and marketing practices, the agency said Tuesday.

Juul Chief Executive Kevin Burns said the company had "constructive and transparent" meetings with inspectors. He added that Juul has now released more than 50,000 pages of documents to the FDA, following the agency's initial request in April for information that could help explain why its devices and flavored liquids appeal to youths. "We want to be part of the solution in preventing underage use," Mr. Burns said.

The use of Juul and similar USB-shaped e-cigarettes is "especially dangerous among youth because these products contain extremely high levels of nicotine, which can harm the developing adolescent brain," said Corinne Graffunder, director of CDC's Office on Smoking and Health.

Last week's headquarters visit followed FDA inspections earlier this year of third-party facilities contracted to manufacture Juul products. An agency spokeswoman declined to comment Tuesday on the inspectors' findings.

Juul last year sold 16.2 million of its devices, according to data released Tuesday by the Centers for Disease Control and Prevention. That was up from the 2.2 million Juul devices sold in 2016, the CDC said.

Sales of the devices and accompanying pods of nicotine-laced liquids have continued to surge this year. Juul now represents 73% of the \$2.5 billion U.S. e-cigarette market, according to a Wells Fargo analysis of Nielsen data. That doesn't include internet sales.

The number of high-school students who used e-cigarettes in the past 30 days has risen roughly 75% since last year to about three million, or about 20% of high-school students, according to unpublished preliminary federal data.

FDA commissioner Scott Gottlieb said in September that teen use of e-cigarettes "has reached an epidemic proportion." He announced new measures to curb teen vaping and said he was considering banning flavored products.

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PERSONAL TECHNOLOGY | By Joanna Stern

Finally Falling for Apple Watch

Bourbon. Apple Watches. Got your attention? Good. The two share a deep commonality. Not, no a rich amber color or notes of vanilla. They're both best aged for a minimum of four years. See for yourself:

2015—A very slow wrist computer? A fancy-pants watch? A Fitbit with bad battery life? Apple didn't quite know, but shipped the Watch anyway.

2016—Scratch that. It's a fitness wearable. With better

activity tracking, GPS and water resistance, the Series 2 Watch gobbled up a chunk of the fitness-tracker market, but it still suffered from poor battery life, especially during workouts.

2017—Apple added cellular connectivity (not without hiccups) and a faster processor to the Series 3, but it was still the same ol' thing.

2018—with a bigger screen and powerful health additions, Apple's Series 4 wearable is a lot nicer to use and finally makes a lot of sense—and not just for young people who know

what burpees are.

I guess you could call this the I-told-you-so review. Over the past few years, I've said the Watch is a good fitness device but various aspects needed more time.

The Series 4 feels like it has been through a needed maturation process, with refinements to the screen, the battery, the cellular connectivity and more. And its new potentially lifesaving EKG and fall-detection features make it desirable for people who might well remember the Eisenhower administration.

Please turn to page B5

Toys 'R' Us Owners Plan to Revive Brand

By LILLIAN RIZZO

A group of hedge funds in line to take control of **Toys "R" Us**—the same group that pulled the plug on the retailer's reorganization this year—intend to revive the business behind the Toys "R" Us and Babies "R" Us brand names.

The retailer said in court papers filed Monday that while it received qualified bids for assets—which include the brand names of Toys "R" Us, Babies "R" Us, registry lists, website domains, Geoffrey the Giraffe and other assets—it has opted to forgo a much-anticipated bankruptcy auction for its brand name and other intellectual-property assets.

Toys "R" Us's proposed reorganization plan contemplates "a new, operating Toys "R" Us and Babies "R" Us branding company that maintains existing global license agreements and can invest in and create new, domestic, retail operating businesses" under the brand name, court papers said.

The company's controlling lenders—the hedge funds that pulled the plug on the retailer's reorganization earlier this year—have determined the qualified bids wouldn't likely "yield a superior alter-

native to the plan," because of factors including the recovery to creditors, as well as the benefits to other stakeholders in maintaining the brands "under a newly-established, independent U.S. business."

The pivot comes after the company consulted with its controlling parties—a group of lenders that includes **Solus Alternative Asset Management** and other hedge funds—that were behind the retailer's decision to close its doors. The intellectual property is considered "a valuable piece" of the lenders' collateral, according to court papers.

Solus has denied playing any role in the liquidation of the retailer. A company spokesman declined to comment, and a Solus spokesman didn't immediately respond to a request for comment.

Control of the retailer's intellectual property has pitted the lender group, including Solus, against Toys "R" Us's foreign-subsidiary bondholders. Toys "R" Us's intellectual property also plays a role in the sale of its Asian business, as any acquirer of the business would have to negotiate the use and cost of the intellectual property, or be subject to legal action. A group of bondholders has placed an opening bid on the Asian business.

Tech Titans

Tencent Music would be one of the largest U.S.-listed tech IPOs ever by valuation.

Alibaba Group	\$169.4 billion
Facebook	81.2
Spotify*	26.5
JD.com	26.2
Tencent Music	25.0
Google	23.1
Palm	21.3
Pinduoduo	21.2
Infineon Technologies	21.1
Snap	20.0
Tycom	16.4

*IPO was a nontraditional direct listing.

†Recently valued at \$25 billion

Source: Dealogic

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BUSINESS NEWS

PepsiCo Pulls Out Of a Drinks Slide

By JENNIFER MALONEY
AND KIMBERLY CHIN

Sales of beverages in **PepsiCo Inc.**'s home market ticked up in the latest quarter, reversing a yearlong slide at the soda giant's largest division.

Profit for the segment fell 11% from a year earlier, dragged down by increased spending on advertising and marketing, and higher transport and aluminum costs, **PepsiCo** finance chief Hugh Johnston said. As a result, the company raised prices on its North American beverages by low single-digit percentages in September.

PepsiCo also plans to increase prices on single-serve Frito-Lay products by 4% to 5% this week because of higher transportation costs. The company's North American snacks business handles much of its own transportation but has been under pressure to raise wages in a tightening labor market.

Overall, the maker of Quaker Oats and Doritos posted a profit of \$2.5 billion, or \$1.75 a share for its fiscal third quarter, up from \$2.14 billion, or \$1.49 a share, a year

earlier.

PepsiCo expects new flavored seltzer brand Bubly to exceed \$100 million in sales this year. Mr. Johnston said the company's research-and-development team created appealing flavors, and "I think we've barely scratched the surface."

Sales of core brands such as Pepsi-Cola, Mountain Dew and Gatorade had slumped after the company shifted too much advertising money and shelf space to new brands last year, executives have said. Earlier this year, the company stepped up advertising and marketing support for those core brands.

That spending has paid off, Mr. Johnston said. Sales increased in the latest quarter for Pepsi, Mountain Dew, Gatorade and ready-to-drink Starbucks coffee, he said. Overall, advertising and marketing expenses rose 6% in the quarter, which ended Sept. 8.

PepsiCo's revenue for the quarter rose 1.5% to \$16.49 billion. North American beverages revenue climbed 2%, the first quarterly rise since the second period of 2017.

The company said it expects fiscal 2018 organic revenue growth of at least 3%, up from the 2.3% it previously forecast. Organic revenue excludes the impact of acquisitions, divestitures and currency effects.

Chief Executive Indra Nooyi, who led **PepsiCo** for 12 years, will exit her role Wednesday. During her tenure **PepsiCo**'s annual revenue rose 81% to \$63.5 billion last year. **PepsiCo** veteran Ramon Laguarda, who was promoted to president last year, will take over as CEO.

PepsiCo has diversified its portfolio during Ms. Nooyi's tenure. In August, the company agreed to purchase seltzer-machine producer SodaStream International Ltd. for \$3.2 billion.

Shares in **PepsiCo** fell 1.8% to \$108.72 on Tuesday.



The facility on British Columbia's Pacific Coast will fill tankers bound for customers in Asia. An LNG unloading terminal in China.

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Shell Launches Gas Project

Long-delayed venture in Canada will proceed, signaling confidence in global markets

By SARAH KENT
AND SARAH MCFARLANE

LONDON—A group led by **Royal Dutch Shell PLC** is pressing ahead with a major Canadian liquefied-natural-gas project after years of delay, the company said Tuesday, raising competition for LNG developments in the U.S. already under pressure from new Chinese tariffs.

The 14-million-metric-ton-a-year project in British Columbia is the biggest LNG development to gain investment approval in years and the first for Canada. By the mid-2020s, it is expected to start sending tankers of supercooled natural gas to demand centers in Asia.

Shell and its partners' commitment to the project, which will cost roughly \$14 billion to build, signals growing confidence in global gas markets, as rising demand diminishes the threat that new supplies will cause a glut. The project was announced in 2012, but weak prices had pushed back a final investment decision expected in 2016.

The Anglo-Dutch oil company has bet big on natural gas, with its 2016 acquisition of BG Group for approximately \$50 billion making Shell the world's largest non-state-backed competitor in the LNG market.

A cluster of other large gas-export projects are currently vying for approval in Qatar, Russia, Mozambique and the U.S. However, in the U.S. the outlook is dimming.

In September, China imposed a 10% tariff on imports of superchilled gas from the

U.S. in retaliation to levies imposed by the Trump administration. China is the biggest source of new global LNG demand and is expected to be a voracious consumer in the coming years as a result of the country's efforts to move away from smog-inducing coal-fired power. Chinese demand rose about 50% in 2017.

"Right now, this is not very good for American LNG projects working hard to take final investment," said Morten Frisch, a U.K.-based independent gas-industry consultant.

The U.S. is already exporting growing volumes of LNG from terminals in Louisiana and Maryland, and more than a dozen projects are awaiting regulatory approval in the U.S. Analysts say only a few are likely to get the go ahead before the end of next year, and if Chinese buyers fall away those projects could become more difficult to finance.

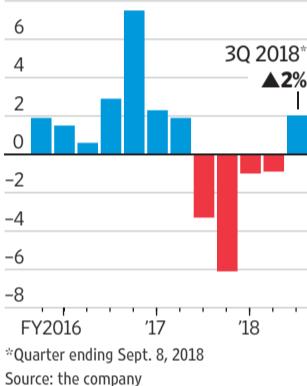
"When the Chinese decided to put tariffs on U.S. gas the one takeaway we had from that is that the real losers will be U.S. LNG projects," said Trevor Sikorski, head of natural-gas research at consulting firm Energy Aspects.

Shell's new development is designed to send gas from Canada, where prices are relatively low, to Asia, where it can fetch a premium. Aside from any tariff advantage over U.S. gas, the project, called LNG Canada, benefits from its location: The shipping distance from Kitimat, British Columbia, to North Asia is about 50% shorter than from the U.S. Gulf of Mexico and avoids the Panama Canal.

Shell said construction of the project—which has the backing of the Canadian government—would start immediately, with production expected to begin before the mid-2020s.

Pop Up

PepsiCo's beverage sales in North America, change from previous year



*Quarter ending Sept. 8, 2018
Source: the company
THE WALL STREET JOURNAL.

J.C. Penney Names Soltau CEO

By MARIA ARMENTAL

Retailer **J.C. Penney & Co.** has appointed Jill Soltau as its next chief executive, succeeding Marvin Ellison, who left the firm in June for Lowe's Cos.

The 51-year-old retail veteran, will join Penney on Oct. 15 from **Joann Stores**, where she had been the CEO and president since March 2015.

Her appointment comes a week after Penney announced its finance chief, Jeffrey Davis, left the firm. With its CEO in place, Penney is focusing on the CFO search and will hire an outside firm to help identify a candidate, a company spokeswoman said Tuesday.

The Plano, Texas, company has closed stores and cut jobs, but sales have sputtered and

its once-iconic stature has diminished as losses have piled up.

In the year ended Feb. 3, Penney swung to a \$116 million loss and reported \$12.51 billion in sales.

The executive joins the company Oct. 15 from **Joann Stores**, which she led as CEO and president.

For the first half of the current fiscal year, the company has lost \$179 million and sales are down 6% from a year earlier to \$5.35 billion.

During her tenure at **Joann Stores**, Ms. Soltau helped to

revitalize branding, refresh the company's merchandising strategy and expand its digital capabilities, the closely held fabric and crafts retailer said Tuesday.

Before joining Joann Stores, Ms. Soltau worked for five years at ShopKo, where she rose to president. She also held senior level positions at Sears Holdings and Kohl's after starting her career with Carson Pirie Scott, Penney said.

Ms. Soltau, who will be relocating to Texas, will receive a one-time cash signing bonus of \$6 million, according to documents filed with the Securities and Exchange Commission. Her base salary was set at \$1.4 million a year.

—Suzanne Kapner contributed to this article.

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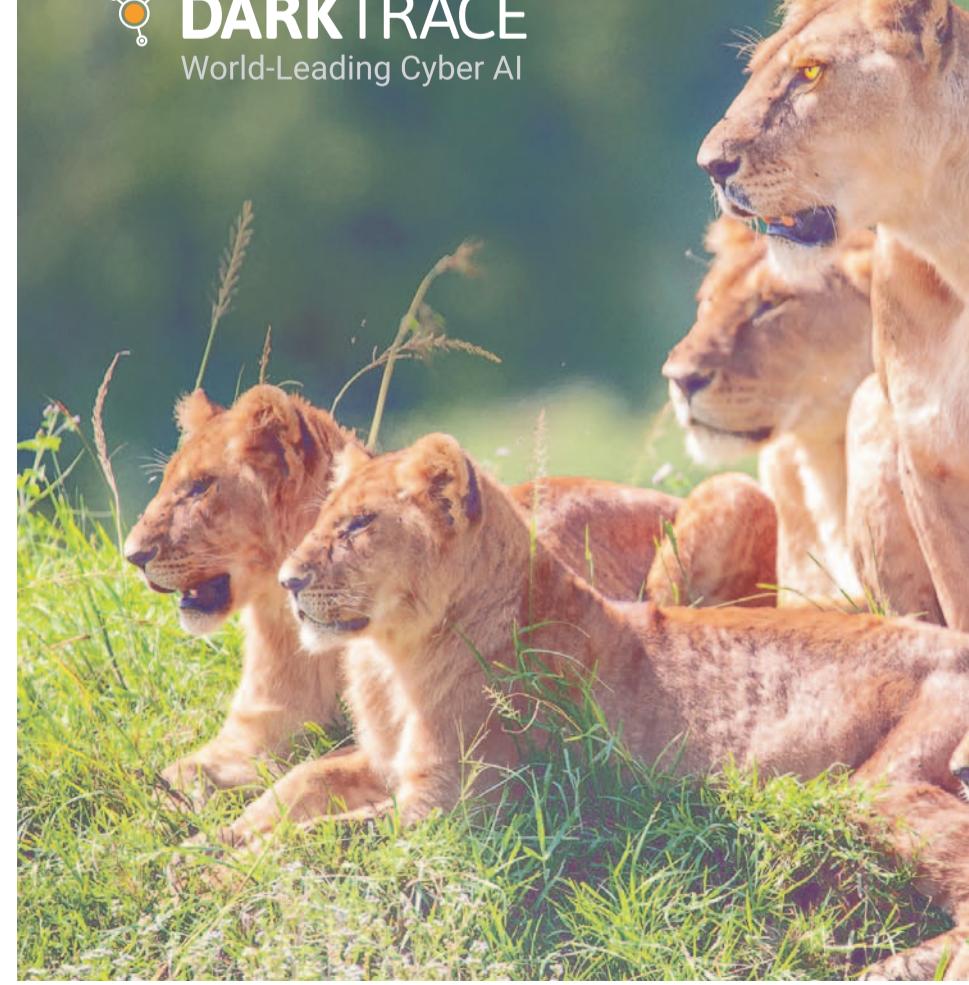
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Hacker of Chinese Hackers at Large

By ROBERT MCMILLAN

The world's cybersleuths are investigating a new mystery: Who is behind an anonymous effort to expose China's hacker army?

An anonymous group calling itself Intrusion Truth in August published a blog post about one of the most prolific suspected China-linked hacking groups tracked by cybersecurity researchers. It was the latest in a series of online messages and blog posts dating back to May 2017 that outlined two alleged Chinese hacking campaigns, including providing the names of suspected hackers. Separately, two of those named were later charged by U.S. authorities.

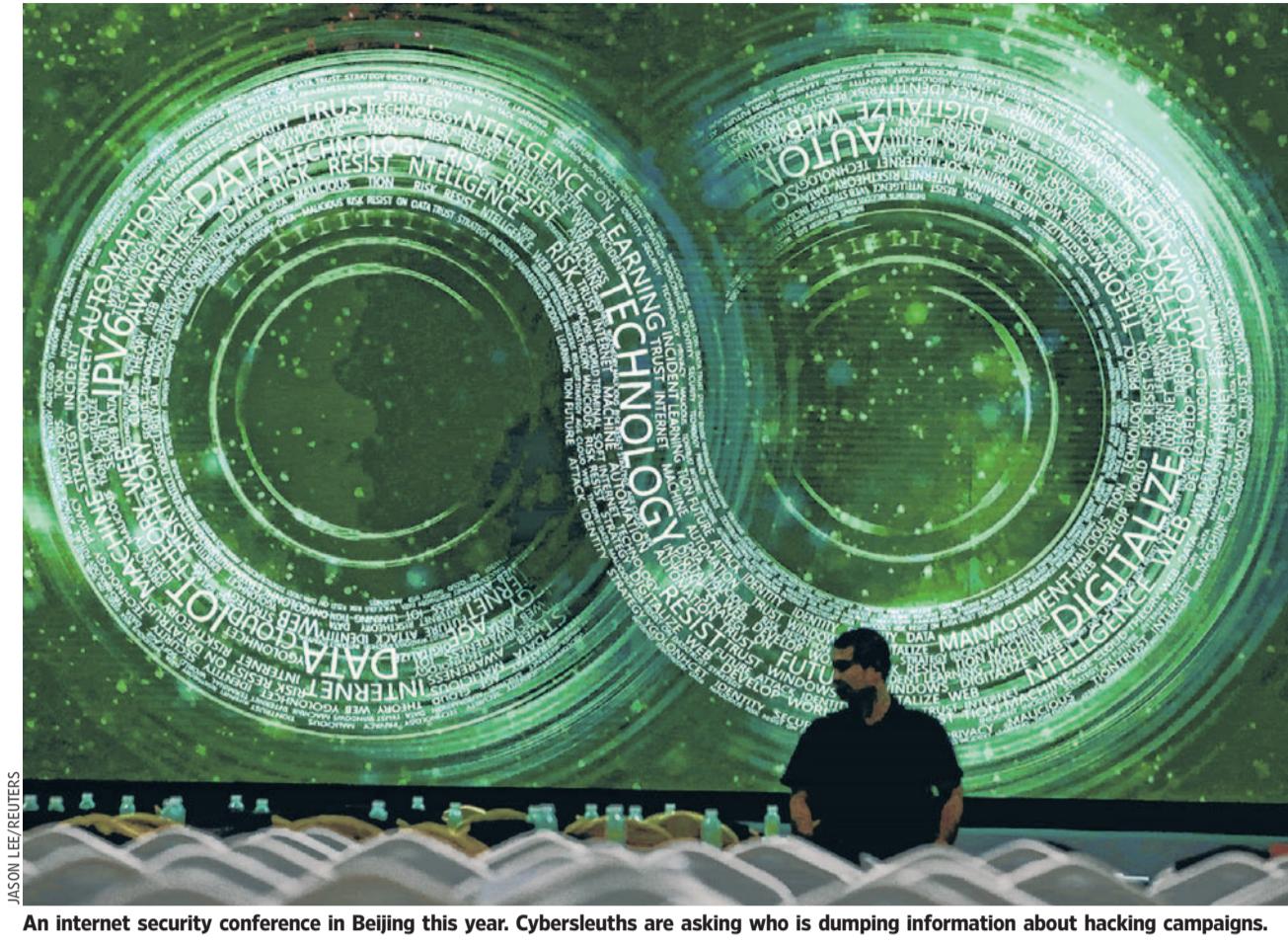
Security researchers say they don't know who is behind Intrusion Truth. The group's method of anonymously dumping information and targeting a foreign intelligence agency is something new, they say, and exposing alleged illegal activity could up the pressure on Chinese companies cooperating with state-sponsored hacking efforts.

U.S. officials and security researchers have linked Chinese hackers for years to government-backed computer intrusions into U.S. companies. China has denied involvement in hacking U.S. companies.

Intrusion Truth's anonymity might itself be a clue to its identity. Some large corporations and security companies that employ researchers who track China's hackers might be reluctant to release findings for fear of reprisals from China's government, said Ben Read, who manages cyberespionage investigations at FireEye Inc.

Intrusion Truth named individual alleged culprits—unusual in the world of nation-state hacking research—posted photographs, dug up alleged hackers' places of work and even revealed Uber receipts that appeared to link the individuals to particular addresses in China.

That is the kind of expert sleuthing few people would



An internet security conference in Beijing this year. Cybersleuths are asking who is dumping information about hacking campaigns.

have the language skills, tools and research abilities to pull off, said Thomas Rid, a professor at Johns Hopkins University.

"It's somebody who is professional," he said, "somebody who knows what they're doing."

Intrusion Truth's anonymity might itself be a clue to the group's identity.

one researcher said. He said he has received multiple messages asking whether he is part of Intrusion Truth.

Intrusion Truth has published dozens of messages to Twitter and more than a dozen posts to the blog site Medium over the past 16 months.

In them, it has posted evidence linking Chinese companies to a suspected China-backed hacking group known as APT 3 and another known as APT 10, or Stone Panda, shedding light on the continued threat of Chinese hacking.

"APT 10 is one of the most active groups we track," said Mr. Read. The group has hacked companies in Japan and Europe, and has targeted entities in the U.S., he said.

Intrusion Truth also has zeroed in on several Chinese companies, alleging they are

linked to government-backed hacking campaigns.

"We are focusing our efforts on determining whether these are just 'companies that hack,' or would they be better described as fronts enabling the Chinese state to employ hackers who can later be scapegoated as criminals?" Intrusion Truth said in a Twitter message in August.

