

THE WALL STREET JOURNAL.

D DOW JONES | News Corp *****

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WSJ.com

★★★★ \$5.00

DJIA 42141.54 ▼ 91.51 0.22%

NASDAQ 18607.93 ▼ 0.6%

STOXX 600 511.51 ▼ 1.3%

10-YR. TREAS. ▲ 2/32, yield 4.264%

OIL \$68.61 ▲ \$1.40

GOLD \$2,788.50 ▲ \$19.70

EURO \$1.0858

YEN 153.42

What's News

Business & Finance

◆ **The U.S. economy** continued its recent strong stretch this summer as hefty consumer and government spending helped lift GDP by a 2.8% annual rate in the third quarter. **A1**

◆ **Meta reported** record third-quarter revenue despite slower digital advertising growth and raised the lower end of its forecast for 2024 capital expenditure. **A1**

◆ **U.S. stocks fell**, with the S&P 500, Nasdaq and Dow industrials declining 0.3%, 0.6% and 0.2%, respectively. **B1**

◆ **The number of homes going under contract in the U.S.** rose again in September as mortgage rates ease. **A2**

◆ **Microsoft reported** growth in its cloud-computing business, but its revenue outlook sparked investor concern about the near-term payoff for its investment in AI. **B1**

◆ **Starbucks pledged** not to raise U.S. prices over the coming year and restore condiment bars in cafes as the chain recalibrates its business. **B1**

◆ **Sotheby's closed** a \$1 billion investment deal with an Abu Dhabi sovereign wealth fund, giving it a financial lifeline to pay down some debt. **B1**

◆ **Ernst & Young resigned** as auditor for Super Micro, saying it can no longer rely on management's representations. **B1**

◆ **Volkswagen said** it needed to cut costs urgently after reporting a sharp fall in third-quarter earnings hurt by weaker car sales in China. **B1**

◆ **BYD, China's biggest automaker, reported** higher net profit for the third quarter on strong sales of electric vehicles and plug-in hybrids. **B4**

World-Wide

◆ **Trump advisers**, including Stephen Miller, the architect of the former president's immigration agenda while he was in the White House, are drawing up plans to narrow the legal paths to immigration. **A1**

◆ **The Supreme Court said** Virginia could proceed with a purge of 1,600 suspected noncitizens from its voter rolls, overturning lower courts that found the program violated federal election law. **A4**

◆ **Georgia Secretary of State Brad Raffensperger** appeared to send a subtle warning to the presidential candidates to accept the election results win or lose. **A4**

◆ **Harris said Biden clarified** a comment about Trump supporters that appeared to call them "garbage" but the gaffe was an unwelcome distraction to the Democrat's campaign. **A4**

◆ **Britain's new Labour government proposed** more taxes and a bigger role for the state in a budget aimed at jolting the U.K. out of years of moribund growth. **A16**

◆ **Canada's government alleged** that India's powerful home minister, Amit Shah, orchestrated plots targeting Sikh separatists on Canadian soil. **A6**

◆ **Taiwan has bypassed** SpaceX's Starlink satellite-internet system even as the island races to secure its communications in the event of a Chinese invasion or blockade. **A7**

◆ **North Korea launched** an apparent intercontinental ballistic missile that stayed airborne longer than anything the Kim Jong Un regime had launched before, just days before the U.S. election. **A16**

U.S. Economy Extends Growth Streak

GDP rose at a 2.8% rate in third quarter on consumer and government outlays

By HARRIET TORY

The U.S. economy extended its recent strong stretch this summer, bolstered by hefty consumer and government spending.

Gross domestic product increased at a 2.8% annual rate in the third quarter, adjusted for seasonality and inflation, the Commerce Department said Wednesday. GDP is a broad measure of goods and services

produced across the economy.

That was a slight slowdown from the second quarter's 3% rate, and below economists' expectations for a 3.1% pace. Still, the July-to-September period marked a continuation of a roughly two-year streak of strong growth for the U.S. economy even in the face of historically high borrowing costs.

The report comes six days before the presidential election, in a race where the economy could be the deciding issue.

For both major candidates, the stakes could hardly be higher. Economists tend to believe that Democratic presidential nominee Kamala Harris would do a better job of

controlling the deficit and inflation; voters tend to give better marks on the expected handling of the economy to GOP nominee Donald Trump.

The economy has outperformed expectations over the past couple of years under the Biden administration.

A much-anticipated recession has yet to materialize, even though the Federal Reserve raised interest rates aggressively to curb inflation in recent years. Wednesday's report points to an economy that is still humming, with strong consumer spending supported by a robust labor market, and business investment that remains solid.

Democrats have tried to focus the economic conversation around those positive metrics.

President Biden said in a statement that the "GDP report shows how far we've come since I took office—from the worst economic crisis since the Great Depression to the strongest economy in the world." Private-sector employers added a larger than expected 233,000 jobs in October, according to a separate report by payroll processor

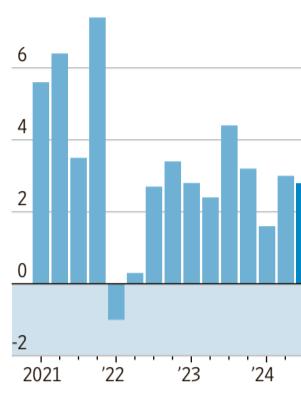
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◆ **September home sales improved.....** **A2**

◆ **Difficult times remain for hardwood industry.....** **A3**

Annualized quarterly change in GDP

3Q 2024 +2.8%



Note: Adjusted for seasonality and inflation
Source: Commerce Department

Dodgers Beat Yankees 7-6, Capture World Series



ELSA/GETTY IMAGES

L.A. RULES: The Dodgers defeated New York in the decisive game five of the Fall Classic, coming from behind to overtake their historic rivals at Yankee Stadium on Wednesday night. The Dodgers last won the World Series in 2020. **A12**

Trump Advisers Draw Up Plans To Restrict Legal Immigration

By MICHELLE HACKMAN

On the campaign trail, Donald Trump routinely promises he will end illegal immigration. Behind the scenes, his closest advisers and allies on the topic are also drawing up plans that would restrict many forms of legal immigration, which could affect the ability of businesses to hire

foreign workers.

Outside advisers including Stephen Miller, the architect of Trump's immigration agenda when he was in the White House, and such groups as the America First Policy Institute have been preparing executive orders, regulations and memos for a future homeland security secretary to sign that would narrow legal ways

to migrate. That is according to interviews with a dozen former Trump administration officials, a review of public plans published by the campaign and outside groups aligned with the Trump campaign.

While public attention centers on the hot-button topic of illegal migration, how Trump and his Democratic opponent Kamala Harris approach

lesser-known legal immigration issues could have a broad impact, from U.S. citizens looking to bring foreign family members into the country to businesses that rely on visas

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◆ **Comments put focus on Biden again.....** **A4**

◆ **Haley pitches GOP unity in backing Trump.....** **A4**

In Florida, Law's Flub Shut Out Most Banks For Weeks

By ALEXANDER SAEEDY

Florida wanted to make it easier to invest in the state's booming economy. For several weeks, the government accidentally made it illegal for most banks to sell investments there.

Banks for four weeks weren't allowed to sell securities such as corporate bonds or shares of private companies in the state because of a law that went into effect Oct. 1.

The law sought to make it easier for startups and other companies to fundraise while ensuring that bad actors with a criminal record couldn't take advantage of Floridians. But it wasn't written as the Florida Legislature had intended.

The law appeared to ban any bank that had been punished by the Securities and Exchange Commission or other authorities from selling a range of securities to investors, according to people familiar with the matter.

The problem is that nearly

Washington—the Biden appointee in charge of the nation's most treasured documents has over the past year ignited a behind-the-scenes fight over the telling of American history.

U.S. Archivist Colleen Shogan and her top advisers at the National Archives

and Records Administration, which operates a popular museum on the National Mall, have sought to de-emphasize negative parts of U.S. history. She has ordered the removal of prominent references to such landmark events as the government's displacement of indigenous tribes and the incarceration of Japanese-Americans during World War II from planned exhibits.

Visitors shouldn't feel confronted, a senior official told employees, they should feel welcomed. Shogan and her senior advisers also have raised concerns that planned exhibits and educational displays expected to open next year might anger Republican lawmakers—who share control of the agency's budget—or a potential Trump administration.

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Archivist Recasts America's Past

A Biden appointee in charge of Washington's National Archives Museum and billions of government documents puts a rosy spin on history by pruning the thorny parts

By ANDREW RESTUCCIA AND REBECCA BALLHAUS

WASHINGTON—The Biden appointee in charge of the nation's most treasured documents has over the past year ignited a behind-the-scenes fight over the telling of American history.

U.S. Archivist Colleen Shogan and her top advisers at the National Archives

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Bromance Is in Full Bloom On 'The Golden Bachelorette'

* * *

The men vying for Joan Vassos's heart are just as obsessed with each other

By JOHN JURGENSEN

When Mark Anderson was eliminated from "The Golden Bachelorette," the 57-year-old accepted his fate with a sad smile and a tender hug for the woman whose love he'd spent weeks trying to win on national television.

It was only when he broke the news to the five men who outlasted him that his tears—and theirs—started flowing.

The problem is that nearly

"I love you," Anderson said as they all embraced.

Bromance is in the air on "The Golden Bachelorette," the second spinoff of ABC's 22-year-old reality series "The Bachelor" to be devoted to coupling later in life. The set up: 24 men, most in their 60s, sought the affections of one 61-year-old woman, Joan Vassos, when the show hit the air in September. Then came a

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THE FUTURE OF EVERYTHING



THE HEALTH ISSUE: HEART CELLS RENEWED

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U.S. NEWS

Solid GDP Growth Extended

Continued from Page One
ADP, outstripping economists' forecasts by nearly double.

Republicans have tried to focus voters on the big rise in prices over the past few years, and to put the blame on Democrats.

Stocks ended the day lower. Consumer spending, which makes up the bulk of economic activity in the U.S., picked up to a 3.7% growth pace in the third quarter. Strong exports and government spending on defense were also tailwinds for growth.

A measure of business spending cooled slightly from the second quarter but remained steady. Nonresidential fixed investment—which reflects companies' outlays on software, equipment and structures—rose at a 3.3% rate.

The fact that economic growth remains strong even though the labor market is cooling slightly suggests that companies' investments in digitization and technology during pandemic labor shortages are paying off from a productivity standpoint, said Julia Pollak, chief economist at ZipRecruiter.

"Surprisingly, despite restrictive monetary policy, consumer spending and investment continue to grow," she said.

Final sales to private do-

mestic purchasers, a measure of consumer and business spending that gauges underlying demand in the economy, rose to a 3.2% annual pace in the third quarter from 2.7% in the second, the Commerce Department said.

The solid contributions from government, consumer and business spending "locks in the expansion's second wind, which seemed to be gasping over the summer," said Robert Frick, corporate economist with Navy Federal Credit Union, in a statement.

The housing market remained weak in the third quarter, a sign that still-high borrowing costs are weighing on the sector. Residential investment declined at a 5.1% rate, falling for the second quarter in a row.

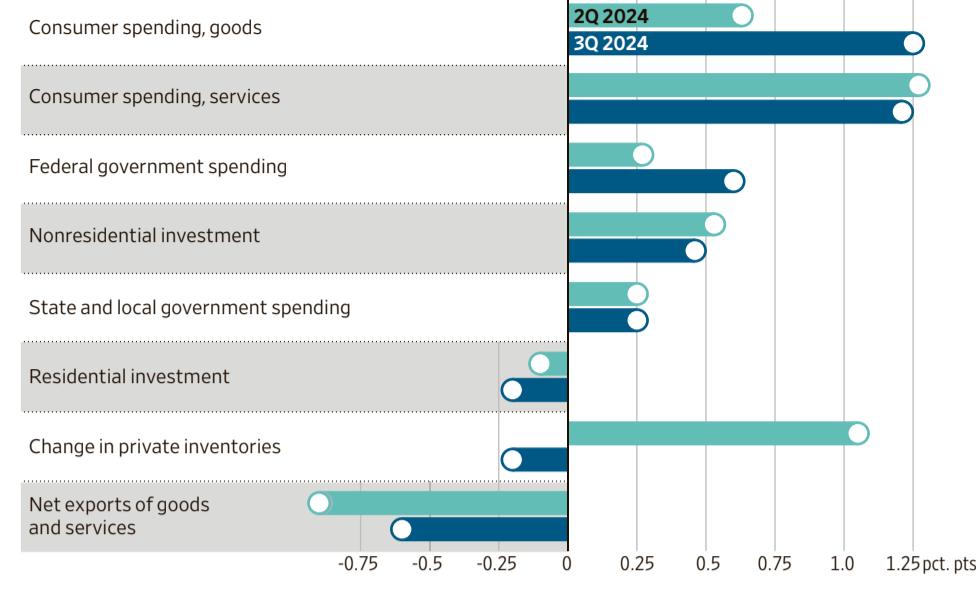
The report showed inflation continued to ease during the third quarter, which combined with falling gasoline prices offered some relief to consumers.

Inflation, as measured by the personal-consumption expenditures price index, eased to a 1.5% annualized rate from 2.5% in the second quarter. Stripped of volatile food and energy prices, the so-called core index cooled to 2.2% from 2.8% in the prior quarter. The Fed targets 2% annual inflation.

Although overall growth slowed slightly from its second-quarter pace, by historical comparison it remained strong. In the last economic expansion, from the second quarter of 2009 through the fourth quarter of 2019, GDP increased at an average annual rate of 2.5%.

Current economic growth

Contributions to annualized quarterly change in GDP for select categories



Note: Adjusted for inflation and seasonality

Source: Commerce Department

is also well above the pace economists see as the long-term trend. Fed officials put the U.S. economy's longer-run growth rate at 1.8%, according to projections released at their most recent meeting in September.

"The economy is doing really well," in part because of an artificial-intelligence boom and government spending through programs such as the Inflation Reduction Act, said Torsten Slok, chief economist at Apollo Global Management.

Consumer-focused companies have offered diverging viewpoints.

"There's clearly parts of the consumer landscape where there's pressure on disposable

income," Coca-Cola Chief Executive James Quincey said on an earnings call last week. "There's a set of consumers exhibiting value-seeking behavior," like looking for deals or making smaller purchases, he said.

"The economy overall feels really strong and really good," countered Michael Glover, chief financial officer at InterContinental Hotels Group, during an earnings call last week. Corporate demand for travel is particularly strong, he said, as businesses send workers to events and conferences and on customer visits.

The GDP report shouldn't change the general direction

for the Fed, which cut rates last month and is expected to keep doing so.

Quarterly projections released at the last meeting showed a narrow majority of officials penciled in cuts that would lower rates by at least a quarter-point each at the meeting next week and again in December.

The two big, recent hurricanes are likely to show up more in the data for the fourth quarter and beyond. Hurricane Helene hit the Southeastern U.S. in the final days of the third quarter, causing widespread destruction.

That was followed days later by Hurricane Milton, at the start of the fourth quarter.

September Home Sales Improved With Drop In Rates

By JOSHUA KIRBY

The number of homes going under contract in the U.S. rose again in September as mortgage rates eased.

The report released Wednesday by the National Association of Realtors found that the pending home sales index, a leading indicator of house sales based on contract signings, rose 7.4% to 75.8 in September, reaching the highest level in six months.

The index nevertheless remains well below 100, representing the level of contract activity in 2001.

Compared with a year earlier, pending sales were 2.6% higher.

Rising sales reflect lower borrowing costs for mortgages and should continue if the economy keeps proving robust, said NAR Chief Economist Lawrence Yun. "Further gains are expected if the economy continues to add jobs, inventory levels grow and mortgage rates hold steady," Yun said.

All four regions of the U.S. saw increasing sales over the month, led by the West, where they were nearly 10% higher.

MASSACHUSETTS Almost 17 Years Sought in Leak Case

Prosecutors plan to argue that a Massachusetts Air National Guard member who pleaded guilty to leaking highly classified military documents about the war in Ukraine should serve nearly 17 years in prison.

In a sentencing memorandum, prosecutors said Jack Teixeira "perpetrated one of the most significant and consequential violations of the Espionage Act in American history."

Teixeira's attorneys will argue that U.S. District Judge Indira Talwani should sentence him to 11 years in prison. He is scheduled to be sentenced Nov. 12.

In their sentencing memorandum, they acknowledged that their client "made a terrible decision which he repeated over 14 months."

—Associated Press

CONNECTICUT One Person Hurt in University Shooting

A gunman opened fire in the dining hall at the University of Bridgeport, injuring one person and prompting a campus lockdown as police searched for the suspect.

Police in Connecticut's largest city said the victim was being treated at a hospital for injuries that weren't life-threatening and the shooter remained at large Wednesday.

The lockdown was lifted shortly before 6 a.m.

Wednesday as police called it an "isolated incident" with no further threat to the public.

Authorities said the shooting happened shortly after 6:30 p.m. Tuesday and officers arrived minutes later to a chaotic scene. The shooting involved two young men who weren't students of the college, police said.

—Associated Press

ARIZONA Home Delivery of Cannabis to Expand

Arizona residents will be able to get recreational cannabis delivered to their homes beginning Friday, marking a new milestone for a state program that until now had allowed the service only for medical marijuana patients.

The Arizona Department of Health Services is expanding home delivery to anyone 21 and older, with deliveries to be offered through individual dispensaries or third-party services that partner with a state-licensed dispensary to legally deliver the goods.

Recreational marijuana sales began in Arizona in 2021 under a voter-approved ballot initiative. Sales boomed following legalization, topping \$1 billion in 2023.

—Associated Press

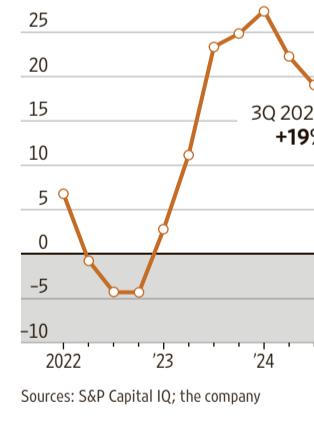
Meta Sales Hit Record In Quarter

Continued from Page One
updates this week. Microsoft reported a better-than-expected rise in revenue, helped by the AI boom. Meanwhile, shares of Google parent Alphabet jumped 2.8% Wednesday after the company also provided strong numbers Tuesday.

Amazon.com and Apple are expected to report their results on Thursday.

The company has also lost \$50 billion on Zuckerberg's bet on the so-called metaverse, a virtual space where he expects people to work and spend time in the future. The

Meta Platforms quarterly revenue, change from a year earlier



Sources: S&P Capital IQ; the company

The company said it expects "significant" growth in capital expenditures next year and raised the lower end of its forecast for 2024 capital expenditures to a range from \$38 billion to \$40 billion, up from \$37 billion to \$40 billion at the end of the June quarter. Meta expects fourth-quarter revenue to be between \$45 billion and \$48 billion.

Meta's shares fell slightly in after-hours trading. The stock has nearly doubled in the past 12 months, a surge fueled by breakthroughs in artificial-intelligence technology that have improved its ad-targeting capabilities.

"They've really shown they've gotten to a level of expense discipline and AI is actually adding to the bottom line," said Justin DuMouchelle, a portfolio manager at New York-based Cerity Partners, a Meta

Platforms investor.

On Tuesday, Google parent Alphabet reported a 15% surge in quarterly sales, although advertising revenue from its search and YouTube businesses grew at a slower clip. Chinese e-commerce companies Shein and Temu, which emerged as some of the largest advertisers for Meta and Google, slowed their U.S. spending in the July-to-September quarter compared with the same period a year ago, according to Sensor Tower.

Other tech companies reported digital-advertising growth in the latest quarter, including Reddit and Snap. The social-media platforms, which both generate the bulk of their revenue from online ads, said overall sales rose 68% and 14%, respectively, and that investments in AI helped to improve their ad offerings.

Overall, Meta posted a net profit of \$15.69 billion for the third quarter. That is up about 35% compared with the net profit that the company posted for the same period in 2023.

Meta said it had 3.29 billion daily active people for its apps in the quarter, including for Facebook, Instagram, Messenger and WhatsApp, up 5% from a year earlier and less than 1% from June.

Zuckerberg said the company's AI-driven feed and video recommendations have led to an 8% increase in time spent on Facebook and a 6% increase on Instagram. He added that more than a million advertisers used Meta's generative AI tools to create more than 15 million ads in the last month and the company estimates that businesses using image generation are seeing a 7% increase in conversions.

Separately, Zuckerberg said the company's microblogging service Threads, which competes with Elon Musk's X, now has 275 million monthly active users, up from 150 million in April. It's been growing by more than a million sign-ups per day, he said.

Earlier this month Meta said it began expanding its rollout of Meta AI, the company's free generative AI tool that competes with the likes of OpenAI's ChatGPT and Dall-E, in more countries, including the U.K. and Brazil.

Once the rollout is complete, Meta said, Meta AI will be available in 43 countries and a dozen languages.

Meta held its annual developer and hardware conference last month, during which it announced deals with actors Awkwafina, John Cena, Judi Dench, Kristen Bell and Keegan-Michael Key that will allow it to use their voices in a new AI assistant. Meta is paying stars millions of dollars for use of their likeness, The Wall Street Journal previously reported.

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CORRECTIONS & AMPLIFICATIONS

Hezbollah leader Hassan Nasrallah was among the Lebanese militant group's senior officials killed this year. A World News article on Wednesday about the appointment of cleric Naim Kassem to lead Hezbollah incorrectly said Kassem was killed.

Google's cloud division brought in \$11.4 billion of revenue in the third quarter. In some editions Wednesday, a Page One article about Google's earnings incorrectly said \$11.3 billion.

Snap reported \$1.4 billion in sales for the third quarter. A Technology & Media article on Wednesday about the company behind the Snapchat app incorrectly said \$1.4 million.

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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The Meta division that makes Ray-Ban Meta smart glasses had operating losses of \$4.4 billion.

U.S. NEWS

Tax Rule In Political Donations Tightened

By RICHARD RUBIN
AND MAGGIE SEVERNIS

A federal appeals court narrowed the tax rule that has let conservative and liberal groups pour billions of dollars into political campaigns without disclosing their donors, and the case could restrict the flow of so-called dark money into politics.

The unanimous opinion from a three-judge panel of the 5th U.S. Circuit Court of Appeals came this week in a healthcare case that didn't directly address politically active organizations. But the decision—from a conservative court—sets a tighter legal standard for tax-exempt status that the advocates for political donor transparency have long sought.

The court said groups can't qualify for tax exemption under Section 501(c)(4) of the tax code if they have a substantial nonexempt purpose. That is a much stricter standard than the one in Internal Revenue Service regulations, which say groups only need a primary purpose that qualifies for the exemption. That has been interpreted to allow tax exemptions for groups that spend 51% of their money on lobbying or other clearly allowed activities—and 49% on politics.

"The people who are making the case that they can do up to 49%, do they have a leg to stand on? Their leg got a lot weaker," said Phil Hackney, a University of Pittsburgh tax law professor.

The case could be appealed, and other cases could get decided that expand nonprofits' ability to engage in politics. The IRS, which declined to comment, must decide how to enforce the law as groups get audited or seek tax-exempt status. For now, the opinion applies only in Louisiana, Mississippi and Texas.

"Nobody quite knows what this is going to do," said Elinor Ramey, a former Treasury tax lawyer now at Lowenstein Sandler.

Section 501(c)(4) applies to "social welfare" groups and has long been the province of organizations such as Rotary clubs. It occupies an odd middle ground in the tax code between charities and political organizations.

Donors don't get tax deductions like they do for giving to charities. But unlike donors to political-action committees, donors to 501(c)(4) groups aren't disclosed publicly. Those features make 501(c)(4) groups attractive to corporations and well-heeled donors, and they became central to Republicans' and Democrats' election strategies. They now spend vast sums each election cycle with little disclosure about funding sources.

During the 2020 elections, dark money groups and shell corporations spent more than \$1 billion, according to the nonpartisan-election group OpenSecrets.



The lumberyard, left, of Brownlee Lumber in Brookville, Pa. Alex Zimmerman, at right, says if things don't change, a lot of loggers will go out of business.

NATE SMALLWOOD FOR WSJ (2)

Appalachian Industry Hits Snags

Hardwood loggers and mills struggle to survive, and new tariff threat emerges

By PAUL KIERNAN

ALLEGHENY NATIONAL FOREST, Pa.—There aren't many men like Alex Zimmerman left in the forests of northwest Pennsylvania. When the weather is cold or dry enough, the 28-year-old logger can be found roaming the woods, chain saw in hand, bringing down big hardwoods for a nearby sawmill.

The most imminent threat to his livelihood is falling tree limbs, like the one that broke his back in July, waylaying him for three months. Another, longer-term, threat hangs over Zimmerman: Appalachia's hardwood industry composed of loggers, sawmills, truckers and manufacturers is struggling to survive.

The industry, a fixture of the regional economy, has been in decline for decades. A series of shocks since 2018 has accelerated the decline: a trade war with China, a collapse in exports because of Covid, China's real-estate slump, and falling U.S. home building.

Roughly two dozen sawmills in the region have gone out of business in the past year or so, auctioning off their machinery, said Tom Inman, president of trade association Appalachian Hardwood Manufacturers. The average mill employed 50 to 60, he said.

Falling demand

Internet publishing has reduced demand for paper, making smaller trees and scrap wood nearly worthless. Home builders and manufacturers increasingly favor cheaper synthetic products such as vinyl plank flooring and engineered composites over solid wood for furniture and cabinetry.

As a result, the Matson family in Brookville, Pa., which has been harvesting trees from the forests of northwest

The eastern U.S.'s hardwood production has fallen to its lowest level in records going back to 1960, according to the Hardwood Market Report, an industry publication. Output this year is on pace to be 40% lower than 2017, the year before the trade war with China dealt the industry a heavy blow.

"If it stays like this for another year, you're going to see a lot of loggers going out of business," said Zimmerman, standing beside his bright-yellow Deere skidder in Allegheny National Forest. He feels fortunate to have paid off the \$80,000 machine, which looks like a tractor with 5-foot wheels and a steel claw at its rear for dragging logs.

After then-President Donald Trump imposed steep tariffs on China in 2018, China retaliated by hitting wood exports with tariffs of up to 25%, targeting rural areas that favored Trump. And with Trump vowing new, 60% tariffs on Chinese imports if he wins the coming election, U.S. hardwood producers are bracing for another hit that could be even more painful.

"It was really devastating to the lumber industry, what took place last

time," said Tim Brownlee, who is chief operating officer of the mill that buys logs from Zimmerman and is chairman of the American Hardwood Export Council.

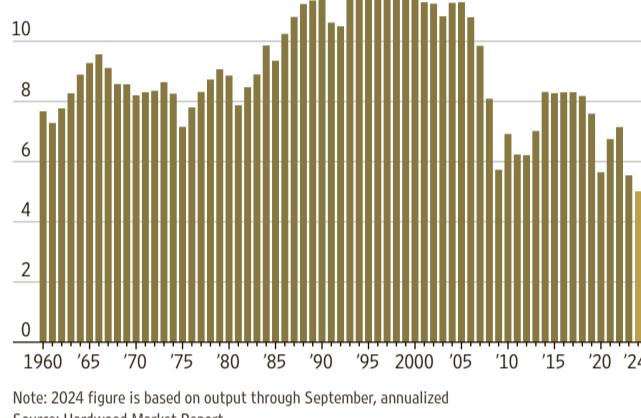
Zimmerman said he hasn't paid much attention to U.S. trade policy but knows anything that affects the sawmills could affect loggers.

"If they don't have the markets to move the material, then there's no sense in cutting the material," he said.

Though Beijing lifted its retaliatory tariffs in early 2020, the subsequent shocks to demand have left producers' balance sheets weaker than before the first trade war.

As a result, the Matson family in Brookville, Pa., which has been harvesting trees from the forests of northwest

Eastern U.S. hardwood production, annually



Note: 2024 figure is based on output through September, annualized

Source: Hardwood Market Report

Pennsylvania since Thomas Jefferson was president, idled their sawmills last month and laid off about one-fifth of their remaining employees.

Matson Lumber now has just 80 direct employees, down from 175 in 2016. The company hopes to ride out the latest downturn by buying freshly cut lumber from other mills and drying it in steam-heated kilns, Chief Executive Officer Paul Sorek said.

Hardwoods—oak, hickory, maple, walnut and cherry—are used to make high-end finishings such as flooring, furniture, cabinetry and trim, as well as industrial products such as pallets and railroad ties. Smaller trees, called pulpwood, are used for paper products.

Historic industry

The hardwood industry is small compared with softwood, which is used to frame houses and buildings. But it traces its history to Colonial times and led to the founding of communities across the eastern U.S. Hardwood was essential for building ships, furniture and airplane propellers, and was among the first exports—along with furs—from what is now the U.S. to Europe.

Until a couple of decades ago, Appalachian hardwoods supported thriving manufacturing facilities in nearby towns and cities. North Carolina's furniture plants, for instance, employed nearly 80,000 workers in 1999,

shortly before China's accession to the World Trade Organization opened the U.S. to Chinese imports. Within 10 years, that number had fallen to 35,000, with most of the jobs shipped overseas.

Trump says tariffs will bring back manufacturing jobs. Yet the North Carolina furniture business currently employs under 30,000 workers, 20% fewer than when Trump imposed tariffs on China, including on furniture.

Declining lumber sales have directly hit places like Warren County, Pa., home to part of Allegheny National Forest.

One-quarter of national forests' gross revenues are earmarked for local schools and roads.

Gary Weber, superintendent of Warren County's school district, said annual payments from Allegheny National Forest have fallen below \$300,000, down from \$1.2 million a decade and a half ago.

"It coincides with the flattening of revenue from local businesses and everything else," Weber said. The county's population has fallen 14% since 2000, and the school board is considering closing

two of its four high schools.

China retaliated and said prices dropped immediately.

Trade-war worries

A worrisome trend for sawmills in recent years is that China has been reducing its imports of finished lumber from the U.S. and increasing its purchases of raw logs, which it saws and dries domestically. Industry officials worry that if a new trade war erupts, China could put more U.S. sawmills out of business by imposing higher tariffs on lumber than on raw logs.

Hardwood trees grow much more slowly than softwoods such as pines, taking up to 100 years to reach commercial size. Farming them isn't practical, so they are instead harvested from natural forests, often selectively. Most hardwood sawmills are family businesses, sometimes passed down over generations.

Allegheny Wood Products, which owned several sawmills in West Virginia, stopped operating in February and went into receivership, leaving close to 900 employees and contractors out of work.

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two of its four high schools.

Making Way for Solar Power in New Orleans



SEEING THE LIGHT: Houses in New Orleans's Gordon Plaza neighborhood were demolished Wednesday, and will be replaced by a solar-panel farm. The homes were built on a toxic-waste site in the 1970s and 1980s.

CHRIS GRANGER/THE NEW ORLEANS ADVOCATE ASSOCIATED PRESS

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U.S. NEWS

Gaffe Puts Focus on Biden Again

'Garbage' comments by president caused a headache for Harris's campaign

By ANNIE LINSKEY
AND EMILY GLAZER

WASHINGTON—When Vice President Kamala Harris delivered her marquee closing address on the Ellipse Tuesday to tens of thousands of supporters, President Biden was tucked away at the White House and purposefully out of sight. But he still managed to step on her message just a week from the election.

The president on Tuesday night caused a headache for Harris's campaign when he appeared to say that Donald Trump's supporters were "garbage" while on a call with Latino voters. Biden later said he meant to refer to one supporter—Tony Hinchcliffe, a comedian who made crude comments about Puerto Rico and other subjects at the former president's Sunday rally—not all supporters.

But video of Biden's remarks quickly circulated, and the damage was done. Republicans compared the comment to Hillary Clinton's 2016 reference to Trump's backers as "deplorables." Trump said both Biden and Harris were unfit to lead.



President Biden in the White House on Wednesday. He plans on focusing more on his legacy after the election.

"It is my desire to be the president of all the people," he said on social media.

Harris's allies were caught off guard and miffed by the remarks.

Harris, speaking to reporters at Joint Base Andrews, said the president had "clarified his comments" and added, "I strongly disagree with any criticism of people based on who they vote for" and would be president for all Americans.

The gaffe came as Biden was heaping scorn on Hinchcliffe's comment that Puerto Rico was a "floating island of garbage," a

line from which the Trump campaign has tried to distance itself. On his call with Voto Latino, Biden said "the only garbage I see floating out there is his supporters. His—his demonization of Latinos is unconscionable, and it's un-American." The White House said the uproar pivoted on an apostrophe—Biden meant "a supporter's," not "supporters."

Diminished role

Biden's absence from Harris's high-profile event Tuesday night in his backyard was the latest example of how the president has been pushed to the sidelines of a campaign

that once centered on him.

His diminished role has been difficult for him, according to people who have been in touch with Biden and his team recently. One person who has spoken with the president described him as "somewhat regretful" at times about leaving the presidential campaign.

Fading into the background of the campaign has been bittersweet. "Logically, he knows it's the right decision. As a human being with emotions, it's hard not to be there for the final hurrah," said one person who has been in close contact with Biden's team. "It's sad to end on that note. He wanted to go out in a blaze of glory."

Harris faces liabilities in being closely tied to Biden, given voters are upset about inflation and a surge in illegal crossings at the southern U.S. border during their administration. Her remarks on "The View" suggesting she wouldn't have done anything differently from Biden have become a central line of attack for Republicans.

Harsh rhetoric

It isn't the only gaffe Biden has made at a political event. Last week, at a stop at a campaign office in New Hampshire, Biden also made the wrong kind of headlines.

"We got to lock him up," Biden said about Trump, before

quickly adding, "politically lock him up. Lock him out, that's what we have to do."

Trump and his allies regularly use harsh rhetoric against political opponents and illegal immigrants, among others. Trump has repeatedly referred to Democrats as the "enemies within," and at Sunday's rally, speakers made derogatory comments about Harris's intelligence and racial identity.

The president has headlined a few political events since the Democratic National Convention in late August, but they have been small-scale, including on Tuesday, when he and Maryland's Democratic Senate candidate Angela Alsobrooks chatted with voters at an ice-cream shop in Baltimore.

Biden plans on focusing more on his legacy after the election, according to people familiar with his plans. That will include a push for his presidential library. Biden's team has encountered some resistance raising the roughly \$200 million to \$300 million Biden's allies think will be required for it based on past presidential libraries, according to people familiar with the discussions.

Part of the problem is that Biden hasn't been a strong fundraiser. Some donors and their advisers say they haven't been approached but wouldn't make a decision until election results are clear.

ELECTION 2024

High Court Lets Virginia Purge Voter Rolls

The Supreme Court said Wednesday that Virginia could proceed with a purge of 1,600 suspected noncitizens from its voter rolls, overturning lower courts that found the August program ordered by Republican Gov. Glenn Youngkin violated federal election law.

The court's order was unsigned and provided no reasoning, as is usual in emergency matters. The three Democratic-appointed justices, Sonia Sotomayor, Elena Kagan and Ketanji Brown Jackson, indicated they would have denied Virginia's application.

The order leaves a final ruling on the issue for a future date, but it ensures the purge can proceed prior to Tuesday's election.

Youngkin's August order accelerated the state's regular automated review of citizenship records to daily checks from monthly. The Justice Department and advocacy groups sued, arguing that the plan ran afoul of the National Voter Registration Act, which forbids systematic cancellation of voter registration within 90 days of an election.

—Jess Bravin

Haley Pitches GOP Unity in Backing Trump

By JOHN MCCORMICK

Nikki Haley has made clear she plans to vote for Donald Trump, even after a combative Republican presidential primary where she was the last major challenger left sparring with him. But the former South Carolina governor's pitch for unity these days isn't for everyone.

The ex-president hasn't campaigned with Haley, despite her offering dates when she was available. Trump also has continued to be dismissive of her White House run, breaking from the tradition of trying to win over supporters of primary opponents. Haley's strongest backing came from suburban areas where presidential elections are often decided, meaning suburbanites are especially valuable voters.

Democrat Kamala Harris, meanwhile, is aggressively courting Haley supporters, but where they land remains a significant question in an election that is shaping up to be tight. There is little public polling to suggest what they will do after having expressed opposition to Trump in the primary.

A political-action committee called PivotPAC, which is financing what it calls Haley Voters for Harris, says it is spending about \$4 million on digital ads to encourage suburban Republicans and independents in Wisconsin, Michigan and Pennsylvania to support



Nikki Haley spoke at the Republican National Convention in Milwaukee this past July.

the vice president. Haley sent a cease-and-desist letter to the group, demanding her name not be used; it disputed the legal claim and has continued to do so.

Karoline Leavitt, a Trump campaign spokeswoman, said Trump had been "endorsed by many respected leaders from Nikki Haley to RFK Jr., and Tulsi Gabbard" and that his effort welcomes "anyone who wants to secure our border, restore law and order, and end inflation."

Instead of appearing with Trump, Haley on Wednesday

hit the campaign trail in Pennsylvania to support Republican David McCormick in his challenge of Democratic Sen. Bob Casey. It marked her first real campaigning since dropping out of the primary. More than 16% of GOP voters in the state picked Haley in April—more than a month after she dropped out of the race. That was almost 160,000 people, or roughly double the vote margin Joe Biden secured in winning the state in 2020.

Haley pleaded for Trump to make a greater effort to reach out to moderates and indepen-

dents when she left the primary—something he hasn't done—and called for party unity in her speech to the Republican convention in Milwaukee. She has helped Trump with fundraising and recorded phone messages to encourage people to vote for him.

On Tuesday evening, Haley suggested Trump's campaign needed to do a better job of reaching out to women, who polls show are heavily supporting Harris, as she highlighted the former president's controversial rally Sunday at Madison Square Garden in New York.

They are explicitly more prepared this time around," said Kristie De Peña, senior vice president of policy at the Niskanen Center, a Washington think tank with libertarian roots that supports immigration. De Peña is one of several analysts tracking the emerging plans by parsing policy papers, social-media posts and public statements.

The plans haven't taken on the same level of urgency that Trump, a Republican, has placed on illegal immigration or enacting mass deportations. And some of the steps could face pushback from newfound allies in the business and tech community like Elon Musk. Musk has repeatedly championed legal immigration but said illegal migration should be reduced.

The ideas being explored include a pause in accepting new applications for categories of immigration that currently have large backlogs, ranging from asylum to requests for employment-based green cards for Indian tech workers.

Trump's campaign didn't respond to requests for an interview or clarification of Trump's positions for this story. A campaign spokeswoman, Karoline Leavitt, said in an emailed statement, "President Trump has repeatedly said that he supports legal immigration and wants as many people to come

into the country, as long as they come LEGALLY."

The Biden administration reversed many of Trump's restrictions on legal immigration, though it also made moves that have angered business groups, including placing new requirements on farmers and other seasonal employers looking to hire foreign workers.

The philosophy underlying Trump's advisers' opposition to legal immigration—which Trump himself has also articulated—is that immigrants are often willing to accept lower wages for jobs that, if they paid more, U.S. citizens would take on.

That argument has taken on increased urgency this election as Trump has sought to make the case that immigrants, no matter how they entered the country, are also driving up the cost of living, including for housing and car insurance. Some, including Trump's running mate JD Vance, have argued that too much immigration, no matter the source, can harm the fabric of American society.

"There's a difference be-

tween having 500,000 or a million newcomers per year or 10 million or 30 million or 50 million per year," Vance told The Wall Street Journal last April.

"And I think that we clearly are reaching a point where we just can't absorb the pace of immigration in this country."

Some business groups are wary of restricting access to imported workers. "We do have some concern over the rhetoric that immigrants are taking jobs from American workers," said Stephen Martz, general counsel for the National Retail Federation. "We have very low unemployment right now."

We have wages going up." Surveys show that while most people prioritize reducing illegal immigration, most also still favor immigrants coming in legally.

Trump himself has occasionally differentiated between illegal and legal immigration, saying in a Univision town hall this month, for example, that "we want workers, and we want them to come in, but they have to come in legally."

He made similar comments during his 2016 campaign. Trump also took people by surprise when he suggested on a tech podcast this summer that he would support issuing an automatic green card to every international student who earns a college diploma in the country—comments his cam-

paign later walked back.

Many of Trump's proponents and detractors, however, say that isn't how he governed.

In 2017, for example, he held an event at the White House to honor the introduction of a bill called the Raise Act, which would have cut legal immigration levels roughly in half and ended the system allowing U.S. citizens to sponsor their parents and siblings for green cards, which conservatives refer to as "chain migration." The bill failed to advance through Congress.

And in 2020, with the onset of the pandemic, Trump banned the entry of immigrants on a range of temporary and permanent work-based visas, including the H-1B for highly skilled foreign professionals.

An analysis by the National Foundation for American Policy, a pro-immigration think tank, found Trump's adminis-

Harris Stops Short of Shift on Taxation Abroad

Vice President Kamala Harris told overseas voters that she recognizes their unique challenges—but she stopped short of endorsing the major tax change backed by Republican rival Donald Trump.

"A Harris-Walz administration will take your concerns seriously—whether it's improving access to consular services, addressing the complex challenges you face with banking, taxation and financial services, or ensuring equal treatment in immigration and citizenship processes," she wrote in a letter posted by Democrats Abroad.

Trump said earlier this month that he supports changes to the U.S.'s unusual system, which taxes American citizens abroad based on their worldwide income.

—Richard Rubin

Georgia Official Urges a Graceful Concession

Georgia Secretary of State Brad Raffensperger sent a subtle warning to the presidential candidates to accept the election results—win or lose.

"That's what America is: graciously accepting your win but also graciously accepting your losses," he said Wednesday.

Former President Donald Trump thrust Raffensperger into the spotlight after unsuccessfully pressuring Georgia's chief election official to overturn Trump's narrow 2020 loss in the state. Raffensperger, a Republican, was ostracized by many in his party after Trump criticized him.

—Alyssa Lukpat

Trump Aides Go Bolder on Immigration

Continued from Page One
to fill jobs ranging from software engineering to positions at theme parks.

Plans include a return of some controversial policies from Trump's term in the White House, including a ban on travel to the U.S. from several Muslim-majority countries, a halt on refugee resettlement from overseas, and the "Public Charge" rule, a policy that seeks to block immigrants who are low-income, disabled or speak limited English so those people wouldn't eventually use public benefits.

Last time around, Trump's team struggled to fully implement some of those policies because they weren't issued properly, allowing them to be toppled by lawsuits from Democratic states and immigration advocacy groups. Officials have learned from those experiences and have re-worked them to reduce the legal risk, say former administration officials and immigration analysts.

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WORLD NEWS

Deadly Floods Devastate Spain

At least 95 people died as more than a year's worth of rain falls in some areas

BY GARETH VIPERS
AND CRISTINA GALLARDO

BARCELONA—At least 95 people have died in devastating flash floods in southeastern Spain, as emergency responders and dog teams searched thick mud and landslides for survivors.

Torrential rains hammered towns across a swath of the country Tuesday into Wednesday, with some areas seeing more than a year's worth of rainfall in just eight hours.

Footage from the Valencia region, the worst hit, showed people clinging to trees to avoid the raging floodwaters. Bridges were destroyed, and cars and some structures swept away.

The storm, which covers nearly half of the country, was affecting areas from the Strait of Gibraltar in the southwest to Barcelona and the Catalonia region in the northeast. Intense rains are expected to last until Sunday, the weather service said.

As office workers in Barcelona were sent home early, rescue teams in the south waited to search for bodies in the thick mud.

In Chiva, west of Valencia, more than 12.5 inches of rain fell in just over four hours, according to the European Severe Weather Database. The region usually averages about 3 inches during October.

Carlos Mazón, president of the regional government of Valencia, said the death toll is expected to rise. "These are very difficult hours for relatives and for the disappeared," he said



A man walks through a debris-covered street in Valencia, Spain, on Wednesday after flash floods devastated the region.

Wednesday. "Right now it's impossible to offer a precise figure. We're in shock."

The death toll included children, several elderly people in a nursing home, two state police officers and at least one firefighter, officials said. As of Wednesday evening, Spanish authorities reported 92 deaths in the Valencia region, two in Castilla-La Mancha, and one in the province of Málaga.

By midmorning Wednesday, the storm largely had subsided in Valencia, but heavy rain was expected across the country for several days.

During a news conference,

Spain's Prime Minister Pedro Sánchez thanked emergency teams working on the rescue effort. "Our thoughts are also with those who have seen their homes flooded, their belong-

Average 24-hour precipitation



Note: As of Oct. 30, 1 a.m. local time

Source: NASA

ings destroyed, their lives covered by mud," he said.

"To the towns and cities destroyed by this tragedy I say: United we are going to rebuild your streets, your squares, your bridges. All of Spain is and will be with you," Sánchez said.

His office said he would visit the Valencia region Wednesday but those plans were changed to Thursday. Road and rail networks across the region have been severely disrupted by the flooding.

In Paiporta and Picanya, two towns south of Valencia, scores of people were still missing, said Paiporta Mayor Maribel Albalat.

Residents in some areas started stockpiling bottled water and other essentials. Shelves in some supermarkets were emptied of bottled water, while authorities in the region moved to reassure people that tap water supplies were secure.

European Commission President Ursula von der Leyen said the bloc is offering assistance. "What we're seeing in Spain is devastating," she

said. "My thoughts are with the victims, their families and the rescue teams."

The intense rains were caused by a bubble of cold air more than 600 miles across moving over the warm waters of the Mediterranean Sea, said Richard Allan, a professor of climate science at the University of Reading.

"This funneled huge quantities of moisture up over Spanish mountains leading to sustained and intense rainfall and severe flash flooding," Allan said.

Watch a Video



Scan the code for a video of the devastation caused by the flooding in Spain.

West's Aid Fails to Bolster Lebanese Military

BY OMAR ABDEL-BAQUI

BEIRUT—At an international conference in Paris last week, European leaders singled out the Lebanese Armed Forces as key to stabilizing the country. Some \$200 million in contributions were announced, including funds from the U.S., France and Germany.

"The Lebanese army has a decisive role to play, today more than ever," French President Emmanuel Macron said.

The only problem: The Lebanese military has for years fallen short of the West's aspirations, strangled by limited resources and the fragile political reality in Lebanon.

Despite \$3 billion in U.S. funding since 2006, Lebanon's armed forces are ill-equipped to secure its borders and subdue Hezbollah, the Iran-backed militant group battling Israel.

Lebanon's military is outmanned and outgunned. It has roughly 70,000 to 80,000 active-duty soldiers, compared with estimates of up to 100,000 for Hezbollah. It lacks advanced air-defense systems and possesses only about five operational jet fighters and limited missile capabilities, according to the Lebanese Armed Forces. Hezbollah has tens of thousands of rockets, missiles and drones.

"It is one of the weakest armies in the Middle East," said Amal Saad, a politics lecturer at Cardiff University and an expert on Lebanese affairs.



Lebanese soldiers secure an area after an Israeli drone strike on the Beirut-Damascus road.

"That is part of the reason Hezbollah emerged in the 1980s—the Lebanese army wasn't able to stand up to Israel," Saad said, referring to an earlier Israeli invasion of Lebanon that helped trigger Hezbollah's creation as an opposition force.

Lebanon's military was supposed to have disarmed Hezbollah with the help of a United Nations peacekeeping force, part of a 2006 U.N. deal that ended an earlier war between Israel and Hezbollah. Instead, Hezbollah imported more weapons through Syria in violation of the resolution.

The militant group also

maintained a presence south of Lebanon's Litani River, an area it was supposed to vacate.

Those conditions contributed to Israel's invasion of Lebanon. The invasion began in September, when Israel's soldiers crossed the border as part of an offensive to stop Hezbollah from firing missiles into northern Israel, which it has done daily for the past year to express solidarity with Palestinians in Gaza.

Lebanon's armed forces pulled back from the border, avoiding a confrontation that would pit it against a far better-equipped Israeli force, Lebanese military officials said.

and could alienate it from the U.S., according to analysts.

The Lebanese military says it has been executing its missions, which include coordinating with U.N. peacekeepers to implement the 2006 deal and defending Lebanon's national sovereignty.

Its defenders say there are a host of reasons the armed forces haven't been able to fulfill the mandates. For starters, it has had to straddle the country's complex sectarian divides, including Christian, Sunni Muslim, Shia Muslim and Druze communities.

The U.S. also has long been conflicted about how far to go

in providing weapons and funding because the Lebanese military considers U.S. ally Israel an enemy. And Hezbollah's continuing dominance over the country requires the Lebanese armed forces to coordinate with the group.

Still, if the U.S. and its allies want a stable Lebanon, they have little choice but to work with the country's military, its defenders say.

"The Lebanese military is the only military alternative to Hezbollah," said Samy Gemayel, head of a Christian Lebanese party opposed to Hezbollah. "It should be strengthened. Without it, Hezbollah would be in control of the entire country."

Since the end of the country's brutal civil war in 1990, Lebanon's armed forces have largely served as a unifying force. They helped to disarm various nonstate actors, confiscating their war equipment, and played intermediary between rival political factions.

Over the years, however, Hezbollah emerged as a more powerful player with Iran's backing. It leveraged its success as a fighting force to take on a formal political role in Lebanon, with seats in parliament and a sizable social-welfare operation.

U.S. special envoy Amos Hochstein said Lebanon's military must be allowed to "actually be deployed in south Lebanon and to do its job, and for that it needs support from the international community."

Canada Says India Official Guided Attacks

BY RAJESH ROY

NEW DELHI—The Canadian government has alleged that India's powerful home minister, Amit Shah, orchestrated plots targeting Sikh separatists on Canadian soil, an accusation that could further worsen relations between the two countries.

Canadian Deputy Foreign Affairs Minister David Morrison on Tuesday said Shah had authorized intelligence-gathering activities and attacks against Sikh separatists living in Canada.

Speaking before a parliamentary committee about a Washington Post report published this month, Morrison said, "The journalist called me and asked if it [Shah] was that person. I confirmed it was that person."

"The journalist called me and asked if [Shah] was that person. I confirmed it was that person," Morrison told a parliamentary committee.

Last year, Prime Minister Justin Trudeau said Canadian officials were pursuing "credible allegations" that agents of the Indian government were involved in the killing of Hardeep Singh Nijjar, a Sikh activist, in Surrey, British Columbia, in June 2023.

Nijjar was a leader of a movement to create an independent Sikh homeland but fled India for Canada several years ago. India has banned the group.

Since Canada aired the accusations, relations between New Delhi and Ottawa have become strained. This month, the two governments expelled several of each other's most senior diplomats.

Shah is close to Prime Minister Narendra Modi and is often described as the second-most-powerful man in the country. He wields enormous influence in the government and is a key strategist for Modi's Bharatiya Janata Party.

Shah has been the driving force behind some of India's most controversial legislation, such as scrapping the autonomy of Muslim-dominated Jammu and Kashmir states, and instituting a new citizenship law that critics say is discriminatory toward Muslims.

India's Foreign Ministry didn't respond to a request for comment. It has in recent weeks called the allegations "preposterous." Indian officials have accused Trudeau of pushing the allegations as a political ploy meant to gain support from Canada's Sikh community, which is among the largest in the world outside India.

A spokesman for India's Home Ministry didn't respond to requests for comment. The Canadian Embassy in New Delhi declined to comment.

Indian government officials said Canada failed to provide them with evidence of its accusations, something Ottawa denied.

India has called Sikh separatists terrorists and regards them as a threat to the country's security.

Florida Law Snafu Hit Banks

Continued from Page One
all of the country's big banks—from JPMorgan Chase to Goldman Sachs—have been in trouble with the law at some point.

Big banks flagged the issue to the state and called the office of Gov. Ron DeSantis, a Republican, according to people familiar with the matter. Some, such as JPMorgan and Bank of America, paused selling the securities to anyone with a Florida

ida touchpoint, the people said.

Florida is home to some big investors, including the giant hedge funds Citadel and Elliott Investment Management.

On Sunday, Florida's top financial regulator invoked emergency powers tied to recent devastating hurricanes and suspended the part of the law that banned banks from selling securities, according to a proclamation from the state government.

In the proclamation, Russell C. Weigel III, the commissioner of Florida's Office of Financial Regulation, said, "After being informed about the issue on Friday, the Office of Financial Regulation worked over the

event rules.

Banks including JPMorgan and Bank of America have resumed selling securities in Florida since the proclamation was enacted, some of the people said. The Florida Legislature is expected to propose a permanent fix to the problem the next time it convenes.

"This was a drafting error in the legislative process," a spokeswoman for Florida's Office of Financial Regulation said. "After being informed about the issue on Friday, the Office of Financial Regulation worked over the

weekend and developed a temporary solution."

Florida is working hard to attract financial firms to do business there. Many venture-capital funds and cryptocurrency startups have set up shop in the state because of its easy regulatory approach.