Early last year, the group said two employees of Guangdong Bo Yu Information Technology Co., known as Boyusec, were part of APT 3. Six months later, U.S. authorities indicted the men—Wu Yingzhuo and Dong Hao—saying they were involved in APT 3 computer intrusions at Moody's Analytics and the German engineering company Siemens AG.

Messrs. Wu and Dong couldn't be reached for comment. Representatives from

Boyusec, which dissolved before the indictments were unsealed, couldn't be reached.

Intrusion Truth didn't respond to messages seeking comment. In late August, the group said its aim is to make Chinese hackers "think twice about their illegal online activities," according to Motherboard.

Intrusion Truth linked internet domains and email addresses associated with websites used by APT 10 to two other Chinese companies, Tianjin Huaying Haitai Science and Technology Development Co. and Laoying Baichaun Instruments Equipment Co.

A woman answering a number listed for Huaying Haitai hung up when asked for comment. Laoying Baichaun couldn't be reached.

—Josh Chin contributed to this article.

Facebook Steps Up Curbs on Bullying

By MICAH MAIDENBERG

Facebook Inc. says it will permit users to delete and hide multiple comments on their posts at once, an effort by the social-media giant to limit bullying and harassment.

In a blog post Tuesday, Facebook's global head of safety, Antigone Davis, said the company is beefing up its moderation tools to help people avoid "unwanted, offensive or hurtful experiences."

"We are giving you more control over how people interact with your posts on Facebook because comments can sometimes be used to bully or harass people," Ms. Davis said.

Like other social-media companies, Facebook has grappled with how to manage speech. Its policies on political speech have been a focus, but Facebook has also faced criticism for not doing enough to prevent bullying.

In addition to the moderation tools, Facebook will allow users to anonymously report someone for bullying or harassing other people, even if that occurs out of sight from the victim, according to Ms. Davis. Those reports will trigger a review by the company's Community Operations team.

Separately, a week after discovering the worst data-breach in its history, Facebook said Tuesday that it has found no evidence third-party apps that use its popular log-in service were affected by the hack.

App makers and security researchers have worried that third-party apps such as Tinder and Spotify might have been accessed. Hackers gained access to almost 50 million Facebook accounts, the company said Friday when it disclosed the attack publicly.

—Robert McMillan contributed to this article.

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LORRAINE HARITON,

President and CEO, Catalyst

The rules of work have changed—technology, automation and an "always on" mantra for business have created new norms for companies and their employees. What does this mean for new workers who may not have the work/life balance of previous generations? How can companies improve their culture to embrace more productivity and less distraction? The Wall Street Journal will sit down with Jason Fried and David Heinemeier Hansson, the founders of software firm Basecamp and authors of "It Doesn't Have to Be Crazy at Work," and Lorraine Hariton, president and CEO of Catalyst, a global nonprofit working to build workplaces that work for women, for a frank discussion about running a successful business today.

► For additional information on the series and to request an invitation, visit FutureOf.wsj.com.

THE WALL STREET JOURNAL.

Read ambitiously

TECHNOLOGY



Apple Watch Series 4, left, has a larger screen than the Series 3.

Falling For The Apple Watch

Continued from page B1

The Series 4—\$399 for the Wi-Fi/GPS model and \$499 for cellular—went on sale on Sept. 21. This review is later than usual because Apple didn't immediately provide the device to me. I've also spent a while testing the new features—even going to great, well, heights to test fall detection.

I found some areas for improvement but the Series 4 was better than previous generations in all desired use cases:

I still don't love the squirrel shape of the Apple Watch, but the expansion of the Series 4's screen by over 30% and the slight slimming of its potbellied underside make the Series 4 more comfortable and attractive.

Going from the smaller screen to the bigger one is like putting on a pair of reading glasses. You no longer need doll hands to tap the complications—those doodads on the watch face that show weather, activity and other info. Some new watch faces, like Infograph, go overboard on those. Complication, indeed.

The Apple Watch is still not as good as an \$85 Fossil watch at showing the time. Without an always-on screen, I have to flick my wrist or turn the digital crown.

If you're interested in the Series 4's Food and Drug Administration-cleared electrocardiogram feature for advanced heart-rate monitoring, you might be disappointed to learn that I couldn't test it. Although the new watch has the necessary hardware inside, Apple's EKG app isn't due out until later this year.

I did test the other major health addition, however. In what appears to be a clear competitor to Life Alert, the Series 4 detects falls using a new accelerometer and gyroscope. During setup, if you enter your birthday and are 65 or over, the feature automatically turns on. If not, you can turn it on manually in the Apple Watch's iPhone app, under Emergency Services.

During my two weeks of use, the Watch never issued a false positive. No matter how hard I tried to slam my hand on the desk or fall onto my couch, I couldn't trigger it. So we hired Evelyn Osorio Vaccaro, a professional stunt actor who falls—hard—for a living. During a series of at least 20 slips, trips and backward falls, the Watch detected them all—with the exception of a forward tumble down a hill. In each case, it buzzed with an alert reading, "Looks like you've taken a hard fall" and an option to call emergency services.

When Evelyn remained immobile for about a minute, it began a 15-second countdown to calling 911.

The testing proved just how powerful the Watch is as a hyperconnected medical device and not just for older people. Just last week I saw a 20-something on an electric skateboard, looking down at his phone. I wanted to stop him so I could lend him the Watch.

Much of the fitness improvements seen on the Series 4 actually come from the new WatchOS 5, which is available for all but the very first model.

Five minutes into my Saturday morning run, the automatic workout detection kicked in. Unfortunately, it only picks up running, walking and a few other types of workouts, something I learned the hard way, 20 minutes into my SoulCycle class. The new activity competition feature—in which I am currently losing to a co-worker—at least got me to walk the dog for an extra 10 minutes. What I'd really like is for WatchOS to push me harder by, say, suggesting variations in my workout routine.

The new hardware does mark the Watch's progress as a workout companion.

With just my AirPods and the Series 4, I went for a two-mile run. With four bars of Verizon service, I streamed my favorite '80s Apple Music playlist and while walking home got a clear and crisp—albeit annoying—call from my wife to pick up milk at the store.

When I leave the house,

there's still a 30-second drop before the cellular handoff.

My 20-minute run, dependent on cellular and GPS, ate up 10% of the battery, substantially better than with the Series 3. The Watch can go longer—up to 1½ days—when it relies on Wi-Fi or my iPhone for connectivity.

I've never bought into the Watch as a minismartphone. Most of the time, our phones are in arm's reach and are better than something with a screen the size of a Listerine strip.

There are two exceptions. First, Apple Pay. Two taps on the side button beats pulling out my iPhone. Second, the Watch has become surprisingly useful to me in my quest to limit my phone usage. Without the temptation to tap Twitter or Instagram, I can still get messages and see the time. We still deserve a better way to prioritize notifications, though.

Bourbon aged for less than four years is supposed to say so on the bottle. Apple Watches should do the same. Whether you're upgrading from an older Apple Watch or have been waiting to buy one, look for the 4 on the box.

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NOTICE OF RECEIVERSHIP SALE

NOTICE IS HEREBY GIVEN that William A. Brandt, Jr. of Development Specialists, Inc., Receiver of 3si Systems, LLC, is selling all of the technology and business assets associated with 3si Systems' hospital operating room Voice Command System (the "Voice Command System Assets"). The Voice Command System is a mobile workflow management system that leverages advances in speech recognition technology to support human performance in the operating room. The Voice Command System Assets include, but are not limited to, prototype equipment and computers, software and code, domestic and international patents and patent applications, and domestic and international distribution rights.

The Receiver is selling the Voice Command System Assets pursuant to the terms of the Auction Procedures Order entered on September 21, 2018, in the case captioned Wesley Holdings Ltd. v. 3si Systems, LLC, et al., pending in the United States District Court for the Southern District of New York as case number 1:17-cv-3362-KPF. For a complete recitation of the court-approved auction procedures, see the Auction Procedures Order ("ECPD") No. 183, or request a copy of the Order from the Receiver.

3si Systems, LLC, seller of the Voice Command System Assets, has approved the stalking horse bidder's initial bid of \$2,692,717.74, plus interest and costs accruing after July 27, 2018, for the Voice Command System Assets. A party interested in submitting a competing bid must submit a cash bid that is at least \$250,000 more than the stalking horse bidder's approved initial bid, by the Bid Deadline below. To submit a qualified bid, a party must comply with the terms of the Auction Procedures Order. Prospective bidders must execute a confidentiality agreement before obtaining additional information.

All of the Voice Command System Assets will be sold pursuant to such transfer documents as the Receiver deems necessary or appropriate, on an "as is, where is" basis and without recourse, representations, or warranties of merchantability or fitness for a particular purpose.

If the Receiver receives a qualified competing bid by the Bid Deadline, then the Receiver will conduct an Auction on November 15, 2018, at 1:00 p.m. (prevailing Eastern Time), at the law offices of the Receiver's counsel, Rosen & Associates, P.C., 747 Third Avenue, New York, New York 10017. All interested prospective purchasers are invited to become Qualified Bidders. Only Qualified Bidders will be permitted to attend the auction. The Court will hold a sale hearing on November 16, 2018.

Bid Deadline: November 12, 2018
Auction Date: November 15, 2018
Sale Hearing: November 16, 2018

Requests for information about the sale should be directed to the Receiver, William A. Brandt, Jr., at Development Specialists, Inc., Suite 1818, 110 East 42nd Street, New York, New York 10017, Tel: (212) 425-4141, or to Steven L. Victor at Development Specialists, Inc., Suite 2300, 70 West Madison Street, Chicago, Illinois 60602, Tel: (312) 263-4141, or to Daniel J. Sternier, Development Specialists, Inc., Suite 400, 500 West Cypress Creek Road, Fort Lauderdale, Florida 33309, Tel: (305) 374-1223, Email: brandt@3si.biz or sternier@3si.biz OR: counsel for the Receiver, Rosen & Associates, P.C., c/o Sanford P. Rosen, Esq., 747 Third Avenue, New York, New York 10017, Tel: (212) 223-1100, Email: srosen@rosenpc.com.

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THE PROPERTY REPORT

Chinese Developer Struggles in the U.S.

Greenland Holding
brings in new partners
for Brooklyn project as
market conditions shift

By ESTHER FUNG
AND KEIKO MORRIS

China's **Greenland Holding Group** is selling part of a major Brooklyn real-estate project, the latest sign that Chinese developers and investors are having a rough time in the U.S. property market.

The state-owned developer said last week it is selling three parcels of land on its sprawling Pacific Park Brooklyn project to **TF Cornerstone** and to the **Brodsky Organization**, though all three companies declined to discuss the price. Greenland said the recent sales would help move the stalled 15-building project forward.

The deal comes as the mixed-use development's initial revenue, which has been generated primarily by apartment sales, is falling short of early projections, according to people familiar with the matter. Greenland didn't respond to requests for comment on revenue.

Chinese real-estate firms, insurers and other investors barreled into the U.S. property market a few years ago, buying up hotels, office buildings and financing new developments. But Beijing's recent restrictions on capital outflows, regulatory pressures, and rising debt levels have compelled many Chinese firms to sell their properties.

Anbang Insurance Group Co., which owns the Waldorf Astoria hotel in New York, is marketing a portfolio of about 15 other luxury hotels. **Dalian Wanda Group** is in talks with Triple Five Worldwide Group of Cos. to sell its Beverly Hills development site. **HNA Group** Co. has sold several office buildings in the U.S. and is in talks to sell its Manhattan building near Trump Tower.

Overall, Chinese were net sellers of more than \$1 billion of U.S. real estate in the second quarter, the first time they sold more than they bought since 2008, according to Real Capital Analytics.

Chinese investors swept into the New York market when it was "frothy," pushing prices and sales volume to peak levels in 2014 and 2015, said Adelaide Polsinelli, vice chair of the commercial investment sales and leasing division at real-estate services firm Compass.

They wanted to buy, build and sell in a fast four- to five-year time frame, she said. Now, they are facing a surge in residential construction, rising interest rates, less favorable U.S. tax laws and tightened restrictions on capital outflows.

"They were overly optimistic, and the market didn't cooperate with their timing," Ms. Polsinelli said.

Unlike some Chinese investors who have sold U.S. holdings, Greenland isn't pulling out of Pacific Park but bringing in new partners. The project has four completed buildings, a mix of luxury condo units and



For the next development phase of Pacific Park, TF Cornerstone and Brodsky Organization have been brought in as partners.

affordable rental apartments, with roof decks, fitness centers and some ground-floor retail space the developers are trying to lease. Construction on the fifth tower is expected to start in the spring.

Greenland was more adventurous than other Chinese investors, venturing out of the better-known Manhattan neighborhoods. The devel-

oper's subsidiary, Greenland U.S.A., initially bought a 70% stake in the Brooklyn project in 2014 with a subsidiary of **Forest City Realty Trust Inc.**, as its 30% partner, forming a joint venture, Greenland Forest City Partners.

But market conditions turned against Brooklyn, forcing landlords to offer periods of free rent and other conces-

sions. In August, the share of new leases in the borough with landlord concessions more than doubled from the previous year, rising to 42.1%, according to a report prepared by appraiser Jonathan Miller, president and CEO of Miller Samuel Inc., in partnership with brokerage Douglas Elliman. The percentage of concessions for rentals in new de-

vlopments was 74.9%.

Greenland also underestimated how long it would take to build and sell apartments in the U.S., say people familiar with the matter.

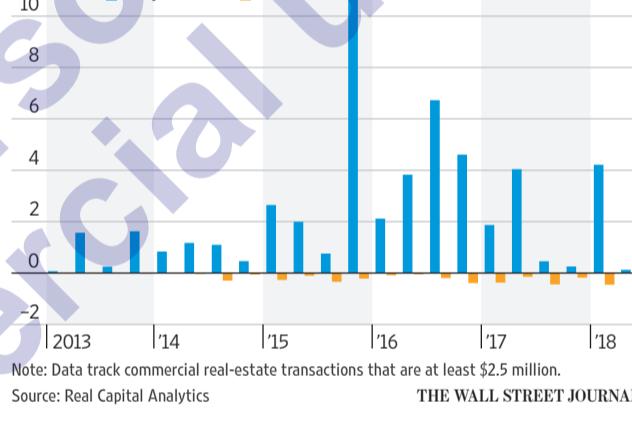
Forest City wanted to slow the pace given anticipated softness in the residential market. In November 2016, Forest City said it revised the project schedule to delay vertical development and took a \$299.3 million write-down for the project in its third quarter 2016 earnings. In June, Forest City and Greenland restructured the venture so that Greenland owns 95% of the venture going forward, with Forest City's ownership down to 5%.

Greenland's projects on the West Coast have also struggled. It bought a downtown Los Angeles Metropolis project in 2013, but it has found limited demand for high-rise condos, and Greenland has placed one of the Metropolis towers and its Hotel Indigo up for sale.

In June, Greenland sold its development site in South Francisco to Kilroy Realty Corp. after failed attempts to change entitlements at the site to include housing.

Real-Estate Selloff

Dollar amount of acquisitions and sales of U.S. real estate by Chinese companies, quarterly



THE WALL STREET JOURNAL.



Greenland was more adventurous than others, going into Brooklyn, where Barclays Center is located.

Prices Soar in China's Rental Market

By DOMINIQUE FONG

BEIJING—Apartment rental prices are shooting up across China, posing a new challenge to Chinese authorities and compounding the threat of sky-high housing prices to the economy.

Rental prices for apartments are accelerating by double digits in 30 of China's biggest, most vibrant cities. In Beijing, rents are up as much as 21% from a year ago, while in the south-central megacity of Chengdu they have climbed more than 30%, according to the China Real Estate Association, an arm of the country's housing ministry.

This surge is an unintended consequence of Beijing's efforts to cool off the housing market by steering more home buyers into the rental market. Demand for housing is already high in big and medium-size cities because of China's push to urbanize millions more people.

For China's government, the sudden rise in rents poses a new financial risk, as well as a social problem. Young people face increasing living costs to survive in big cities, adding to frustrations about the lack of affordable housing. Financial risks also began to emerge when a financial product called rental loans was marketed to them as a solution to easing high living costs.

The sudden run-up in rental prices also shows the difficulties in managing the Chinese property market, a crucial driver of economic growth. For the past two years, authorities have been laser-focused on bringing home prices under control. Prices have defied strict limits on home buying, rising 8% in August from a year earlier after nearly a year of relatively stable growth.

To try to take some of the pressure off prices, the government encouraged people to rent instead of buy. Since last

July a dozen cities pledged to increase rental-housing supply, banks issued loans to developers' rental projects, and large property-leasing companies were urged to expand.

That policy appears to have backfired in part. Property-leasing companies jumped into the rental market, acting as the middlemen between tenants and landlords. To secure more rental units, the agents promised landlords rents above market rates, and to entice tenants, they offered so-called rental loans allowing rent payments in smaller installments.

Behind the scenes, property analysts and industry executives said, the leasing companies were borrowing money in the name of their tenants from online lenders, and then using the funds to expand their business, sign on new landlords and furnish new units to rent. The danger is that rents could climb too high, scaring off tenants and leaving a trail of debt.

Beijing's housing authority

and banking regulator jointly said they would investigate the financing methods of nearly two dozen property-leasing companies.

Meanwhile, demand for apartment rentals has intensified amid a continuing government campaign to demolish apartments that don't meet fire-safety standards.

The demolitions forced thousands of migrant workers to scramble for a limited supply of places to rent, or leave the city altogether.

High rents are further dismaying many, mostly younger urban Chinese who already feel priced out of the market for owning an apartment.

Wu Quan switched jobs last month to write for a technology website and wanted his own place. The 23-year-old thought that he had found an ideal place close to central Beijing, but two days later the rental price jumped 15% to 7,500 yuan (\$1,092), putting it out of reach.

"The pressure is super high," said Mr. Wu. He now is living with a roommate, but even so, the rent he is paying is nearly half his monthly pay.

While rental loans have existed for several years, concerns about them only surfaced as rents began to skyrocket because of the borrowing by property-leasing companies in tenants' names.

Ma Yanmei, a real-estate agent at property-leasing company Ziroom, said she marketed discounted service fees and financing packages to attract tenants deterred by high rental prices. Ziroom could then apply for loans in the tenant's name to receive funds from JD Finance, equal to one year of the tenant's rent, she said.

A JD Finance spokeswoman said the company's rental-loan service is "completely open and transparent," and only "a small number of tenants" have taken loans.

She declined to offer further details.



Workers were on the job at the construction site of residential apartments in Beijing last month.

New York Firm Finds Opportunity in Brexit

By PHILIP GEORGIADIS

Startup **Knotel Inc.** is expanding its footprint in London, betting its flexible office-space model can profit from uncertainty surrounding the U.K. property market as Brexit approaches.

Knotel, based in New York,

is one of the biggest challengers to co-working company

WeWork Cos. in a rapidly expanding business that is pressuring traditional real estate.

These firms typically sign deals with office landlords, then lease customized space to tenants seeking greater flexibility.

Leases tend to be short-term and can be altered in a matter of days, in contrast to the fixed 10- to 15-year leases traditional landlords demand.

Much of Knotel's growth has been in New York and San Francisco, but its chief executive, Amol Sarva, said the firm plans to scale up sharply in Europe, and especially in the U.K.

Last month, it signed a deal to open its second location in London, taking on 7,800 square feet of space in the central Soho district.

Knotel said it would take on an additional nine locations in London before the end of October, adding to its acquisition of a workspace operator in Berlin earlier this year.

Mr. Sarva, who also founded Virgin Mobile USA, said he has been closely watching the U.K. prepare for its withdrawal from the European Union. Brexit has been "really bad for London," he said.

After years of breakneck growth, London's commercial-property market has stalled amid widespread uncertainty around the U.K.'s future relationship with the EU.

Britain will officially leave the EU in March 2019, and the

two sides have yet to agree on terms of an exit deal. Both London and Brussels hope a roughly two-year transition period will allow businesses to continue to operate and invest with confidence, but its implementation is dependent on a deal being struck in the next six months.

Many business leaders and executives have warned that if the U.K. leaves the EU without a deal, it could be economically damaging.

"Everyone has been very guarded in London," Mr. Sarva said. "The real-estate people don't want to confess it, but I have observed for the last 12 months a shadow crash."



Amol Sarva, CEO of Knotel, said his firm plans to scale up in Europe and especially in the U.K.

But he thinks the current market environment should suit his business model.

"It has really increased peoples' interest in our product. The uncertainty they face means they need a product that provides them with flexibility," he said.

Knotel has raised \$100 million in funding since its launch in late 2015 and has expanded to occupy 1.5 million square feet of office space globally.

WeWork first moved into London in 2014 and now has 40 locations either open or pending and 35,000 members. WeWork became London's largest private occupier of office space earlier this year. It plans to open the largest shared workspace in the world in London's South Bank district next year.

BUSINESS NEWS

Tax Cuts Have Limited Effect on Pay

BY VANESSA FUHRMANS

U.S. companies are putting savings from the corporate tax cut to use, but only a fraction of it is flowing to employees' wallets, new data show.

In the months after the December tax-code overhaul that lowered the corporate rate to 21% from 35%, dozens of companies such as Walmart Inc. and FedEx Corp. announced one-time bonuses and wage increases for hourly workers. Those moves earned praise from the Trump administration as evidence the cuts were reaching many Americans.

Now, various surveys indicate that most companies aren't passing the money directly to employees.

A new survey of 152 companies by executive-recruitment firm Korn Ferry International revealed 14% were putting part of their tax-cut savings into base salary increases.

A poll of 1,500 companies by consulting firm Mercer LLC showed 4% are redirecting tax savings to budgets for bigger paychecks in the coming year. And in a survey of more than 1,000 companies published by human-resources consulting firm Aon PLC, 99% said the tax cuts weren't prompting them to increase minimum wages.

Companies are reluctant to grant higher-than-usual pay raises in part because it adds to their fixed labor costs, compensation experts said.