The Sunshine State has occasionally made missteps along the way. Last year, the state tried to ease housing price increases by passing a law meant to restrict foreign investors from owning property in the state. The bill acci-

dently made it impossible for investment funds with Chinese backing to own property, such as an office or corporate headquarters. The Legislature amended the law this year.

The October law is novel for reasons beyond the accidental bank ban. It loosened restrictions on how companies and investors can advertise potential investments that aren't publicly registered with the SEC.

Historically, U.S. companies have only been able to advertise investment opportunities if they are publicly registered with the SEC. The advertisement of unregistered securities was an unprecedented move in the country.

"The bill is meant to be pro-capital markets," Grady said. "Florida treats capital well and wants more of it."

—Peter Rudegeair and Caitlin Ostroff contributed to this article.

The law wasn't written as the Florida Legislature had intended.

There is a movement on Wall Street and among lawmakers nationwide to get more people access to those types of private securities, which are typically reserved for big institutions or the wealthy. Consumer advocates counter that they are more risky for most investors.

Tom Grady, Florida's former top financial regulator and a practicing attorney in Florida, said the state's move to allow the advertisement of unregistered securities was an unprecedented move in the country.

"The bill is meant to be pro-capital markets," Grady said. "Florida treats capital well and wants more of it."

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FROM PAGE ONE

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WORLD NEWS

Taiwan Bypasses Starlink In Race to Protect Internet

TAIPEI—Elon Musk's space company operates the world's most powerful satellite-internet system near Earth. It still hasn't reached Taiwan.

By Joyu Wang,
Micah Maidenberg
and Yang Jie

The island democracy is racing to ensure that its government, military and people could stay online in the event of an invasion or blockade by China.

SpaceX's Starlink network, with some 6,500 satellites in low-Earth-orbit providing high-speed internet from Kyiv to Vanuatu, would appear to be Taiwan's most reliable option. Taiwan officials have discovered that assembling an alternative is proving an expensive and challenging endeavor.

At the moment, Starlink satellite internet isn't an option. SpaceX said recently on X that Starlink isn't "on the ground in Taiwan today simply because it doesn't have a license—adding that it can't abide by a regulation requiring local majority ownership of any satellite internet provider."

Taiwan's digital ministry said it "welcomes all sorts of international satellite systems to enter the Taiwanese market." Any company can apply if it complies with Taiwanese law, the ministry added, without naming Starlink. Applications from four companies, three based in Taiwan and one in the U.S., have been approved, the ministry said.

But in Taiwan, potential barriers to Starlink go beyond regulations. One senior Taiwan official described concerns about Musk's business ties in China, where the Tesla chief executive is looking to sell more electric vehicles and has enjoyed a warm welcome from Chinese leadership. China claims Taiwan as its territory and has vowed to absorb it by force if necessary.

Other senior officials said



Ukrainian soldiers retrieved Starlink hardware from a roof of a damaged university in Kramatorsk, Ukraine, in late 2022.

Taiwan couldn't trust Musk because of his political views—noting his description of Taiwan as China's equivalent to Hawaii. That Musk comment last year drew a pointed response from Foreign Ministry spokesman Jeff Liu: "We can't tell whether or not Musk's free will is for sale. But Taiwan is not for sale, that's for sure."

Musk didn't respond to a request for comment for this article. Musk was asked by Russian President Vladimir Putin at one point to not activate Starlink in Taiwan as a favor to Chinese leader Xi Jinping, The Wall Street Journal recently reported.

SpaceX, in the post on X saying Starlink wasn't in Taiwan because it didn't have a license, said: "This has nothing to do with Russia or China." It didn't respond to a request for comment. A spokesman for Taiwan's Presidential Office declined to comment.

For Taiwan and others, the value of satellite-internet connections was reinforced after Russia's 2022 invasion of Ukraine—where Starlink has provided an essential service that has helped the country with battlefield operations and keeping its civilians connected with the outside world.

Early last year, Chinese-flagged vessels severed two of the undersea cables that provide the internet to the island, disrupting service in a remote part of Taiwan for weeks.

Taipei is developing alternatives to ensure internet access, now and in the future, to keep the island's 24 million residents connected. The government's digital ministry has said it is working to create a solution that includes everything from satellite technology to microwave internet, undersea cables and mobile networks.

Taiwan's main telecom provider **Chunghwa Telecom** signed an agreement last year to provide satellite connections on the island from **Eutelsat OneWeb**, a Starlink competitor that also operates a satellite network in low-Earth-orbit—a band of space relatively near the planet that offers certain advantages for communications. Those connections can now cover Taiwan's main island, the Taiwanese digital ministry said.

Defense officials in Taiwan said they still need more internet capacity. "As of now, we can't fully count on OneWeb because of our current operational needs," Defense Minister Wellington Koo said last week. A spokeswoman for Eutelsat said there is undeniably the need for more connectivity in Taiwan and elsewhere.

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FROM PAGE ONE

Archivist Recasts History*Continued from Page One*

She was tapped for the job at a sensitive time for the agency—days before federal agents searched former President Donald Trump's Mar-a-Lago resort in 2022, spurred by the Archives' discovery that Trump had taken home classified records. Republicans accused the agency of abusing its authority and targeting the former president. GOP lawmakers grilled Shogan about alleged partisan leanings during her confirmation hearings.

Shogan has since overseen a host of changes to exhibits planned in a roughly \$40 million makeover of the National Archives Museum, which draws more than a million visitors a year, and the adjacent Discovery Center, which provides education programs for students and families. Longtime employees said Shogan's directives amounted to censorship.

Shogan's senior aides ordered that a proposed image of Civil Rights leader Martin Luther King Jr. be cut from a planned "Step Into History" photo booth in the Discovery Center. The booth will give visitors a chance to take photos of themselves superimposed alongside historic figures. The aides also ordered the removal of labor-union pioneer Dolores Huerta and Minnie Spotted-Wolf, the first Native American woman to join the Marine Corps, from the photo booth, according to current and former employees and agency documents.

The aides proposed using instead images of former President Richard Nixon greeting Elvis Presley and former President Ronald Reagan with baseball player Cal Ripken Jr.

After reviewing plans for an exhibit about the nation's Westward expansion, Shogan asked one staffer, *Why is it so much about Indians?* according to current and former employees. Among the records Shogan ordered cut from the exhibit were several treaties signed by Native American tribes ceding their lands to the U.S. government, according to staffers and documents.

For an exhibit about patents that had changed the world, Shogan directed that the patent for the contraceptive pill be replaced. Aides substituted the patent for television. During discussions about what to use instead of the birth-control pill, an aide to Shogan suggested a patent for the bump stock, a device that allows a semiautomatic weapon to operate as a machine gun, according to two former employees.

Shogan and her top advisers told employees to remove Dorothea Lange's photos of Japanese-American incarceration camps from a planned exhibit because the images were too negative and controversial, according to documents and current and former employees.

Shogan's aides also asked staff to eliminate references about the wartime incarceration from some educational materials, other current and former employees said.

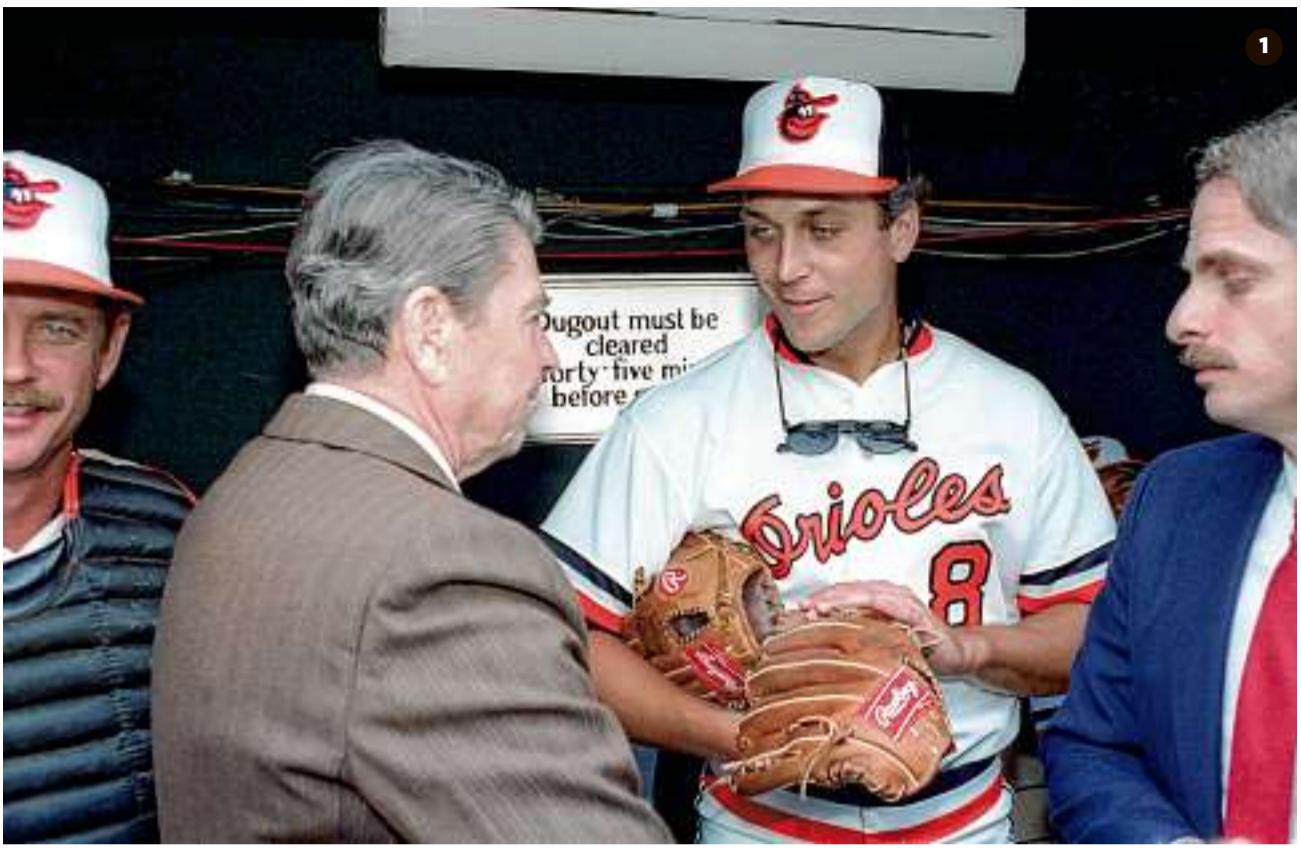
Ellis Brachman, a senior adviser to Shogan, complained to some employees that they were too woke, said current and former employees.

The National Archives declined to make Shogan available for an interview. It responded on her behalf with a statement that said the agency was committed to operating without ideology or partisanship.

This account is based on interviews with nearly a dozen current and former Archives employees, as well as internal documents and contemporaneous notes reviewed by The Wall Street Journal.

At least a half-dozen senior officials have stepped down in recent months, some blaming Shogan's leadership.

The Archives was thrust into the spotlight after it discovered classified documents in boxes it retrieved from Trump after he left the White House. The agency referred the matter to the Justice Department in February 2022, which led to the search of Trump's Florida resort. The former president was indicted on federal charges last year. A judge dismissed the case this summer. The National Archives also retrieved classified documents from Biden last year after the president's lawyers notified the agency of



For new exhibits, National Archives officials ordered the removal of certain photos of Japanese-Americans incarcerated during World War II (2); civil rights leader Martin Luther King Jr. (3); Minnie Spotted-Wolf (4); and Betty Ford wearing an ERA pin (5). Officials proposed adding former President Reagan (1), with baseball player Cal Ripken Jr.

former staffer was told to look for success stories about white people, current and former employees said.

"To be successful, it is imperative that the National Archives welcomes—and feels welcoming to—all Americans," the agency said.

King to king

Shogan's aides offered several explanations for removing the photograph of Dr. King and adding one of Nixon clasping hands with Elvis. One was a reluctance to feature activists. Senior officials also raised concerns that visitors might not recognize King, and they said there were too many other people in the photo, current and former staff said.

The senior officials rejected alternative photos of King, the staffers said.

Plans for a gallery called "Your Archives in Action" included an example of how public records had been used to return assets to Jews after the Holocaust. Brachman told employees that he was Jewish, but the Holocaust story needed to go, former employees said. They interpreted the order as part of Shogan's efforts to focus on lighter moments in U.S. history.

A proposed exhibit exploring changes to the Constitution since 1787, which included amendments abolishing slavery and expanding the right to vote, was shrunk. Archives leaders told employees that focusing on the amendments portrayed the Founding Fathers in a negative light, by highlighting issues they had gotten wrong, according to current and former employees.

Shogan's team also asked that a video promoting National History Day remove a photo of former first lady Betty Ford wearing an Equal Rights Amendment pin, according to former employees.

The Archives said in its statement that Shogan was "working to ensure the agency tells a more complete story of American history," pointing to her decision to add the Emancipation Proclamation and the 19th Amendment, which granted women the right to vote, to the museum rotunda.

Shogan's changes have delayed the opening of new exhibits, initially set for next summer, and are expected to add at least \$332,000 to costs, documents show.

The agency is facing a budget shortfall, and there are fears of funding cuts ahead.

Archives employees say Shogan has gone out of her way to appease Republicans, including giving a two-week internship to the niece of Texas Republican Rep. Pete Sessions, an agency critic.

Shogan invited former first lady Melania Trump to speak last December at a naturalization ceremony at the Archives. Shogan for weeks resisted warnings from employees that she needed to give notice to the White House, especially since the event came shortly before the Iowa caucuses.

White House officials were surprised when Shogan finally told them, given the agency's legal entanglement with the former president.

At the naturalization ceremony, Shogan presented the former first lady with framed side-by-side copies of the conviction record of Susan B. Anthony—who was arrested for casting a ballot before women had the right to vote—as well as Trump's presidential pardon of Anthony. A spokeswoman for the former first lady didn't respond to a request for comment.

Shogan last week spoke at a closed-door event at the Archives called "Faith in America," hosted by Stand Together, a nonprofit group founded by libertarian billionaire Charles Koch. Shogan's husband, Rob Raffety, is Stand Together's internal communications director. He declined to comment. The event didn't appear on the Archives' public calendar.

Among the points Shogan addressed during her welcome remarks at the private gathering: the importance of using America's founding documents to teach and inspire.



2



CLOCKWISE FROM TOP: NATIONAL ARCHIVES; DOROTHEA LANGE/NATIONAL ARCHIVES; NATIONAL ARCHIVES/ALAMY/GETTY IMAGES

their discovery.

Shogan's first Senate confirmation hearing in September 2022 came roughly six weeks after the Mar-a-Lago search. Senators at the hearings raised Shogan's past social-media posts and a 2007 academic article she published, saying they revealed liberal leanings that disqualified her from stewardship of the country's most valued historical documents.

They warned they would be watching closely for signs that she was pulling the independent agency to the left.

"You're an extreme partisan and your record shows that," Sen. Josh Hawley (R., Mo.) said.

"I stand by my record of nonpartisan service," Shogan told them.

Harmful content

The National Archives, created by Congress in 1934, houses 13.5 billion pages of paper records, more than 33 billion electronic records and tens of millions of photos, maps and other items. The Declaration of

Independence, Constitution and Bill of Rights sit in the museum's rotunda.

Last year, the agency began what it described as a once-in-a-generation redesign of its permanent galleries and Discovery Center. Plans for the project began years before Shogan was sworn in.

Shogan had previously worked for the White House Historical Association. She has a doctorate in American politics from Yale University. Campaign-finance reports show she donated to the presidential campaigns of Hillary Clinton and Barack Obama.

Past archivists often spanned administrations of both parties. Shogan's predecessor, David Ferriero, was nominated by former President Obama in 2009 and served until retiring in 2022.

The Senate Homeland Security and Government Affairs Committee initially deadlocked on Shogan's nomination. But she later advanced to the full Senate, which confirmed her in May 2023. Hawley and most other Republicans voted against her.

Soon into her tenure, one complaint aired by Republicans during her confirmation hearings was answered. In 2021, the agency had put a banner atop its online catalog that warned about "potentially harmful content," a recommendation of a task force on racism convened by Shogan's predecessor. Archives records include documents with offensive, discriminatory or graphic language and images.

The banner annoyed Republicans, including Sen. James Lankford (R., Okla.), who accused the agency of trying to "cancel" America's founding documents.

Three months after Shogan stepped into the job, the banner was gone.

In the summer of 2023, during planning for an exhibit on coal communities featuring images by photographer Russell Lee from the 1940s, Brachman—Shogan's senior adviser—requested changes to the accompanying text. Instead of

saying that coal companies recruited workers from plantations, Brachman asked to identify the recruits as Southern farmworkers, according to former employees and documents.

Archives employees complained, and a compromise was struck. The coal workers would be identified as "Black sharecroppers from the American South."

Brachman also asked to cut references to the environmental hazards caused by the mining industry, according to the employees and documents. Brachman declined to comment.

Last fall, as employees began soliciting bids to build the exhibits for the renovation, Shogan told senior officials she wanted sweeping changes to the plans and that she wanted staff to make sure the exhibits weren't pushing a partisan agenda, according to former employees.

Senior archives leaders repeatedly told employees that museum exhibits needed to be relatable for the average visitor, including Iowa farmers. One

PERSONAL JOURNAL.

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THE WALL STREET JOURNAL.

Thursday, October 31, 2024 | A9


CARRY ON
DAWN
GILBERTSON

Passengers in Boarding Group 1 were filing onto American Airlines Flight 2721 to Dallas Friday when an ominous sound went off at Gate B11: dip-dip-dip-DOOP. The gate agent delivered the bad news. The passenger was in Group 4. She asked him to wait his turn.

The same sound—the last-gasp sound from AirPods running out of juice, or sad “Game Over” music for an old videogame—went off minutes later. Dip-dip-dip-DOOP.

“You’ll be boarding with Group 5, sir,” the agent said. Five more passengers were turned back before Group 2 was called.

American Airlines is cracking down on line jumpers. All major U.S. airlines do their best to maintain boarding order since priority boarding is a perk for frequent fliers, credit-card holders and big spenders, and it is often available for purchase. But American is the first to develop an automated system that instantly flags offenders.

The airline is experimenting at gates in Tucson, Albuquerque, N.M., and Washington, D.C., as part of a broader upgrade to American’s boarding technology. The airline has tested the alerts on more than 4,500 flights this month and will expand to several more cities this year, with an eye to taking it systemwide if no major issues, such as slower boarding, arise at larger airports. The airline says early feedback from fliers and gate agents has been encouraging.

The idea for automated policing grew out of complaints from travelers fed up with line jumpers and the employees who feel their wrath. In particular, top-tier frequent fliers gripe about too many passengers in the first boarding group, says Preston Peterson, American’s managing director of customer experience.

Group 1 is reserved for travelers in first class, certain business-class tickets and American’s executive platinum status. Active duty military members with military I.D. are also allowed. Groups 2 and 3 are similarly elite.

“They’ve earned that [priority] boarding group and they want access to it,” Peterson says.

The biggest perks, of course: plenty of overhead bin space and no worries about the dreaded threat of gate-checking your bag.

Clear difference

The new system promises smoother boarding for passengers and gate agents. I flew to Tucson International Airport to try it out. I put the airline’s traditional boarding to the test at my departure gate in Phoenix. Could I slither into an earlier boarding group? I was in Group 4 but breezed right through with Group 2.

Gate agents tell me it’s hard to monitor passengers’ group numbers manually, big plane or small,

American says it will test its system in more airports soon. Passengers waiting in Tucson.



Travelers Who Cut the Line Now Get Busted by American

Audible alerts at the gate flag the passengers trying to board earlier than they should



American is testing a system that calls out line jumpers, saying early feedback has been positive. Fliers in Tucson, Ariz., above and left.

Group 6 instead of Group 8 for a flight to Phoenix. They had done it on other American flights and others, in hopes of avoiding gate-checking their camera equipment.

His first thought when the dip-dip-dip-DOOP went off: “Wow, that doesn’t sound good.”

Vossen says it triggered the sounds losers hear on “Hollywood Squares” or “The Price is Right.” (American says the sound effects are generic videogame clips and still testing different sounds.)

He stepped out of line and laughed about getting caught. Vossen says he sees the change mainly as a way to get travelers to pay up for priority boarding. He’s unlikely to pay, but says he will probably finally sign up for American’s loyalty program. Members get complimentary Group 6 boarding regardless of status. That’s one group ahead of regular Main Cabin customers without status.

Peterson, the American customer-experience executive, believes most passengers aren’t out to game the system.

“I think most people just see a line and go, ‘Oh, we’re boarding,’ he says.

Toot toot

About one in 10 passengers on American’s test flights have boarded out of order, the airline says. Not all want to cheat the system. Some are travel companions of those with better boarding positions. American’s policy allows them to board together if they’re on the same reservation but didn’t

assign the same boarding group. (The alert still goes off, but the agent can easily override it.) And the airline says its system doesn’t flag pre-boarders, like those with wheelchairs.

Exceptions excluded, I counted as many as seven passengers on one flight boarding in the wrong group; on another, it was zero. That math no doubt changes at a busy hub like Chicago or Dallas. So does the potential for tension.

The passengers I saw seemed to take the ejection in stride, moving aside and waiting for their group. One even apologized to the gate agent.

The test is already having an impact beyond the walk of shame. Peterson says the airline has noticed some passengers jumping out of line after seeing fellow fliers turned away. He says he witnessed the same thing at a non-U.S. airline that began policing boarding groups.

Peterson’s ultimate goal: zero boarding group alerts. “I don’t want anyone to be dinged,” he says.

For now, passengers should expect a cacophony at American gates employing the new tech. Not all alerts will send you to the back of the line. Hear a slot-machine-like sound when you scan your boarding pass? You’re probably seated in an exit row.

Even if you get a wrong-boarding-group alert, it could be a mistake. A passenger in Group 8 was taken aback Friday when it sounded on her flight to Phoenix.

“That did not sound good at all,” she said to the flight attendant.

“You failed at ‘Pac-Man,’” the agent joked.

She was in the right place. The agent hadn’t yet flipped the switch in the app to her group.



United Makes Perks Harder to Unlock

BY ALISON SIDER

Earning elite status on United Airlines will cost passengers more next year.

United is increasing the amount of flying and spending required to unlock perks in its MileagePlus loyalty program as carriers look to limit such programs from being overwhelmed and potentially generate heftier profits from travelers.

Frequent fliers have long valued the benefits that airline programs provide to their most loyal customers, including earlier boarding, free checked bags, seat upgrades and more miles to redeem on flights. The programs, coupled with lucrative co-branded credit cards, have become

crucial to airline profits.

Many foreign carriers have rolled out credit-card offers and other deals recently to encourage Americans to sign up for their frequent-flier programs.

Airlines have tightened the requirements to qualify for status in recent years.

Resurgent post-pandemic travel demand has swelled the ranks of upper status tiers, crowding lounges and making it harder to secure upgrades into premium cabins.

There are two tracks to earning status in United’s MileagePlus. One is based on the number of flights taken in a year and the amount spent, either on airline tickets or on the airline’s co-branded credit card. The other is



Thresholds for reaching most of United’s status tiers will be 20% to 25% higher next year.

based only on spending. But unlike rivals American Airlines and Delta Air Lines, United continues to require fliers to take at least a handful of United flights to qualify.

Thresholds for reaching most of United’s status tiers will be 20% to 25% higher next year. For example, a traveler would have to spend

\$6,000 on United flights next year to reach the lowest status level in 2026, up from \$5,000 currently.

Making it harder to earn status is often controversial among loyal fliers who want perks to remain within reach but also become frustrated when there is too much competition to be able to use them.

Delta last year announced plans to overhaul its SkyMiles program to reward spending, but it quickly softened some of the changes after a sharp backlash from irate customers. The airline still raised the thresholds to earn elite status, but not as much as it had previously planned. And it made lounge-access limits less severe.

United last increased the requirements to earn status in MileagePlus in 2023.

United also announced that it will tweak its co-branded credit cards to award points more frequently. It will also start offering additional ways for its top-level fliers to redeem PlusPoints currency that they can currently use for upgrades, an added perk.

PERSONAL JOURNAL.

Small Towns Seek Halloween Tourists

Adults revelers take over the holiday from trick-or-treaters amid a desire for escapism and connectedness

By RACHEL WOLFE

Cities and towns across the U.S. with even a hint of spook are scrambling to cash in on a Halloween tourism boom.

While travel to the usual haunts like Salem, Mass., and New Orleans is surging, many lesser known locales are reporting record visitation as adult revelers take the holiday over from trick-or-treaters. Those visitors are pumping millions into local economies, and in some cases helping prop up businesses still recovering from the pandemic years.

In New York, Sleepy Hollow's tie to the Washington Irving short story about a headless horseman has always attracted a smattering of tourists in October. This year, for the village's 150th anniversary, Sleepy Hollow made a concerted effort to increase seasonal offerings and marketing. Foot traffic was up 29% between Oct. 1 and Oct. 19 over the same dates last year, according to geolocation estimates from analytics firm Datify.

"We may have done our jobs a little too well," jokes Lucia Ballas-Traynor, executive director of the local Chamber of Commerce.

Around 30,000 people—nearly triple the village's population—attended Sleepy Hollow's fall craft fair earlier this month, selling wares like plush black cats and witch-hat cupcakes. Tour buses have been arriving daily to check out the Gothic mansions and historic cemeteries. Business owners, in turn, say they are seeing their best-ever month of sales.

J.P. Doyle's Restaurant co-owner Brian Doyle says seatings that outpace last year's "by many multiples" have finally allowed the Sleepy Hollow business to recover from the pandemic.

Reagan Wish traveled from Dallas two weeks ago for her college roommate's witch-themed bachelorette party. Their seven-person "coven" originally planned to head to Salem, but they were deterred by the high prices and lack of hotel availability. The bride heard about the festivities in Sleepy Hollow from a colleague who visited last year.

"We were initially a little like, 'Sleepy Hollow? What are we going to do there?'" says Wish, a 25-year-old lawyer. "But it was a really great weekend."

The group estimates they collectively spent around \$5,000 between flights, meals, rooms at the Tarrytown House Estate, coordinated outfits with a "dark academia" vibe and

► Beekman Ale House in Sleepy Hollow is using extra Halloween revenue to expand its kitchen. In New Jersey, far right, Haddonfield Mayor Colleen Bianco Bezhich helped organize a night market with local businesses and vendors.



tchotchkes like a ceramic crow and do-it-yourself spell jars filled with herbs and charms.

Her experience tracks with the overall uptick in financial—and emotional—investment in the holiday. Consumers using the buy now, pay later platform Zip Co to split their online purchases into installments spent \$86.1 million

on Halloween costumes, travel and event tickets between Oct. 1 and Oct. 23, a 37% increase over the same period last year, the company says.