"They're doing everything they can to avoid seeing their permanent payroll go up," said Bill Ravenscroft, senior vice president at Adecco Staffing,

which recruits workers for companies.

On Tuesday, Amazon.com Inc. said it was raising the minimum wage it pays all U.S. workers to \$15 an hour. The move comes as the company has faced increased criticism about pay and benefits for its warehouse workers.

Just Capital, a nonprofit that evaluates business behavior, has been tracking 119 companies in the Russell 1000 index that have announced spending plans for their tax-cut-related savings. Of those, about 80% are passing some of them on to workers. Roughly 5.8 million people, or 73% of the employees at those companies, have received some extra compensation, be it a wage increase, one-time bonus or bigger retirement contribution.

With a 3.9% unemployment rate, U.S. employers are grappling with one of the tightest labor markets in decades. Labor Department data show private-sector hourly wages rose 2.9% in August compared with a year earlier, but consumer-goods prices have risen at nearly the same rate.

Many companies are spreading their tax savings across investments that allow them to pare spending if the business climate worsens.

Among the companies surveyed by Korn Ferry, nearly half said they would use the tax savings to increase capital investments at a faster clip, while 41% were boosting cash reserves and nearly a third were raising dividends for shareholders. Together, the companies Korn Ferry surveyed generate roughly \$700 billion in annual revenues.



Compensation experts say firms are reluctant to grant higher-than-usual pay raises in part because it adds to their fixed labor costs.

BUSINESS WATCH

DAIMLER

Mercedes May Expand Engine Plant

Daimler AG Chief Executive Dieter Zetsche said he wouldn't rule out an expansion of the Mercedes-Benz engine plant in Tuscaloosa, Ala., to meet local content requirements following the new free-trade deal between the U.S., Mexico and Canada.

Overall, Mr. Zetsche said the agreement was good news because it kept the three-nation free-trade zone intact.

Daimler is still studying the specifics to see how it would have to adjust its manufacturing footprint and supply chains to satisfy the deal's increased local content requirements, he said.

"We have an engine plant in the U.S., but, of course, it doesn't make every engine series that we need," he said.

Mr. Zetsche said Daimler had some time to work out a plan to meet the new requirements to build components in the U.S.

"We already have a high degree of localization," he said. "Expansion cannot be ruled out."

Mr. Zetsche said Daimler is already struggling with the 40% tariffs in China on its U.S.-made

vehicles. The company previously said it was considering shifting the exports into complete knock-down kits—essentially breaking down the vehicles after production and shipping the parts for assembly in China.

"We will decide about this soon," he said.

—William Boston

AIR TRANSPORT SERVICES

Omni to Help Build E-Commerce Business

A major flier of parcels for Amazon.com Inc. said it could expand its e-commerce business more rapidly after acquiring the airline that is the Pentagon's largest troop carrier.

Air Transport Services Group

Group Inc. said it plans to buy **Omni Air International LLC** for \$845 million, adding a passenger airline best known for flying troops and professional sports teams to its freight-focused business.

The acquisition will add capacity to expand flying for customers such as Amazon and satisfy an e-commerce sector growing by as much as 20% a year, said ATSG, of Wilmington, Ohio.



BRYAN STANLEY/ZUMA PRESS

Closely held Omni Air is best known for flying troops and professional sports teams.

"This enhances our ability to invest in e-commerce," said ATSG Chief Executive Joe Hete on an investor call.

ATSG already flies 20 Boeing 767 jets on behalf of Amazon. Omni will add 13 more passenger planes that could eventually be converted for cargo use, including three larger Boeing 777 aircraft.

ATSG could convert existing Omni jets or buy newer passenger planes and turn them into freighters after Omni had flown

them for a number of years, Mr. Hete said.

ATSG launched test flights for Amazon's Prime Air unit in the fall of 2015 and the online retail giant is its largest customer, accounting for 29% of revenue. Mr. Hete said that after the merger, the Pentagon would surpass Amazon as the combined company's largest customer for now.

Tulsa, Okla.-based Omni carries half of troops moved by the Pentagon each year under the

Civil Reserve Air Fleet program. The Defense Department sub-contracts troop and cargo flying to private airlines in return for an agreement by those carriers to make planes available at short notice in the event of an emergency.

Closely held Omni Air will remain a stand-alone unit with \$430 million in annual sales, lifting ATSG's revenue this year to around \$1.4 billion, the companies said.

—Doug Cameron

VACASA

Buying Spree Includes Home-Sharing Firm

Vacation-rental management company **Vacasa LLC** said it has acquired a home-sharing company that is backed in part by Hyatt Hotels Corp., in an effort to expand into international markets.

Vacasa has completed the purchase of **Oasis Collections**, in which Hyatt made a minority investment last year. Oasis had been part of Hyatt's loyalty program.

Vacasa declined to disclose the price of the Oasis acquisition, one of seven deals it has closed over the past week. Vacasa said it has recently overtaken Wyndham Vacation Rentals as the largest vacation-rental management company in North America.

Oasis targets the high-end home-rental market with luxury services. The company manages private vacation homes for short-term rentals in 17 cities, in the U.S. and abroad. It helps homeowners manage home sharing, from creating listings to checking in guests and coordinating cleanings.

—Mengqi Sun

Mutual Funds

Data provided by LIPPER

Fund	NAV	Net Chg %Ret	YTD %Ret	Fund	NAV	Net Chg %Ret	YTD %Ret	Fund	NAV	Net Chg %Ret	YTD %Ret	Fund	NAV	Net Chg %Ret	YTD %Ret	Fund	NAV	Net Chg %Ret	YTD %Ret		
500Dlxinst	102.62	-0.03	10.9	Magnl	11.30	-0.05	13.3	JP Morgan Funds	EqdInst	21.72	-0.04	10.5	TotIntlBdxln	28.86	-0.20	-3.7	TotIntlBdxln	28.86	-0.20	1.1	
500DlxinstPrem	102.61	-0.04	10.9	OTC	12.72	-0.09	20.3	JPMorgan Funds	McDpVal L	41.50	-0.12	3.0	TotStAdm	72.83	-0.12	10.6	WellsL	26.50	+0.05	0.5	
500DlxinstPrem	102.61	-0.04	10.9	Puritn	25.09	-0.05	7.9	JPMorgan R Class	CoreBond	11.19	+0.01	-1.3	WellsLn	42.86	+0.05	4.0					
ExtMktidxPrem	67.56	-0.51	9.0	SrsEmrgMkt	18.98	-0.18	-11.3	CorePlusBd	8.00	+0.01	-1.2	Whdrsl	43.45	+0.10	6.9						
ExtMktidxPrem	42.36	-0.23	-1.8	SrsGrcCoRetail	20.03	-0.21	20.4	Lord Abbott F	BIChip	114.11	-0.77	18.5	WellsRlAdm	71.01	+0.05	6.8					
SALISLcplhd	15.69	10.9	SrsLntlGrv	16.33	-0.12	1.1	First Eagle Funds	Eqlnc	NA	WellsRlAdm	64.21	+0.14	5.0						
SerLTTrbDidx	8.23	+0.05	-5.8	TotalBnd	10.32	+0.01	-1.0	FPA Funds	EqIncAdm	32.82	-0.06	13.6	SmValAdm	59.05	+0.05	10.8					
TMKtdlxF	84.14	-0.14	10.6	Metropolitan West	EqIndex	78.42	-0.03	10.7	FPA Funds	EqInpAdm	80.15	+0.24	4.8	WntrAdm	81.00	+0.03	3.4				
TMKtdlxPrem	84.13	-0.14	10.6	First Eagle Funds	EqInrAdm	72.19	-0.40	15.2	FPA Funds	ExplrdAdm	104.90	-1.20	18.7	DivdGro	28.78	-0.04	10.5				
USBldlxInstPrem	11.17	+0.02	-1.7	Lord Abbott F	EqIntAdm	9.71	+0.01	-1.2	FPA Funds	ExtndAdm	91.49	-0.68	9.0	HthCare r	229.14	+0.39	14.3				
SALISLcplhd	35.66	-0.19	13.7	FPACres	13.56	-0.02	3.3	FPA Funds	EqIntStk	18.21	-0.13	-2.5	TotStPlus	72.81	-0.12	10.5					
FPACres	13.56	-0.19	13.7	FPACres	14.28	-0.06	-5.6	FPA Funds	EqIntVal	82.81	-0.30	15.4	VANGUARD INSTL FDS	36.12	-0.01	5.7					
Franklin A1	2.71	1.8	FPACres	31.83	+0.05	4.7	FPA Funds	EqIntValEq	96.65	+0.16	14.4	VANGUARD INDEX FDS	DevMktlndlns	13.85	-0.08	2.1				
CA TF A1 p	2.32	1.8	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Franklin A1	2.71	1.8	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
IntlEq	25.53	-0.16	0.3	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
HYMLunBd	17.12	2.1	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
NHOriz	64.39	-0.80	22.5	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst	91.48	-0.68	9.0				
Oakmark Funds Invest	11.08	-0.07	-2.0	FPACres	31.83	+0.05	4.7	FPA Funds	EqCapVal	97.42	-0.30	12.0	VANGUARD INDEX FDS	EqdInst</							

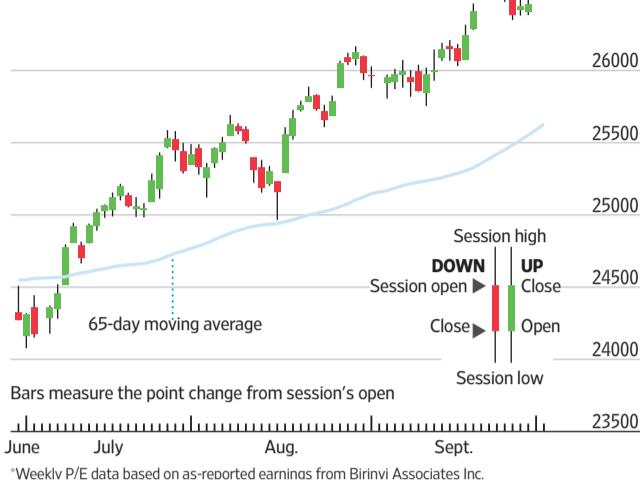
MARKETS DIGEST

EQUITIES

Dow Jones Industrial Average

26773.94 ▲122.73, or 0.46%
High, low, open and close for each trading day of the past three months.

Trailing P/E ratio 24.19 20.74
P/E estimate * 17.11 18.89
Dividend yield 2.06 2.26
All-time high 26773.94, 10/02/18



Bars measure the point change from session's open

Current divisor 0.14748071991788

Weeklv P/E data based on as-reported earnings from Birinvi Associates Inc.

S&P 500 Index

2923.43 ▼1.16, or 0.04%
High, low, open and close for each trading day of the past three months.

Trailing P/E ratio * 24.40 24.22
P/E estimate * 18.09 19.19
Dividend yield 1.80 1.98
All-time high 2930.75, 09/20/18



65-day moving average

Session high

DOWN UP Close

Session open ▶ Open

Close ▶ Open

Session low

65-day moving average

Bars measure the point change from session's open

June July Aug. Sept. 23500 2600

Nasdaq Composite Index

7999.55 ▼37.75, or 0.47%
High, low, open and close for each trading day of the past three months.

Trailing P/E ratio * 25.95 25.69
P/E estimate * 21.82 21.32
Dividend yield 0.97 1.10
All-time high: 8109.69, 08/29/18



65-day moving average

Session high

DOWN UP Close

Session open ▶ Open

Close ▶ Open

Session low

65-day moving average

Bars measure the point change from session's open

June July Aug. Sept. 7550 7375

7200

Major U.S. Stock-Market Indexes

	High	Low	Latest Close	Net chg	% chg	High	52-Week Low	% chg	YTD % chg	3-yr. ann.
Dow Jones										
Industrial Average	26824.78	26627.66	26773.94	122.73	▲ 0.46%	26773.94	22641.67	18.3	8.3	17.6
Transportation Avg	11392.71	11277.21	11281.08	-128.88	-1.13	11570.84	9440.87	13.1	6.3	12.7
Utility Average	729.24	719.44	727.36	9.52	▲1.33	774.47	647.90	0.5	0.6	8.0
Total Stock Market	30278.10	30145.25	30185.32	-49.03	-0.16	30390.61	26332.87	14.6	9.1	14.2
Barron's 400	765.26	757.24	758.18	-5.78	-0.76	786.73	676.86	10.6	6.6	14.0

Nasdaq Stock Market

Nasdaq Composite	8054.15	7983.99	7999.55	-37.75	-0.47	8109.69	6531.71	22.5	15.9	19.3
Nasdaq 100	7685.36	7610.25	7628.28	-17.17	-0.22	7660.18	5995.06	27.2	19.3	21.4

S&P

500 Index	2931.42	2919.37	2923.43	-1.16	-0.04	2930.75	2534.58	15.3	9.3	14.4
MidCap 400	2009.60	1993.95	1996.55	-7.64	-0.38	2050.23	1801.29	10.0	5.1	12.9
SmallCap 600	1047.73	1033.83	1035.42	-11.22	-1.07	1098.36	889.94	12.7	10.6	16.5

Other Indexes

Russell 2000	1674.87	1653.34	1656.04	-16.95	-1.01	1740.75	1463.79	9.5	7.8	14.1
NYSE Composite	13129.02	13069.15	13106.01	-19.34	-0.15	13637.02	12177.70	6.5	2.3	9.5
Value Line	580.41	575.85	576.38	-3.04	-0.52	593.57	533.26	5.8	2.5	9.0
NYSE Arca Biotech	5355.19	5272.59	5305.49	-40.94	-0.77	5400.34	4045.25	24.1	25.7	14.4
NYSE Arca Pharma	597.69	594.35	597.33	1.37	▲0.23	597.33	516.32	8.4	9.6	3.6
KBW Bank	105.42	104.04	104.81	-0.18	-0.17	116.52	97.59	5.0	-1.8	14.7
PHLX® Gold/Silver	67.31	65.66	66.98	1.83	▲2.82	92.08	61.92	-22.1	-21.5	11.0
PHLX® Oil Service	152.47	150.07	152.01	0.61	▲0.40	170.18	127.61	9.4	1.6	-2.7
PHLX® Semiconductor	1389.46	1368.10	1370.87	0.43	▲0.03	1449.90	1182.43	15.9	9.4	31.1
Cboe Volatility	12.69	11.61	12.05	0.05	▲0.42	37.32	9.14	26.7	9.1	-16.8

\$ Nasdaq PHLX

Sources: SIX Financial Information; Dow Jones Market Data

Late Trading

Most-active and biggest movers among NYSE, NYSE Arca, NYSE Amer. and Nasdaq issues from 4 p.m. to 6:30 p.m. ET as reported by electronic trading services, securities dealers and regional exchanges. Minimum share price of \$2 and minimum after-hours volume of 50,000 shares.

Most-active issues in late trading

Company	Symbol	Volume (000)	Last	Net chg	After Hours % chg	High	Low
Fortive	FTV	14,151.4	83.62	...	unch.	84.17	83.62
Altaba	AABA	6,204.4	66.64	0.01	▲0.2	66.64	66.52
Lloyds Banking Group ADR	LYG	4,521.4	2.98	0.03	▲1.02	3.04	2.94
iSh Core MSCI Emg Mkts	IEMG	4,341.9	51.18	...	unch.	51.28	51.18
Finl Select Sector SPDR	XLF	3,732.5	27.70	0.01	▲0.04	27.70	27.62
SPDR S&P 500	SPY	3,418.7	291.65	0.09	▲0.03	291.82	291.54
iShares Russell 2000 ETF	IWM	3,191.4	164.67	0.14	▲0.09	166.19	164.49
Van Eck Vectors Gold Miner	GDX	3,168.9	19.01	-0.04	-0.21	19.06	19.00

Percentage gainers...

vTv Therapeutics Cl A	VTVT	713.5	2.30	0.30	▲15.00	2.37	1.98
</

COMMODITIES

WSJ.com/commodities

Futures Contracts

Metal & Petroleum Futures

	Contract	Open	High	hilo	Low	Settle	Chg	Open interest
Copper-High (CMX)-25,000 lbs.; \$ per lb.								
Oct 2.7725	2.8400	▲	2.7525	2.7950	0.0210	1,893		
Dec 2.7845	2.8255		2.7600	2.8065	0.0190	132,453		
Gold (CMX)-100 troy oz.; \$ per troy oz.								
Oct 119.00	120.06		119.30	120.40	15.30	3,189		
Dec 119.27	121.23		119.20	120.70	15.30	371,215		
Feb'19 119.08	121.78		119.00	121.70	15.30	43,884		
June 121.50	122.50		121.50	122.40	15.50	13,711		
Aug 121.70	123.00		121.70	123.00	15.60	2,269		
Dec 122.80	124.30		122.80	124.20	15.70	4,707		
Palladium (NYM)-50 troy oz.; \$ per troy oz.								
Oct 1049.30	1058.40		1032.40	1050.70	-5.70	21,745		
March'19 1044.00	1050.10		1025.60	1043.80	-5.70	1,390		
Platinum (NYM)-50 troy oz.; \$ per troy oz.								
Oct 818.50	832.90		818.50	830.10	6.10	317		
Jan'19 825.90	838.20		818.20	833.50	5.60	68,939		
Silver (CMX)-5,000 troy oz.; \$ per troy oz.								
Oct 14.420	14.740		14.420	14.610	0.188	79		
Dec 14.535	14.950		14.470	14.693	0.186	169,245		
Crude Oil, Light Sweet (NYM)-1,000 bbls.; \$ per bbl.								
Nov 75.41	75.91	▲	74.93	75.23	-0.07	393,833		
Dec 75.20	75.72	▲	74.78	75.04	-0.10	311,593		
Jan'19 75.00	75.54	▲	74.65	74.90	-0.10	166,930		
March 74.82	75.22	▲	74.42	74.65	-0.03	155,974		
June 74.07	74.49	▲	73.83	74.08	0.07	186,700		
Dec 71.70	72.13	▲	71.61	71.90	0.15	237,225		
NY Harbor USLD (NYM)-42,000 gal.; \$ per gal.								
Nov 2.4084	2.4165		2.3950	2.4076	-0.0003	144,279		
Dec 2.4124	2.4205		2.3989	2.4115	-0.0001	89,363		
Gasoline-NY RBOB (NYM)-42,000 gal.; \$ per gal.								
Nov 2.1299	2.1373		2.1171	2.1269	-0.0006	174,947		
Dec 2.1222	2.1300		2.1101	2.1200	-0.0008	79,688		
Natural Gas (NYM)-10,000 MMBtu; \$ per MMBtu.								
Nov 3.115	3.194	▲	3.109	3.166	.072	301,654		
Dec 3.192	3.268	▲	3.187	3.239	.067	171,062		
Jan'19 3.265	3.341	▲	3.258	3.312	.068	195,959		
Feb 3.173	3.234	▲	3.165	3.215	.060	94,221		
March 2.979	3.014		2.967	3.009	.042	207,766		
April 2.675	2.697		2.664	2.697	.028	173,303		

Contract

Open High hilo Low Settle Chg Open interest

Agriculture Futures

Corn (CBT)-5,000 bu.; cents per bu.								
Dec 365.00	369.00		363.25	367.50	1.75	894,214		
March'19 376.75	381.00		375.25	379.50	1.75	340,986		
Oats (CBT)-5,000 bu.; cents per bu.								
Dec 269.75	274.50		269.00	273.00	3.25	3,324		
March'19 269.25	271.00		268.50	270.25	3.00	978		
Soybeans (CBT)-5,000 bu.; cents per bu.								
Oct 805.76	867.25		853.00	866.00	8.25	409,596		
March'19 883.00	893.50		878.75	892.25	8.00	135,359		
Soybean Meal (CBT)-100 tons; \$ per ton.								
Oct 310.40	311.80		307.70	311.20	.70	2,624		
Dec 314.30	316.50		310.90	315.10	1.30	223,599		
Soybean Oil (CBT)-60,000 lbs.; cents per lb.								
Oct 28.96	29.36		28.93	29.36	.35	1,242		
Dec 29.21	29.69		29.17	29.66	.35	250,045		
Rough Rice (CBT)-2,000 cwt.; \$ per cwt.								
Nov 1018.00	1031.00		1002.50	1026.50	13.00	6,778		
Jan'19 1033.00	1040.50		1015.50	1041.50	10.50	1,616		
Wheat (CBT)-5,000 bu.; cents per bu.								
Dec 510.50	524.75		505.25	519.25	9.75	228,702		
March'19 519.00	543.25		524.75	538.00	9.25	108,997		
Wheat (KCO)-5,000 bu.; cents per bu.								
Dec 512.50	526.75		507.50	522.50	11.00	156,670		
March'19 536.75	550.25		532.25	546.50	10.75	65,221		
Wheat (MPLS)-5,000 bu.; cents per bu.								
Dec 578.00	592.75		577.75	591.50	14.25	35,130		
March'19 592.00	605.75		591.50	604.25	13.00	15,122		
Cattle-Feeder (CME)-50,000 lbs.; cents per lb.								
Oct 158.775	159.100		157.500	159.075	.425	7,437		
Nov 159.000	159.650		157.875	159.575	.550	21,450		
Cattle-Live (CME)-40,000 lbs.; cents per lb.								
Oct 113.700	114.100		112.950	113.975	.300	34,153		
Dec 118.950	119.550		118.000	119.475	.525	124,177		
Hogs-Lean (CME)-40,000 lbs.; cents per lb.								
Oct 64.500	66.750		64.250	66.425	1.675	21,089		
Dec 59.500	59.625		58.500	59.150	-.700	109,310		
Lumber (CME)-110,000 bd ft.; \$ per 1,000 bd ft.								
Nov 335.20	349.70		333.50	346.30	8.90	2,468		
Jan'19 349.90	362.30		347.80	356.20	5.40	1,100		
Milk (CME)-200,000 lbs.; cents per lb.								
Sept 16.12	16.12		16.12	16.11	16.11	3,757		

Open High hilo Low Settle Chg Open interest

Contract

Open High hilo Low Settle Chg Open interest

Open

High hilo Low Settle Chg Open interest

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High hilo Low Settle Chg Open interest

BIGGEST 1,000 STOCKS

How to Read the Stock Tables

The following explanations apply to NYSE, NYSE Arca, NYSE American and Nasdaq Stock Market listed securities. Prices are composite quotations that include primary market trades as well as trades reported by Nasdaq BX (Formerly Boston), Chicago Stock Exchange, Cboe, NYSE National and Nasdaq ISE.

The list comprises the 1,000 largest companies based on market capitalization.

Underlined quotations are those stocks with large changes in volume compared with the issue's average trading volume.

Boldfaced quotations highlight those issues whose price changed by 5% or more if their previous closing price was \$2 or higher.

Wall Street Journal stock tables reflect composite regular trading as of 4 p.m. and changes in the closing prices from 4 p.m. the previous day.

Tuesday, October 2, 2018

A B C Net Stock Sym Close Chg Stock Sym Close Chg

Blackstone BX 38.50 -0.26 DexCom DXCM 130.30 -3.47

bluebirdBio BLUE 13.46 -2.37 Diageo DE 142.88 -0.93

Boeing BA 38.67 -4.08 DiamondbackEnergy FANG 137.05 -0.01

BDO FirstDay of trading.

BP First-day of trading.

Braskem BAK 28.85 0.58 DocuSign DOCU 46.40 -2.45

BrightHausenBFSI BFM 116.01 -1.19 DolbyLab DOLBY 68.97 -0.32

BrookfieldMgmt BFM 143.66 -2.37 DiscoverInfo DFS 77.33 -0.01

BrownForman BFM 142.22 -0.62 DigitalRiver DR 111.14 -0.16

BrownForman BFM 142.22 -0.62 DiscoverInfo DFS 77.33 -0.01

BrownForman BFM 142.22 -0.62 DiscoverInfo DFS 77.33 -0.01

Bunge BG 69.06 -1.45 DukeEnergy DKE 28.00 -0.06

Bunge

BANKING & FINANCE

Reinsurer's Shareholder Seeks Sale

BY CARA LOMBARDO

A longtime shareholder is publicly pressing RenaissanceRe Holdings Ltd., one of the last remaining stand-alone reinsurers, to sell itself amid a flurry of deals in the sector.

Asset manager Times-Square Capital Management LLC said it believes RenaissanceRe shares are undervalued but could fetch a significant premium in a sale, and it sent an open letter to the company's management Tuesday urging its to start a process.

TimesSquare owns a roughly 2% stake and voiced its concerns privately to the company last month. It marks TimesSquare's first public instance of taking a known activ-

ist role in an investment.

Bermuda-based RenaissanceRe said it has considered TimesSquare's views and is committed to acting in the best interests of all shareholders.

Chief Executive Kevin O'Donnell said on a July earnings call that despite "pessimism permeating today's market," he was optimistic about the company and praised its status as one of the few remaining stand-alone reinsurers, which allows insurers to avoid doing business with direct competitors. Shares of RenaissanceRe, which has a market value of about \$5.3 billion, rose 4.9% Tuesday.

Reinsurers, many of which are based in Bermuda for tax

purposes, serve as insurers for insurance companies, usually against extreme losses. Reinsurers' property catastrophe businesses have suffered as alternative capital, such as bonds, flood the markets, giving insurers new ways to spread risk. Some, including RenaissanceRe, have their own alternative capital funds.

As a result, reinsurance prices aren't reacting as strongly as they used to following catastrophes, such as hurricanes, resulting in lower earnings and shifting the focus to scale and diversification.

That in turn has prompted a string of sales of reinsurers, some at a premium of more than 40%, and compelled at least one other activist to

come forward. Among those deals: American International Group Inc. agreed to buy Valulus Holdings Ltd., AXA SA is buying XL Group Ltd. and private-equity firm Apollo Global Management LLC agreed to buy Aspen Insurance Holdings Ltd. French reinsurer Scor is facing pressure from Paris-based activist hedge fund CIAM after it rejected a takeover offer last month.

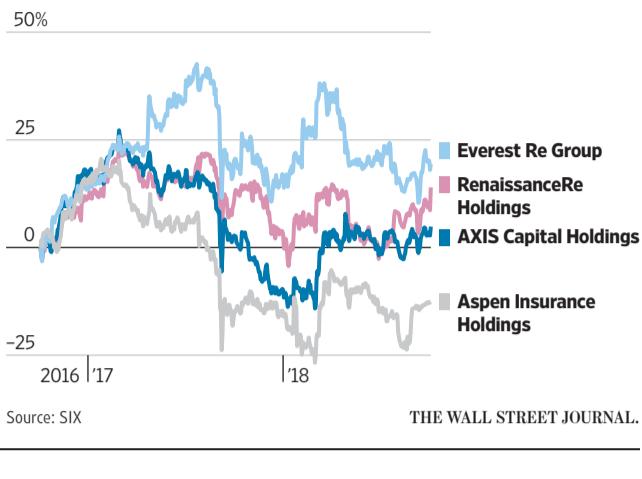
Financial companies accounted for 98 of 514 companies with market values of more than \$500 million that were publicly subjected to activist demands in the past year, according to research-firm Activist Insight.

TimesSquare manages more than \$19 billion in assets.

Reinsurers in a Lull

A longtime investor thinks RenaissanceRe shares would be more valuable if the firm were sold.

Share-price performance over the last two years



Source: SIX

THE WALL STREET JOURNAL.

Price-Rigging Bots Target Crypto Market

BY PAUL VIGNA AND ALEXANDER OSIPOVICH

Investors know bitcoin's violent mood swings well. What they often don't know is that unscrupulous traders, wielding purpose-built software, can be behind them.

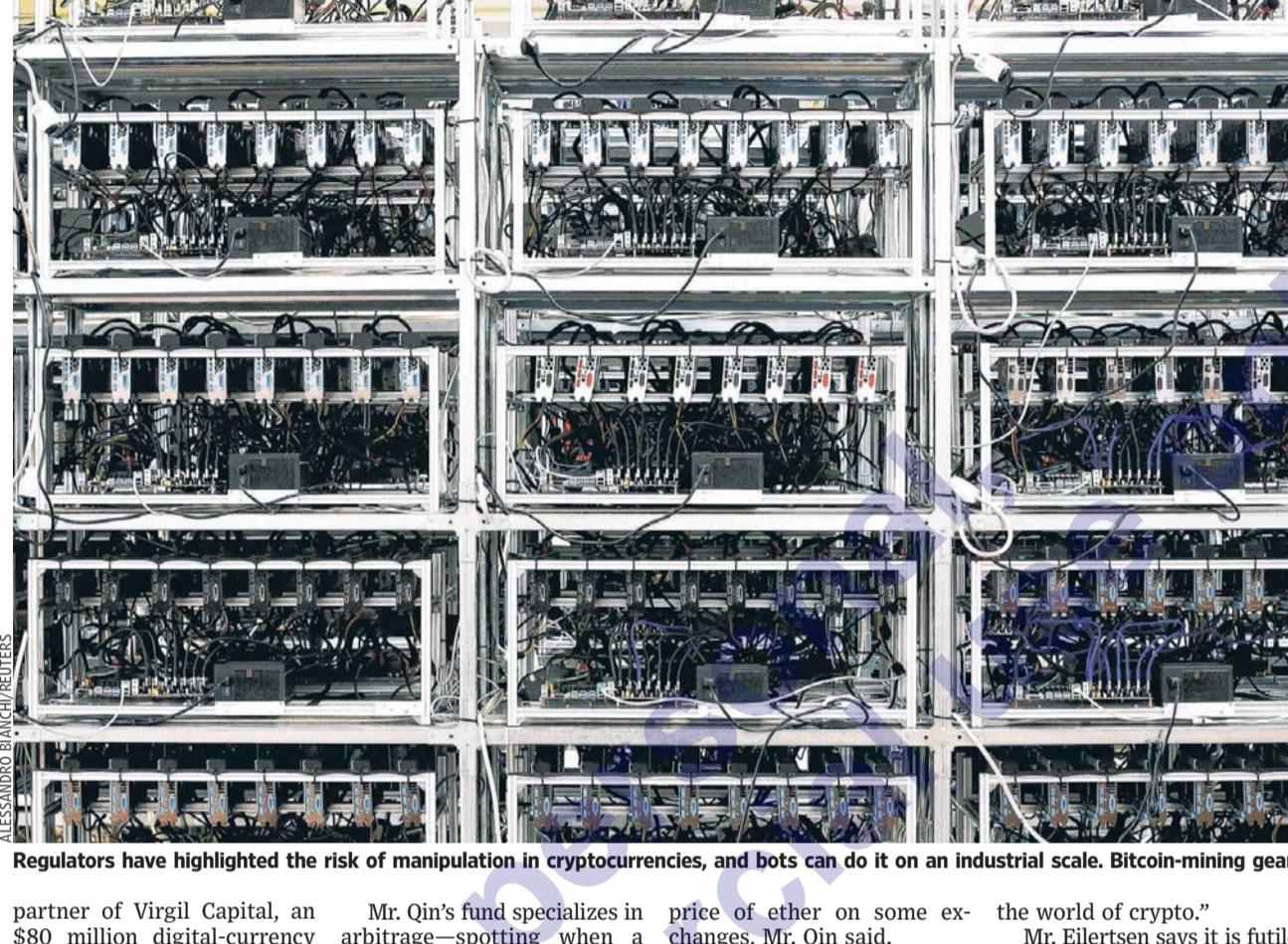
Manipulation in cryptocurrencies is a growing concern for regulators—and even for some proponents of the digital coins. The Securities and Exchange Commission cited that risk in August when rejecting several bitcoin-based exchange-traded funds. The office of New York Attorney General Barbara D. Underwood highlighted the issue last month in a report warning that crypto exchanges were vulnerable to manipulation.

"When any venue tolerates manipulative or abusive conduct, the integrity of the entire market is at risk," the report said, citing automated trading programs, or "bots," as a source of price manipulation. Trading programs exist in other markets, like stocks, and they can be used for both legitimate and manipulative strategies. Crypto traders can create bots themselves or buy them online.

In crypto, the critical difference is the lack of oversight. While established markets like the New York Stock Exchange monitor for illegal trading and punish rule breakers, crypto exchanges vary widely in their surveillance efforts. Most crypto exchanges are regulated lightly, if at all. The result is that crypto bots can be used to execute abusive strategies on an industrial scale.

"This sort of activity is rampant in the market right now," said Andy Bromberg, co-founder and president of CoinList, a startup platform for issuing new digital tokens.

Abusive bots are a fact of life for Stefan Qin, managing



Regulators have highlighted the risk of manipulation in cryptocurrencies, and bots can do it on an industrial scale. Bitcoin-mining gear.

partner of Virgil Capital, an \$80 million digital-currency hedge fund that runs its own bots on dozens of crypto exchanges world-wide. He said he engages in a constant cat-and-mouse game with enemy bots.

"We've had to build in error-handling functions to check for hostile and potentially illegal activities," Mr. Qin said. "Such is the Wild West of crypto."

Earlier this year, Virgil lost money on certain trades in either after a "harassing bot" targeted the fund, Mr. Qin said. Ether is the second-largest cryptocurrency after bitcoin, measured by market value.

Mr. Qin's fund specializes in arbitrage—spotting when a digital currency is priced differently on different exchanges, and quickly buying where it is cheap and selling where it is expensive. At the time, Virgil was checking for such discrepancies about once a minute.

Seconds before that periodic check, the hostile bot would post orders to sell ether at a lower price than other sellers. That would prompt Virgil to attempt to buy ether. But before it could do so, the bot would cancel its sell orders. Virgil ended up posting buy orders that didn't get executed, briefly boosting the

price of ether on some exchanges, Mr. Qin said.

The bot's strategy was similar to "spoofing," a practice in which traders enter fake orders only to cancel them. The tactic, aimed at tricking other investors to buy or sell an asset by falsely signaling there is more supply or demand, was outlawed in U.S. stock and futures markets in 2010.

Virgil eventually tweaked its algorithms to stop being gamed.

Kjetil Eilertsen, a Norwegian who started trading bitcoin in 2011, created a program called Quatloo Trader that he has touted as "the best market-manipulation tool in

the world of crypto."

Mr. Eilertsen says it is futile to ban manipulation in digital currencies. A better approach, he said, is to level the playing field by giving sophisticated manipulation tools to small traders.

"If everybody can manipulate, then nobody is manipulating," he said in an interview. "You can't ban anything from people who are dedicated to doing something."

But many other crypto traders say abusive trading practices are slowing cryptocurrencies' adoption. "It hurts the market's reputation, and it hurts individual investors," said CoinList's Mr. Bromberg.

Pimco to Buy Muni Business

BY JUSTIN BAER

Pacific Investment Management Co. agreed to buy a municipal-bond specialist, the firm's first acquisition since appointing Emmanuel Roman as chief executive.

Gurtin Municipal Bond Management oversees \$14 billion in assets for wealthy individual investors. Pimco said Tuesday it plans to add the San Diego-based firm to its dedicated muni-bond arm, giving the combined business \$38 billion in that business. Terms of the deal weren't disclosed.

Pimco oversees a total of \$1.7 trillion across all assets, making it one of the world's largest money managers.

Mr. Roman ran hedge-fund firm GLG Partners before spearheading its sale to Man Group PLC, and made a string of deals there. While his arrival at Pimco's Southern California headquarters raised expectations that the bond manager would begin to snap up rivals, Mr. Roman repeatedly has said a takeover spree was unlikely.

"As you have heard us say before, Pimco's strategy is to grow mostly organically, but we will consider making small acquisitions where it fits strategically with our business strategy and vision for the firm," Mr. Roman and Pimco investment chief Dan Ivascyn wrote Tuesday in a memo to employees. "This is precisely the case with Gurtin."

Messrs. Roman and Ivascyn said Gurtin's investment team will continue to manage its funds and separate accounts. Pimco said it expects to complete the Gurtin deal by the end of the year.

On the Run

Shares of Netflix have climbed sharply this year.

125%

100

75

50

25

0

-25

S & P 500

Netflix

J F M A M J J A S

Source: SIX

THE WALL STREET JOURNAL.



Home Depot is among the stocks that make a big contribution to the consumer group.

S&P Sector to Thrive After Netflix

BY JESSICA MENTON

Netflix Inc. and Amazon.com Inc. have gotten most of the credit for driving the big gains in the S&P 500's consumer-discretionary sector this year.

But even with the streaming-video giant's departure to the index's new communications sector last month, analysts say the discretionary stocks are poised to keep powering higher.

Netflix shares have surged 99% this year and are the third-best performers in the S&P 500, behind chip company Advanced Micro Devices Inc. and medical-device company

Abiomed Inc. The consumer-discretionary sector, meanwhile, has risen 19%—just short of the market-leading technology sector's 20% gain.

Because the S&P 500 is weighted by market value, the loss of Netflix shouldn't have a big impact. Netflix represented about 5% of the market value of the consumer-discretionary sector, according to Lindsey Bell, investment strategist at CFRA Research.

She noted there are seven other companies, including Amazon, Home Depot Inc., AutoZone Inc., Booking Holdings Inc. and McDonald's Corp., that make larger contributions to the sector on an earnings basis.

The next big test for Netflix

Netflix now represents 6.6% of the market value in the new communications sector, which also houses technology and media giants including Google parent Alphabet Inc., Facebook Inc. and Walt Disney Co.

Some portfolio managers have said they don't expect investors who already own Netflix and these other popular names to see a huge effect from the reshuffling.

"There's going to be money flowing into these names due to a tailwind from investors and wealth-management firms buying this new sector," said Brian Sterz, portfolio manager at Miracle Mile Advisors.

The next big test for Netflix

shares will likely come Oct. 16 when the company reports third-quarter results. Investors will be watching to see whether the company can meet its own subscriber-growth forecasts after it fell short of that metric in July, sparking a big selloff in its shares.

Aash Shah, senior portfolio manager at Summit Global Investments, cautions that the company faces headwinds maintaining growth internationally.

"This is a typical problem of most smaller companies that become larger," Mr. Shah said. "Their scale makes it difficult maintaining those growth rates."

Hong Kong Freezes Assets in Fraud Probe

By JOANNE CHIU

Hong Kong's securities regulator froze up to \$1.3 billion in assets owned by the chairman of a listed company in an investigation into suspicions of fraud affecting another publicly traded group—but kept quiet on the identities of everyone involved.

The Securities and Futures Commission said it suspected this businessman "orchestrated fraudulent schemes by colluding with certain personnel of the management of a listed company and/or its subsidiaries" in two deals, resulting in a combined loss of 10.17 billion Hong Kong dollars (US\$1.3 billion) for that group.

In an article on his website, shareholder activist David Webb said that is the largest-ever order to freeze assets in Hong Kong, according to his records.

The city has seen a string of scandals in recent years, and the regulator's head of enforcement, Thomas Atkinson, has called corporate fraud "the greatest threat to the reputation of Hong Kong as an international financial center."

He said last October that the regulator was investigating 136 cases of alleged fraud and misfeasance.

The move by the regulator was published in the govern-

ment's official gazette on Friday but dated Sept. 17.

The commission said it suspected the man had made "significant profits" from one of the deals. It didn't name him but used masculine pronouns at several points in its notice.

The regulator said the company that the person chairs had lost contact with him and that recent news reports indicated he might be abroad or under investigation in China as a suspect in a corruption case.

In practice, the halt could apply to a considerably smaller sum.

The commission said the person had securities and cash of HK\$4.64 billion at three brokers—Kingston Securities Ltd., Satinu Markets Ltd. and HSBC Broking Securities (Asia) Ltd. It has ordered the three to stop any dealings with the person's accounts, with some limited exceptions.

HSBC declined to comment.

Satinu Markets couldn't be reached for comment.

Shares of Kingston Financial Group Ltd., which owns Kingston Securities, fell 4.3% to HK\$1.99 on Tuesday.

It said on Monday that the incident was related only to "independent matters of a client" and solely to the client's assets, not its own.

MARKETS

Treasurys
Gain on
Eurozone
Anxiety

By IRA JOSEBASHVILI

U.S. government-bond prices rose amid investors' concerns over political tensions in the eurozone.

The yield on the benchmark 10-year Treasury note fell to 3.056%, from 3.078% Monday.

CREDIT MARKETS Yields fall as bond prices rise.

MARKETS Yields declined after an Italian lawmaker said the country "would resolve the vast majority of its [economic] problems" if it had its own currency. The comments followed a government announcement last week of a budget plan that investors fear has put it on a collision course with the European Union.

Some investors buy Treasuries during times of political or economic uncertainty, believing they will hold their value better than other assets when markets turn rocky.

Yields have climbed near their 2018 highs recently, lifted by easing trade tensions, data showing relatively robust U.S. growth and a climb in oil prices. Rising energy costs can lead to an acceleration in inflation, which poses a threat to the value of a bond's fixed interest and principal payments. U.S. oil prices are up nearly 25% this year.

AUCTION RESULTS

Here are the results of Tuesday's Treasury auction. All bids are awarded at a single price at the market-clearing yield. Rates are determined by the difference between that price and the face value.

FOUR-WEEK BILLS	
Applications	\$124,764,900,600
Accepted bids	\$40,000,051,900
"noncompetitively"	\$1,064,970,300
"foreign noncompetitively"	\$0
Auction price (rate)	99.836278 (2.105%)
Coupon equivalent	2.138%
Bids at clearing yield accepted	74.75%
Cusip number	912796QF9
The bills, dated Oct. 4, 2018, mature on Nov. 1, 2018.	

Dow Industrials Climb to Record

By MICHAEL WURSTHORN
AND DAVID HODARI

The Dow Jones Industrial Average rose to a record, while major indexes in other regions of the world struggled, a sign of the growing divergence in expectations for growth in the U.S. and elsewhere.

Shares of **Boeing**, **Caterpillar** and **3M**, manufacturers that have been sensitive to trade, led the Dow industrials higher, contributing to more than half of the index's roughly

123-point gain. **TUESDAY'S MARKETS** Monday's revamped North American trade pact between the U.S., Canada and Mexico helped spur the latest leg of the Dow's climb, its fourth consecutive session of gains.

The Dow's push to records stands apart from other regions of the world that continue to struggle with economic uncertainty and signs of slowing growth. The disparity is especially apparent in Europe, where stocks fell as investors worried whether Italy's continuing economic turmoil will seep into public markets and the eurozone.

Stocks in Europe stumbled, with banks among the biggest decliners due to concerns around their exposure to Italian debt.

"The U.S. is still a very strong bastion of economic strength," said Paul Springmeyer, investment managing director at U.S. Bank Private Wealth Management. "But we're entering the later stages of a global economic cycle that's leaving the U.S. as a fairly strong safe haven."

The Dow industrials rose 122.73 points, or 0.5%, to 26773.94, a record that tops its previous watermark of 26753.50 set on Sept. 21. The S&P 500 was little changed, falling 1.16 points, or less than 0.1%, to 2923.43, while the Nasdaq Composite slipped 37.75 points, or 0.5%, to



A Caterpillar plant in Texas. The company's stock rose with others that have been sensitive to trade, which led the Dow industrials higher.

7999.55.

Helping U.S. stocks are expectations of a third consecutive quarter of double-digit profit growth. Analysts anticipate a 19% increase in third-quarter earnings at companies in the S&P 500. Of the 18 companies that have reported results so far, 16 have topped expectations, according to FactSet.

"The only strong asset class this year is U.S. stocks," said Ed Keon, chief investment strategist at QMA, a unit of **Prudential Financial**. The asset-management firm remains tilted toward U.S. equities, Mr. Keon added.

Boeing rose \$4.08, or 1.1%, to \$386.37 to lead the price-weighted Dow higher. Caterpillar added 2.54, or 1.7%, to 154.82, while industrial-adhesive maker 3M gained 3.52, or 1.7%, to 215.71.