Financial analysts say this year's spending frenzy is tied to a desire for escapism and connectedness amid looming election and economic uncertainty. "It feels

emotional, it feels exciting, it feels immersive," says Michael Liersch, the head of advice and planning at Wells Fargo. "It creates an intentional distraction from the things that are going on around us that are out of our control."

And unlike Thanksgiving and Christmas, Liersch says, the holiday doesn't come with the obligation to visit extended family.

◀ Halloween trinkets on sale in Sleepy Hollow.



▲ Sales at J.P. Doyle's Restaurant in Sleepy Hollow, N.Y., are on track for a record high this October.

Internet search volume for Halloween travel is up 25% for the first 21 days of October compared with the same period last year, according to analytics firm Similarweb.

Visitors flew into Estes Park, Colo., from as far away as Asia this month for a horror-themed experience at the Stanley Hotel, where Stephen King was inspired to write "The Shining." The hotel sold out of \$100,000 worth of room packages in 84 minutes.

"The demand this year is just rabid," says John Cullen, who has owned the hotel for 29 years and attributes some of the surge to the 50th anniversary of King's stay there. Tour tickets, too, are up 25% from last October, Cullen says.

Tourism is the main economic driver in the Estes Valley, according to a town representative, and October brings some of the largest crowds. Cullen expects the Stanley to contribute even more to local

revenue in coming years as he finalizes his donation of the hotel to the state of Colorado.

North of Minneapolis, Anoka, Minn., has long called itself the "Halloween capital of the country."

"If I cut my finger I'm bleeding orange," says Pete Turok, president of the local Chamber of Commerce.

The town has hosted Halloween parades since 1920, but in more recent years, a larger share of the crowd has come from around the country.

Nearly 35,000 people attended the parade this past Saturday, according to the local police department's estimate, about double Anoka's population.

In Kentucky, the entire state is trying to grab a slice of the pie with a new tourism campaign, "Kentucky After Dark," that directs people to spooky

spots across 21 counties. Thousands of locals and out-of-towners have tried to catch sight of Bigfoot in Anderson County, goblins in Georgetown and a ghost trucker in Kentucky Lake since September, according to program manager Robbie Morgan.

The mayors of Haddonfield and Lambertville, both in New Jersey, have also prioritized Halloween as an economic driver post-Covid to help small businesses recover.

"It seemed natural and necessary," says Haddonfield Mayor Colleen Bianco Bezhich. She helped put on the town's third annual Halloween Night Market with crafts, henna tattoos and hair tinseling.

Traffic in Lambertville has been bad enough to cause five fender benders on a recent Saturday as visitors tried to peek at dozens of decorated houses along the historic main street. The central business district hosted a window-decorating competition this year, carrying the holiday enthusiasm into downtown. Transactions are up 17% so far this month at Union Coffee compared with last October, according to owner Carolyn Gadbois.

Salem, for its part, hasn't suffered from the spread of Halloween tourism.

The Massachusetts city's visitor count was up 6% between Sept. 15 and Oct. 22 compared with the same period last year, according to Mayor Dominick Pangallo, accounting for around half of the city's total annual visitors. In 2022, Salem's tourists powered \$150 million in spending plus \$31 million in payroll, supporting around 900 jobs.

He attributes the city's 99% storefront occupancy rate in large part to the big business of Halloween. "And we have the kinds of restaurants and shops that a city of our size ordinarily wouldn't."

SARA KONRAD FOR WSJ (4)

Bromance Blooms On 'Bachelorette'

Continued from Page One

surprising twist: The dudes were also obsessed with each other.

A 68-year-old contestant set the tone early on by doing cannonballs into the swimming pool at the mansion/clubhouse shared by the guys, who cheered for each plunge. Soon they were high-fiving each other for getting alone time with Joan and sharing their insecurities.

"It started from day one. We were in a safe space to be vulnerable," recalled Gary Livingston, a 65-year-old retiree from Palm Desert, Calif., who ripped his shirt open in a strip-tease challenge and was ushered off the show in episode four.

Interpersonal drama is the gasoline of reality TV. In the subcategory of dating shows, the romantic stakes heighten any pettiness, sharp elbows and betrayals among the contestants. But "The Golden Bachelor," which made its debut last year, struck a gentler chord among suitors that "The Golden Bachelorette" has continued. They've been canoodling with the bachelorette but also comparing notes on adult children, health problems and deceased spouses.

That has brought fresh perspective and even some life lessons to

the genre, said Nick Viall, who appeared on several young iterations of the "Bachelor" and now hosts a popular podcast that covers reality shows like they're sporting events. The "Golden" shows are "a little less spicy to break down," Viall said, "but no one's interested in senior citizens being petty."

Beyond the quirky and sometimes awkward courtship rituals of the American boomer, "The Golden Bachelorette" has offered a glimpse of something viewers weren't expecting: an exploration of aging men's loneliness and their private craving for platonic friendships.

After contestant Charles Ling's wife died six years ago, the loss was compounded by the gradual shrinking of his friend circle. He had retired from his career as a data analyst in the pharmaceutical industry, and contact with his Chinese community in Philadelphia waned in the pandemic. Ling found himself spending more time alone (reading, working out, watching YouTube) as he mourned his wife.

"I kind of kept my sadness to myself," said Ling, 66, in a recent video interview from his home office, where shelves of books also held a pair of cuddling panda dolls and other tchotchkies.

At his daughters' urging, Ling applied to be on the show. Not long after stepping out of a limousine to meet Joan in the first episode, he emerged as a fan favorite—an exuberant sweetheart who seemed equally happy to bond with the guys.

After winning a kickball match,

Ling sympathized with the men who injured themselves. When snoring and frequent bathroom trips disrupted the guys' sleep in their shared bunk rooms in the mansion, Ling and Livingston made a journey to buy sleep masks and earplugs for the group. And in emotional hangouts with his new buddies, he revealed that the show was helping him move on from his wife's death.

"We cried at the side of the swimming pool or while we walked," Ling recalled. "We tried to understand one another." He didn't feel torn between wanting to win Joan's love and rooting for his friends. "We hug people when we lose, we cheer those who continue to win," he said.

Moments after being eliminated, he testified to the camera that he'd found "a different form of love."

When "The Golden Bachelor"

came out, Christopher Kaufmann, a researcher at the University of Florida Institute on Aging, worried it would play up negative stereotypes about seniors. He voiced concerns in the Journal of the American Geriatrics Society in an article written with his wife, Kelly Kaufmann, an attorney and longtime "Bachelor" watcher. But they've been gratified to see how the contestants model what they call "successful aging."

Though most everyone deals with loneliness as they get old, Kaufmann cited a study suggesting that men tend not to label themselves that way. "Women are more likely to admit that they're lonely," Kaufmann said, which might help explain why the "Golden Bachelorette" guys have seemed so surprised by the intensity of their bonding.

Such clan camaraderie is more common among "Bachelor" participants than it might seem on TV, said Viall, the former contestant. They spend much more time with each other than the person they're wooing, and "all you're doing is talking about your feelings."

To producers on the flagship

"Bachelor" shows, however, young contestants making friends doesn't always make for good TV, Viall said.

The conflicts televised on "The Golden Bachelorette" have been comparatively low-key. There was one disagreement over grilling techniques. When Joan went on a group date to a bowling alley with five remaining guys, the men seemed surprised when one monopolized her time—a standard move on more intense dating shows.

Not every gesture went over well, like when a retired Navy captain urged the gang to serenade Joan with a song he'd composed. It started, "We are the mansion men..."

"We were like, no, not today," Livingston said. "It was very testy."

Policies prohibit the men from communicating with each other directly until after the show's finale airs in November, so there are no group text chains just yet. But Livingston said there's already been talk of trips for the former contestants.



▲ 'The Golden Bachelorette' features a gaggle of men, mostly in their 60s, vying for the affections of one 61-year-old woman, Joan Vassos.

When "The Golden Bachelor" came out, Christopher Kaufmann, a researcher at the University of Florida Institute on Aging, worried it would play up negative stereotypes about seniors. He voiced concerns in the Journal of the American Geriatrics Society in an article written with his wife, Kelly Kaufmann, an attorney and longtime "Bachelor" watcher. But they've been gratified to see how the contestants model what they call "successful aging."

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GILES MINGASSON/DISNEY



DAVID DOUBILET, MARINE PHOTOGRAPHER

ROLEX GLIDELOCK
EXTENSION SYSTEM

3235 MOVEMENT

WATERPROOF
OYSTER CASE

LOOK BEYOND

Be it above or below the surface, exploring the unknown is, by nature, unpredictable. To unveil its mysteries, two things are needed. A steadfast willingness to push one's limits always further. And a strong, unwavering ally to fuel your confidence. Over the past 70 years, we have constantly perfected the Submariner to make it the tool watch of reference for the pioneers of the marine world. Yet you need not swim 300 meters deep, or endure 30 bars of pressure, to field-test it. Diving into the unknown can be an exhilarating experience, in any circumstance. All it really takes is to look beyond the surface. **The Submariner.**

#Perpetual



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CULTURAL COMMENTARY

A Japanese Film's Eerie Depths

Director Masahiro Shinoda's 'Demon Pond' unsettlingly moves between natural and artificial realms



Tamasaburo Bando in 'Demon Pond,' above, and a scene from the 1979 movie, left.

otherwise, will really mistake him for a woman, but this picture requires suspension of disbelief in many respects—just wait till a series of marine creatures become anthropomorphized into characters some will liken to the work of Sid and Marty Krofft.

But that comes later, after Gakuen finds himself entranced by Yuri. Yet they are not alone; Yuri shares her house with a furtive, priest-like man who is eventually revealed to be—yes!—the long-lost Akira, a collector of folk-tales who fell in love with Yuri while hunting for the Demon Pond of the film's title. And that watery locale happens to be home to a dragon princess named Yuki, also played by Mr. Bando, in full kabuki mode.

The story is among the movie's least interesting elements—though beyond romance and mystery the plotline also embraces melodrama, horror, fantasy and disaster tropes. More compelling are the film's visual aspects, including

Masao Kosugi's and Noritaka Saka-

moto's lambent cinematography—the gauzy look of 1970s arthouse cinema, unmistakable—and Nobuo Yajima's meticulously crafted special effects.

So, too, the picture's score, by Isao Tomita, deserves mention. An early adopter of synthesizers, Tomita gained a worldwide following in the 1970s by adapting celebrated classical works from the likes of Mussorgsky and Debussy. Mr. Shinoda deploys those efforts here ("Prelude to the Afternoon of a Faun," "Night on Bald Mountain," etc.) to reinforce various moods, bucolic or ominous, as required.

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Mr. Mermelstein, the Journal's classical music critic, also writes on film.

CRITERION COLLECTION (2)

realm, where the ostensibly natural world isn't at all what it appears to be, and fable exerts as much force as fact. The most immediate manifestation of this change comes when Gakuen speaks with the young woman, Yuri. For she is portrayed by a male actor, in the traditional kabuki manner central to the play that inspired the film. Here, the

role is undertaken by Tamasaburo Bando, an internationally renowned master of the art who is known simply as Tamasaburo in Japan, the fifth such performer to bear this stage name.

"Demon Pond" was Mr. Bando's first film—he's appeared in only a handful since—and his inherently ambiguous performance fascinates. No viewers, Japanese or

phorical meaning from the windows. "A window holds a space . . . between interior and exterior, public and private, entrance and exit," a label says. "It lets light in and reveals darkness," serving as an opening "for prying eyes or eavesdropping ears" that detected "what observers thought were spirits and visions."

A loom used by Rebecca Putnam offers different provocations. We learn that its decorative carvings may relate to "folk magic practices for warding off evil" and "complicate the Putnam family's role as prominent accusers during the trials." Unstated is that the resort to counter-magic could itself be seen as a form of witchcraft.

George Jacobs Sr.'s oak walking stick is a direct link to testimony against him by accuser Mercy Lewis. Lewis, a servant of Thomas Putnam, swore that Jacobs "did torture me and beat me with a stick which he had in his hand." The stick also is pictured in PEM's 1855 Tompkins Harrison Matteson painting of Jacobs's trial.

"The Salem Witch Trials 1692"



Memorial for Bridget Bishop, executed as a suspected witch, above; sundial from 1644, right.

political uncertainties, conflicts with Native Americans and the French, a smallpox epidemic and extreme weather. The result was an inchoate atmosphere of anxiety and fear.

The witchcraft installation relies on both documents and rare surviving objects associated with players in the tragedy. PEM has the largest collection of such artifacts, including leaded windows, carved furniture, fragmentary prison walls, a loom, walking sticks and a 1644 sundial owned by John Proctor Sr. (the character fictionalized by Arthur Miller in his 1953 drama, "The Crucible").

Until recently, PEM also was the depository for more than 500 witchcraft-related documents, including warrants, court transcripts and petitions by the accused. On loan to the museum since 1980 and displayed in past exhibitions, the documents were digitized by PEM and returned to the Supreme Judicial Court of Massachusetts in 2023.

They are represented in the installation by enlarged (but still difficult to read) facsimiles, as well as printed transcripts and a few highlighted quotations. Mary Esty's September 1692 entreaty is among the



most heart-wrenching: "I petition . . . not for my own life, for I know I must die," she writes, but that "if it be possible no more innocent blood may be shed."

The power of the installation resides in its artifacts. But the cleverness of the storytelling is notable, too. Take that sundial, a beautiful object that also bears symbolic weight. "Owning a sundial served as a reminder of the brevity of life and the need to make the best use of time," we're told. The label notes that Proctor pleaded, in vain, "for a little respite of time, saying that he was not fit [ready] to die."

The curators also squeeze meta-

nates in a memorial wall and a list of restorative-justice actions in the centuries since. Efforts to repair the damage to victims have included formal exonerations, financial restitution, memorials and continuing historical attention. "More than 300 years later, the severe trauma of the Salem witch trials lingers," the museum argues—even if the town itself has mostly exchanged its dark history for a year-round Halloween.

The Salem Witch Trials 1692

Peabody Essex Museum

Ms. Klein is a cultural reporter and critic in Philadelphia.



EXHIBITION REVIEW

Under the Spell Of Mass Hysteria

BY JULIA M. KLEIN

Salem, Mass. Today's Salem is a strange place, at once alluring and off-putting. This former haunt of terrified, grudge-holding (and doomed) Puritans bursts with witch museums, statues, tours, workshops, gift shops, costumed visitors and more—what the locals call "witch kitsch."

Such is the context for the Peabody Essex Museum's restrained and scholarly installation, "The Salem Witch Trials 1692." "You can walk down Essex Street and get your witch hat and your wand," says Dan Lipcan, director of PEM's Phillips Library, who organized the show with PEM curator Paula B. Richter.

"But our focus is on the historical events, the injustice of what happened, how it affected people, and trying to connect visitors emotionally."

The PEM exhibition is supplemented by a 20-stop audio tour that includes artifacts in its other galleries, as well as attractions, both historical and kitschy, outside the museum. Especially powerful is the Salem Witch Trials Memorial, dedicated during the 1992 tercentenary. A rectangular park-like space, it is flanked by stone benches dedicated to the victims, on which visitors have left flowers and other tokens of regard.

The memorial is behind Charter Street Cemetery, which includes the grave of John Hathorne, a leading witchcraft inquisitor (and ancestor

of the writer Nathaniel Hawthorne). The placement, we're told, symbolizes townspeople turning their backs on the accused.

In a nod to tourist sensibilities, the audio tour also covers such sites as the 18th-century Ropes Mansion, a setting for the 1993 fantasy film "Hocus Pocus," and a bronze statue of the actress Elizabeth Montgomery as television witch Samantha Stephens from the 1964-72 sitcom "Bewitched."

Occupying a single triangular gallery, the PEM installation is relatively modest but smartly conceived. Using primary sources and color-coded panels (with the accusers' stories in blood-red), it highlights the red human underpinnings of the tragedy, accurately summarizes its complexities, and insists on the link between past and present.

The 1692-93 trials began with the afflictions and accusations of a few girls in Salem Village and spread like a contagion across the Massachusetts colony. They ended, as the installation suggests, with growing revulsion against the executions and judicial rejection of the use of "spectral evidence" to assess guilt. Twenty-five innocent people died in what the curators call "a definitive example of intolerance and injustice in American history."

The museum embraces a multi-pronged explanation of what now seems like mass hysteria. It cites tensions between rural Salem Village and mercantile Salem Town,

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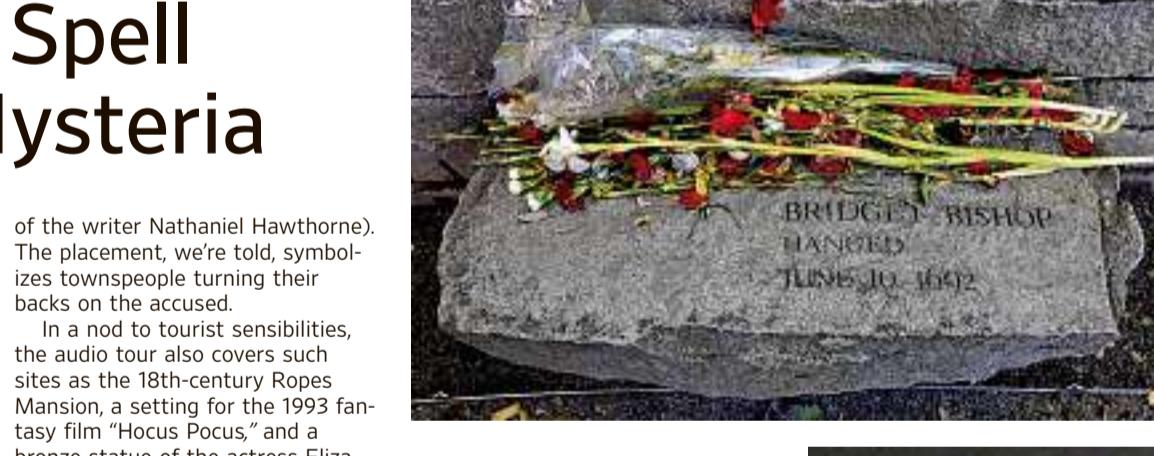
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SPORTS

By JARED DIAMOND

New York

Officially, the Los Angeles Dodgers had already won a championship this decade. It came in 2020, and it has always felt...a little hollow.

Because of the pandemic, the regular season four years ago lasted just 60 games. Health restrictions limited the attendance at the World Series, held at a neutral site, to barely 11,000 fans a night. The Dodgers never even held a parade.

Ever since, they have faced questions about the legitimacy of that victory—their only title amid more than a decade's worth of October disappointment.

But as they poured out of the third-base dugout to celebrate Wednesday, after one of the wildest Fall Classic contests in recent memory, the Dodgers put that debate to rest for good. They had won the World Series for the eighth time in franchise history with a 7-6 win, breezing past the mighty New York Yankees in just five games.

This World Series was billed as an epic battle between two of the titans of baseball, pitting Shohei Ohtani and Mookie Betts against Aaron Judge and Juan Soto in a matchup meant to revitalize the entire sport. The Yankees apparently missed that memo. Instead, the glitz and glamour of Hollywood extinguished the bright lights of Broadway, bringing the Dodgers to the mountaintop in a full season for the first time since 1988—no asterisks required this time.

It ended in dramatic fashion. The Yankees held a commanding 5-0 lead in the fifth inning Wednesday with their ace, Gerrit Cole, in complete control. A trip back to Southern California for an improbable Game 6 appeared to be in the offing.

Then the Yankees melted down, committing a flurry of defensive miscues that allowed the Dodgers



Mookie Betts, left, and Freddie Freeman celebrate during the Dodgers' 7-6 win in Game 5 of the World Series.

to tie the score. Judge dropped a fly ball. Shortstop Anthony Volpe made a throwing error. Most damning, Cole failed to cover the bag on a slow ground ball to first base on what would've been the final out of the frame—a mental mistake that will haunt a generation of Yankees fans forever.

Even after the Yankees re-claimed the lead in the sixth, the Dodgers roared back in the eighth, with the go-ahead run scoring on a sacrifice fly by Betts. Walker Buehler struck out Alex Verdugo for the final out, igniting a party in Los Angeles that was, in some ways, 36 years in the making.

"Hopefully we can just get rid of the whole short season thing, people not counting it, get that taste out of our mouth," Dodgers second baseman Gavin Lux said.

The players like Lux who are still around from that season like to say that they don't need to defend themselves, even as skepticism remains about the legacy of this generation of Dodgers baseball. They argue that their 2020 win looks the same as any other in the record books and that their performance over a long period serves as validation enough.

Just this week, presented with a question that referenced the

"weird" World Series, Buehler quickly interjected, "What was weird in 2020 to you?"

By many measures, the Dodgers have long been the premier franchise of the major leagues. They have reached the playoffs in 12 consecutive seasons, winning more games than anybody else over that span by a wide margin.

But despite all of their money and their star power and their utter dominance from April through September, the Dodgers have largely been expensive under-achievers when the stakes are highest. Dodgers owner Mark Walter, the chief executive of finan-

cial-services firm Guggenheim Partners, spent upward of \$2.5 billion in player payroll from 2013 through 2023, with just the one Covid championship to show for it.

Only in 2020 did the Dodgers navigate the playoff gauntlet, in a season that was hardly representative of the rigors that come with playing 162 games.

To win another title, the Dodgers had to evolve. Throughout the early part of his tenure as the club's president of baseball operations, Andrew Friedman hesitated to commit to expensive free agents, despite the vast resources at his disposal. He preferred to use his capital on the fringes of the roster.

As the early postseason exits piled up, Friedman gradually changed his approach. He traded for Betts before the 2020 season and then added Freddie Freeman before 2022, leaving the Dodgers with two former MVPs at the top of their lineup.

Then this past December, Friedman went all-in: He signed Ohtani, the best player on the planet, to a \$700 million contract. After slogging through six dismal seasons with the Los Angeles Angels without a single playoff berth, Ohtani chose the Dodgers because he thought they gave him the best chance to win.

His bet paid off. Ohtani's presence left the Dodgers with a team loaded with a three-headed

monster of superstars at the top and seemingly limitless depth through the bottom. Against the Yankees, Freeman was the hero by blasting four homers, including the first walk-off grand slam in World Series history in Game 1. His 12 RBIs tied a World Series record.

The Dodgers finished the season with a MLB-best record of 98-64, before having to reckon with their true nemesis: the postseason, where their aspirations have so often come to die. But this team was different. This one was too good to fail. Now the Dodgers have won another championship. And this time, they left no doubt.

ALEX SLUITZ/GETTY IMAGES

The WSJ Daily Crossword | Edited by Mike Shenk



CAST A SPELL | By Zhouqin Burnikel

Across

- 1 Tangy yogurt beverage
- 6 Temporary reprieve
- 10 Half a fl. oz.
- 14 Welcome at the door
- 15 Main, say
- 16 One next in line
- 17 What farmers view during harvest season?
- 19 Cellar dweller?
- 20 Equinox mo.
- 21 Roughly
- 22 Turf protectors
- 23 Agitated condition
- 25 Makes a Manet, say
- 26 Screen image designer?
- 30 — up (audible to viewers, like some athletes)

Down

- 32 False front
- 33 Spam sender, sometimes
- 36 Minimal but sufficient amount of medicine?
- 40 Kilmer of "Tombstone"
- 41 Upright
- 42 Pentagon figure
- 43 Checks of a reef's health?
- 46 Vape store sign
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61 Dealer's demand **62** Caine's "Deathtrap" co-star **63** Brooding bunch **64** Lose sleep **65** iPods after minis

11 Entity **12** Burn at the edges **13** Media coverage **18** Small singer with a big voice **22** "Check it out!"

47 Go paperless in April, say **48** Board game with hexagonal tiles **50** Artillery discharge **52** Place with cookies **53** Skeleton

55 They might be marbled **57** Contains **58** Mutant creature in "Them!"

24 "If You Want Blood" band **25** Easy mark, in poker slang **27** Where Athenians assembled **28** Out in the sticks **29** Spine feature

30 "The Challenge" network **31** Tax-deferred plan, in brief **33** Explode **34** It's extracted from veins **35** Chai or matcha

37 University located next to the CDC **38** Escape maker **39** Rotating engine parts **43** Some Mozart pieces **44** Dec. celebration

45 Reddish-brown color **46** Halloween figure who cast a spell on this puzzle **47** Go paperless in April, say **48** Board game with hexagonal tiles **50** Artillery discharge

52 Place with cookies **53** Skeleton **55** They might be marbled **57** Contains **58** Mutant creature in "Them!"

59 Veggie that rolls off the plate

Previous Puzzle's Solution



Solve this puzzle online and discuss it at [WSJ.com/Puzzles](#).

The 76ers' Stars Aren't Playing. The NBA Is Punishing Them.

BY ROBERT O'CONNELL

WHEN THE NBA SEASON started last week, the Philadelphia 76ers had the makings of a squad that could deliver the team's first championship since 1983.

Their roster featured a recent league MVP in Joel Embiid and the cast around him had been fortified by a superstar free-agent signing in Paul George. Everywhere they looked, the Sixers had size, speed and skill.

Everywhere except on the court, that is. One week into the season, the Sixers' stars have yet to play a single second. Worse still, their absence has been so glaring that it has drawn the interest of the league office.

This week, the NBA fined the franchise \$100,000 for violating its Player Participation Policy, an initiative aimed at keeping big-name players on the court.

It's just the latest tension point between the incentives of the league—to make its stars available to paying

fans and TV rights-holders—and those of individual teams, who want to preserve their stars for the games that matter most.

For the 76ers, the trouble started before

the season, when Philadelphia president Daryl Morey told ESPN that he planned to hold Embiid and George out of "back to backs," the league's term for two games in two nights. Then, as the season got under way, Sixers coach Nick Nurse gave what the league deemed an overly rosy prognosis on Embiid's lingering injury to his left

knee, saying that the 7-foot center would be ready "soon."

Nurse's comments, the NBA said after conducting an investigation into Embiid's ongoing absence, were "were inconsistent with Joel Embiid's health status."

The question of when a player should play—and how proactive a team should be in managing lingering ailments—is where the NBA's competing interests as a competitive enterprise and a business come

most clearly

into conflict. Embiid and George are both players in their 30s who have spent substantial time on injury reports. Embiid also spent the summer playing for Team USA in the Olympics, forgoing rest for high-grade competition.