Still, investors said they re-

mained mindful of the Dow's vulnerability to trade tariffs and were looking to the coming earnings period for any sign that tensions are starting to wear on companies.

Even with the new North American trade pact, the U.S. and China remain at odds. White House economic adviser Lawrence Kudlow said Tuesday that trade talks between the two countries could resume in December, when the Group of 20 meets in Buenos Aires. But talks have been "unsatisfactory" so far, Mr. Kudlow said at a securities industry conference in Washington.

Elsewhere, the Stoxx Europe 600 fell 0.5% and is off 7.8% from its latest record set in mid-April.

Selling in Europe echoed weak trading in Asia-Pacific, although Japan's Nikkei was one of the few indexes to climb, rising 0.1% to a 27-year

Diverging Fortunes

Trade-sensitive stocks powered the Dow Jones Industrial Average to a new high, while the broader S&P 500 ended the session little changed.



high. Early Wednesday, it was down 0.6%. With mainland Chinese exchanges still closed for the country's public holi-

day, Hong Kong's Hang Seng Index returned to trading with a 2.4% drop Tuesday but was flat early Wednesday.

Investors Fear Italy 'Doom Loop' as Bonds Sell Off

By AVANTIKA CHILKOTI
AND GEORGI KANTCHEV

A deepening selloff of Italian bonds and banks has revived concerns over the "doom loop" between weak lenders and fragile government finances.

Italian banks have large portfolios of the country's bonds, and the recent fall in their value will have eroded the sector's capital cushion, which is needed to protect it from future financial shocks. During the sovereign-debt crisis earlier this decade, a selloff in government bonds raised concerns about the banks that held them which, in turn, added to worries about the country's economic strength.

But this year, Italian banks have loaded up on even more of the country's bonds, even as other eurozone countries have whittled down their portfolios.

Investors have been selling off Italian shares and government bonds since Friday after the government significantly

Weak Link

Investors spooked by Italy's move to widen its budget-deficit target for next year are increasingly worried about Italian banks' holdings of government debt.

FTSE Italia All-Share Banks Sector Index



widened its budget-deficit target for next year to 2.4% of gross domestic product, setting up a likely clash with the European Union given the proximity to the bloc's 3% limit.

Yields on 10-year Italian bonds rose to their highest point in four-and-a-half years on Tuesday to 3.461%, from 2.932% on Monday.

The yield on two-year bonds rose to 1.469% from

1.005%.

Yields move inversely to prices.

The FTSE Italia All-Share Banks index was down 1.2%.

"The banks are the area to watch," said Richard McGuire, head of rates strategy at Rabobank. "They are holding a considerable amount of Italian government bonds and as the value of those sinks, the banks come under pressure."

Tuesday's selling came after a lawmaker for the coalition League party said in a radio interview that Italy "would resolve the vast majority of its [economic] problems" if the country had its own currency.

Italian markets retraced some of their losses later Tuesday after Italian Prime Minister Giuseppe Conte distanced himself from the comments, saying on Facebook that "the euro is our currency and for us it is unrenounceable."

But analysts remain concerned over the country's lenders, which stocked up on

local debt even as investors sold amid political uncertainty in Rome.

In May, fears that the country could leave the eurozone rattled markets around the world.

Holdings of Italian government debt by local banks increased 12% this year to €374.58 billion (\$433.7 billion) in August, according to data from the European Central Bank. Italian sovereign debt now makes up more than 10% of lenders' total assets.

Italian banks hold more local debt than their peers across Europe. German banks' holdings of their country's debt have dropped 10% this year to €177.76 billion in August—or just over 2% of total assets.

Banks buy government bonds to act as a financial buffer for times of stress. Since the crisis, some regulators have tried to encourage banks to keep holdings of local sovereign bonds down, in a bid to break the so-called doom loop.

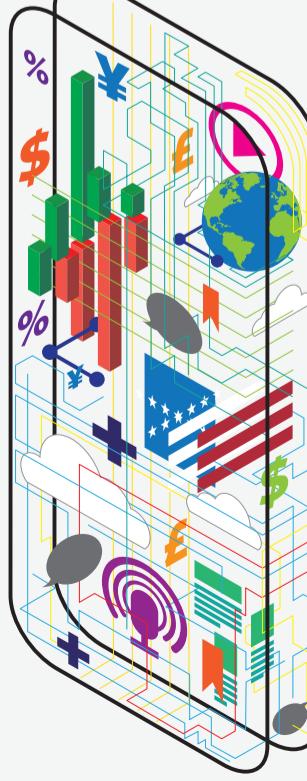
Shares in Italian banks have fallen steeply since just before last Thursday's fiscal statement, with UniCredit down around 1.9% and Intesa Sanpaolo down around 0.3%, recovering from double-digit losses earlier in the day.

In one sign that raising funds could now be more expensive for Italian banks, the cost of protecting their debt through credit-default swaps has also risen.

Since Thursday, the annual cost of protecting against a default on \$10 million of debt belonging to UniCredit and Intesa Sanpaolo, Italy's two biggest banks, has risen by roughly \$25,000 to \$167,000 and \$176,000 respectively, according to IHS Markit. That cost has nearly tripled since the start of the year.

Political uncertainty in Italy has been a drag on markets throughout the region.

On Tuesday, the euro was down 0.25% against the dollar and the Stoxx Europe 600 fell 0.5%.



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MARKETS

Small Investors Waver on Ethical ETFs

By ASJYLYN LODER

Vanguard Group recently launched some of the cheapest funds yet featuring green and socially responsible companies, the latest example of do-good strategies that claim to deliver stock-market returns along with a clear conscience.

But for all the recent fervor among fund firms, few mom-and-pop investors are buying.

Vanguard, State Street Corp., OppenheimerFunds and Nuveen are just a few of the firms that have jumped on the bandwagon, launching exchange-traded funds that invest in firms with the lowest carbon emissions or the largest number of women on boards. Since the start of 2016, 40 ETFs that invest based on environmental, social and governance criteria have been introduced, more than quintupling the number on the market, according to Morningstar.

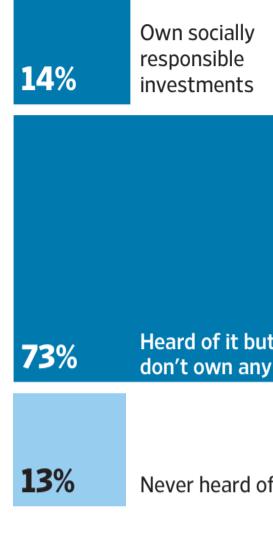
But the 48 ETFs on the market together have just \$5.3 billion in combined assets, less than 0.15% of the \$3.7 trillion U.S. ETF industry.

The two new Vanguard ETFs exclude companies engaged in industries such as booze, adult entertainment, tobacco and weapons. The funds also try to sidestep firms that fail to meet certain diversity, human-rights and environmental standards.

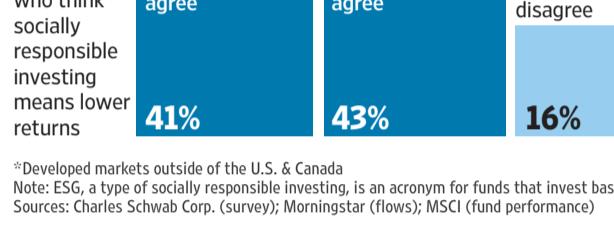
A recent survey of 1,500 ETF investors published by Charles Schwab Corp. provides some clues as to why investors aren't putting their money in funds that match their professed values, including higher fees and concerns that righteousness comes at the expense of returns.

Vanguard's new domestic equity ethical fund costs just \$12 a year for every \$10,000 invested, and its new international ETF is \$15. Only three other such ETFs, known by the acronym ESG, are priced that

A recent survey shows most investors have heard of socially responsible strategies, but few actually buy them.



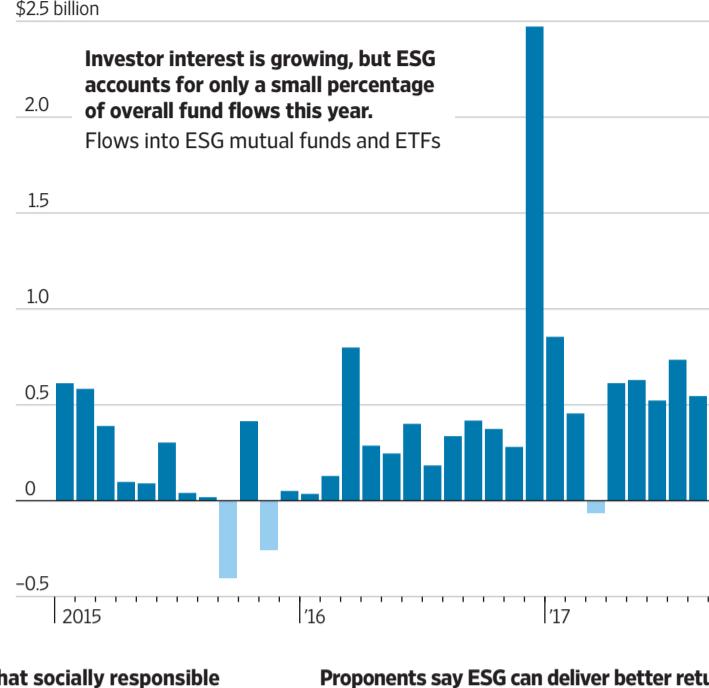
Many investors remain concerned that socially responsible investing means sacrificing performance.



*Developed markets outside of the U.S. & Canada

Note: ESG, a type of socially responsible investing, is an acronym for funds that invest based on environmental, social and governance criteria.

Sources: Charles Schwab Corp. (survey); Morningstar (flows); MSCI (fund performance)



Investor interest is growing, but ESG accounts for only a small percentage of overall fund flows this year.



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Employees can lobby their plan managers to add ESG options, or set up their own investment accounts independent of the company-picked fund lineup. Few go through that trouble.

The other hurdle is perception: It is hard to dislodge the decades-old assumption that such strategies mean sacrificing returns, a concern of 84% of the respondents to Schwab's survey.

Proponents say the opposite is true, and that such strategies can beat the market by skirting potential pitfalls.

For example, analysts at index provider MSCI Inc., a major provider of scoring in the industry, flagged governance problems at **Facebook Inc.**, **Equifax Inc.** and **Wells Fargo & Co.** months or even years before scandals broke into public view. That led some ESG funds to steer clear of them.

Whether that translates into long-term outperformance is less clear. MSCI's plain-vanilla U.S. stock index beat the ESG version over the past decade, but ESG won out when it came to indexes tracking developed markets in Europe, Australia and Asia, according to MSCI.

When it comes to ETFs in particular, few of the ESG offerings have been tested over the long haul. After a decade of steady gains in U.S. stocks, it is hard to convince investors to pay higher fees for ESG strategies when they can get plain-vanilla index ETFs for as little as \$3 a year for every \$10,000 invested.

"You can show them all the studies, all the back tests, all the theory," said Martin Kremenstein, head of retirement products and ETFs at Nuveen, the asset-management arm of TIAA, which has several ESG ETFs and mutual funds on the market. "But until they see performance over time, it's always going to be a hurdle."

low.

Yet the biggest hurdles may be structural. "Socially responsible" strategies have long been on the fringes of finance, and ESG is a relatively recent offshoot of it. Many ETFs are too new and too small to pass muster with the gate keepers at big brokerage firms. Regulations keep similar mutual funds out of most employer-sponsored retirement plans.

"It requires an investor to do much more homework and jump through additional hoops instead of just buying what's readily available," said Todd Rosenbluth, head of fund re-

search at CFRA.

ESG evolved from socially responsible investing, an industry that traces its modern roots to the antiapartheid divestiture campaign of the 1980s, which prodded companies to withdraw from South Africa to protest the country's institutionalized racial segregation.

After apartheid was dismantled, ethical investing focused on boycotting bad actors, like heavy polluters and human-rights violators. But excluding huge swaths of the market raised concerns about sacrificing performance and diversification.

Instead of rejecting entire industries outright, many ESG strategies tilt toward the best corporate citizens. They proportion their portfolios based on how companies perform on issues like pollution and pay parity instead of using market value to determine how much to invest in each company, like most traditional indexes.

ESG has won influential adherents, like pension funds in California, New York, Norway and Japan.

Assets in ESG and socially responsible mutual funds and ETFs world-wide grew 29% last year to nearly \$1 trillion, and this year's gains have

been even bigger, according to a report published earlier this year by analysts at Goldman Sachs Group Inc.

However, there are still barriers to widespread adoption. Many retirement savers invest exclusively through employer-sponsored savings plans, but only a handful of those include ESG options, in large part because of regulations that prohibit plan managers from considering anything other than the best economic interests of participants, explained Brian McCabe, a partner in the investment-management practice at law firm Ropes & Gray.

HEARD ON THE STREET

FINANCIAL ANALYSIS & COMMENTARY

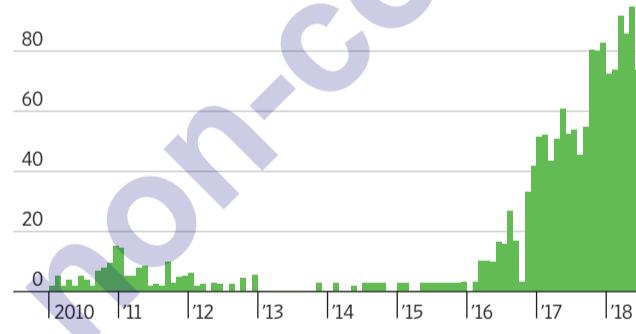
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A Trade Fight Heats Up in Energy

Freezing

U.S. liquefied-natural-gas exports



shipping in the early 2020s, eventually as much as 26 million metric tons of gas a year. For perspective, the U.S. exported just 14 million metric tons last year, and the whole global market amounted to just 285 million.

China, by far the fastest-growing major market, already slapped a 10% tariff on American gas, and just signed a big supply deal with Qatar. With Canada also en-

tering the game, U.S. energy companies' ambitious expansion plans are starting to look riskier.

The irony is that in pre-

trade fight days, the U.S. looked well positioned to capture a big chunk of the Chinese market. **Cheniere Energy**, the largest U.S. exporter, in 2017 estimated its break-even point on sales to Asia from future projects at \$7.50 to \$8.50 per million British thermal units. That is

substantially below the estimates of \$9 to \$12 for LNG shipped from Western Canada, as calculated by Paris-based Cedigaz and the Canadian Energy Research Institute.

But an increase in Chinese tariffs to 25%—as threatened—would move U.S. LNG overnight from the low end of the cost curve firmly into the middle.

Add in higher steel costs for pipeline and terminal construction thanks to U.S. import tariffs, and a report that PetroChina is already considering curtailing American LNG purchases, and the storm clouds over U.S. exporters are getting hard to ignore.

Given the scale of China's near-term needs, it may not be able to avoid U.S. LNG this winter. But the long winters to come could be chilly ones for U.S. Gulf Coast exporters—and surprisingly warm up north in Canada—if Sino-U.S. trade tensions keep ratcheting higher.

—Nathaniel Taplin

OVERHEARD

Tesla's third-quarter production report was positive in some ways, but the details were a little hazy.

The electric-car maker met Wall Street expectations for production and deliveries of its Model 3 sedan. Tesla made no mention of its customer reservation count, though. Three months ago, Tesla reported that reservations stood at "roughly 420,000."

That figure brings to mind Tesla's supposed deal to execute a go-private transaction at \$420 a share—the infamous incident that was the subject of last weekend's Securities and Exchange Commission settlement with CEO **Elon Musk**. The agency had alleged before the settlement that the price was a reference to marijuana culture.

Tesla had said in August that it stopped taking new reservations for the Model 3, but the company didn't answer a question about its current reservation count. The figure seems to have gone up in smoke.

Amazon Had Good Reason To Lift Pay

Once known for fashioning its office desks out of unused doors, **Amazon.com** can no longer afford to play it cheap.

The world's second-most valuable company has long stood apart from its Big Tech peers for its reliance on a large base of relatively low-skilled labor. But the nature of that work also means Amazon ranks at the bottom of tech's pay scales.

Excluding the pay of CEO Jeff Bezos, Amazon's median employee compensation last year was \$28,466—about 14% the median pay of Google parent **Alphabet Inc.** That has helped make the company the subject of numerous unflattering reports about the conditions faced by many of its workers.

Amazon's new plan to boost the minimum wage of its U.S. workers to \$15 an hour makes for smart policy.

It also could come at a high price, though. Amazon said Tuesday that the change will include more than 250,000 full-time employees as well as 100,000 seasonal or part-time workers. The company didn't detail an impact to its bottom line.

Investors should expect a hit, at least relative to the rapidly expanding bottom line Amazon has been delivering of late.

Analysts had been expecting an operating margin of 4.7% this year compared with 2.3% last year. Amazon's margins also were expected to climb steadily to top 11% by 2022, according to FactSet.

But for Amazon, paying up now may lessen the chance of regulations that pose a bigger cost down the road.

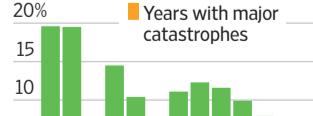
—Dan Gallagher

A Storm Is Brewing for Reinsurers as Activists Sound Off

Diminishing Returns

Reinsurance industry median

returns on average common equity



Source: Moody's Investors Service

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that industry returns are depressed and look likely to remain so. However, these targets may not be the right ones for activists.

Returns on equity for re-

insurers have long been under pressure, hurt by both weak investment returns in an ultra-low-yield environment and the growth of alternative source of capital such as catastrophe bonds, which has kept reinsurance rates cheap.

This is driving a quest for scale and new fee-income revenue among reinsurance and insurance groups. The result is deals such as **AIG's** \$5.6 billion takeover of Valuus, another Bermudian, and **Markel Corp.'s** takeover of catastrophe-bond specialist Nephila.

In this context, though, the situations at RenaissanceRe and Scor seem

slightly odd.

RenaissanceRe is one of the better-performing Bermudian reinsurers. It has a good mix of traditional reinsurance business and an alternative capital-management business with more than \$2 billion of third-party funds under management.

It therefore has a history of trading at a premium to peers: Its valuation has tracked between 1.2 and 1.25 times forecast book value over the past two years, according to FactSet.

Meanwhile, the Covéa bid for Scor doesn't seem like a great idea at all. The former, a mutually owned home and motor insurer, seems un-

likely to find any benefits from combining with a global reinsurer.

A much better idea, suggested by analysts at Berenberg, would be a combination of Scor with PartnerRe, a reinsurer currently owned by Italy's **Exor**, the investment company that controls **Fiat Chrysler**. Still, CIAM's campaign for governance reform and more influence for shareholders may be necessary for any ideas to gain traction.

Whether or not activists are exactly right about these two companies, you can bet that there will be more reinsurance deals to come.

—Paul J. Davies

JOURNAL REPORT

THE FUTURE OF FOOD

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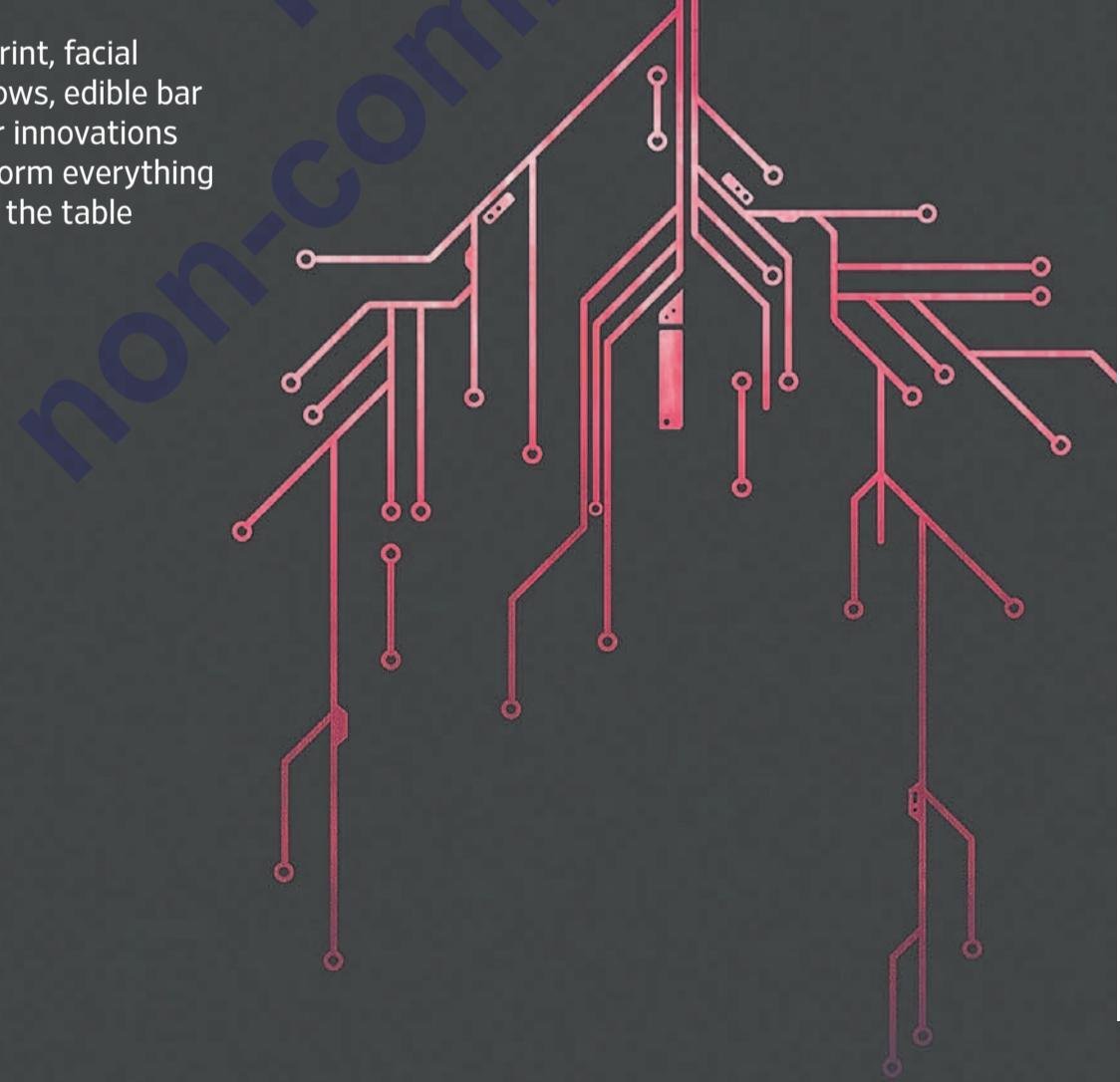
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Wednesday, October 3, 2018 | R1

6

Technologies That Could Shake the Food World

Meals that you print, facial recognition for cows, edible bar codes—and other innovations that could transform everything from the farm to the table



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E-commerce is forcing big changes

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JOURNAL REPORT | THE FUTURE OF FOOD

E-Commerce Reshapes Grocery Stores

Food shoppers are finally going online, and it's forcing supermarkets to alter layouts and rethink a lot of their operations

BY HEATHER HADDON

SMART & FINAL INC. has made some changes lately that would seem like heresy for a supermarket: The California-based chain ripped out racks of snacks and other profitable impulse purchases near the doors of some stores and instead installed freezers there.

But grocery executives say the seemingly irrational move is simply one of many signs that the supermarket business is radically changing. The freezers will serve as pickup points for customers who order their groceries online and may never go any farther into the store.

Such online sales, says **Smart and Final** Chief Executive David Hirz, is "becoming a meaningful piece of our business."

After years of inertia, U.S. supermarket chains are racing to add online options, such as home delivery and in-store and curbside pickup, to keep shoppers from shifting more of the \$800 billion in annual food and beverage spending to e-commerce firms such as Amazon.com Inc. The process is spurring retailers and major food brands to change fundamental aspects of their operations—from staffing and supply networks to the way they organize their parking lots and stores. At the same time, the online shift has created complications for the physical stores.

Bill Bishop, co-founder of consulting firm Brick Meets Click, calls it the biggest change to supermarket operations since the introduction of bar codes to consumers' goods. "There really hasn't been anything this sweeping operationally since," Mr. Bishop



A Kroger associate fulfills an online order for curbside pickup.

Where the Growth Is

E-commerce was by far the fastest-growing grocery-shopping channel in 2017. Change in sales from 2016:

E-commerce	26.0
Limited assortment store	6.7
Dollar store	6.6
Fresh format	6.2
Supercenter	3.5
Super warehouse	3.2
Small grocery	3.0
Wholesale club	2.8
Convenience store*	1.7
Traditional supermarket	1.3
Mass-market retailer	-1.5
Drug	-1.9
Military	-6.0

*with and without gas

Source: Inmar Analytics

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services such as Instacart, while others have created separate entrances for delivery pickups.

Food makers, meanwhile, are beefing up e-commerce units to make sure customers can find their goods online, and to track their flow from retailers to customers' homes. "We have to all be careful to think this through," says John Carroll, general manager of e-commerce for Coca-Cola Co., which has 50 employees working in its online division.

The beverage and snack company now replenishes stocks at some stores around the clock, Mr. Carroll says, after finding that nearly 50% of online orders are placed at night and retailers tend to package pickup orders during off hours. It also has changed some of its packaging to make it lighter and less prone to damage for its online sales.

Food retailers such as **Walmart** and **Kroger** Co. are spending tens of millions of dollars to acquire digital-ordering technologies, implement home-delivery systems and build thousands of store pickup points for

online orders. Kroger, the U.S.'s largest supermarket chain, has hired or assigned nearly 19,000 workers to run an estimated 1,400 pickup sites for online orders, covering roughly half of the company's stores. **Target** Corp. is introducing a new inventory system to replenish its stores and fill online orders faster as part of a \$7 billion overhaul.

Retailers also are adding online more of the bulk items that e-commerce shoppers prefer. Larger packages of cookies and other foods tend to be more economic to ship online, helping to offset delivery costs, says Carmela Cugini, vice president of operations and curation at Jet.com.

Snack brands, meanwhile, are trying to figure out how to boost impulse purchases when customers increasingly aren't walking by their items at checkout. **Hershey** Co. pays for pro-

motions and better retailer-search results to encourage online shoppers to add its candies and snacks to their online baskets, and uses its data to tailor those promotions based on past purchases, says Doug Stratton, the company's chief digital commerce officer.

The online push, however, poses risks for grocers, as it requires upfront investment and can detract from the in-store experience for customers who still generate most of grocers' sales.

Clerks fulfilling online orders can clog aisles and checkout lanes or pick over the best produce, customers and grocery consultants say.

"The last thing I need while getting groceries is more frustration," says Kristyn Booth, a 48-year-old teacher from Austin, Texas, who resents the lines that online grocery pickers create at the stores where she shops.

Instacart, which sends couriers into stores to grab products off shelves, says it is trying to lighten its impact on stores by running tight staging areas in supermarket backrooms, batching orders and using dedicated check-out lanes.

Kroger is trying to combat congestion in its aisles by having clerks picking produce for online orders wear portable scales to speed up the process, says Matt Thompson, vice president of digital.

Grocers and food makers also are scrutinizing their supply systems to keep from running out of stock as e-commerce orders swell. Kroger has fined suppliers who don't deliver on time and in full, and Walmart has given more business to those consistently delivering on time. **Smart & Final** is getting more frequent delivery of goods, executives say.

In the future, grocers may need to build separate warehouses for fulfilling online orders, says Nick Hernandez, managing director of retail services at real-estate services firm Transwestern. Retail locations can shrink, while the warehouses could be rented for a fraction of the cost of a storefront supermarket, he says.

Ms. Haddon is a Wall Street Journal reporter in Chicago. Email her at heather.haddon@wsj.com.

A Revolution In Food Technology

Continued from the prior page

vanted a machine called Chef 3D that creates pizzas by printing out the dough, sauce and cheese, in any design you choose—then it's ready for the oven. The inventors initially developed the device with a grant from the National Aeronautics and Space Administration.

Protein from algae

There is a shallow blue-green pool of water in the New Mexican desert, and it isn't a mirage: It is a site for growing algae, plants rich in protein and Omega 3.

It is also a potential solution for a global food dilemma. The world is running out of land for raising animals for food, experts say. Algae grow well in brackish water and in the desert because of the abundant sunshine and the fact that they don't need fresh water—potentially bringing more unused land into productive use.

Now advances in algae farming are making it a popular ingredient in new foods like algae-based protein bars and vegan shrimp, as well as other products such as fish feed and food coloring.

When Miguel Calatayud became chief executive of **Iwi Life** in 2016, the company was growing algae for fuel. Then it started making Omega 3 supplements, and now it is working on algae protein bars and shakes, which it expects to be on sale next year.

One challenge is countering the fishy flavor with other ingredients, and testing different strains of algae to find milder ones. Another company, **Algama Foods**, pulled its algae-infused Springwave water off the market two years ago so it could improve its taste. Algama is now preparing for a relaunch.

"Success is people not knowing the protein is coming from algae," Mr. Calatayud says.

For other companies, algae's flavor isn't a problem. Several are leveraging the taste, like Thrive, a cooking oil; Good Catch, a brand of fish-free tuna; and New Wave Foods, which makes vegan shrimp.

Codes to chew on

When food makes people sick, grocery stores and restaurants yank it off their shelves and menus, and regulators race to find the source. But companies and officials often struggle to determine exactly from where the tainted food came.

Now many companies are trying to improve traceability in the food-supply chain, as producers, distributors, retailers and restaurants confront costly recalls and more stringent reg-

ulation to prevent the spread of food-borne illnesses.

One possible solution: edible bar codes, a DNA-based "fingerprint" designed to make food traceable back to its source within minutes.

The technology, developed at a government-sponsored research facility, was first used to simulate a biological attack, helping officials track how pollutants might move through the New York City subway system.

A deadly listeria outbreak tied to cantaloupe in 2011 later inspired the idea to use the bar codes on food, says Anthony Zografos, who licensed the DNA technology. His company, **SafeTraces**, now sells the technology to farmers, packers and food processors. "In this day and age, we should be able to find out quickly where [tainted food] came from," says Mr. Zografos.

Applied to food, the bar codes are invisible, tasteless and safe to eat. Created by combining segments of seaweed DNA into a unique signature, the bar codes can be applied to a single food item like an apple or a silo full of wheat used in flour.

A drop of DNA can be mixed into the wax coating applied to an apple during processing, for example. Then, a specialized instrument can read the bar code on the apple, revealing information about the fruit's origin—from the farm where it was grown to the row where it was picked.

Of course, food that is eaten completely can't be tracked. But the technology is also aimed at managing risks. If a farmer or food processor learns there's a problem with their product, they can trace it to a specific lot, potentially limiting the scope of a recall.

Waste not, want not

Farmers, grocers, restaurants and consumers waste billions of dollars' worth of food each year, devouring resources like water and energy while millions of people around the world go hungry. Now, from tech startups to corporate giants like Walmart Inc., companies are trying to address the problem.

One of the newest weapons is the dreck left at the bottom of a wine press.

Using organic agricultural byproducts like grape skins, **Apel Sciences** developed an ultrathin edible coating that can be applied to the surface of fruit. It slows evaporation and oxidation, forces that eventually cause fruit to spoil.

The result, says James Rogers, founder and CEO of Apel, is produce that stays fresh up to three times longer, cutting down on the amount that ends up thrown away.

"It is good business to reduce perishability," says Mr. Rogers, whose treated avocados are sold at Kroger Co., Costco Wholesale Corp. and Harps Food, a chain based in Springdale, Ark.

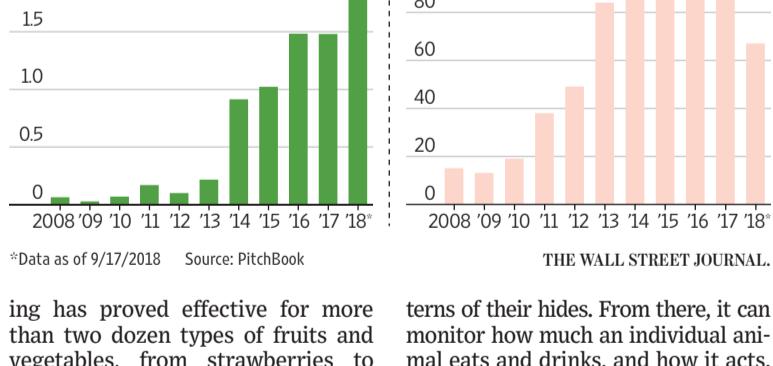
Mr. Rogers, a materials scientist, says the inspiration for Apel has its roots in his early studies on preventing rust in steel. The company's coat-



KRISTEN MEYER

Big Appetite

U.S. venture-capital deal activity in food-tech firms over the past decade:



Source: PitchBook

ing has proved effective for more than two dozen types of fruits and vegetables, from strawberries to green beans, he says.

Beyond curbing food waste, Mr. Rogers says the invisible, tasteless "microclimate" that Apel applies to each piece of fruit allows farmers to harvest produce when it's ripe, rather than prematurely, resulting in a better-tasting, more nutritious product.

Next up for Apel: a skin for citrus products and asparagus. The company says asparagus has the biggest carbon footprint of any produce because it tends to be shipped by air due to its relatively short shelf life. Apel's coating will slow aging, allowing exporters to ship the vegetable by sea instead, cutting costs for producers, Mr. Rogers says.

Cameras for cows

Facial-recognition technology is helping farmers track cows on dairy farms—and give them insight into the animals' behavior.

The same software used to catch jaywalkers in China and verify travelers boarding airplanes can identify cows using their faces and the pat-

terns of their hides. From there, it can monitor how much an individual animal eats and drinks, and how it acts.

If a cow deviates from its normal food or water intake, for instance, farmers can have an alert sent to their phones, encouraging them to put out more food or assess the animal's health.

"Every action gets reduced to 'cow X did Y for Z amount of seconds,'" says David Hunt, co-founder and president of **Cainthus**, a Dublin-based company that brought facial recognition to the dairy barn.

Farmers have gleaned other insights into cows' behavior. Dairy cows prefer drinking in groups, for instance, and they often run out of food at night. What's more, the path a feed truck takes through a barn can determine how much the cows that are inside eat.

Cainthus's software and analytics can help farmers adjust feeding regimens or tend to sick animals, potentially boosting production and profitability. The company says its cameras have been installed in barns housing 14,000 cows in North America and in others across Europe.

"It is a fundamentally different way of thinking about where we plant plants and why," he says.

Nutella is looking for new places to grow hazelnuts because the vast majority are grown in Turkey, and when weather damages the crops there, as it did in 2014, prices skyrocket.

Normally, the company would plant test plots in different real-world environments outside Turkey, but that would "cost a lot and take a long time," Mr. Harper says. "We can simulate 10 candidates and see which does best in less than half the time."

In the future, farmers will be able to use data gathered from tests so that they can immediately see if their crop would grow well under certain conditions.

"To design your produce to the best possible nutrition and taste and in the most efficient way is a tremendous capability," says Maria Velissarou, chief science and technology officer of the Institute of Food Technologists, a professional society.

Ms. Gasparro and **Ms. Newman** are reporters in The Wall Street Journal's Chicago bureau. Email them at annie.gasparro@wsj.com and jesse.newman@wsj.com.



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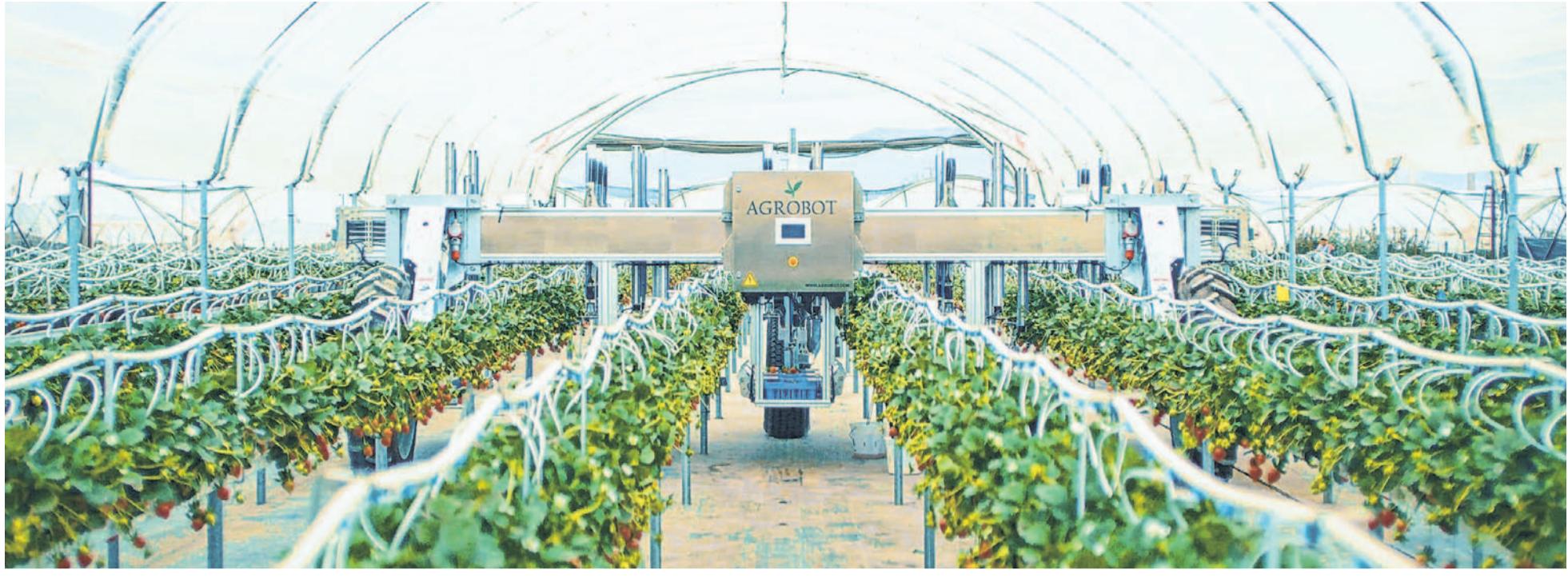
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JOURNAL REPORT | THE FUTURE OF FOOD



AGROBOT(2)

Robots With a Light Touch

Machines struggle with the task of picking fruits and vegetables. Science is trying to help.

BY JENNIFER STRONG AND DANIELA HERNANDEZ

AMERICANS LIKE their berries. They consume more than 8 pounds of fresh strawberries a year per person, almost twice as much as 15 years ago, according to 2017 data from the U.S. Department of Agriculture's Economic Research Service.

The increased demand is adding to a big problem in the agricultural industry: a labor shortage that is unlikely to improve soon, according to farmers and researchers. It means berries that would otherwise be sold might instead rot in the field.

Technologists think automation eventually could help producers pick specialty crops like berries, apples, peaches and snacking tomatoes, just as high-tech combines from companies such as Deere & Co. already are helping farmers of commodity crops harvest grains. Autonomous robots that run along tracks also are ferrying bins inside greenhouses, cutting down the walking workers have to do, growers and industry researchers say.

But unlike in manufacturing, where artificial intelligence and computer vision power factory arms that move car parts or handle food in predetermined ways, agricultural fields pose a challenge for machines. Fruits and vegetables don't grow in uniform sizes, ripen at the same rate or sprout on the vine or tree in locations that are always easy for machines to access. This makes specialty crops harder to harvest than commodity crops, experts say.

Improved sensors

Several startups are working on next-generation picking machines that can move autonomously and handle delicate items, but all are years away from commercialization. The companies are working to improve their products' speed, mobility and ability to handle unpredictable

tasks reliably.

One problem, say roboticists, is that robots often can't "see" behind leaves or reach behind a tree branch without potentially harming themselves or the fruit they're trying to grab. This is a major problem in strawberry fields and apple and peach orchards, where fruits are easily bruised and can often be occluded by leaves. Lighting conditions also can make it difficult for robots to see their target.

Robotics are trying to solve these problems by enhancing the quality of sensors that allow robots to understand and navigate their surroundings, improving machine intelligence with better data and creating crops that are easier for robots to harvest. Many of these initiatives are in the early stages, and widespread adoption faces multiple challenges, including a large-scale re-thinking of how crops are grown and how humans, plants and robots should work together, growers and engineers say.

"Each would do a task it's best suited for. So it's a symbiotic relationship" between people, crops and machines, says David Slaughter, an agricultural engineer, who heads the Smart Farm Initiative at the University of California, Davis. Right now, artificial intelligence alone "can't completely deal with the natural complexity of a farm," says a UC Davis engineer.



An Agrobot harvester with 24 robotic arms picks strawberries on a tabletop growing system.

Right now, AI alone 'can't completely deal with the natural complexity of a farm,' says a UC Davis engineer.

access to its fields in hopes of speeding up a breakthrough. The automated pickers being tested are good at recognizing ripe versus unripe fruit, but "we still got a ways to go before the robot is as accurate as human beings" or as fast, says Soren Bjorn, president of Driscoll's of the Americas.

Meanwhile, Driscoll's is starting to change the way it grows berries, in part,

to make them more robot-friendly—"a big change," Mr. Bjorn says.

Some robot pickers work better on fields with raised strawberry beds because the fruits, which typically grow low to the ground, are more visible.

Raising up growing beds so they sit on tabletops can cost \$80,000 an acre to plant, roughly \$50,000 more than traditional structures, says Mr. Bjorn. But, he says, the investment also will make it easier on human pickers, which he hopes will expand the labor pool while robotic technologies mature enough to be commercialized. That could take three to four more years, he says.

Robot-farmer symbioses are also playing out in other fields in California. For years, growers have been creating apple trees—through a

combination of breeding and horticultural management—that are flatter and more symmetrical so that humans can more easily find and pick apples. These trees also are easier for machines to maneuver.

Commercial orchards are moving "to very structured and geometric architectures that might look more like a factory in the future," says Stavros Vougioukas, an associate professor of biological and agricultural engineering at the University of California, Davis. His team is collaborating with Carnegie

Mellon University to build a camera-toting robot that uses images and computer vision to find the distribution of fruit on a tree and to monitor how fast each person is picking. A computer can then determine, in real-time, how to strategically move human workers standing on mechanized platforms so that the fastest pickers are more likely to encounter high-yield trees or regions of trees. The goal is for the machine, which is still in the experimental phase, to raise and lower pickers continuously to just the right spot to optimize harvest.

"Engineering cannot solve the problem on its own," Dr. Vougioukas says. "We need to combine biology, breeding, horticulture [and] engineering in order to solve these complicated problems."

Gene editing

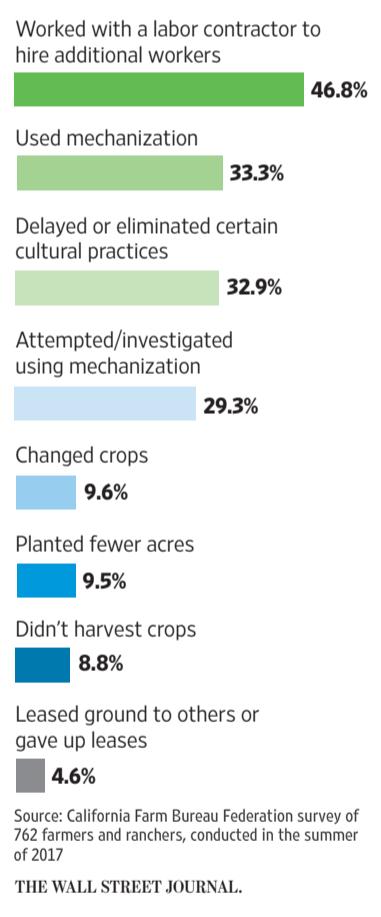
Some plant breeders say they are starting to look to the genetic-editing tool known as Crispr-Cas9 to breed fruits that have longer stems or fewer leaves on the plant, for instance. Crispr, which is often compared to molecular scissors that let researchers target and tweak specific genes, has the potential to facilitate roboticized farming by allowing growers to manipulate their crops' genetics more quickly. In theory, that could accelerate the creation of robot-friendly plants, researchers say.