Such players might seem like ideal candidates for individualized scheduling, sav-

ing their bodies for the spring and summer when the Sixers hope to be in the mix for a championship. But the NBA is keenly aware that paying customers in October and November will be grouchy to see backups playing in their place. That's why, before last season, it introduced the Player Participation Policy as a response to the increasingly common "load management" strategies.

"This is ultimately about the fans," NBA commissioner Adam Silver said.

Right now, Philadelphia fans could be forgiven for being a bit grumpy. The Sixers sit at 1-2, are at odds with the league and have yet to see their two most accomplished players score a basket. But the bet—one that the Sixers seem willing to pay for, in the form of fine dollars and investigations—is that the play will pay off in the playoffs.

So when Nurse was asked again about Embiid's health on Tuesday, he took a more prudent tack. "I'm not going to answer," he said.



The Sixers' Big Three of Tyrese Maxey, left, Joel Embiid, center, and Paul George, right, have yet to play together this season.

\$100K

The amount the NBA fined the 76ers for violating its Player Participation Policy

TIMOTHY A. CLARY/AGENCE FRANCE PRESSE/GETTY IMAGES

OPINION

He's a 'Fascist.' She's 'Stupid.'

WONDER LAND
By Daniel Henninger

Both sides have thousands of lawyers on call to litigate any narrow election margin. It has become conventional wisdom to say the nation's institutions can survive this maelstrom. Likely that's true, but the course of this election is cause to wonder. By its end, the 2024 campaign has become a wholly negative event, devoid of substance, descending into nonstop ad-hominem attacks, or garbage.

Donald Trump is a fascist, a Hitler admirer, a dictator from day one. Kamala Harris, by Mr. Trump's description in North Carolina last week, is a "stupid person." He added: "Does she drink? Is she on drugs?"

An election that descended to the bottom of the barrel is almost over.

The one institution that should feel insulted by this bottom-of-the-barrel campaign is the American voter, with those supporting Mr. Trump a case study in mass political derision.

Political commentators and others mistakenly conclude that because they think Donald Trump is a fascist, everyone else obviously should. There is an implicit assumption in this belief that the presidential election itself is uninteresting, other than as a confirmation of elite biases about one person.



Presidential candidates Donald Trump and Kamala Harris.



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This compulsion to hyper-personalize our politics is more interesting on the Trump side of the equation because the media has chosen to equate the entirety of the Republican Party and conservatism with Donald Trump. In 2020, some 74 million people voted for Mr. Trump. About as many will again. That's millions of Americans. Are these people all potential fascism adopters? Some substantial numbers may think Mr. Trump is a character-challenged jerk, but so many millions don't vote for a presidential candidate solely on personality but after a complex calculation of how a candidate will help or harm their own interests and beliefs. Indeed, the complexity of that voter decision, across all demographics, is why opinion polling has become so challenging.

As interesting in the attempt to divine who's going to win this mess of an election are events already forgotten. The Republican nominee, after all, emerged from competitive primaries. By the end, former South Carolina Gov. Nikki Haley held about 20% of the GOP vote, with many of her supporters saying they wouldn't vote for Mr. Trump. Will they in fact leave the presidential line blank? Also forgotten but impossi-

ble to take off the election table is the reality of Ms. Harris's ascendancy. The only reason she's the Democratic candidate is that the Biden family and his White House aides irresponsibly let him hang on to the presidential nomination until mid-July rather than allow the party to conduct a succession earlier. If the President Biden on view now was indeed the candidate, there'd be no statistical margin of error in Mr. Trump's lead.

The party defaulted to Ms. Harris, who is benefiting from the country's 50/50 polarization and Mr. Trump's revelry in an anti-politic personality. The moment I started thinking Ms. Harris wasn't going to win was last week during former President Barack Obama's speech, before her appearance in Georgia.

It was vintage Obama on the stump—droppin' all his g's and using pauses to perfect effect. It was a totally partisan stem-winder by a charismatic pol. Then came Ms. Harris, whose OK turn onstage forced the conclusion that she just doesn't have the special magic needed to be a successful presidential candidate. Jimmy Carter had it, or he wouldn't have won. Ms. Harris has a significant enthusiasm gap. Thus the campaign's need to com-

pensate with a parade of celebrities—Bruce Springsteen, Lizzo, Usher, Tyler Perry, Julia Roberts, Oprah, Spike Lee, Michelle Obama, even Beyoncé.

Right behind "I can't wait until it's over," the election's most memorable catch phrase is "One of them has to lose." I think that one is going to be Ms. Harris. The main reason will be substantive and as predicted from day one—the economy. Household prices went high in 2021, and many have stayed high. For an incumbency that's fatal, as it was for President Carter.

Still, a caveat. The phenomenon known as Trump derangement syndrome is real, but it may have a successor: Trump exhaustion syndrome. If so, he loses.

Regardless of the winner, this election has produced an emerging political reality: The country is moving to the right, or at least center-right, and is likely to stay there. I don't believe this drift is directly attributable to Mr. Trump himself. He rode it, but didn't cause a tectonic shift in America's politics. The highly politicized idea of "wokeness" is in broad decline, a victim of its own unreflective overreaching and intolerance on questions of equity, gender and climate. The U.S. has had enough of its endless "demands."

This reversal has many moments, but recall one: After antisemitic eruptions last year at U.S. campuses, three university presidents testified before Congress. It was a time for decisive action, an assertion of leadership. Instead the three said famously that anti-Jewish activity is "context-dependent." Two lost their jobs.

Every time she speaks, Ms. Harris sounds like a university president. She's context-dependent. Expect the same result.

Write henninger@wsj.com.

OPINION

REVIEW & OUTLOOK

Harris Would Be a Fourth Obama Term

Editor's note: The Wall Street Journal hasn't endorsed a presidential candidate since 1928. Our tradition is to sum up the candidacies of the major party candidates in separate editorials. We'll start with Kamala Harris.

You have to admire Democrats for their audacity. They claimed for more than a year that the clearly declining Joe Biden was mentally fit enough to serve another four years. When the June debate made that untenable, they did a 180-degree turn and anointed his Vice President as their nominee while claiming, without so much as a nod of embarrassment, that she somehow represents "a new way forward."

Republicans could never pull off that one. And in the end neither has Ms. Harris, if you take her at her word. Asked on "The View" on Oct. 8 what she might do differently from the last four years, Mr. Biden's loyal number two said, "There is not a thing that comes to mind." That was the truest line spoken in what has been a notably dishonest and dispiriting election campaign on both sides.

Ms. Harris has presented herself as new based largely on her biography. But as far as policies and coalition go, she represents more of the same, and not merely of the last four years. Her candidacy is best understood as an attempt to continue the progressive political wave that began in 2006 with the GOP defeat in Congress and rolled ashore as a tsunami amid the financial panic of 2008. She is running for what essentially would be Barack Obama's fourth progressive term.

* * *

This doesn't mean she lacks political appeal. She has run a capable enough campaign on short notice, and she routed Donald Trump in their lone debate. If elected, she would bring more energy to the Presidency than Mr. Biden. She also sounds optimistic, even patriotic, notes about America.

But we have been searching in vain for signs that she would break from, or even temper, the progressive excess that defines the current Democratic Party. Her endorsement by anti-Trump Republicans isn't that sign because it's based solely on loathing for Mr. Trump. A token GOP appointment to her cabinet would mean little unless it's a major post.

On domestic policy, she is offering more Bidenomics without the label. She wants to expand the entitlement state beyond even what Mr. Biden has—for elder and child care, housing, a larger Affordable Care Act, and more. Her proposed tax increases are nearly as extensive as Mr. Biden's, running past \$4 trillion over 10 years. She shows every sign of wanting to ex-

pand and accelerate the climate corporate welfare and mandates that distort investment at enormous taxpayer cost but no benefit to global temperatures.

This might be tolerable if Ms. Harris showed evidence on foreign affairs that she understands the world's current dangerous moment. Yet she defends the last four years as a security success, despite two wars, adversaries on the march, and the U.S. Navy playing whack-a-mole in the Red Sea.

She talks about having a strong military but has failed to propose anything to rebuild it as threats proliferate. If she nurtures an inner Harry Truman that would explain to the public the need for better defenses, we haven't seen the evidence. If she does win, Vladimir Putin and Xi Jinping will quickly test her mettle. She seems unprepared for those tests.

All of this reflects the progressive advisers and the coalition she'd bring to the Oval Office. We wrote last week about her climate adviser's desire to eliminate all fossil fuels, and her foreign policy aides are on board for appeasing Iran and putting restraints on Israel.

There are no Scoop Jacksons or Joe Liebermans in today's Democratic Party. Ms. Harris would have to reach out to GOP hawks the way FDR made Republicans Henry Stimson and Frank Knox his Secretary of War and the Navy, respectively, in 1940. She has shown no such historical memory or the political courage to do it.

A Harris Presidency with a GOP Senate would check some of her worst policy instincts, at least until 2026 when the Senate map favors Democrats. But most Democrats would read her victory as a political vindication of the last four years. The Sanders-Warren wing of the party would pressure her for more.

The worst result would be a Harris victory with a Democratic sweep of Congress. Then it's Kamala bar the door. She is on record as wanting to break the 60-vote Senate filibuster rule and to restructure the Supreme Court. This would make for an unbridled progressive agenda that would rig voting rules, augment union power, control more of the private economy, and add D.C. and Puerto Rico as states.

* * *

Many Americans see all this and will still vote for Ms. Harris because they think four more years of Mr. Trump is a bigger risk. We have no illusions about Mr. Trump's flaws and the risk they pose. But voters also have cause to fear the bloody-mindedness of the modern left, with its regulatory coercion, cultural imperialism, economic statism, and desire to strip judicial independence. If Ms. Harris loses, this will be the reason.

The Message of 2.8% GDP Growth

The U.S. economy is a remarkable growth machine, and the latest evidence is Wednesday's Commerce Department report showing GDP grew at a solid 2.8% during the third quarter.

It's both good and bad news that consumers and defense spending drove most of the third-quarter growth. Consumer spending contributed 2.46 percentage points to GDP while defense added 0.51. Defense investment declined in 2021 and 2022, so the recent boost is especially welcome in an increasingly dangerous world. Consumers remain in the saddle despite higher interest rates and inflation that have eroded wage gains. Rising asset values seems to be buoying spending by higher earners.

The big disappointment was business investment, which chipped in only 0.46 points to growth. (Housing and net exports subtracted.) Most of that came from equipment. Spending on research and development has been flat in the past two quarters. R&D is usually what businesses cut first to pare costs.

One culprit could be a decline in R&D by pharmaceutical companies. We reported in the summer that the Inflation Reduction Act's drug-price controls were causing enormous industry

uncertainty and reductions to R&D. Uncertainty related to the election could also be causing some businesses to hold off investment.

Donald Trump's threat of 10% across-the-board tariffs could require businesses to adjust supply chains. On the other hand, businesses will see their taxes increase if Kamala Harris wins. She wants to raise the corporate tax rate to 28% from 21%, impose a new global minimum tax, and increase the IRA's corporate book tax to 21% from 15%.

It's a testament to the U.S. economy's resilience that it continues to chug along despite the Biden Administration's regulatory burdens and higher interest rates. Artificial intelligence and other innovations have lifted investment, and the U.S. remains a more attractive place to invest than nearly anywhere else in the world.

But it's also true that monetary conditions aren't all that tight judging by the surge in prices for Bitcoin, commodities and equities, as well as shrinking junk-bond spreads. Life has been good if you own assets, but much less so if you rely on shrinking real wages to pay for groceries and gas. Americans still need the Federal Reserve to reduce and contain inflation.

Trump Keeps Haley on the Sidelines

Most campaigns, a week from Election Day, are scrambling to enlist every possible ally who could help to change minds or exhort voters to the polls. So how to explain what Nikki Haley said Tuesday? She told Fox News that fellow Republican Donald Trump hasn't spoken to her since June, even as she has offered to campaign on his behalf.

"They're very aware that we're on standby," Ms. Haley said. "I've helped with some fundraising letters and text messages and those types of things, so we've done that. But look, we're on the same team. It is their campaign's decision on what he needs in these last final days." The Associated Press says Ms. Haley has gone as far as offering Mr. Trump's campaign "a list of dates on which she would be available to help him, but no appearances have been scheduled."

Strange, and not smart. Kamala Harris is making concerted efforts to win the White House by increasing her support among independents, suburbanites, women—all groups that might be receptive to Ms. Haley. Democrats are elevating Liz Cheney to tell "double haters" that Ms. Harris is the better choice and Mr. Trump is unfit. Ms.

She wants to help, but the campaign wants to focus on the 'bro' vote.

she went on to win about 18% of the primary vote in Arizona on March 19, then 13% in Wisconsin on April 2, and then 17% in Pennsylvania on April 23.

Ms. Haley isn't a sycophant, and she recently critiqued Mr. Trump's rally at Madison Square Garden. "This bromance and this masculinity stuff," she said, "it borders on edgy to the point that it's going to make women uncomfortable." That's probably right. And that willingness to stand up to Mr. Trump makes Ms. Haley more credible when she hammers inflation, the border, and Ms. Harris's plans to end the filibuster and remake the Supreme Court.

Maybe Mr. Trump is still sore that Ms. Haley ran against him. That will turn out to be a mistake if Mr. Trump loses because of a surge for Ms. Harris among women in the suburbs.

That could be an effective line in the suburbs. Although Mr. Trump soundly beat Ms. Haley in the 2024 GOP primaries, the stickiness of her support was notable. On March 6, Ms. Haley quit the race. Yet

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OPINION

America Can't Do Without Fracking

By Daniel Yergin

This year's presidential race features an oddity: a discussion about a ban on fracking. What's striking is that such a conversation is happening at all. This talk takes participants through the Wayback Machine to the first two decades of this century, when hydraulic fracturing and horizontal drilling—together known as fracking—came to public attention. The U.S. was then the world's largest importer of oil. Today it is energy-independent with, S&P Global estimates, more than 70% of its oil and more than 80% of its natural gas produced through fracking. The process has become essential to the nation's energy supply and can't be eliminated.

Not long ago the prospect of U.S. energy independence seemed fanciful. For more than four decades every president aspired to it, but their goal seemed unattainable. Many observers considered the U.S. destined

Shale is crucial to the U.S. economy, and it allows Washington to buttress our allies across the globe.

to grow more dependent on imports. In recent years, however, America has achieved energy independence on a net basis. U.S. output is closing in on 13.5 million barrels of crude oil a day, exceeding that of perennial big producers Saudi Arabia and Russia by several million barrels per day. Add what are called natural-gas



liquids, and the U.S. produces around 20 million barrels per day.

Textbooks used to hold that commercial production of shale was impossible. Innovation and investment over decades have proved otherwise. Yet despite this progress, many continue to underestimate how transformative shale oil has been for the U.S. economy and the American way of life.

Consider a concrete example. My firm estimates that battery-powered and plug-in hybrid electric vehicles will account for about 2% of the U.S. on-road light-vehicle fleet in 2024. If fracking were banned, the U.S. would need to import extraordinary amounts of oil to fuel our gasoline- and diesel-powered cars. In 2008, before shale-oil production began in earnest, the net bill for importing petroleum was \$388 billion—more than 40% of the total merchandise trade deficit. Today the same bill, by

contrast, is virtually nothing.

There would be other costs to a phase-out of fracking. If the U.S. were to start importing again, the price of oil would doubtless rise, as we would be forced to compete for supplies with countries such as China, which is estimated to import more than 70% of its petroleum. The U.S. also exports a large amount of liquefied natural gas, mostly produced from shale. Without it, LNG's positive effect on the trade balance would disappear too.

The economic effect is clear amid geopolitical turmoil. In previous decades, such upheavals as Ukraine's war against Russia and Israel's war with Iranian proxies would have spiked global prices. In recent years the scale of U.S. production has helped offset any such surges. This stabilizing effect would become even more crucial if an expanding Mid-east war targeted major regional oil

facilities, threatening to drive prices up further still.

Shale influences more than America's prices or balances of payments; it also enhances our geopolitical strength. One of Vladimir Putin's several miscalculations in invading Ukraine was that he could use energy to shatter the European coalition supporting Kyiv. His strategy failed because large supplies of LNG—bolstered by increased exports from Norway—compensated for the loss of Russian gas. Nearly half of the European Union's LNG supply in 2023 consisted of U.S.-sourced LNG, mostly processed from shale gas, making the U.S. its largest supplier. Were that supply to be constrained, our allies' security would be severely compromised and a significant feature of the North Atlantic Treaty Organization's arsenal eliminated.

The same dynamic applies for U.S. allies in the Pacific. Japan and South Korea have come to rely on U.S. energy exports, which have proved essential for diversifying their supply and strengthening their security. Losing that contribution would make them more vulnerable, reduce their confidence in the reliability of the U.S., and likely push them toward importing from Russia.

A ban on fracking would be both misguided and destructive for the U.S. and its allies. Recurrent out-of-touch debates on the topic need to be tabled in light of a central fact: Shale has become crucial to the U.S. economy and global energy security. It's here to stay.

Mr. Yergin, vice chairman of S&P Global, is author of "The New Map: Energy, Climate and the Clash of Nations."

Older Whites Are Ditching Harris

By Mene Ukueberuwa

The most decisive voter bloc this year is the most overlooked. Kamala Harris has spent the final weeks of the race chasing black, Hispanic and young voters, convinced that her struggles with them explain why she's trailing. Yet if Donald Trump holds his lead, it will be because older white voters gave Ms. Harris a chance but decided in the end to back the former president.

The late swing among older and white voters jumps out in the Emerson College poll. On Aug. 15, less than a month after she became the Democratic nominee, Ms. Harris trailed Mr. Trump by 12 points among white voters and was tied with him among all voters 60 or older. Since then, these voters have fled from Ms. Harris. By Oct. 26, Mr. Trump led by 22 points among whites and 8 points among seniors.

She started strong with this usually Republican voting bloc. But they're switching back to Trump.

Meanwhile, Mr. Trump's support among blacks and Hispanics was flat, and his share of voters 18 to 29 rose by only 7 points. Yet he surpassed Ms. Harris for the first time in overall support during the same period, and now leads by 48.9% to 48.8%. In other words, older and white voters contributed much more to Mr. Trump's recent rise than their younger and nonwhite peers.

What about all those headlines touting a shift among minorities and youngsters: "Why Democrats Are Struggling More With the Latino Vote," "Male voters under 30 voting MAGA in 2024," and so on?

That shift is real, but it has played out much more over the past eight years than the past few months. Compared with his 2016 and 2020 campaigns, Mr. Trump is drawing more support from groups that tend to lean Democratic, especially black and Hispanic men, and young white men too. Yet since Ms. Harris entered the race in July, most of Mr. Trump's new support has come from older and white voters.

Progressive elites, who sniff racism and sexism around every corner, are wondering whether older whites have abandoned Ms. Harris because they can't abide a black female president. A New York Times article last week mused about the trend. "Some Democrats fear that a segment of voters may be uncomfortable supporting Ms. Harris because of her gender or race, despite what those voters may profess to pollsters."

In other words, progressives think some voters can't be taken at their word when they criticize Ms. Harris on immigration, the economy and so on, because their critiques are only a smoke screen for their old-fashioned biases. With this theory, Democrats are preparing to blame a Harris loss on bigotry.

But prejudice can't explain older whites' recent flight from Ms. Harris, since she was already a black woman in August, when many more of them supported her. In fact, it's likely that Ms. Harris's race and sex were among the only things many voters knew about her at the start of her candidacy other than that she was vice president, and perhaps that she's from California. Nonetheless, she initially held more support from older and white voters than President Biden did in the last polls before he left the race.

A better explanation is that many older whites originally welcomed Ms. Harris as an alternative to both Mr. Biden and Mr. Trump, then changed their minds once they got to know her better. That may have to do with the issues more than her image.

Daniel Cox, who studies public opinion at the American Enterprise Institute, believes that Ms. Harris's progressive views have damaged her standing among seniors more than other voter groups. "When you embrace things like judicial reform, or defunding the police and relocating funds to social service agencies, we see much higher rates of opposition from the oldest voters." The same goes for immigration, which is one of the few top issues on which voters give Ms. Harris lower marks than Mr. Biden.

Losing older whites is politically painful, since they tend to turn out at a high rate. They're also overrepresented in key states like Wisconsin and Michigan. Expect the press to hold its focus on young and minority voters all the way through Election Day. This year more than ever, that might miss the biggest story.

Mr. Ukueberuwa is a member of the Journal's editorial board.

Harris Easily Beats Trump on Economic Policy

By Alan S. Blinder

With the election looking like a coin toss, I continue to marvel at the edge Donald Trump has maintained over Kamala Harris on the economy. While it's true that 2017-19 were good years, it's hard to attribute that success to anything Mr. Trump did as president. Mostly, the good times from the late Obama period just kept rolling—until the pandemic struck.

But memories are short. And since past is prologue, let's try to remember what some of Mr. Trump's economic policies actually are:

He is again promising to build a wall. This time it will be a wall of high tariffs that keeps Chinese goods out and makes other imports more expensive. If you want to know how such a policy is likely to work out, google "Smoot-Hawley."

Do you remember Mr. Trump's declaring that "trade wars are good and easy to win"? Do you remember his labeling Canada a threat to our national security? Do you remember that China and other nations retaliated against American goods dollar-for-dollar? Mr. Trump apparently doesn't.

Rather, he calls "tariffs" a beautiful word and seems to think their revenue-raising potential is boundless. Has anyone told him that by reducing import volumes, tariffs also reduce the revenue collected? And if a tariff is truly prohibitive, it collects no revenue at all? In either case, tariffs push prices in the U.S. up. That is, they are inflationary.

If you really want to design an inflationary policy, you can augment the tariff wall by creating labor shortages. We know that Mr. Trump is virulently anti-immigrant and promises mass deportations. Try to imagine the chaos that rounding up 11 million people would cause, including in labor markets, for which immigrants have been one of the keys to our recent success.

Last but not least on the inflation front, there is the Federal Reserve. Mr. Trump berated the central bank incessantly while president, even threatening to fire Chairman Jerome Powell, which he couldn't do. Early in his term, Mr. Trump took advice from some reasonable people and made some good appointments to the Fed. Later, not so much. If there is a second Trump term, it is frightening to think about how he might

try to politicize the central bank.

Then there is healthcare. Mr. Trump wants us to believe that, as president, he saved ObamaCare. Really? In fact, he tried to destroy it multiple times. Only the brave Sen. John McCain, gravely ill, foiled him in 2017. Try to remember that dramatic scene in the well of the Senate when you appraise Mr. Trump's "promise" to hold Medicare and Medicaid harmless.

His record in the first term is much worse than people remember, and another four years would be worse.

Finally, think about climate change, the one existential threat on the economic side. It isn't a Chinese hoax, and you don't mitigate the impending crisis by ignoring it or by tossing paper towels to hurricane-ravaged Puerto Ricans.

Elections are about choices, and the prospective economic policies of

a Harris administration are all starkly different.

Ms. Harris is hardly an apostle of free trade. But she is far less protectionist, and therefore far less inflationist, than Mr. Trump. And I'm pretty sure she won't pretend Canada threatens our national security. Score a point for Ms. Harris. On immigration, she supports the "compromise" bill that Mr. Trump had killed in Congress. The bill wasn't really a compromise at all. Rather, it was a near-total capitulation to the longstanding Republican wish list by congressional Democrats desperate to get something passed. The bill was tough on immigration without turning the U.S. government into a kidnapping ring, as Mr. Trump did while president.

The Fed hasn't been a major issue in this campaign, thank heaven. But we can be pretty sure that a President Harris, like Presidents Biden, Obama, Bush and Clinton before her, would leave monetary policy to the independent central bank rather than bully the Fed from the White House.

On healthcare, Ms. Harris really does want to strengthen ObamaCare

ways, is about making America great again. He pledges to restore the nation's economic health and civic pride. His vision involves running off the progressive menace, purging the deep state, and inoculating society against wokeism. That means tariffs and border walls to protect Americans from destructive external forces.

The Chinese are coming. Opioids will take your children. His social-media accounts remind supporters how many days remain "to save America."

Both sides warn of an apocalypse if they lose. But there's plenty of life left in Lady Liberty.

Both sides are treating this election as a potential apocalypse. Everything is on the line. The party is over for good if the wrong party wins. But is it? Is the American experiment really so close to the edge?

Not from where I'm sitting. If you zoom out—and I mean way out—things are going pretty well in the land of the free and the home of the brave. We are on the cusp of our 250th birthday. We still have our republican form of government, our Constitution and Bill of Rights, despite some close calls. Roughly 2% of the population lost their lives in the Civil War—the equivalent of 6.5 million people today. In the 20th century we made it through two world wars, a great depression, the assassination of two presidents and the resignation of another, the trauma of Vietnam and the fall of communism. Even after all that we stood tall as the world's sole superpower.

Sept. 11, 2001, didn't kill us. Neither did the housing collapse nor the financial crisis. We beat Covid. We even survived the ugly Trump admin-

istration and its uglier backlash.

The U.S. boasts an innovative and resilient economy that is the envy of the world. We live longer and better than our grandparents did. Our universities and companies are magnets for global talent. We invented the telephone, the airplane, the automobile, and the internet. We've given the world jazz, rock 'n' roll and hip-hop. We have Hollywood and Silicon Valley. Wall Street is still top dog. The dollar is the world's reserve currency and U.S. Treasurys are the world's safest investment.

Face it: This country is far from average. It'd be hard for one person or one election to ruin it. For that matter, it'd take more than one to save it. Something about how our Founders went about their work has set us up for centuries of success, and the end isn't remotely in sight. There's life left in Lady Liberty, plenty of it. The United States of America is still the last best hope on earth.

All the evidence you need is piling up at the southern border. People from everywhere risk everything to get here—to work, to raise their children, to make a future. China doesn't have this problem.

If you're a candidate for high office, there may be some political value in running around with your hair on fire, shouting like a street preacher about the end of democracy and the loss of the country. The stakes are highest during the waning days of a losing campaign. But don't fall for it. The pendulum always swings. All is never lost.

Whatever happens in the weeks and months ahead, don't get carried away and don't despair. Take, if you can, the long view. Winter is coming, but spring is always around the corner.

Mr. Hennessey is the Journal's deputy editorial features editor.

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WORLD NEWS

U.K. Budget Bets Big on Taxes, Borrowing

Labour government reverses course after years of Tories' smaller-state moves

By MAX COLCHESTER AND PAUL HANNON

LONDON—Britain's new Labour government presented its plan to jolt the U.K. out of years of moribund growth: more taxes and a bigger state.