It isn't clear whether consumers will want to buy bioengineered foods, however. Driscoll's says it's opposed to using the technology without first seeing broad consumer acceptance.

Ms. Strong is the host of The Wall Street Journal's *The Future of Everything* podcast. Ms. Hernandez is a reporter for The Wall Street Journal in New York. Email them at jennifer.strong@wsj.com and daniela.hernandez@wsj.com.

Labor Pains

California farmers experiencing labor shortages say they have taken one or more of the following actions within the past five years:



Source: California Farm Bureau Federation survey of 762 farmers and ranchers, conducted in the summer of 2017

THE WALL STREET JOURNAL.

The Edible Landscape Is Growing

Homeowners say it's a way to have their property both look good and do good

BY KEN WELLS

WHEN FRED MEYER decided to relandscape a third of an acre plot on his Iowa City property, he wanted something more than just trees, ornamental bushes and ground cover.

"I created an edible forest," says Mr. Meyer, explaining that, no, he won't be dining on wood, leaves or grass. Instead, he planted a mix of fruit trees—cherry, peach and pear among them—and interspersed perennial flowering shrubs and fruit-producing plants, including blueberry bushes, that also help to feed birds, honeybees and butterflies.

"It looks like an actual forest but with this intermix of edible plants," says Mr. Meyer, who has studied horticulture and trained as a master gardener. "It's an oasis. I didn't want to create something simply for myself but for visitors—people, birds and wildlife—that could benefit from it."

Mr. Meyer is in the vanguard of what's being called the edible-landscaping movement. Global in scope, its adherents include gardening enthusiasts, sustainability advocates and a growing number of professional land-



A landscape that incorporates edible plants from Boston-based HomeHarvest

and a shovel," has watched it grow into a company with five full-time employees, four trucks, a fruit-tree nursery and a Johnny-Appleseed-like mission to spread the edible landscaping gospel.

"It's really a niche market that didn't exist before," says Mr. Barkan.

His clients, largely a mix of homeowners and commercial customers, are drawn to the idea, in part, because it introduces them to a useful skill that empowers them to grow some of their own food. He also has consulted with small-scale farms in the area that want to redirect their land use away from the fertilizer- and pesticide-heavy regimen of conventional farming.

"The wheels start to turn," says Mr. Barkan who honed his skills on organic farms after getting a degree in sustainable agriculture. "We may plant a raised bed and fruit trees for them," but a year later as they begin to harvest the literal fruits of these efforts, they often begin to expand their edible landscapes on their own.

North American cities from coast to coast—Seattle, San Francisco, Detroit, Baltimore, Philadelphia and Vancouver, British Columbia—all have established some version of public orchards and/or edible foodscapes. So have Asheville, N.C., and Madison, Wis.

Seattle in 2009 created its Beacon Food Forest, which has 1.75 acres under cultivation, with plans to add an "edible arboretum" and a berry patch. Seattle's website describes it as a

"community-driven community garden project that utilizes a gardening technique that mimics a woodland ecosystem using edible trees, shrubs, perennials, and annuals."

Iowa City has sponsored three public edible-landscaping projects, including a forest in the city's popular Wetherby Park where "people can harvest things and take them home," says Juli Seydel Johnson, the city's parks and recreation director.

In public settings, the concept isn't trouble free. Seattle, whose edible forests include communal plots that citizens can plant and oversee, has published a detailed code of conduct and rulebook that governs harvesting and maintenance. It mandates expulsion for violators who, for example, get into verbal altercations with other users or consume alcohol or drugs in the communal spaces.

While the role of cities is important, edible-landscaping advocates point out that big isn't necessary and simplicity is the greatest virtue.

Mr. Meyer, the Iowa Citian who created his own small-scale edible forest and whose enthusiasm for the concept swayed him to start his own nonprofit, Backyard Abundance, says he likes the momentum he sees. The organization conducts how-to seminars for citizens interested in the edible-landscaping movement and was also instrumental in swaying Iowa City officials to create its edible forests and gardens.

"You create these edible landscapes and they begin to tug at you," he says. "They say to you, 'Come and enjoy the bees, the butterflies and the bird songs.'"

Mr. Wells is a writer in Chicago. Email him at reports@wsj.com.

JOURNAL REPORT | THE FUTURE OF FOOD

Restaurants See Value In Big Data

Eateries have more information than ever about their customers

BY JULIE JARGON

SWEETGREEN INC. wants to win its customers' loyalty by getting to know a lot more about them.

The Culver City, Calif.-based salad chain believes using a mobile app to gather data on guests' allergies and tastes will allow it to suggest dishes that regulars at its 88 restaurants are sure to love.

When guests place an order on the chain's mobile app, they are prompted to select from a list of dietary restrictions that includes soy, nuts and gluten. Selections cause menu items containing those ingredients to be flagged with a red asterisk so the guests know to avoid them, and the selections are saved for future orders. The company says that is just the first step in a long-term plan to collect evermore specific data about what customers like and why.

"We're trying to understand what's underneath food choices: Do you like beets because of their sweetness or crunchiness?" says Sweetgreen co-founder and Chief Executive Jonathan Neman. "We want to crack the code around food decisions."

Powerful weapon

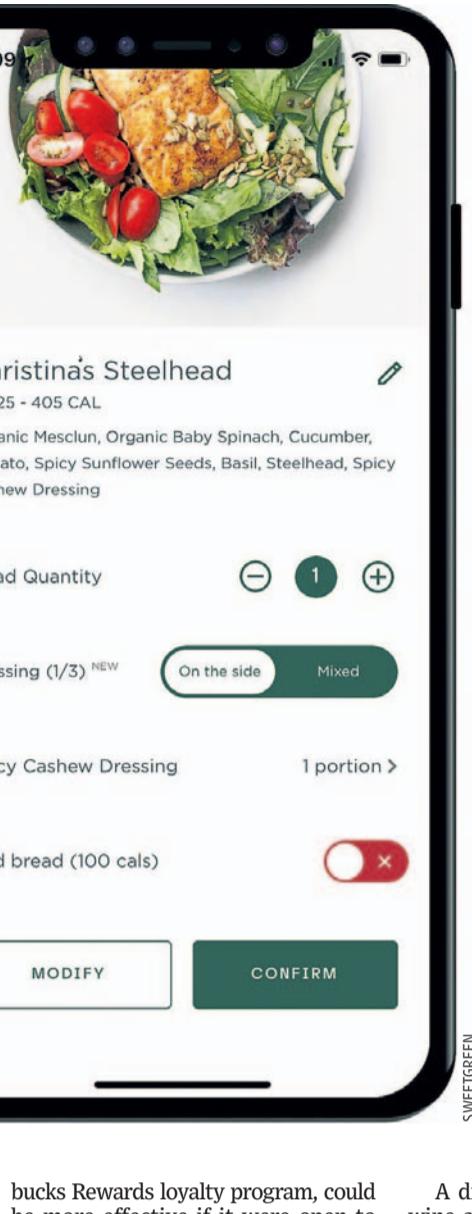
Data is emerging as a powerful weapon in the increasingly competitive battle for the restaurant consumer. An explosion of food vendors—and menu items—is giving diners more choices than ever. Some restaurants say using customer data to tailor menus to their tastes can give them a leg up.

"Total restaurant traffic is not growing, so anything restaurants can do to offer a better customer experience differentiates them from the competition," says David Portalatin, a food-industry adviser at market-research firm **NPD Group Inc.**

It wasn't long ago that such careful attention to diners' preferences was the province of mom-and-pop restaurants and some fine-dining establishments. But the mobile age has changed all that, allowing chains to develop that capability, using mobile apps and digital reservation systems to track customer preferences and spending habits and sharing it across their systems. Some 2.8 billion restaurant orders were placed digitally in the past year NPD says, or 5% of total orders. That is up from 2% in 2015.

Many restaurants collect customer data through their loyalty programs, which diners can sign up for online or via an app. (After customers make a certain number of visits, they earn points that can be redeemed for discounted items or at no charge.) But the data that companies collect through such programs offer a window into the habits of only their most loyal customers, who aren't the ones they really need to convince to return. And there are limitations to some online loyalty programs: Restaurants that collect email addresses without logging specific purchases can only send out emails about promotions to the whole customer base. An email for half-priced Frappuccinos, for example, would be wasted on someone who only ever orders coffee.

By contrast, individuals' purchases are easier to track on mobile-order apps. **Starbucks Corp.** realized that its mobile app, which had only been accessible to members of its Star-



Customers can select food preferences, order ahead with Sweetgreen's mobile app.

has led to higher guest satisfaction and more repeat visits at its locations.

Restaurant managers use the system to review a diner's past choices before they arrive on a given night. If the diner prefers a certain drink, sometimes he or she is greeted with that cocktail. "It's those little touches," says Bryan Siegel, LDV's hospitality director. "It changes the whole experience."

In some cases, when the managers notice that a guest always orders the same thing, they send the guest a new dish on the house. "It's the gesture more than anything else," Mr. Siegel says. But expanding diners' horizons may also encourage them to return.

Sweetgreen also wants diners to try new things, so that they develop more favorites and return more often.

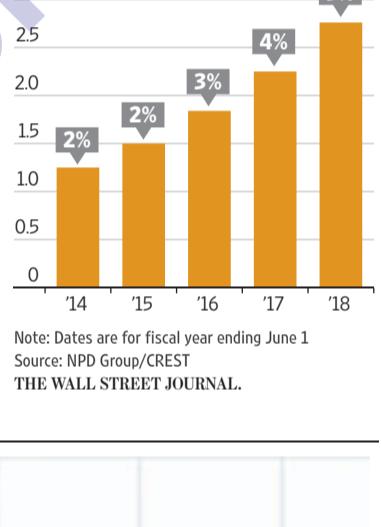
In a few years, Sweetgreen expects to have an upgraded app that provides more personalized nutrition information, making menu recommendations based on how food makes people feel. If, for example, someone indicates that kale makes them feel bloated, or that quinoa leaves them feeling full and energized for hours, the app will be able to tailor menu choices around that.

"The challenge for any personalized experience is how you create a sense of discovery," Mr. Neman says. "There's a huge opportunity to do that in food."

Ms. Jargon is a reporter for The Wall Street Journal in Los Angeles. She can be reached at julie.jargon@wsj.com.

Data Trove

Food orders placed via mobile app, text message and the internet account for a rising share of all restaurant orders.



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JOURNAL REPORT | THE FUTURE OF FOOD

Lab-Grown Meat Raises Regulatory Questions

Specifically, who is overseeing it: the USDA or the FDA? Startups say the uncertainty creates a challenge.

BY JACOB BUNGE

WHO DECIDES whether meat developed in a laboratory is safe to eat and, if it is, how it can be marketed?

That's the question regulators face as scientists develop new meats grown from animal cells. This cell-culture technology, developers say, is a way to make burger patties without slaughtering bovines, and chicken strips without ruffling a feather.

Cell-cultured meats are likely still years away from appearing in supermarkets and restaurants. But a clear regulatory framework is crucial for startups like **Memphis Meats Inc.**, **Mosa Meat** and **Finless Foods Inc.** to avoid any costly missteps during development.

"The biggest challenge for any new technology is regulatory uncertainty," says Brian Sylvester, special counsel with Wiley Rein LLP, who previously worked as a regulatory lawyer for the U.S. Department of Agriculture. He isn't currently representing any meat companies, but he has been discussing representation of the cell-culture startups.

Some startups believe the Food and Drug Administration, which regulates cell-culture technology in pharmaceuticals, would look more favorably on their technology than the USDA, which oversees the network of slaughterhouses and processing plants that produce meat the traditional way. Cattlemen and hog and poultry farmers want the new meats to be regulated by the USDA, which they say would ensure a level playing field.

The regulators are trying to work this out between themselves.

Cell-cultured meat companies isolate livestock, poultry or fish cells

that have the capacity to renew themselves in a laboratory. The cells are placed inside bioreactor tanks similar to fermenters, where they are fed oxygen and nutrients. Within a few weeks, they grow into muscle that can be prepared and eaten just like traditional meat.

This new technology is shaking up the \$200 billion U.S. meat market. Meat processors **Cargill Inc.** and **Tyson Foods Inc.** have invested in developers of cell-cultured meats, along with Bill Gates and Richard Branson. Livestock producers, meanwhile, are pushing lawmakers and regulators to investigate whether these products are safe and asking that they be clearly labeled as something other than conventionally raised meat.

Startups use terms such as "clean meat" and "slaughter-free meat" for their cell-cultured products, raising livestock producers' hackles. Some livestock groups have called for regulations restricting terms such as "meat" and "beef" to conventionally raised and slaughtered livestock.

The products don't fall neatly into existing U.S. food regulation. While the USDA oversees slaughterhouses, meat processing and egg production, the FDA has jurisdiction over most seafood and the safety of food ingredients. In the medical industry, the FDA also regulates other cell-cultured products like skin grafts and tissue transplants.

Both agencies have laid claim to cell-cultured meat. The FDA "has equity in the lab, and if it is commercialized as a product, the USDA has the responsibility to inspect that," said Sonny Perdue, secretary of the USDA, in an interview last week. "It needs to be clearly delineated who does what."

"We've been looking at biotech



JASON HENRY FOR THE WALL STREET JOURNAL

products for the last 20 years," said Susan Mayne, director of the FDA's Center for Food Safety, speaking at The Wall Street Journal Global Food Forum last week. "Cell-cultured meat is really in that same framework."

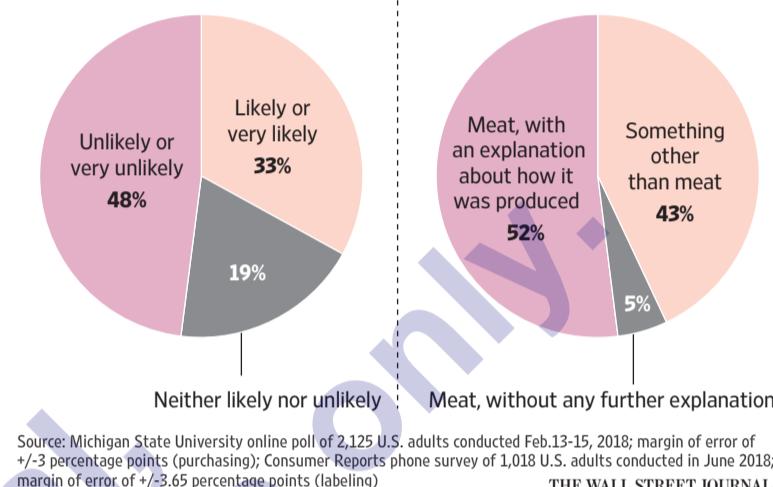
In late October, the agencies plan to hold a joint meeting to discuss a regulatory framework for cell-based meat production and gather input from startups and traditional meat producers.

Officials from the two agencies have discussed sharing oversight of cell-cultured meat. And some in the industry recommend a compromise. Memphis Meats and the North American Meat Institute, which represents traditional meat companies, in late August proposed that the FDA evaluate the safety of cell-cultured meat's ingredients and technology, and the USDA inspect facilities and regulate products.

But that isn't appetizing to some livestock growers, who say any food safety problems that might arise from cell-cultured meat could also damage the market for conventionally raised beef, pork and chicken. Groups representing cattle ranchers, hog farmers and poultry producers

Lab to Table

Asked for their opinions about products that look and taste like meat but aren't produced from livestock, U.S. adults said the following:



Source: Michigan State University online poll of 2,125 U.S. adults conducted Feb. 13-15, 2018; margin of error of +/-3 percentage points (purchasing); Consumer Reports phone survey of 1,018 U.S. adults conducted in June 2018; margin of error of +/-3.65 percentage points (labeling)

THE WALL STREET JOURNAL

on the agency's jurisdiction over fish and its general "expertise" on new food technologies.

Mr. Bunge is a Wall Street Journal reporter in Chicago. He can be reached at jacob.bunge@wsj.com.

The Changing Menu and Meaning of Museum Restaurants

The eateries at museums are no longer a place to get a quick bite while viewing exhibits. Now they're becoming major players on their own.

BY DANIEL GRANT

THERE WAS A TIME, not long ago, when museum restaurants were simply a place where you could grab something to eat while visiting the museum.

Now, museums may be the place you visit while going out to eat.

In recent years, major art museums across the U.S. have been ditching run-of-the-mill cafeterias and making way for restaurants that are destinations in their own right, with top chefs and unique menus regularly written up in Michelin and Zagat guides and reviewed in magazines such as Bon Appétit, Food & Wine and Travel & Leisure. The Museum of Modern Art's restaurant, The Modern, holds four James Beard Foundation awards and two Michelin stars, while the San Francisco Museum of Modern Art's In Situ has a Michelin star.

Getting more people through the doors and keeping them there longer through food "deepens their connection with the museum," says David Berliner, president of the Brooklyn Museum of Art, which opened The Norm, run by Michelin-starred chef Saul Bolton, in 2016. "We've seen more memberships since The Norm opened," he says.

Here are four trends driving the museum-restaurant boom and pushing museum restaurants in new directions:

Redefining 'museum' food

The most obvious change in museum restaurants is simple: They're serving tastier, healthier and more out-of-the-ordinary food. They are offering dishes that are upscale, locally sourced, and prepared by chefs who have gained a regional, national or international reputation. As Marcy Goodwin, a museum consultant in Albuquerque, N.M., says, people who like art tend to be foodies.

At San Francisco's Asian Art Museum's newly renovated cafe, Sunday at the Museum, the specialties include miso avocado toast on Japanese milk bread, soy-chili-garlic "Sunday" chicken wings, Deuki's classic Korean fried chicken sandwich and garlic prawn noodles. The adventurous new food service and menu has led to a 70% increase in restaurant traffic,



CATHERINE CARVER



Dolcezza cafe in the lobby of the Hirshhorn Museum. Croque monsieur from the Norm's David Bowie menu.

Phipps Conservatory and Botanical Gardens in Pittsburgh, "doesn't usually earn a profit, and making a profit isn't the goal," says Richard V. Piacentini, the conservatory's executive director.

"The point is to be a visitor amenity," he says, adding that the number of visitors to the conservatory has increased fivefold since Café Phipps opened in 2005. "If we had bad food, people might not come," he says.

What tends to make more money for museums and their food vendors is catering—whether it is events for members and donors, or weddings and parties for outside clients.

It is the very rare museum that operates its own food service. Usually outside restaurateurs develop the concept and menu, assist in the design of the restaurant and kitchen, and manage the day-to-day operations. The restaurateur typically receives a base fee of 3% to 7% of total revenue and an incentive fee of 10% to 50% of net profits from the entire food service, including catering, says Bradley Muro, head of the hospitality practice at the New York law firm Danziger, Danziger & Muro, which has negotiated contracts between restaurant groups and museums.

"Restaurateurs love these deals because they provide reliable income at far lower risk than restaurants they own themselves," he says.

Food as exhibit

More museums see the cafes as an extension of their education programming and the exhibits themselves.

A recent Brooklyn Museum of Art exhibition of costumes, lyric sheets, album art, photographs and videos relating to singer David Bowie was augmented by four evenings of David Bowie-inspired food and drink at The Norm, at \$75 to \$95 a person. The menu included "diamond dogfish & chips," described as a homage to "Diamond Dogs," one of the chef's favorite Bowie albums, as well as a croque monsieur, with the description: "An oft-documented Bowie favorite, particularly the off-the-menu one made for him at a NYC restaurant where he was a regular."

At the Smithsonian Institution's National Museum of African-American History and Culture in Washington, the menu at the Sweet Home Café is as carefully researched as the objects in display cases.

The food items are designed to be "part of the learning experience in what defines the African-American culture," says museum director Lonnie G. Bunch III. Developed with the help of chef and television personality Carla Hall of "The Chew" and James Beard award-winning food historian and cookbook writer Jessica B. Harris, the menu includes gulf shrimp and stone-ground grits, with smoked tomato butter, caramelized leeks and crispy tasso.

Museum optional

Museum restaurants used to be located somewhere inside the building, which meant that guests had to pay an admission fee to eat there. These days, many museum restaurants have their own, separate doors from the outside, and most museum expansion projects are designed with these connected-but-separate spaces in mind.

At Dolcezza, the cafe in the lobby of the Hirshhorn Museum and Sculpture Garden in Washington, 8% to 12% of customers stop in on their way to work, before the museum opens for the day, says a spokeswoman for the eatery, which opened this year.

In some cases, the restaurant outshines the museum—at least in certain guests' minds. A 2017 TripAdvisor review of the Russ & Daughters cafe at New York's Jewish Museum said: "This is a destination in and of itself, and you can also visit the Jewish Museum which is an additional destination at the same site."

Mr. Grant is a freelance writer in Amherst, Mass. Email him at reports@wsj.com.

says Jay Xu, director of the museum.

Better and fresher food, as well as healthier menu choices, are an important tool for getting people into the museum and keeping them there longer, museum officials say. The presentation of that food, both on the plate and in how the wait staff interacts with guests, also is important. Customers want the same feeling from the food that they expect to receive from the art.

Still, it isn't all haute cuisine at the revamped museum eateries. Providing something for everyone is crucial, officials say.

"We tried to take chicken tenders off the menu but couldn't," says Catherine Surratt, director of auxiliary services at the Cleveland Museum of Art, which opened the Provenance Restaurant and Provenance Café in 2012. But

there is a push to make the chicken free-range and the milk organic, she says, because "that's really what parents want."