Standing in Parliament, Chancellor of the Exchequer Rachel Reeves on Wednesday said her government will raise taxes by 40 billion pounds, equivalent to around \$51.9 billion, one of the biggest tax increases in a generation, and borrow billions in coming years to invest in the country's infrastructure.

Labour is betting that an injection of state funds can end a decade of low growth by kick-starting business investment while extra tax receipts are used to patch up Britain's public services.

"The only way to drive economic growth is to invest, invest, invest," she said, pledging to increase capital investment by £100 billion over the next five years.

The announcement marks a further shift in British gov-



Chancellor of the Exchequer Rachel Reeves holds a box containing her budget speech.

casts the U.K. economy will grow 1.1% in 2024, and 2% in 2025. Growth would remain below 2% through 2029, it said.

Since coming to power in July, the Labour government has argued that it was time to be realistic about the scale of funding needed to sustain Britain's welfare state as it manages an aging population and growing demands to spend big on healthcare and defense. The previous Conservative government had penciled in sweeping cuts in public services over the coming years to balance the books.

Rather than go through with the full scale of cuts, Reeves has raised taxes instead. "Any responsible Chancellor would need to take difficult decisions today to raise the revenues required to fund our public services," she said.

The tax increases announced on Wednesday were calibrated to land mostly on businesses and the wealthy. There will be an additional levy on payroll taxes paid by businesses to raise £25 billion a year, and a tax increase on capital gains, which are profits made from share sales.

Economists aren't expecting a big impact on growth unless private-sector investment also grows. An independent budget watchdog, the Office for Budget Responsibility, on Wednesday said it fore-

said the minimum wage would rise next year faster than inflation.

The U.K.'s strategy goes against the grain in Europe, where states are generally tightening their belts to pay for years of big-ticket outlays following the pandemic and an energy-price crisis caused by the war in Ukraine. France's government has announced big spending cuts in its budget for next year, while Germany's government is also cutting outlays despite having a much smaller debt than its peers.

In the U.S., the government has opted for large-scale borrowing without raising taxes.

"The major legacy of this budget will be an increase in the size of the state," said Andrew Wishart, economist at Berenberg Bank. "That will resolve a long-running tension between the U.K.'s desire for European welfare and public services at U.S. tax rates."

Reeves said the borrowing will help fund Labour's longer-term industrial policy, which she says will help break a cycle that has plagued European governments: slow growth that leaves governments short of the money they need to keep up public services.

—Chelsey Dulaney contributed to this article.

Eurozone Economic Growth Beats Forecasts

By ED FRANKL AND JOSHUA KIRBY

The eurozone's economy grew faster than expected in the three months to the end of September, a boost to hopes that the bloc is set for a soft landing from the surge in inflation that followed Russia's invasion of Ukraine.

The pickup in growth will ease worries that a long period of high interest rates has stalled the currency area's re-

covery, and reassure policymakers at the European Central Bank that rapid cuts to its key interest rate aren't urgently needed.

Gross domestic product in the 20-nation area that uses the euro currency grew 0.4% in the third quarter, accelerating from 0.2% in the April-June period, according to European Union data published on Wednesday. That was better than a consensus of economists polled by The Wall

Street Journal, who expected the euro area to grow by 0.2% again.

Europe's largest economy, Germany, showed unexpected growth in the quarter, helped by rising incomes that boosted household spending, its statistics agency said.

France's output also rose, driven by the Olympic Games held in Paris, while Spanish GDP growth similarly beat forecasts, boosted by its thriving tourism sector.

Italy, by contrast, was the only one of the eurozone's larger economies to record a weaker-than-expected result. The Italian economy stagnated over the quarter, dragged by a weaker contribution from industry and trade, though services continued to grow.

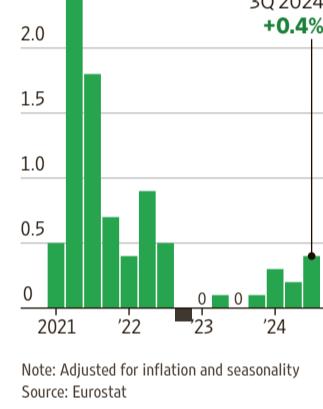
The eurozone economy grew at an annualized rate of 1.5%, its strongest performance in two years. But it continued to lag behind the U.S., where GDP increased at

an annualized rate of 2.8% in the third quarter.

Indeed, there remain key concerns surrounding the outlook for the eurozone, particularly in its moribund manufacturing sector. Rising barriers to trade, a shortage of skilled labor and high borrowing costs have hurt as well.

While the growth data puts to rest questions of whether the eurozone is in recession, there is a clear continuing weakness in investment.

Eurozone GDP, change from previous quarter



WORLD WATCH



People in Tlaxcala, Mexico, awaited news Wednesday after an explosion at a steel plant left at least 12 workers dead and one injured, according to the Mexican state's authorities.

MEXICO

Explosion at Plant Kills at Least 12

An explosion at a steel plant operated by Grupo Simec in central Mexico left at least 12 workers dead and one injured, authorities in the state of Tlaxcala said.

The workers were killed in an explosion and fire at the plant early Wednesday morning, the Tlaxcala state government said.

According to preliminary reports, the explosion occurred when steel was being poured and came into contact with water, the state government said in a post on X, adding that the fire had been brought under control.

Grupo Simec in a release said a spill of liquid steel occurred at the plant "with loss of human lives" that led to the shutdown of operations. "The company deeply regrets the death of its employees in this accident and is reviewing the causes," it added.

The company didn't provide further comment Wednesday.

Tlaxcala Gov. Lorena Cuellar told local reporters that DNA tests would be required for identification of the victims. Investigations into the cause of the explosion are continuing, she added.

—Anthony Harrup

UNITED KINGDOM

Fire Breaks Out at Nuclear Shipyard

A large fire broke out at BAE Systems' nuclear-submarine shipyard in northwest England, local police said.

Emergency services said two people had been taken to a hospital because of suspected smoke inhalation after a "significant fire" was reported early Wednesday in Barrow-in-Furness, where BAE Systems builds nuclear submarines.

"There is no nuclear risk," emergency services said. "However, people living nearby are advised to remain indoors whilst emergency services respond to the incident and keep doors and windows closed."

The U.K. arms maker said it was working with emergency services to deal with the fire and that one of two employees taken to a hospital had since been released.

Emergency services said there were no other casualties and that everyone else had been evacuated from the Devonshire Dock Hall, a key building facility at the Barrow-in-Furness site.

The Devonshire Dock Hall is the tallest building in Cumbria and covers an area of about 6 acres, BAE Systems said.

—Mauro Orru

NORTH KOREA

Missile Launch Sets Flight-Time Record

Just days before the U.S. presidential election, North Korea launched an apparent intercontinental ballistic missile that stayed airborne longer than anything the Kim Jong Un regime had ever launched before.

Pyongyang has often carried out weapons tests or provocations timed around key American political events or holidays—moves that security experts say seek to grab Washington's attention.

North Korea has previously demonstrated it has long-range missiles that could reach the U.S. mainland. The presumed ICBM launched on Wednesday flew for more than 85 minutes, according to Japan's defense ministry. That tops North Korea's previous record of roughly 74 minutes.

Showcasing a lengthier flight time suggests not only the potential for an ICBM to travel greater distances, but also fly with heavier payloads. One of Kim's top weapons priorities is possessing a long-range missile powerful enough to carry several nuclear warheads that would dramatically multiply the damage a single weapon could deliver.

—Timothy W. Martin



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BUSINESS & FINANCE

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THE WALL STREET JOURNAL.

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AI Bolsters Microsoft Cloud Unit

Disappointing revenue outlook sparks concern from Wall Street

By TOM DOTAN

Microsoft reported growth in its cloud-computing business last quarter, but a disappointing revenue outlook sparked investor concern about the near-term payoff for the software company's massive investment in artificial intelligence.

Revenue for the tech giant's Azure cloud business—a core of its AI offering—rose 33% in the quarter through September, beating analysts' expectations. For the current quarter, the company expects slightly less expansion, projecting Azure growth of between 31% and 32%.

Excitement about the potential for generative AI that can create computer code and summarize complex information

has helped fuel a run-up in the shares of Microsoft and other tech companies since 2023.

While Microsoft shares initially rose on the results in after-hours trading Wednesday, they fell around 3.7% below the day's close.

The Redmond, Wash., company's overall revenue rose 16% to \$65.6 billion as its net income climbed 11% to \$24.7 billion. Analysts were expecting revenue of \$64.57 billion and net income of \$23.15 billion.

The company expects revenue for the current quarter, which runs through December, to be between \$68.1 billion and \$69.1 billion. Analysts surveyed by FactSet were expecting revenue of \$69.89 billion for this quarter.

33%
Azure growth in the most recent quarterly report beat expectations

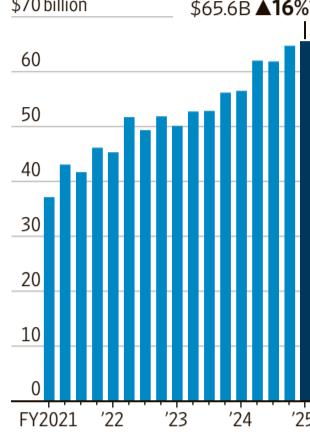
Microsoft's chief financial officer, Amy Hood, attributed that slowdown in part to the need for the company to build up more cloud computing capacity to meet AI demand.

Alphabet shares also rose Wednesday after the Google parent announced strong results on Tuesday in its cloud-computing division, another beneficiary of the AI boom.

Microsoft, and the tech industry more broadly, remains in the midst of a major spending spree on its AI, building data centers to power it around the world.

Chief Executive Satya Nadella has bet Microsoft's future on AI. The company has invested around \$14 billion into ChatGPT maker **OpenAI** and is pouring cash into the expen-

Microsoft's quarterly revenue



The company spent \$14.9 billion on capital expenditures last quarter, largely for data-center buildouts. That was a 50% jump from the same quarter a year ago. Including finance leases, its total capital expenditures were \$20 billion, up from \$11.2 billion.

Twelve percentage points of Azure's growth came from AI last quarter, compared with 11 percentage points in the previous quarter.

Microsoft said it has changed the way it is categorizing its Azure business by moving some of its enterprise software businesses into its Microsoft 365 Commercial segment.

Most of Microsoft's AI revenue has come through its cloud services.

Microsoft's revenue from its AI is small—though the company projects it is becoming more material.

"AI-driven transformation is changing work," Nadella said in the earnings call.

Starbucks Pledges To Keep U.S. Prices Steady

By HEATHER HADDON

Starbucks pledged not to raise U.S. prices over the coming year and restore condiment bars in cafes, as the coffee giant's new leader pledged "fundamental" change at the company.

The coffee chain is broadly recalibrating its business and operations after three consecutive quarters of declining same-store sales, and longer-running challenges in its cafes.

Customers have grumbled about long waits and high prices for drinks, cutting into the company's sales and compounding the challenge of bringing consumers back to its stores.

New Chief Executive Brian Niccol on Wednesday sought to address both long-running issues, adding that the company needs to be able to deliver drinks in four minutes or less.

"We have to make it easier for our customers to get a cup of coffee," Niccol said on a conference call discussing Starbucks's quarterly results, his first investor call since taking over as CEO in September.

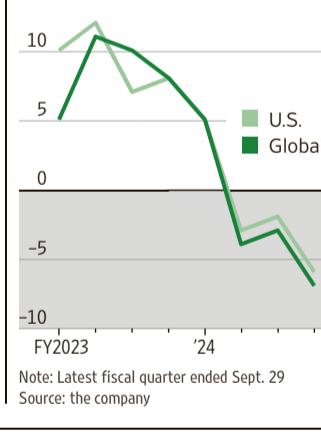
Many Starbucks customers have said they missed the self-service+ condiment bar, complaining that baristas are often too rushed to accurately capture their milk and sugar needs. Some said they had stopped regularly visiting Starbucks after the company permanently closed them.

Niccol said that the company would restore a station with milk and sugar to its thousands of U.S. cafes beginning in 2025.

"Our customers are asking for it and our baristas are saying it would help them deliver the speed of service that they

Please turn to page B10

Starbucks quarterly same-store sales, change from a year earlier



Volkswagen to Cut Costs as Earnings Plunge

By DOMINIC CHOPPING

Volkswagen said it needed to urgently cut costs after reporting a sharp fall in third-quarter earnings hurt by weaker car sales in China.

The German automaker is battling a tough economic environment, tepid demand for electric vehicles and increasingly fierce competition from lower-cost Chinese EV makers.

It is also contending with a costly domestic manufacturing footprint that hinders its competitiveness.

"We've not forgotten how to build great cars, but the costs, specifically in our German operations and factories, are far from being competitive. This is where things cannot continue as they are now," Chief Financial Officer Arno Antlitz said Wednesday.

In talks with labor representatives, Volkswagen put forward plans to cut workers' pay by 10%, rejecting union demands for a raise, and other proposals aimed at remaining competitive amid a crisis in the auto industry.

Daniela Cavallo, head of the company's works council, cautioned against interpreting the proposals as an initial rapprochement.

Earlier this week, Volkswagen's top labor leader said the company was aiming to shut at least three factories in Germany, lay off tens of thousands of staff and cut worker's wages by 10% as part of a cost-cutting drive.

Antlitz said Wednesday that Volkswagen needed to find a compromise that shrinks its cost base while also allowing



VW says improving orders in Western Europe offer confidence and would provide a tailwind into the final quarter of the year.

the company to invest in new vehicles and boost its profit margin.

Rising energy, materials and personnel costs mean some of Volkswagen's German plants are twice as expensive as its competitors, the company has said.

"I'm confident that we'll reach an agreement...but of course, I cannot rule out strikes," Antlitz said.

Worker groups have vowed to fight any plant closures in Germany, which would be the first in the company's history.

The comments came after the company, which also houses the Audi and Porsche brands, reported a 7.1% drop in third-quarter car deliveries on year.

Deliveries in China fell 15%. China was once a lucrative market for Volkswagen but is

now a big challenge.

A price war in the country has seen manufacturers offer high discounts while consumers in the region are also increasingly opting for the growing number of homegrown brands.

Chinese EV makers are also starting to pose greater competition for Volkswagen in Europe.

Nevertheless, the company

said Wednesday that improving orders in Western Europe offered confidence and would provide a tailwind into the final quarter of the year.

Overall, Volkswagen said third-quarter after-tax profit fell 64% to €1.58 billion, equivalent to around \$1.71 billion. Revenue fell 0.5% to €78.48 billion.

Both measures slightly beat analyst forecasts.

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Sotheby's, Abu Dhabi Close \$1 Billion Deal

By KELLY CROW

Sotheby's confirmed on Wednesday that it had closed a \$1 billion investment deal with an Abu Dhabi sovereign wealth fund—giving the auction house a financial lifeline it needs to pay down some of its debt.

The deal, announced two months ago, comes as the house is fending off major financial issues as it carries \$1.65 billion in debt under its owner, telecom tycoon Patrick Drahi. Most of the cash infusion, or roughly \$800 million, will be applied to paying down some of that.

In exchange, the Emirati fund, known as ADQ, could gain considerable say over how the auction house is managed. It gives Abu Dhabi a heightened measure of cultural clout unmatched by the Middle East's other royal families, who are still seen primarily as buyers, not market makers.

The Middle East doesn't matter to the global art mar-

ketplace the way Asia does, but the region has undergone a museum building boom in recent years, with rulers from Riyadh to Doha to Dubai all jockeying for more attention from tourists and tastemakers alike.

Now that the deal is complete, Sotheby's said it could also turn its attention back to its earlier plan to buy the landmark Breuer building in New York for at least \$100 million from the Whitney Museum of American Art. The house signed the deal to buy the museum last year, and it was set to close by the end of this month, according to a source familiar with the deal.

The house said it now aims to close within the next two weeks. Sotheby's said it wasn't waiting on the ADQ funds to buy the building.

The fact that Sotheby's now has its ADQ money is likely to matter to the house in other ways. Its specialists are preparing to try to sell off hundreds of millions of dollars in

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INSIDE



BUSINESS NEWS

Miu Miu defies luxury slowdown, fuels Prada's sales growth. B2



HEARD ON THE STREET

Cheap mortgages aren't all good for builders. B11

Ernst & Young Quits Its Audit Of Super Micro, Company Says

By DEAN SEAL

Ernst & Young has resigned as the auditor for **Super Micro Computer**, saying it can no longer rely on management's representations.

Super Micro disclosed the resignation in a securities filing on Wednesday, sending shares down nearly 33% to \$30.70. Shares are still up over 16% year-to-date after surging with the bull market for AI-themed stocks this year, though well off a \$122.90 record in March.

EY bowed out while conducting an audit of Super Micro's results for the fiscal year that ended June 30. The maker of server and computer products said it is looking for a new accounting firm to step in.

In an Oct. 24 letter to Super Micro, EY said it was "resigning due to information that has recently come to our attention which has led us to no longer be able to rely on management's and the audit committee's representations." The



A Super Micro Computer booth at a Taiwan expo in 2023.

Big 4 accounting firm is unwilling to be associated with any financial statements that Super Micro management prepares, according to the company's securities filing.

EY has also expressed concerns about the Super Micro's board independence from Chief Executive Charles Liang and other management, according to the filing.

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ANN WANG/REUTERS

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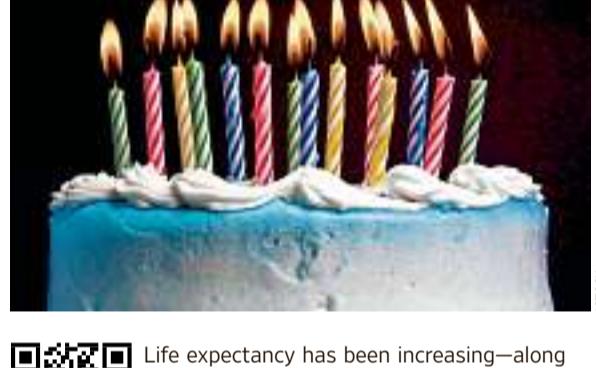
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Listen to a Podcast: The Longevity Business Is Booming—But Is There a Limit to Aging?



Life expectancy has been increasing—along with the longevity business. But some scientists believe we've already reached a plateau in aging. Scan this code for a podcast on the debate over the limits to longevity.

Disney to Replace CBS as Home Of Grammy Awards

By JOE FLINT

Disney has agreed to pay more than \$500 million over ten years to become the new home of the Grammy Awards, according to people familiar with the matter, ending the show's more than 50-year run with **CBS**.

Under the terms of its new deal with the Recording Academy, which begins in 2027, Disney's ABC broadcast network and streaming services Disney+ and Hulu will carry the show simultaneously. The Academy will also create specials and other new programming for Disney's platforms.

The value of Disney's deal represents a premium to what longtime broadcaster CBS currently pays. CBS's deal escalates in price each year, with the network scheduled to pay \$50 million to air the awards in 2026, people familiar with the pact said.

The Grammys adds to an already strong lineup of awards shows for Disney, including the Oscars and the Country Music Awards. Sports and live entertainment have become crucial for networks and streaming companies looking to draw large audiences and premium advertiser rates.

"Live events have never been more important to our culture

and industry, and we just acquired one of the crown jewels," said Disney Entertainment Co-Chairman Dana Walden.

CBS, which has carried the Grammys since 1973, was unable to reach a new deal during its exclusive negotiating period with the Recording Academy. That cleared the way for Disney to swoop in with a bigger offer.

Losing the annual event is significant for CBS, both because of its long history of airing the show, and the Grammys' status as one of few awards programs that draws solid viewership.

While Hollywood awards show ratings have declined in recent years, the Grammys in February, featuring performances by Tracy Chapman, Joni Mitchell and Dua Lipa, drew nearly 17 million viewers, a 34% increase over 2023's show, according to Nielsen.

CBS parent **Paramount Global** is in the midst of being acquired by Skydance Media and much of the current leadership is in limbo while awaiting for the deal to go through the regulatory process. The company has laid off several hundred employees in the past few months and is continuing to cut costs in its news and entertainment programming.

The supergroup boygenius at this year's Grammy Awards.



BUSINESS & FINANCE

Exxon and California Spar Over Claims About Recycling Plastics

By COLLIN EATON

Exxon Mobil says California's lawsuit alleging the oil giant lied about plastics recycling is malarky.

In a public swing at the state official behind California's recent lawsuit, Exxon says Attorney General Rob Bonta's claims are frivolous, appear politically motivated and risk backfiring on recycling efforts.

Bonta said the world's largest producer of single-use plastic is misleading the public about how much it really recycles. Exxon said that if it doesn't continue to invest in its recycling program, it will have to use more oil and gas to make new plastic to meet society's insatiable appetite for containers, packaging and other products.

"The irony of all this is Bonta is apparently for bigger landfills," Karen McKee, head of Exxon's refining and chemicals business, said. "He's actually for more oil-and-gas extraction."

In the lawsuit filed last month, Bonta alleged Exxon has polluted the state and violated California's nuisance laws, as well as laws prohibiting state



Attorney General Rob Bonta

water pollution, false advertising and unfair competition. The state is seeking civil penalties.

Bonta's office called Exxon's response to the lawsuit an "absurd but unsurprising" deflection. Bonta opposes Exxon's "false and unlawful claims that deceive the public so it can continue to produce more unnecessary and wasteful single-use plastic and rake in profits," said Christine Lee, a spokeswoman for the California Department of Justice.

With its shares up sharply this year, Exxon this year has struck out at opponents from a position of strength. It has challenged a major portion of Chevron's \$53 billion acquisition of Hess. It also filed a lawsuit to keep activist investors from making certain climate-related proposals. The suit, which also critiqued the Securities and Exchange Commission's handling of shareholder proposals, was dismissed after the investors withdrew their proxy submissions.

Now it is trying to fend off a legal challenge that could have long-term implications for the reputation of its plastics business.

Exxon hopes that in coming decades, chemicals and plastics can become a bigger part of its business as demand growth for some fuels plateaus.

In recent years, McKee has led Exxon's efforts to engage with governments currently working on an international treaty to end plastics pollution. Government officials are gathering in South Korea next month for a final round of ne-

gotiations.

Exxon and other oil companies already face dozens of lawsuits across the U.S. seeking billions of dollars for environmental damages for allegedly deceiving the public about the impact of climate change.

McKee said she couldn't discuss Exxon's approach to the California case, though it stands by its public statements on recycling.

But key to the dispute is that Exxon's definition of recycling is different from that of the attorney general and the Environmental Protection Agency.

For Exxon, recycling includes turning plastic waste into products other than fresh plastic. The company's advanced recycling facility in Baytown, Texas, has processed 60 million pounds of plastic waste.

Bonta said findings of a two-year probe indicate 92% of plastic waste processed by advanced recycling technologies doesn't become recycled plastic, but rather products such as fuel—and thus isn't actually recycled.



For the third quarter, Prada's retail sales jumped 2% at constant currency, while those of its Miu Miu brand more than doubled.

Miu Miu Defies Luxury Slowdown

By ANDREA FIGUERAS

Prada posted an increase in revenue for the first nine months of the year, buoyed by the popularity of its Miu Miu label, which continues to buck a downturn in demand for high-end goods.

The Italian luxury fashion firm said Wednesday that it booked revenue of €3.83 billion, equivalent to \$4.14 billion, for the period, up 18% at constant currency compared with the same period last year. In reported terms, revenue rose 15%.

For the third quarter alone,

retail sales at Prada jumped 2% from a year ago at constant currency, while those of Miu Miu more than doubled.

The group is experiencing further polarization between the two brands, as Prada has continued to normalize while Miu Miu represented the bulk of the company's growth, Bernstein analyst Luca Solca said in a note. "Prada recorded a solid performance, showing resilience against sector headwinds, and Miu Miu upheld its thriving growth momentum," Chief Executive Officer Andrea Guerra said.

The CEO said in a call after

results that the group intends to expand Miu Miu's footprint, both in existing stores and in cities where the brand isn't currently represented.

Guerra also said the company planned to announce the successor to Benedetta Petruzzo as CEO of Miu Miu in the next one to three months, after in September rival **LVMH**'s Christian Dior Couture appointed her as managing director.

In the Asia-Pacific region, which includes the all-important Chinese market, Prada posted a 12% increase in retail sales. Despite overall growth in

the region, the CEO noted that the environment in China during the quarter was challenging.

Prada's results contrast with the performance of some of its peers in the region that have been hit by a slowdown in sales of high-end fashion and accessories that is particularly acute in China, as the country suffers from an economic malaise.

Luxury names have traditionally relied on Chinese consumers to fuel their fortunes. But now, these shoppers, particularly the less affluent, have become more thrifty due to the country's economic woes.



VW expects a solid fourth quarter, driven by higher volumes and better sales of some cars.

Volkswagen Earnings Plunge

Continued from page B1

The company's operating margin for the quarter fell to 3.6% from 6.2%.

Restructuring costs, higher

fixed costs and expenses related to new products have all hit profitability so far this year, it said.

The namesake Volkswagen brand reported an operating margin of just 2% for the year to date.

"This highlights the urgent need for significant cost reductions and efficiency gains," Antlitz said.

Volkswagen said it expects a solid fourth quarter, driven by higher volumes and better

sales of its more profitable cars, while its order book is providing visibility beyond 2024.

Volkswagen last month slashed its sales and profitability forecasts for the full year, expecting sales of around €320 billion in 2024 compared with €322.3 billion last year.

It expects to deliver about nine million vehicles this year, below the 9.24 million units delivered in 2023 and now

forecasts a full-year operating margin of 5.6%.

Stephen Reitman at Bernstein said in a note to clients that Volkswagen's results are by no means where they should be, but talk of severe cost cutting seems overdone.

"The results do not in our view provide further ammunition to management's argument that historic cost cutting and sacrifices need to be made by the workforce in Germany," he said.

BUSINESS NEWS

Glencore Backs Outlook after Strong Quarter

World's largest miner posts jump in output of steel-making coal but copper slipped

By CHRISTIAN MOESS LAURSEN

Glencore reiterated full-year production targets after reporting its strongest operational quarter this year, while also maintaining an earnings outlook for its marketing division of up to \$3.5 billion.

The world's largest mining company by revenue said Wednesday that it produced 242,600 metric tons of copper in the third quarter, a 2% fall compared with the same period last year, but an 8.8% increase against the second quarter.

The steelmaking-coal division received an expected boost from the integration of Elk Valley Resources, which the Anglo-Swiss company bought in July. Quarterly out-

put rose to 7.7 million tons from 1.5 million tons a year prior.

In August, the company scrapped a plan to spin off its coal business—a bet driven by an anticipation of high demand for the fossil fuel despite global efforts to curb carbon emissions.

Glencore said then it expected the highly cash-generative business to support growth investments in its copper portfolio and help boost shareholder returns.

Third-quarter thermal coal production rose 18% from the second-quarter, while zinc output increased 7%.

The strong quarterly performance led the mining giant to stick to its full-year guidance across its portfolio. It expects to produce between 950,000 and 1,01 million tons of copper and 19 million to 21 million tons of steelmaking coal. Those two assets are expected to contribute nearly half of Glencore's earnings

next year, according to analysts.

It also kept its guidance for adjusted earnings before interest and tax from its marketing arm of between \$3 billion and \$3.5 billion. The division booked \$3.5 billion for 2023, a 43% drop from 2022 after coal prices retreated from the record highs that followed Russia's invasion of Ukraine.

For the first nine months of the year, copper and zinc production both fell 4% on year, while thermal coal declined 7%. Steelmaking coal more than doubled.

Glencore's shares underperformed the European industrial-metals sector by around 7% through the quarter given its portfolio is less exposed to a rebound of the Chinese property market. Most of Glencore's peers saw their shares jump following China's economic stimulus announcement last month.

In London, shares rose more than 1%.



The steelmaking-coal unit got an expected boost from the integration of Elk Valley Resources.

LOREN ELLIOTT/REUTERS

GSK Cuts Vaccine Sales Outlook Amid Weakness in U.S. Market

By HELENA SMOLAK

GSK cut its full-year vaccine sales outlook after key shots for respiratory syncytial virus and shingles missed expectations in the third quarter because of weak U.S. demand.

The British pharmaceutical giant said vaccine demand was lower than anticipated in the third quarter as U.S. health authorities gave priority to Covid-19 jabs, a setback for the company's efforts to bolster its vaccines business.

As a result, GSK now expects vaccine sales to fall this year rather than increase as previously forecast, even though guidance for sales and core earnings at the group level was confirmed.

The move sent shares in GSK down 3% on the New York Stock Exchange and prompted some analysts to question whether a weak vaccine performance could put the group's midterm sales targets at risk.

The company has been taking steps to strengthen its vaccines portfolio, such as expanding into RSV and striking a licensing deal with German biopharmaceutical company **CureVac**. GSK was among the biggest makers of vaccines before the pandemic, but fell behind rivals and new entrants as Covid-19 turbocharged demand.

GSK said third-quarter vaccine sales—which account for about one-third of the group's total—were £2.65 billion, or about \$3.45 billion, down 18% compared with the year-earlier period and down 15% excluding currency movements. The business was hit by lower



GSK now expects vaccine sales to fall this year rather than increase as it had forecasted.

demand for its RSV vaccine Arexvy and its bestselling shingles vaccine Shingrix.

Analysts expected vaccine sales of £2.71 billion, according to consensus estimates compiled by the company.

Sales of GSK's key vaccine Arexvy slumped 72% at constant currency to £188 million after U.S. health officials in June restricted the shot to a smaller age range and more at-risk patients. Shingrix sales fell 7% to £739 million, taking a hit from weak U.S. demand.

Growth in sales of GSK's specialty and general medicines, thanks to new HIV and cancer treatments, offset the decline in vaccines, with overall sales of £8.01 billion. This

was up 2% when adjusted for currency effects and broadly in line with analyst views.

Pretax profit plunged to £64 million from £17.9 billion after the company booked a settlement charge for its discontinued heartburn medicine Zantac, disclosed earlier this month.

Core operating profit—which is closely watched by analysts and investors—rose 5% at constant currencies to £2.76 billion. Cost cuts and higher sales in its specialty medicines segment lifted the metric above analysts' expectations of £2.49 billion.

GSK said it remains confident on its targets for 2026 and 2031. This year, it continues to expect sales growth at

constant exchange rates of 7% to 9%, thanks to higher sales of its specialty and general medicines. It confirmed its 2024 core operating profit growth of between 11% and 13%, and core earnings per share of between 10% to 12%, at constant exchange rates.

While core earnings beat expectations and group guidance was confirmed, this was overshadowed by a worse-than-feared vaccines performance, analysts at Barclays said in a note.

The company declared a third-quarter dividend of 15 pence, up from 14 pence in the prior-year period, and still expects to pay a 60-pence dividend for the full year.

Humana's Profit Tops Views, Sending Its Shares Higher

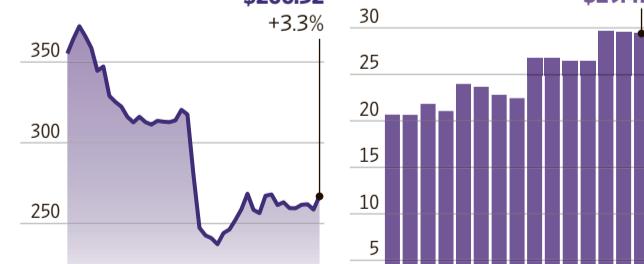
By ANNA WILDE MATHEWS

Humana's earnings beat Wall Street expectations, but the insurer said 2025 results might come in lower than analysts project, as it works to bolster its core Medicare business.

The company's shares rose more than 3% Wednesday. They plunged earlier this month after the insurer warned that a drop in federal quality ratings for its Medicare plans could hit its results in 2026. Shares have recovered somewhat since then, possibly because investors are viewing a Republican victory as the more likely election outcome.

Humana said it is still targeting a 3% margin on its core Medicare business, but there is now more risk to its goal of hitting that in 2027. Like other Medicare insurers, it has been grappling with medical costs that were higher than originally expected this year.

Humana Chief Executive Jim Rechting said the 2025 estimate was a floor, and the company feels good about its Medicare bids for next year. He also said the company would make investments that it needs to ensure its future



Sources: FactSet (share price); S&P Capital IQ (revenue)

potential.

"We're not going to do things that hurt the business long-term to work our way through a short-term issue," he said.

He acknowledged uncertainty about some factors, including how much Humana can mitigate the impact of lower-quality ratings than expected. Humana, like other insurers, has sued the Medicare agency in an effort to reverse the findings.

On an adjusted basis, income was \$4.16 a share in the latest quarter, which beat the FactSet analyst consensus of

\$3.42. Humana's medical-loss ratio, representing the ratio of healthcare costs to premium revenue, was 89.9%, slightly below consensus projections.

Net income was \$651 million, or \$3.98 a share, down from \$1.098 billion, or \$6.71 a share, a year earlier.

Revenue rose to \$29.4 billion, from \$26.4 billion in the year-ago period.

Humana expects adjusted earnings per share of at least \$16 for full-year 2024. For 2025, Humana suggested results would be at the same level or better.

Estée Lauder Confirms CEO Appointment

By ROBB M. STEWART

Estée Lauder will elevate longtime executive Stephane de La Faverie to the role of chief executive, succeeding Fabrizio Freda, who will retire after more than 16 years with the embattled cosmetics maker.

The pick confirms a report by The Wall Street Journal earlier this week.

The company said Wednesday Freda will support de La Faverie over the next several months to ensure a seamless transition. De La Faverie, who as executive group president currently oversees many of Estee Lauder's brands, will report directly to the company's directors.

William Lauder will be stepping down from his current role as executive chairman, though he will remain chair of the board following the company's coming annual meeting of stockholders.

De La Faverie, who joined in 2011, will assume the new role from the start of next year. Lauder said the appointment marks a new chapter and de La Faverie's vision would position Estee Lauder to drive long-term growth in the face of its current challenges.

Eli Lilly's Weak Results Send Its Shares Sliding

By PETER LOFTUS

Eli Lilly shares slid after the drugmaker reported disappointing quarterly results, with sales of its popular diabetes and anti-obesity drugs lower than expected.

Lilly said inventory decreases by wholesale distributors hurt sales of its diabetes drug Mounjaro and anti-obesity medicine Zepbound.

Mounjaro sales more than doubled to \$3.11 billion last quarter; analysts had expected about \$3.7 billion. Zepbound sales of \$1.26 billion fell short of analysts' forecasts of \$1.7 billion.

The two drugs share the same main ingredient; brisk sales have fueled Lilly's strong revenue and earnings growth over the past two years.

"Even the king stumbles sometimes," said BMO Capital Markets analysts, who added that Lilly's prospects remain bright despite a weak quarter.

The company also updated its forecast of full-year 2024

sales to a range that is lower than what Wall Street analysts predicted.

Lilly shares fell more than 6% Wednesday, having risen sharply this year.

Like most drug manufacturers, Lilly works with wholesale distributors to get its medicines to pharmacies and healthcare facilities.

Wholesalers' adjustments to their inventory levels can be advantageous when they build up inventory, but for the third quarter, the decrease curbed sales growth for Lilly's drugs by mid-single digits on a percentage basis.

"We saw channel inventory decrease as wholesalers continue to navigate the complexities of high-volume, cold-chain products across a dozen different dose and brand combinations," Lilly Chief Financial Officer Lucas Montarce said on Lilly's earnings call Wednesday.

Lilly executives said underlying demand for the drugs remained strong.

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BANKRUPTCIES

IN THE UNITED STATES BANKRUPTCY COURT FOR THE SOUTHERN DISTRICT OF TEXAS HOUSTON DIVISION

In re: Chapter 11
VERTEX ENERGY, INC., et al.¹ Case No. 24-90507 (CML)
(Jointly Administered)

NOTICE OF DEADLINES FOR THE FILING OF PROOFS OF CLAIM, INCLUDING REQUESTS FOR PAYMENTS UNDER SECTION 503(b)(9) OF THE BANKRUPTCY CODE

THE CLAIMS BAR DATE IS NOVEMBER 27, 2024, AT 4:00 p.m. (Central Time)

THE GOVERNMENTAL CLAIMS BAR DATE IS MARCH 24, 2025, AT 4:00 p.m., PREVAILING CENTRAL TIME

PLEASE TAKE NOTICE OF THE FOLLOWING:

Deadlines for Filing Proofs of Claim: On October 28, 2024, the United States Bankruptcy Court for the Southern District of Texas (the "Court") entered an order [Docket No. 312] (the "Bar Date Order") establishing certain deadlines for the filing of proofs of claim, including requests for payment under section 503(b)(9) of the Bankruptcy Code (collectively, "Proofs of Claim"), in the chapter 11 cases of the following debtors and debtors in possession (collectively, the "Debtors"): Debtor, Case No.: VERTEX ENERGY, Inc., 24-90507; Bangs, LLC, 24-90510; Cedar Mountain Energy, LLC, 24-90508; Crossland Capital, L.P., 24-90512; Crystal Energy, LLC, 24-90513; HHH Oil, L.P., 24-90512; HPPM, LLC, 24-90513; HPPM Acquisition Corporation, 24-90514; Vertex-Myrtle Grove Acquisition Corporation, 24-90515; Vertex Acquisition Sub, LLC, 24-90516; Vertex Energy Operating, LLC, 24-90506; Vertex GP, 24-90521; Vertex Fuel Services LLC, 24-90518; Vertex Merger Sub, LLC, 24-90519; Vertex Recovery Management, LLC, 24-90520; Vertex Recovery, L.P., 24-90512; Vertex Refining Alabama LLC, 24-90522; Vertex Refining, LLC, 24-90523; Vertex Refining Myrtle Grove LLC, 24-90524; Vertex Refining, NV, LLC, 24-90525; Refining Texas LLC, 24-90526; Vertex Refining Galena Corporation, 24-90529.

Contents of Proof of Claim: Each Proof of Claim must be filed in legible English; (2) include a claim amount denominated in United States dollars; (3) clearly identify the Debtor against which the claim is asserted; (4) conform substantially with the Proof of Claim form provided by the Debtors or Official Form 410; (5) be signed by the claimant or by an authorized agent or legal representative of the claimant on behalf of the claimant, whether such signature is an electronic signature or is in ink; and (6) include as attachments any and all supporting documentation on which the claimant bases the claim, including a copy of the contract or agreement against which the claim is asserted. To the extent more than one Debtor is listed on the Proof of Claim, the Proof of Claim is treated as filed only against VEL or if a Proof of Claim is otherwise filed without identifying a specific Debtor, the Proof of Claim may be deemed as filed only against VEL.

Electronic Signatures Accepted: Proofs of Claim signed electronically or in ink by the claimant or an authorized agent or legal representative of the claimant may be deemed acceptable for purposes of claims administration. Copies of Proofs of Claim, including any attachments thereto, may be filed or submitted by e-mail to the Clerk's Office at [redacted] or by facsimile to [redacted].

Filing a Proof of Claim: Each Proof of Claim must be filed or submitted, including supporting documentation, through any of the following methods: (i) electronic submission through Pacer (Public Access to Court Electronic Records) at [redacted]; (ii) electronic submission using the "eFiling" feature on the website of the Clerk's Office at [redacted]; or (iii) electronic submission using the "eFilings" feature on the website of the Debtors at [redacted].

If by First-Class Mail, Overnight Mail, or Hand Delivery: Vertex Energy Claims Processing Center, Suite 300, El Segundo, CA 90245.

Proofs of Claim must be filed or submitted no later than the Bar Date.

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TECHNOLOGY

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EY Quits Its Super Micro Audit

Continued from page B1

EY told Super Micro in July that it had concerns about the company's internal controls over financial reporting, as well as the transparency and completeness of its communications with EY. The firm said at the time that Super Micro might not be able to file its annual report on time. The company ultimately delayed the filing, saying in August that it needed more time to assess financial reporting controls.

The delay was announced one day after short seller Hindenburg Research said it found "glaring accounting red flags" at Super Micro, which makes servers used for generative artificial intelligence. The short seller accused the company of allegedly engaging in "undisclosed related party transactions, sanctions and export control failures."

EY is walking away from Super Micro about a month after The Wall Street Journal reported that the Justice Department is probing the company, seeking information apparently connected to a former employee who has accused Super Micro of accounting violations and filed a whistleblower lawsuit.

Super Micro paid \$17.5 million in 2020 to settle Securities and Exchange Commission allegations of widespread accounting violations. The company neither admitted nor denied the accusations. The agency also required Liang to reimburse Super Micro for \$2.1 million in stock-sale profits, though it didn't accuse the CEO of misconduct.

Super Micro is slated to report quarterly results next week. Its most recent report from August showed revenue doubled in its fiscal fourth quarter because of strong demand for AI infrastructures, though the figure still fell short of analyst estimates.

BYD Earnings Climb on Strong Sales

Chinese electric-car manufacturer beats analysts' estimates, extends momentum

BY DEAN SEAL

BYD, China's biggest automaker, reported higher net profit in the third quarter on strong sales of electric vehicles and plug-in hybrids.

The Chinese EV giant said Wednesday that its net profit climbed 11.5% to 11.61 billion yuan, equivalent to \$1.63 billion, from a year earlier. That beat the 10.67 billion yuan consensus estimate of ana-

lysts polled by Visible Alpha.



AP/GETTY IMAGES

The company is expanding overseas after dominating China's EV market. A shipment of BYD cars at the port of Suzhou.

lysists.

The company sold 443,426 fully electric cars in the quarter, up 2.7% from a year ago. Rival Tesla delivered 462,890 units in the third quarter,

maintaining its position as the world's top EV seller. The Chinese automaker briefly overtook Tesla in battery EV sales in the fourth quarter of 2023.

BYD has witnessed strong momentum this year, thanks

to its strategy of price cuts and the release of a new plug-in hybrid platform. Analysts have said its total unit shipments could reach four million in 2024. The company is also expanding overseas after dominating the Chinese EV

market.

BYD stock fell less than 1% Wednesday in Hong Kong. Shares have advanced nearly 40% this year, almost double the 20% rise in the Hang Seng Index and outpacing Tesla's roughly 4% gain.

Samsung's Profit Rises, but Chip Unit Sags

BY KWANWOO JUN

Samsung Electronics reported better-than-expected net profit for the third quarter, but its core semiconductor business earnings shrank sharply from the previous quarter.

The mixed results come as the South Korean technology giant faces the twin challenge of catching up with industry

rivals in supplying more advanced artificial-intelligence chips and mitigating the impact of lower-end chips from China flooding the markets.

Net profit for the July-September period was 10.101 trillion won, equivalent to \$7.32 billion, up 73% from a year earlier, the company said Thursday. Profit rose 2.6% from the previous quarter.

That beat a FactSet-com-

pled consensus estimate of 8.601 trillion won.

Revenue for the quarter increased 17% to 79,099 trillion won and operating profit rose nearly fourfold to 9,183 trillion won, largely in line with the company's preliminary estimates.

The company on Thursday said its flagship chip-making division generated an operating profit of 3,860 trillion

won, down 40% from the prior quarter. That compared with smaller home-country rival **SK Hynix**'s 7,030 trillion won profit for the period.

Samsung earlier this month issued a rare apology to investors while guiding for downbeat quarterly earnings and acknowledging delays in supplying the latest version of its high-bandwidth-memory products to AI-chip maker

Nvidia and other major customers.

The company's stock has dropped about 25% this year, while shares in rival makers of HBM—**SK Hynix** of South Korea and **Micron Technology** of the U.S.—have gained more than 30% and 20%, respectively. **Taiwan Semiconductor Manufacturing**'s shares have jumped more than 70% this year.

Sotheby's, Abu Dhabi Close Deal

Continued from page B1
art during New York's major fall auctions in a few weeks. All year long, the world's top houses and galleries have been wincing as collectors pared back their spending on art. During the first half of the year, Sotheby's said its sales totaled \$3.2 billion, down 20% from a year earlier. Rival Christie's auction sales fell 22% over the same period.

Collectors wary of Sotheby's may be more likely to buy or sell there if the house is perceived to be on firmer financial footing, said Doug Woodham, a former president of Sotheby's chief competitor, Christie's. Woodham advises collectors as managing partner of Art Fiduciary Advisors.

Sotheby's newfound cash does come with strings. As part of the ADQ deal, the house said it would create a new, nine-person board, replacing a previous board whose roster and role had never been clarified publicly after Drahi took the auction

house private in 2019.

ADQ will now claim three seats on Sotheby's board—with voting privileges—while the remaining slots will be claimed by Drahi, Sotheby's chief executive, Charles Stewart, and four unnamed additional directors, the house said. A spokeswoman said she couldn't divulge whether these additional board members hailed from Drahi's parent company Altitce or beyond.

ADQ couldn't be reached for comment. It is unclear if the fund sought any additional terms or concessions after the house fell under greater scrutiny this summer amid its winnowed sales and downgraded credit ratings during an overall market

slump. Sotheby's said its board overhaul and the inclusion of seats for ADQ, now its largest minority shareholder, had been part of its original deal proposal. Prices for Sotheby's bonds rose modestly on Wednesday.

Drahi, who remains majority shareholder, said in a statement that he remained "even more committed to this extraordinary company," calling

The fund will hold three seats on a new board overseeing the auction house.

ing ADQ a "strategic long-term partner."

Hamad Al Hammadi, ADQ's deputy group chief executive officer, said in a statement that the six-year-old fund's investment was part of a broader plan to diversify Abu Dhabi's economy beyond oil and gas.

One way to do this, he said, is by "enhancing Sotheby's ability to innovate and expand into new markets."

While it is unclear if Al Hammadi could be among those joining Sotheby's board,

he's likely to be on the shortlist of candidates, as are other members of ADQ's leadership. These include Sheikh Tahnoon bin Zayed Al Nahyan, the ADQ chairman, whose brother

is the country's ruler, President Sheikh Mohamed bin Zayed Al Nahyan.

Woodham said in recent years, auction houses had rarely previewed their priciest works in Abu Dhabi. But with well-connected Emiratis in Sotheby's boardroom, Woodham said he expected at least Sotheby's to start paying closer attention to what sold in the region, and why.

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BUSINESS & FINANCE

Wall Street Giants Bet on AI and Power

By KATHERINE BLUNT

KKR and Energy Capital Partners have agreed to invest a combined \$50 billion in data-center and power-generation projects to support the development of artificial intelligence.

The investment is a bet on AI's huge energy needs and the mounting stress it is putting on the U.S. power grid. Much of it will be invested over the next four years, the companies said.

KKR, one of the world's largest investment companies, and Energy Capital Partners, a private-equity firm, have each been spending heavily on the infrastructure underpinning the AI boom.

The companies said they are now working together with large tech companies to accelerate their access to electricity, which has become constrained in parts of the U.S. as data-center developers compete for power sources and access to the grid.

"The capital needs are



A Calpine facility in Pittsburg, Calif. ECP companies operate conventional and renewable plants.

huge, and one of the big bottlenecks—maybe the bottleneck—is electricity availability," ECP founder and senior partner Doug Kimmelman said.

ECP owns companies that operate conventional power plants as well as renewables, including Calpine, one of the country's largest power generators. ECP recently expanded

its portfolio of natural-gas-fired plants, which Kimmelman said will be critical in supplying around-the-clock power to data centers.

He said he anticipates mak-

ing additional investments in gas while exploring ways to reduce carbon emissions with renewables or developing technologies such as carbon capture and sequestration.

"Gas is going to be at the forefront of this," Kimmelman said. "It can back up those intermittent renewables very nicely."

Natural-gas plants are among the fastest solutions to AI's power needs, but present the country's largest tech companies with a conundrum. Tech companies have been leaning heavily on fossil fuels to power their data centers, which is making it hard for them to honor their pledges to reduce carbon emissions while pushing to accelerate AI development.

Each tech company is now trying to speed the development of more clean electricity sources.

Microsoft, Google and Amazon.com have said they would invest billions of dollars to bring more nuclear power online. Some of the projects de-

pend on unproven next-generation technology, and each is slated to take years to complete, in part because of financial and technological challenges that have limited the growth of the U.S. nuclear industry for decades.

For now, sustainability commitments are taking a back seat to tech companies' desire to rapidly build data centers, according to consulting firm McKinsey.

Waldemar Szlezak, who leads KKR's digital-infrastructure investments, said the company's partnership with ECP is meant to target near-term solutions to expand power access and ease the hurdles tech companies are facing in building data centers. To date, KKR has invested more than \$29 billion in digital infrastructure companies.

"Data centers are no longer a real-estate business. They are actually a power-first business," Szlezak said. "The status quo is no longer acceptable in solving this."

Companies Try To Navigate Woes In Supply Chains

By RICHARD VANDERFORD

Supply chains that underpin the economy are facing continuing stress from geopolitical tension, labor disruption and natural disasters. Some companies say they are gaining an edge in their markets with tools aimed at managing the risks, but it doesn't come cheap or easy.

A new generation of strategies and technologies to manage risk is growing as the strains in supply chains persist following the upheaval during the Covid-19 pandemic that left many companies scrambling to plug gaps simply to remain in business.

"It was sort of a niche area, supply-chain risk management, and then came Covid, and then really it became a backroom-to-boardroom [issue]," said Mirko Woitzik, global director of intelligence for Everstream Analytics, a risk management firm. "All of a sudden, supply-chain management or risk management was a competitive advantage."

The pandemic punished companies that had prioritized lean inventories above all else, but the years since have seen a

series of events that pushed companies to take a longer-term approach to managing risk.

A recent strike by dockworkers at a swath of U.S. ports raised the stakes for many American importers and exporters.

Hurricane Helene, which pummeled the Southeast U.S. in September, disrupted businesses well outside the storm zone, including in auto plants in Texas and Michigan, according to an analysis from Everstream. The conflict in the Middle East over Gaza also has upended ocean-going transport.

New regulations also are adding to the urgency for companies to better understand their supply chains. U.S. businesses in particular face government pressure to reduce reliance on China, including the use of some Chinese suppliers.

Legislation passed by the U.S. House, for example, would deny some tax credits for electric vehicles that incorporate battery components made by certain Chinese companies.

"There's a lot of opportunities there," said Priya Anand, director of global logistics ser-



Members of the International Longshoremen's Association picketed at the port of Newark, N.J., earlier this month.

vices at St. Petersburg, Fla.-based contract manufacturer **Jabil**. "If you're able to survive and if you're able to put together a flexible plan...then it is a competitive advantage."

With a range of products, including electronics, health-care products and consumer goods it produces for more than 400 global brands, including **Apple**, Jabil faces risks all over the world in a sprawling global supply chain.

Anand said Jabil has shared its own tools with suppliers to assess risks, including new

platforms that let its suppliers upload data that can help forecast potential disruptions.

The company also has sought to source more components locally, including getting supplies from Mexico rather than China in some instances, Anand said.

But any response to shore up a supply chain, whether technology or sourcing products from multiple, dispersed suppliers, can be costly and challenging to implement, presenting hurdles to some companies.

Businesses that have invested in supply-chain resilience saw revenue grow an average of 23% from 2018 to 2023, compared with 15% growth experienced by their peers, according to a survey by consulting firm Oliver Wyman.

The same research shows only one-third of companies are ahead of their own targets for supply-chain resilience.

Companies that are lagging behind tend to have less buying from the board, the Oliver Wyman survey showed.

Separate research from FTI

Consulting shows nearly 40% of companies have no contingency plan for a supply chain breakdown.

Managing risk for many companies has meant not only developing a better understanding of not just their own suppliers but also the companies that supply raw materials and parts to their suppliers.

That deeper dive into supply chains is fostering a new set of niche software companies that aim to help unravel the twists in business relationships.

Private Equity's Ties to Companies' Auditors Are Worry to Regulators

By MARK MAURER

Private equity is becoming a lifeline for accounting firms that are looking for more money to pay for technology and talent, but the resulting ownership shake-ups are pushing unlikely partners closer together, raising concerns from both accountants and regulators.

Several midsize audit and consulting firms in the U.S. are selling stakes, both large and small, to outside investors.

Grant Thornton in May became the largest firm of its kind to sell its U.S. unit to a group led by New Mountain Capital, followed by an agreement last week to merge non-audit services in the U.S. and Ireland.

Armanino, a San Ramon, Calif.-based accounting firm, sold a stake to Further Global Capital Management this month.

By the end of 2025, more than half of the 30 largest U.S. accounting firms will have either sold an ownership stake or part of their business to private-equity investors, up from zero in 2020, said Allan Koltin, chief executive at advisory firm Koltin Consulting Group.

An auditor's objectivity, both real and perceived, is critical to the business of accounting firms,

under new buyers is coming into question, especially as private-equity managers take a hands-on approach with their new acquisitions.

Accounting firm Cherry Bekkaert's leadership team discusses organizational matters, often involving the audit business, weekly with Parthenon Capital Partners, the private-equity firm that took a stake in the Raleigh, N.C.-based firm's nonaudit side of the business in 2022.

Sometimes the conversation is about Cherry Bekkaert's acquisitions of other firms, some of which have an audit business,

said Michelle Thompson, CEO of its nonaudit arm, Cherry Bekkaert also updates Parthenon on its financial results or risk management.