Broader view of profitability

Restaurants aren't usually big moneymakers for museums—but museum officials say to attract more visitors and keep them there longer—which eventually leads to more revenue, as well as more memberships.

Andrew Simnick, senior vice president for finance, strategy and operations at the Art Institute of Chicago, says its restaurant and cafe are "revenue-positive, but that's not wholly the point."

The goal is to make sure that food is one more way that visitors enjoy their experience at the museum, he says.

Café Phipps, the restaurant at the

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JOURNAL REPORT | THE GLOBAL FOOD FORUM

Sonny Perdue Talks Trade and the Farm Outlook

The Secretary of Agriculture says he is optimistic that the U.S. and China will reach an agreement

TRADE DISPUTES with China and other countries are taking a toll on American farmers. Trade-related losses in the U.S. pork industry, for instance, are expected to total more than \$2 billion this year, according to Iowa State University economist Dermot Hayes. And U.S. dairy farmers will see their incomes slide \$1.5 billion this year due to tariffs from China and Mexico, according to a forecast by Informa Economics.

Those losses come amid a years-long slump in the U.S. agricultural economy. Overall, farm income is expected to drop 13% this year, according to the U.S. Department of Agriculture.

The trade agreement reached between the U.S. and Canada on Sunday mitigated some concerns, but globally there are still many areas of contention.

Sonny Perdue, the U.S. Secretary of Agriculture, sat down with Gerard Baker, Wall Street Journal editor at large, to discuss U.S. trade strategy and its impact on farmers, as well as the outlook for international agreement on the regulation of new food technology, and the prospects for a turnaround in the agricultural economy.

Edited excerpts of their conversation last week from the Journal's Global Food Forum follow.

Relief on tap

MR. BAKER: Back in August, you announced a program of support to help the farm sector that had been hit by Chinese tariffs. A package of, in total, \$12 billion; \$4.7 billion immediately. There's a lot of concern from a lot of the farmers who are affected by these tariffs that that isn't nearly enough. Are you going to do more?

MR. PERDUE: If you look at what we said, this was not an effort to make farmers whole. We know there is distress. We know there is economic du-

ress.

We calculated what we believe the tariff damages were. But, again, the expectation was not to make farmers whole. It was to mitigate the damages that they could not have foreseen when they planted this spring.

MR. BAKER: In August you did say that another tranche might be available, perhaps in December. Is that coming?

MR. PERDUE: Our expectation is there will be another tranche there.

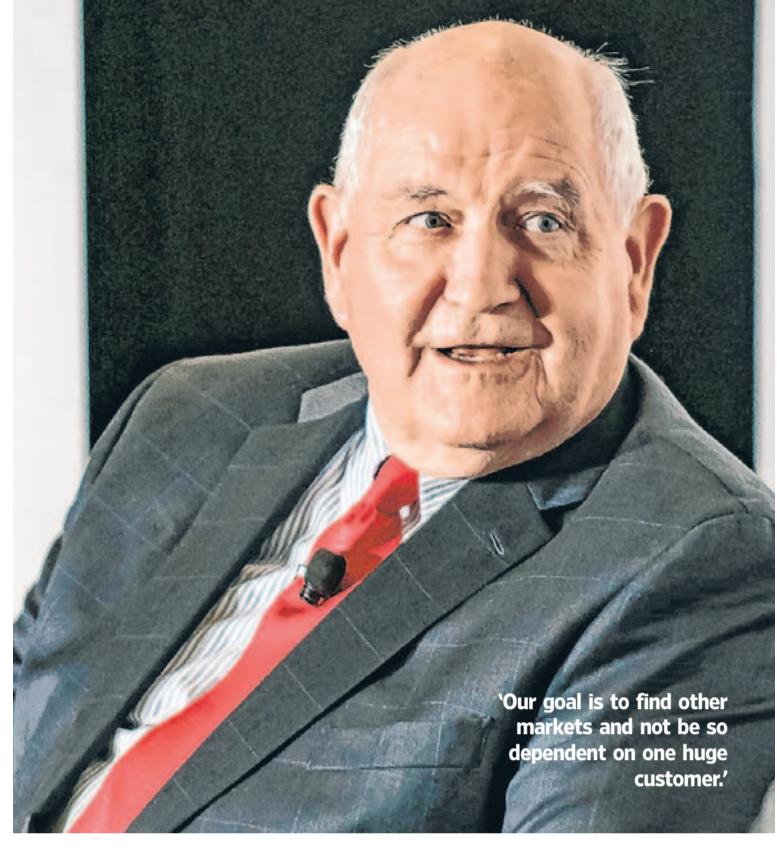
We wanted to give our negotiators as much time as we could and motivation and inspiration to get the trade deals done.

MR. BAKER: That first round of measures was announced before the last round of tariffs announced by both China and the U.S. in the last couple of weeks. And now it looks like, unless there's a deal, pretty well all Chinese exports to the U.S. and pretty well all U.S. exports to China are going to be affected. Does that mean that you'll have to go further than this additional tranche of support for U.S. farmers?

MR. PERDUE: We're not going to go further than the \$12 billion. But we will look at it on an ongoing dynamic basis with the same type of calculation that we did earlier regarding the tariff damage, and calculate that second tranche. We may divide into two more tranches. But right now we'd love to conclude it in one more.

Deeper concerns

MR. BAKER: The concern that farmers have goes beyond just the specifics of however much they may lose as the result of these tariffs. Many of their businesses, soybeans in particular, have been built around very strong Chinese demand over a very long period.



GABE PAACO FOR THE WALL STREET JOURNAL (2)

'Our goal is to find other markets and not be so dependent on one huge customer.'

If we are entering a period of a real prolonged trade war, then the prospect is that China is going to look elsewhere, and the potential structural damage to the U.S. farm sector could be much greater, couldn't it?

MR. PERDUE:

That could be. But is the fact that China has become dependent on the U.S. or the U.S. has become dependent on the China market?

Obviously, our goal at USDA is to discover other places. We got a big hungry world out there. And our goal is to find other markets and not be so dependent on one huge customer.

You know, as a business principle, it's not good to have all your eggs in one big basket. And that's what we did with China, because they were easy customers and hungry. And we fed them and fed them and fed them, and they kept buying. And now you run into these kinds of issues.

Farmers also know that China hasn't played by the rules in many ways, with both tariff and nontariff barriers. They've been violating fair, reciprocal trade practices.

MR. BAKER: This is a very intense battle, but negotiations are still going on. Are you optimistic that in the end, the U.S. and China will be able to do a deal that stops well short of essen-

tially up to a 20% tariff on all exports for both countries?

MR. PERDUE: I am still optimistic that both China and the U.S. will recognize it's in both of their best interest [to have] fair, reciprocal trade practices.

Regulating technology

MR. BAKER: The rising importance of technology in farming, particularly bioengineering, opens up all kinds of terrific opportunities. But it presents some challenges, too, and some regulatory challenges, in particular.

We've had these disputes over things like genetically modified organisms. As this biotechnology continues to advance, what kind of a role does the government need to play? What kind of regulatory structure are you looking for?

MR. PERDUE: One of the reasons I'm so bullish on innovation is we've got a hungry world out there. We're growing all the time. And it's going to take all of our efforts to get that done. But when it comes to food safety and food innovation, there's a zero tolerance for missing the mark.

So we all have to be very careful that we make sure that innovations are safe and healthy and wholesome.

The new Crispr nontransgenic gene editing is amazing technology. I think

what you'll see very shortly are very practical things that the public will want.

We got behind the communication curve on genetically modified. We're looking to have a better communication strategy about this food safety that's coming out.

MR. BAKER: Do you need a broad international regulatory arrangement? We've seen with things like GMOs it's become a contentious issue in trade. Is there a way of getting some international agreement on the use of these things?

MR. PERDUE: Absolutely. There are many, many international standards where we try to negotiate that. I think the European court made a serious mistake when they ruled this non-transgenic gene editing to be genetically modified. It may be years before the Europeans understand the technology advances that we've made. And they can only build that wall so long from a protectionist standpoint. Ultimately, their consumers are going to look at that and want that.

Turnaround ahead?

MR. BAKER: We've written a lot in The Wall Street Journal in the last year or so about what only could be described as depression in the farm economy. I think net farm income is down about 50% since 2013. Crop prices, obviously hit dramatically. You've seen all major crop prices down 20% in the last year or so. The number of farmers, the number of people employed in farming—you can see sectors of the economy of the country that have been really pretty devastated by this.

Is there a way to address that? Is this something that we're just going to have to get used to, that a really seriously depressed farm economy is a fact of life for us for the next few years?

MR. PERDUE: Farming has always been cyclical. There were great farm years from 2008 to 2013. We had great prices, good crops.

There's a mantra in the commodity business, "The cure for low prices are low prices, and the cure for high prices are high prices." So the market corrects itself.

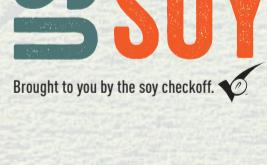
You never like to go backwards, and we've gone backwards over the last few years. But it will turn around. Farmers are great businesspeople, taking market signals about what they should grow. You'll see less soybeans grown next year because of these disruptions. Farmers are good guys about knowing what to do next.

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Hershey Adjusts To a New World

CEO Michele Buck talks
about surviving as a big
legacy brand in an era
of healthier snacks



'Consumers are eating more on the go.'

WHAT DOES A big snack company do when many consumers say they want to eat healthier, and upstarts are grabbing market share?

To find out, The Wall Street Journal's Annie Gasparro spoke with Michele Buck, president and chief executive officer of Hershey Co., at the Journal's Global Food Forum conference.

Here are edited excerpts of the conversation.

Going beyond candy

MS. GASPARRO: A lot of people don't know how much your business has diversified. Can you explain your thinking, and some of the big deals that you've done to diversify?

MS. BUCK: Consumers are eating more on the go. We see this as a huge opportunity. Over the years, we've been largely focused on confectionery. But as we look at the marketplace, and the opportunity for our company, it's really about capturing incremental snacking occasions.

One of the ways we do that is through innovation in our candy business.

The other was to look at opportunities in the marketplace. That's what led us to Amplify, which owns SkinnyPop, and purchasing that business. And we just announced the proposed acquisition of Pirate's Booty, another better-for-you snack.

MS. GASPARRO: We've seen other companies, like Campbell's Soup, try to go in a better-for-you direction. It didn't work out well. How do you avoid that fate?

MS. BUCK: If you think about

our expansion, we were already a snacking company. Everything we did in confection, all of those core capabilities, are transferable—our taste-science capability, ubiquitous distribution, our category-management expertise, our consumer insights.

What comes next?

MS. GASPARRO: What do you see your portfolio looking like five years down the road?

MS. BUCK: It's going to be more balanced. Our core confection portfolio is going to continue to do well. Indulgent snacking categories, and better-for-you snacking categories are both showing strong growth. Actually, some of the indulgent categories are much bigger.

And we're all about offering choice. Even within our confection portfolio, you can get a Hershey Kiss, which is 25 calories, or a Reese's Peanut Butter Cup that has four cups in it. But it will be more balanced with some other categories in the mix, and as well our international business is doing well.

MS. GASPARRO: A lot of people are saying that with all the startups out there and the artisanal chocolates, that being a big legacy brand is more of a burden than a halo. What do you think about that? How do you fight against the baggage that sometimes a big company has with younger consumers?

MS. BUCK: If you look at the consumer packaged-foods industry overall, there have been a number of emerging brand entrants that have taken a lot of business. However, we've been fortunate in the confec-

tion category, where that hasn't been the case.

And then also in some instances where there have been small brands, we've done some acquisitions.

BarkTHINS is a great example of a clean-label dark chocolate, plus some good-for-you element like nuts. That appeals to consumers who are looking for some of those emerging brands.

MS. GASPARRO: One of the trends with the way people are eating has been a movement toward clean labels, simple ingredients. How do you think that's impacting the industry as a whole, and then, secondarily, candy?

MS. BUCK: All consumers are different. What they are looking for on different occasions is also different. BarkTHINS is a great example of an offering we have that is clean label.

But I can assure you that when somebody wants their Jolly Rancher, one of the things they love about it is the bright, vibrant colors, the intense flavor. As you think about what you're eating throughout the day, there are times you're having fruit, times you're having vegetables, times you're having indulgent products. People's expectations are different in each of those times.

What consumers have definitely told us is, for our iconic brands, "I want that brand the way it is. Don't change what you're giving me."

You'll see times where companies tried to change that, and there was a backlash. "Bring back the thing I'm used to."

JOURNAL REPORT | THE GLOBAL FOOD FORUM

The U.S.-China Ag War

Darci Vetter on what's at stake in the trade battle

AGRICULTURE IS at the center of the trade battle between the U.S. and China. What does the U.S. stand to gain—and lose—in this fight?

Gerald F. Seib, The Wall Street Journal's executive Washington editor, spoke with Darci Vetter, former chief agricultural negotiator, Office of the U.S. Trade Representative, and currently general manager, public affairs and vice chair, agriculture, food and trade at Edelman. Here are edited excerpts of the conversation that took place last week at the Journal's Global Food Forum.

What's at stake

MR. SEIB: In this trade war involving agriculture between the U.S. and China, which has the most leverage? Which has the most vulnerability?

MS. VETTER: China and the U.S. need each other. We need growing populations and foreign markets to make our business model successful. China needs to feed its people, but also a strong relationship with the U.S. Its ag sector—with the challenges it faces on water and pollution and not-very-modernized systems—needs a strong relationship with U.S. companies and U.S. investment to be able to modernize.

MR. SEIB: The Trump approach is that the Chinese don't play fair and it's time to call them on that. Would you agree or disagree with that?

MS. VETTER: I have a lot of sympathy for trying to draw a line on some of China's behavior, and there are practices they engage in that aren't fair.

But the tactics to get them to change—there are different options to use. I would like to see us working with other countries that are just as frustrated and that could provide

that joint push. China has other options to get goods and services. They are successfully looking at how to play us off one another, since we're not acting in a united way.

MR. SEIB: You're describing a situation in which the Chinese don't play fair generally, but what about in the agricultural sector specifically? Or is agriculture being used as a cudgel to help force the Chinese to address trade imbalances in other areas?

MS. VETTER: Agriculture has always been at the tip of the spear when we have these trade disagreements, in part because the U.S. is so dependent on ag exports.

But it is also true that there are practices in the agriculture sphere that we'd like to change in China. Better adherence to scientific standards, concerns about intellectual-property protection on things like biotechnology.

MR. SEIB: I think the attitude of a lot of people in the agriculture industry about the tariffs is, it's fine for now. This is a temporary thing. Is that a dangerous assumption?

MS. VETTER: The more I see how the trade war, for lack of a better word, is being conducted, the more I would be concerned that this isn't a short-term plan. There have been a couple of instances where Ambassador Lighthizer has said plainly, "It is not my job to change China's behavior. It is my job to insulate the U.S. from it."

When asked about the tariffs on \$200 billion of imports from China and whether there would be exclusions if U.S. importers couldn't get those products somewhere else, their response was, "We aren't

planning to offer exclusions."

The possible loss

MR. SEIB: Where's the greatest vulnerability to the ag sector if we lose markets to competitors overseas?

MS. VETTER: One is that we lose that Chinese market. I also see a risk that in our focus on China and renegotiating current relationships like Nafta that other countries are focused on forming alliances that we're not part of.

I also worry that we will not have tariff preferences on sending our products into Southeast Asia and further into Latin America. A lot of our competitors, like Australia and New Zealand and Chile, are all part of TPP [Trans-Pacific Partnership] and they will all have tariff preferences with



'I would like to see us working with other countries that are just as frustrated.'

each other and into Japan.

MR. SEIB: The president said essentially farmers are willing to absorb some short-term pain because they think this is good in the long run. What do

you think the attitude in the Farm Belt is about this?

MS. VETTER: Most of those agricultural areas are strong supporters of the president. There's sympathy for going after bad behavior from trading

partners. But I hear more concern about how long farmers can hang on under this pressure. This is one of those points that we'll have to see at what point those voices start to get louder.

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'We definitely had the first-mover advantage'

The Grubhub Plan

The CEO on how it makes money

CONSUMERS WANT their dinner and their groceries right away. More restaurants and grocery chains are developing rapid-delivery systems. But are those business models sustainable?

Matt Maloney, founder and chief executive of **Grubhub** Inc., an online and mobile food-ordering marketplace, spoke with Wall Street Journal Business Editor Jamie Heller about where restaurants and delivery are headed.

Edited excerpts follow.

MS. HELLER: Grubhub shares have almost tripled over the course of a year. It's a \$12-billion-plus company. You had first-mover advantage. How do you keep capitalizing on that?

MR. MALONEY: We definitely had the first-mover advantage because we invented the category. We built these massive marketplaces where consumers would go online and find out which restaurants delivered to them, then place the order.

We realized that at the scale we were executing, we could do delivery far cheaper and far more successfully than the restaurants. And, by executing the scale and GPS mobile-enabled technology, we were able to inflect a step change in the efficiency of restaurant delivery. By doing that, we see the market continue to grow.

MS. HELLER: Where are you making your money? Delivery isn't where the profits are for you, right?

MR. MALONEY: We started as a marketplace. We would charge 10% of whatever food we sold.

We're processing, like, \$5 billion in restaurant food sales right now, annually, just in the U.S. We realized that doing delivery opened up a whole lot of demand. We could deliver further than the restaurants were willing to go. We could get new restaurants and expand into new areas.

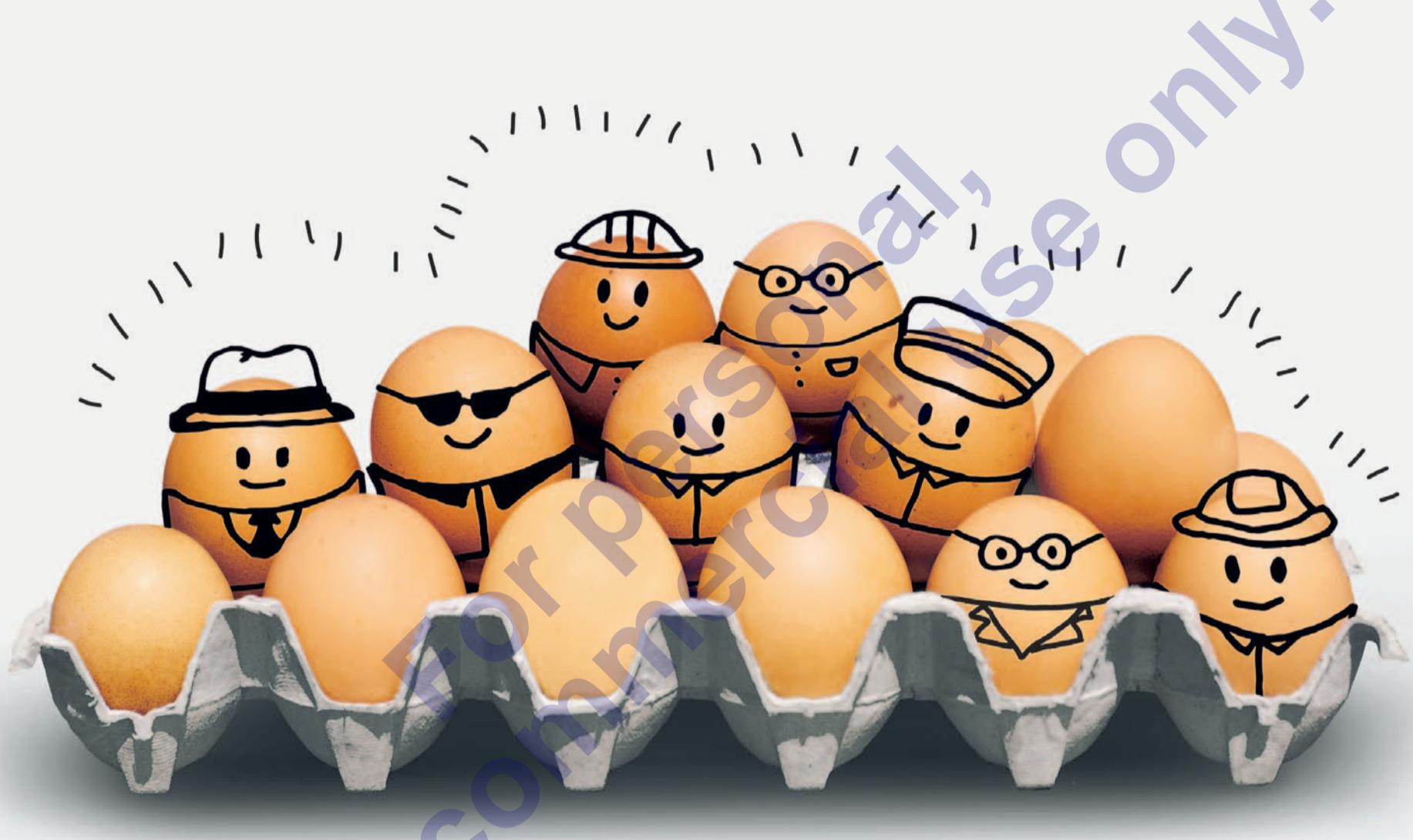
The thing about delivery is it basically costs 10% of the food, on average order sizes, to go, like, 20 minutes. So we said, "You know what? Delivery for us is an enabler of a much larger business." So we just pass through the cost for the delivery, and that is borne by both the diner and the restaurant. And it's fascinating. We see 10 times as many people placing orders when you have zero delivery fee versus a typical \$3 delivery fee.

MS. HELLER: Some restaurants say they don't want to get involved.

MR. MALONEY: Transition is always hard. I understand what restaurants are thinking. This is a whole bunch of technology that you absolutely don't want to do. The last thing in the world these management teams want to do is hire a chief technology officer and spend \$100 million on building technology when they're trying to eke out 1% same-store sales.

I think it's up to leaders in my industry, myself and my team, to help restaurants figure this out, construct products that help them evolve through this digital transition, help them grow their business on a long-term, sustainable basis. Because right now, they're stuck between a rock and a hard place.

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