"We work very closely with the audit team," said Andrew Dodson, managing partner at Parthenon Capital. "Making sure that we have the right controls over audit quality is something that we take super seriously and have a lot of visibility into," he said, referring to compliance with an agreement between the audit and nonaudit sides. He added that Parthenon has no influence

over individual audits.

While the relationships between the private-equity investors and the audit side may be a normal course of business, many accountants and regulators are watching the intricate dynamics.

The American Institute of CPAs, an advocacy group and auditing standard setter, is exploring ways to strengthen requirements on undue influence over audit firms.

Paul Munter, the Securities and Exchange Commission's chief accountant, has urged at conferences and in public statements in recent years that accounting

firms exercise caution in receiving investments from private equity due to any possible conflicts.

"Firm leaders need to be sensitive to the message such arrangements could send and stand ready to correct any such misimpressions," Munter said in May. The SEC's audit watchdog, the Public Company Accounting Oversight Board, is looking at the private-equity issue carefully, a spokeswoman said.

There are some guardrails in place already. Audit firms with new investors are setting up

structures to separate audit and nonaudit practices to comply with rules prohibiting the impairment of the auditors' objectivity and independence.

Furthermore, rules generally prohibit accounting firms from auditing their private-equity investors directly or funds that the private-equity firm manages. But the rules are less specific when it comes to portfolio companies that the private-equity owner backs.

If there is even a perception that such investments are influencing auditor independence, the financial statements produced by those auditors may lose credibility, said Jenelle Conaway, assistant accounting professor at Wake Forest University.

"The intensity with which private equity is getting involved is different from anything we've experienced before," Conaway said. "There's the potential for the strong influence on the nonaudit side to spill over to the audit side through these big firm-level decisions."

Many private-equity funds view accounting firms as low-risk investments that could net a sizable return based in part on recurring revenue streams.

They say they are investing heavily and not on a cost-cutting mission, an approach with which private equity is commonly associated.

Washington Post Staffers Seek to Stem Exodus

By ALEXANDRA BRUELL

Writers for the Washington Post have taken to social media in recent days to discourage irate readers from dropping their subscriptions after the paper announced it wouldn't be endorsing any candidate for the 2024 presidential election.

The wave of customer defections after the decision, which was made by owner Jeff Bezos, has further eroded an already shrunken base of Post subscribers and heightened feelings among some staff that the paper faces an existential crisis.

"Please don't cancel your subscriptions. It won't impact Bezos—it hurts journalists and makes another round of layoffs more likely," Amanda Morris, a Washington Post disability reporter, wrote on X.

High-profile reporters and editors from the New York Times, the Atlantic and elsewhere joined the chorus on Tuesday and Wednesday, using the hashtag #WhyISubscribe on X to explain the journalistic value of the Washington Post's newsroom.

Upward of 250,000 people have canceled their Post subscriptions since the nonendorsement decision went public late last week, according to the Post's own reporting.

People can easily cancel most print or digital Post subscriptions online and maintain access to Post content until their annual contracts expire.

A Post spokeswoman declined to comment on subscription numbers.

The cancellations put a dent in a turnaround effort by publisher William Lewis that is focused on increasing digital subscribers and stemming losses. The Post had roughly three million digital subscribers in January 2021, but gains there have stagnated. Last year, it lost \$77 million, and subscriptions have hovered around 2.5 million, according to people familiar with the matter.

Employees are concerned about both the ramifications of the decision on the Post's reputation, and how it will affect their jobs—including possible cuts—according to staffers.

Interim Executive Editor Matt Murray held a staff meeting on Tuesday, but he didn't shed much light on the actual impact of the decision or what it means for reporters, said employees who attended. He told staff he didn't know a specific number in terms of subscriber losses, beyond saying that the numbers would be "bumpy and rough" for a couple of weeks, according to one of the people who attended the meeting.

People can easily cancel most print or digital Post subscriptions online and maintain access to Post content until their annual contracts expire.

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 consolidated from trades reported by various market centers, including securities exchanges, Finra, electronic communications networks and other broker-dealers. 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.

Footnotes:

i-New 52-week high; b-New 52-week low; dd-Indicates loss in the most recent four quarters.

Stock tables reflect composite regular trading as of 4 p.m. ET and changes in the official closing prices from 4 p.m. ET the previous day.

Wednesday, October 30, 2024

Net Stock Sym Close Chg Net Stock Sym Close Chg

A B C BuildersFirst BLDR 172.88 1.28 ElevationHealth ENPH 42.87 -0.60

AAON AAON 115.11 -4.10 BungeGlobal BG 85.86 -1.98

i AECOM ACM 107.37 -1.09 BurlingtonStrs BURL 257.38 2.75

AES AES 16.42 -0.10 CACI Intl CACI 562.52 -0.84

Aflac AFL 110.09 0.09 CBRE Group CBRE 132.02 1.11

AGNC Invr AGNC 9.61 0.07 CDW 1596.24-28.46

Ansys ANSS 328.57 0.16 CF Industries CF 81.78 0.42

APA APA 23.47 0.16 CH Robinson CHRW 109.64 1.64

ASE Tech ASK 9.80 -0.37 CME Group CME 227.10 2.96

ASML ASML 683.83-31.31 CMS Energy CMS 70.11 0.59

ATT&T T 22.02 -0.16 CNX Fin CNA 48.48 -0.33

AbbottLabs ABT 114.45 1.05 CNH Indl CNH 11.26 -0.04

i AbbVie ABBV 20150 12.05 CRH 95.96 1.33

Accenture ACN 345.57-16.47 CSX 33.54 -0.29

AcuityBrands AVI 301.90 -1.64 CTVH 56.39 0.14

Adobe ADBE 486.68 1.29 CadenceDesign CDNS 290.00 5.55

AdvDrainageSys WMS 152.74 1.11 CambdenProperty CPY 415.37 -2.72

AdvMicroDevices AMD 148.60-17.65 Cameco CCJ 53.98 -0.79

Aegion AEG 6.33 -0.04 CampbellSoupC PGB 46.68 -0.08

AerCap AER 93.89 -1.83 CIBC CM 63.29 0.12

AffirmA AFRM 45.24 2.37 CanNtRwy CNI 109.81 -0.48

AgilentTechs AL 131.49 0.26 CanadianNrcs CNAQ 34.19 -0.22

AgmicoEagleMines AEM 88.24 -0.61 Cdnpack CP 78.18 0.19

AirProducts APD 312.77 -2.53 CapitalOne CO 166.77 3.78

Airbnb ABNB 136.50 -1.28 CardinalHealth CAH 107.89 -2.17

AkamaiTech AKAM 101.85 -1.11 Carlisle CSL 422.16 0.55

AlamosGold AGI 20.96 -0.09 CarMax CMX 74.05 0.38

Albemarle ALB 95.52 -1.13 Comcast Comcast CTLT 58.97 0.31

Albertsons ACI 18.23 -0.22 ComEd CEP 41.37 -2.72

Alcoa AA 40.56 -0.40 Carnival CCL 22.16 0.06

Alcon ALC 93.27 -1.24 Carnival CUK 20.08 -0.06

AlexandriaReit ARE 113.41 1.76 CarpenterTech CRS 159.57 -3.18

Allstate ALL 189.44 2.87 CarringtonGlobal CRB 73.60 -1.00

AllYFinancial ALLY 36.10 1.00 Cecileste CLS 69.78 -0.18

AlynamPharm ALYM 281.49 -3.20 Cencosud CRR 229.48 -0.29

Alphabet C GOOGL 1761.4 5.00 Centerline CTRN 207.31 -0.31

AlightSolutions ALTR 106.83 -2.04 CanadianGenes CSG 398.31 -0.20

AllianzEnergy LNT 59.28 -0.42 Catalent CTLT 58.97 0.31

i AllisonTrans ASNLSN 108.88 7.93 Caterpillar CAT 379.24 -0.87

Allstate ALL 189.44 2.87 Celanese CE 127.02 0.84

AllYFinancial ALLY 36.10 1.00 Celestica CLS 69.78 -0.18

AllypHarm ALYM 281.49 -3.20 Cenova CRR 229.48 -0.29

Alphabat C GOOGL 1761.4 5.00 Centerline CTRN 207.31 -0.31

AlightSolutions ALTR 106.83 -2.04 CanadianGenes CSG 398.31 -0.20

AllianzEnergy LNT 59.28 -0.42 Catalent CTLT 58.97 0.31

Altria MO 50.50 0.55 CentralBanks EBRB 6.64 0.05

Amazon.com AMZN 192.73 1.90 CharlesRiverLabs CRL 183.39 -2.61

Ambibe ABEV 2.27 -0.01 CharterComms CHTR 331.30 4.03

Amcor AMCR 11.06 0.13 CheckPoint CHKP 173.87 -0.99

Amdocs DOX 88.09 -0.54 Chemi CHM 558.70-74.00

AmerSports AS 17.62 -0.60 ChemEnergy CEN 181.92 -0.61

AmerAero AEE 86.61 0.60 ChemiEnterprs CQF 49.42 -0.22

AmericaMovil AMX 15.85 -0.26 CentraisBanks EBRB 6.64 0.05

AmerAirlines AAL 13.94 0.12 Chewy CHWY 26.51 -0.18

AEP AEP 97.40 0.01 Chipotle CMG 557.47 -4.76

AmerExpress AXP 27.08 3.65 Chipotle CMG 557.47 -4.76

AmericanAeroFin CAF 130.97 0.48 Chipotle CMG 557.47 -4.76

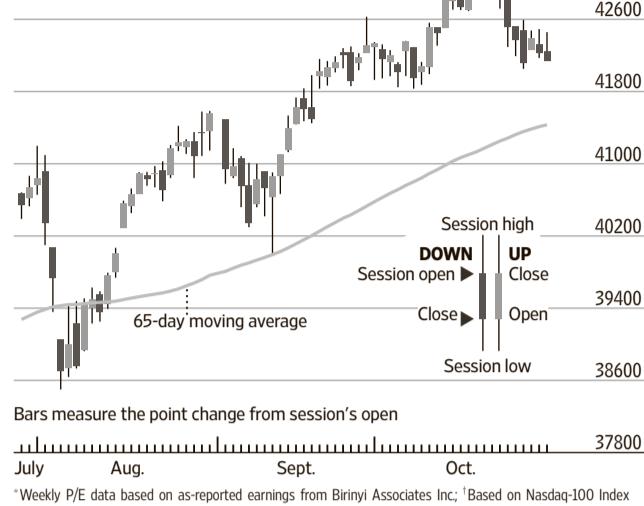
AmericanAeroFin CAF 1

MARKETS DIGEST

EQUITIES

Dow Jones Industrial Average

42141.54 ▼91.51, or 0.22%
High, low, open and close for each trading day of the past three months.



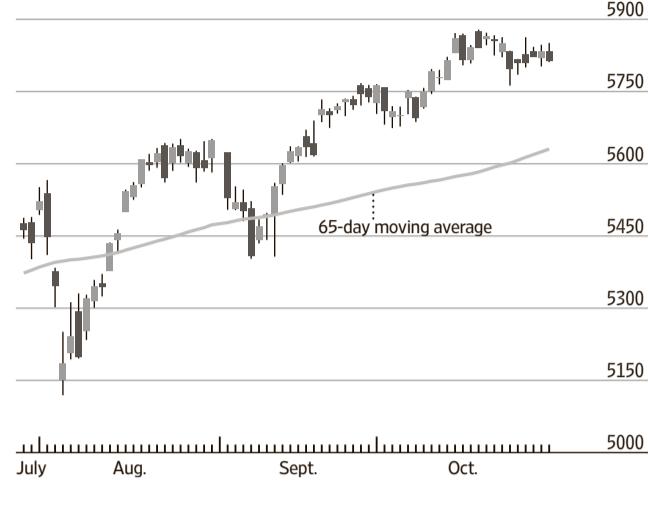
Bars measure the point change from session's open

July Aug. Sept. Oct.

*Weekly P/E data based on as-reported earnings from Birinyi Associates Inc.; Based on Nasdaq-100 Index

S&P 500 Index

5813.67 ▼19.25, or 0.33%
High, low, open and close for each trading day of the past three months.



July Aug. Sept. Oct.

*Weekly P/E data based on as-reported earnings from Birinyi Associates Inc.; Based on Nasdaq-100 Index

Nasdaq Composite Index

18607.93 ▼104.82, or 0.56%
High, low, open and close for each trading day of the past three months.



July Aug. Sept. Oct.

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	42457.92	42141.54	42141.54	-91.51	-0.22	43275.91	33274.58	26.6	11.8	5.6
Transportation Avg	16477.82	16231.37	16324.31	15.52	0.10	16562.66	14020.28	16.4	2.7	0.9
Utility Average	1037.89	1027.70	1029.23	-2.70	-0.26	1071.27	827.37	23.6	16.7	4.0
Total Stock Market	58017.93	57615.54	57636.85	-169.29	-0.29	58160.93	42004.55	37.2	20.6	6.5
Baron's 400	1247.18	1236.41	1238.07	-1.56	-0.13	1263.18	925.10	33.8	15.4	5.0

Nasdaq Stock Market

	High	Low	Latest Close	Net chg	% chg	High	52-Week Low	% chg	YTD % chg	3-yr.ann.
Nasdaq Composite	18785.49	18598.24	18607.93	-104.82	-0.56	18712.75	13061.47	42.5	24.0	6.3
Nasdaq-100	20559.52	20378.75	20387.70	-162.95	-0.79	20675.38	14664.91	39.0	21.2	8.8

S&P

	High	Low	Latest Close	Net chg	% chg	High	52-Week Low	% chg	YTD % chg	3-yr.ann.
500 Index	5850.94	5811.28	5813.67	-19.25	-0.33	5864.67	4237.86	37.2	21.9	8.1
MidCap 400	3173.60	3130.96	3138.39	-3.74	-0.12	3198.21	2381.14	31.8	12.8	3.9
SmallCap 600	1425.02	1402.51	1405.99	0.03	0.002	1442.34	1088.94	29.1	6.7	0.7

Other Indexes

	High	Low	Latest Close	Net chg	% chg	High	52-Week Low	% chg	YTD % chg	3-yr.ann.
Russell 2000	2260.48	2229.79	2233.04	-5.05	-0.23	2286.68	1669.70	33.7	10.2	-0.9
NYSE Composite	19506.10	19362.38	19416.27	-40.42	-0.21	19884.81	15002.55	29.4	15.2	4.5
Value Line	623.54	617.08	617.60	-1.44	-0.23	630.13	506.28	22.0	4.0	-2.7
NYSE Arca Biotech	5926.61	5845.41	5888.23	42.82	0.73	5953.12	4619.47	27.5	8.7	1.2
NYSE Arca Pharma	1048.74	999.73	1038.06	-10.68	-1.02	1140.17	857.70	21.0	14.1	10.1
KBW Bank	124.60	122.47	123.18	0.37	0.30	123.34	73.99	66.5	28.3	-3.9
PHLX® Gold/Silver	168.08	164.71	166.44	-2.22	-1.31	175.74	102.94	50.4	32.4	8.7
PHLX® Oil Service	75.09	73.80	73.91	0.22	0.30	95.25	72.67	-14.7	-11.9	6.9
PHLX® Semiconductor	5228.53	5151.85	5153.49	-178.68	-3.35	5904.54	3290.95	56.6	23.4	14.3
Cboe Volatility	20.44	19.30	20.35	1.01	5.22	38.57	11.86	20.6	63.5	7.8

\$Nasdaq PHLX

Sources: FactSet; Dow Jones Market Data

International Stock Indexes

Region/Country	Index	Close	Net chg	Latest % chg	YTD % chg
World	MSCI ACWI	844.94	-3.14	-0.37	16.2
	MSCI ACWI ex-USA	339.11	-1.570	-0.46	7.1
	MSCI World	3706.29	-11.57	-0.31	16.9
	MSCI Emerging Markets	1126.51	-9.96	-0.88	10.0

Americas

	High	Low	Latest Close	Net chg	% chg	High	52-Week Low	% chg	YTD % chg	3-yr.ann.
MSCI AC Americas	2187.25	-7.21	-0.33	20.6	10.6					
S&P/TSX Comp	24507.79	-54.76	-0.22	16.9	16.9					
MSCI EM Latin America	2139.07	-25.17	-1.16	-19.7	-19.7					
Bovespa	130639.33	-90.60	-0.07	-2.6	-2.6					
S&P IPSA	3546.96	-66.22	-1.83	2.3	2.3					
S&P/BMV IPC	50877.24	-289.05	-0.56	-11.3	-11.3					

EMEA

	High	Low	Latest Close	Net chg	% chg	High	52-Week Low	% chg	YTD % chg	3-yr.ann.
STOXX Europe 600	511.51	-6.48	-1.25	6.8	16.2					
Eurozone	504.00	-6.36	-1.25	6.3	6.3					
Bel-20	4229.83	-54.61	-1.27	14.1	14.1					
OMX Copenhagen 20	<b									

NEW HIGHS AND LOWS

WSJ.com/newhighs

The following explanations apply to the New York Stock Exchange, NYSE Arca, NYSE American and Nasdaq Stock Market stocks that hit a new 52-week intraday high or low in the latest session. % CHG—Daily percentage change from the previous trading session.

Wednesday, October 30, 2024

	Stock	52-Wk % Sym Hi/Lo Chg	Stock	52-Wk % Sym Hi/Lo Chg	Stock	52-Wk % Sym Hi/Lo Chg
Highs	AspenTech AZCM 109.98 -1.0	AssoctdBank ASB 24.31 2.0	AthenaTechI AETK 13.41 -4.0	CadenceSoft CADE 34.85 0.7	EmpresaDisCom EDN 28.76 1.9	ElectroCore ECOR 12.01 2.8
AECOM ACM 109.98 -1.0	AttUnionPfd AUPBp 25.14 ...	Auroralnrm AUR 7.01 -3.9	CamdenNational CAC 43.75 0.5	EnergySvcsAmerica ESOA 11.80 -2.8	GatesIndustrial GATES 127.33 -0.1	FreightCarAmer FGC 31.80 3.0
AltTransportRt ATIRR 0.50 -3.1	AuroraGold AUST 3.19 -1.3	AutoTrustREIT CTR 19.35 2.3	Aviation AVIA 19.07 -0.7	EnLinkMid ENLC 14.94 0.4	EnsignGroup ENSG 158.22 -0.6	FreightCarAmer FGC 31.80 3.0
ASP Isotopes ASPI 9.23 19.8	AustinGold AUST 3.19 -1.3	BarkerBkshs BARK 19.07 -0.7	BarryGlobal BHRS 34.05 0.2	BarryGlobal BHRS 34.05 0.2	BarryGlobal BHRS 34.05 0.2	FreightCarAmer FGC 31.80 3.0
AZCust2Mate AZ 5.59 4.6	BBBermudaNts BIP 19.50 -0.4	BethelPharm BIP 19.50 -0.4	BethelPharm BIP 19.50 -0.4	BethelPharm BIP 19.50 -0.4	BethelPharm BIP 19.50 -0.4	FreightCarAmer FGC 31.80 3.0
AbbVie ABBV 20.35 6.4	BoeingCo BATX 38.77 -1.2	BoeingCo BATX 38.77 -1.2	FreightCarAmer FGC 31.80 3.0			
AdtalemGibEduc ATGE 85.26 9.5	BoeingCo BATX 38.77 -1.2	BoeingCo BATX 38.77 -1.2	FreightCarAmer FGC 31.80 3.0			
AffiliatedMtrs AMG 199.52 0.7	BonitaBermuda BVFL 15.75 -0.1	BonitaBermuda BVFL 15.75 -0.1	FreightCarAmer FGC 31.80 3.0			
AlaskaAir ALK 47.46 0.7	BonitaBermuda BVFL 15.75 -0.1	BonitaBermuda BVFL 15.75 -0.1	FreightCarAmer FGC 31.80 3.0			
AllianceEnt AENT 4.39 12.4	BonitaBermuda BVFL 15.75 -0.1	BonitaBermuda BVFL 15.75 -0.1	FreightCarAmer FGC 31.80 3.0			
AllisonTransm ALSN 109.30 7.9	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
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AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	FreightCarAmer FGC 31.80 3.0			
AlphaWestAcqRt ATMVR 11.21 -0.7	BankCalifornia BANC 16.01 -1.2	BankCalifornia BANC 16.01 -1.2	Bank			

BUSINESS & FINANCE

AXA Investment Managers Sees Interest in Europe Credit

By MEGUMI FUJIKAWA

TOKYO—More money is set to flow into European assets and away from American ones—particularly toward corporate bonds—as political uncertainty clouds the U.S. policy outlook ahead of the presidential election, AXA Investment Managers said.

The firm has neutralized its risk exposure to the U.S. as the Nov. 5 presidential election draws near, said Marion Le Morhedec, global head of fixed income at the investment-management arm of French insurer AXA.

"We are expecting to continue to see the interest in European bond markets, mostly in credit," she told The Wall Street Journal.

Le Morhedec thinks a victory by Republican candidate Donald Trump would likely spur more volatility in financial markets than a win by Democratic candidate Kamala Harris.

"With Trump, it could be more of a shock because if tariffs are really being increased, it creates an inflation shock rather than smoothen the increase of inflation expectations," she said.

Trump has floated the idea of sharply raising tariffs on goods imported into the U.S., which economists say could drag on growth and spur inflation. Economic policies suggested by Harris, like tax credits and incentives, also could keep inflation in the U.S. from slowing further, some analysts say.

An election outcome that generates more uncertainty and potentially affects the pace of the Federal Reserve's rate-cutting cycle stands to heavily influence markets' risk appetite.

Both the Fed and the European Central Bank embarked on rate cuts this year as inflationary pressures cooled from a peak triggered by the pandemic and the war in Ukraine. In Le

Morhedec's view, inflation has been better controlled in Europe. Companies there also are on solid footing, adding to the appeal of European corporate debt, she added.

"Euro credit has been super successful this year," she said. "We see fundamentals of companies in Europe are very strong. They have been very resilient. They have been de-leveraging their balance sheet over the past years."

Against that backdrop, Le Morhedec thinks investors' interest will be fixed more on European corporates and not that much on sovereign debt, particularly given rising concerns about fiscal issues in some European Union economies.

She remains cautious about fiscal risks in the U.S., too.

"I'm expecting the [capital] flows to be favoring corporates compared to governments [bonds] and to be favoring Europe corporates compared to U.S. corporates,"

Le Morhedec said. Fears over the U.S. budget deficit have led to a selloff in Treasurys, with the 10-year yield rising to around 4.3% recently, the highest since July.

Recent moves by credit agencies highlight the fiscal challenges faced by some eurozone governments. Moody's Ratings last week lowered the outlook for France's sovereign debt to negative from stable, citing a worse-than-expected fiscal deterioration and rising risk that the government may not be able to stop the budget deficit from widening and debt affordability from worsening.

That followed a similar move by Fitch Ratings.

Le Morhedec said AXA Investment will continue to make investment judgments based on a long-term perspective.

As of end June, the firm had about €860 billion in assets under management, equivalent to about \$930 billion.

Starbucks Won't Hike Its Prices

Continued from page B1

want to provide," Niccol said about the condiment bar's return to Starbucks.

Dick Hallion, a 77-year-old Starbucks regular from Shalimar, Fla., said he was delighted to hear about the prospect of the condiment bar's return.

"I love the wooden stir sticks and the chance to have an extra napkin or two," said Hallion, who was sipping a Venti Mocha latte from Starbucks late Wednesday.

Many coffee shops removed



Starbucks is bringing back its condiment bars.

cream and sugar stations and put condiments behind the counter during the Covid-19 pandemic. Starbucks largely hadn't, though licensees operating at hotels, airports, grocery stores and other locations were allowed to bring back condiment bars.

The world's largest coffee chain said that restoring the condiment bar would make it easier and faster for customers to order brewed beverages the way they want them.

The announcements Wednesday came as the Seattle-based chain laid bare some of the challenges that it is facing, from a slowdown in customer visits to rising costs. Starbucks last week suspended its financial guidance for its 2025 fiscal year. It also disclosed earnings and sales for its fourth quarter that fell short of analysts' estimates.

Starbucks said Wednesday that revenue from North America dropped 3% in the most recent quarter, as new-store openings couldn't cushion the blow from sagging U.S. sales. Customer traffic dropped across all parts of the day, and new types of beverages failed to reverse the declines, the company said in an earnings call Wednesday.

Berkshire Partners Raises \$7.8 Billion For New Fund

By CHRIS CUMMING

and macroeconomic tailwinds, Ascione said. Since its founding, Berkshire's funds have recorded a net investment value of two times paid-in capital and a 28% net internal rate of return, according to a May pension document from the Oklahoma City Employee Retirement System, which backed the newest fund.

Limited partners were encouraged by Berkshire's large general-partner commitment as well as the substantial amount of capital the firm has returned to investors in recent years, as other firms have struggled with exits, said Managing Director Mike Ascione.

The fund

Berkshire's latest fund exceeded both its \$6.5 billion fundraising target and the \$5.8 billion the firm raised for a predecessor fund in 2021.

Virtually all of Berkshire's existing investors backed the new vehicle, and the firm also expanded its investor base internationally, collecting capital from backers in 26 countries, Ascione said.

U.S. private-equity funds have raised about \$236 billion since the start of the year through September, a slower pace than in 2023, according to data firm PitchBook. The main problem has been a dearth of exits roughly since 2021, leaving LPs with less capital to commit to new funds.

But many in the industry are growing more optimistic as the worst of the private-equity downturn is over, particularly since the Federal Reserve began to bring down interest rates last month.

U.S. private-equity exits since the start of the year through September totaled \$303 billion, more than full-year totals for 2022 or 2023, while deal activity, at \$650 billion, is on a better pace than last year, PitchBook data show.

The strategy

Berkshire invests in mid-market companies valued at between \$200 million and \$2 billion across four sectors: business services and industrials, healthcare, technology and communications, and consumer.

Founded in 1986, Berkshire strives for a consistent approach, backing businesses with good growth characteristics that benefit from industry

New Highs and Lows

Continued From Page B9		Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	52-Wk % Sym	Stock	
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Willdan	WLDN -0.26	RIM	0.29 -0.12	CMBTECH	CMBT -0.12 -0.18	GOREX	0.08 -0.05	KORESH	-0.05 -0.09	GOHWW	1.02 -0.59	KWESTMICROSYS	KWE -0.59	TCBIOPharm	TCBP -1.30 -0.79	OPVO	71.21 -22.72	TMTACUIN	TMTCU -0.87 -26.1	QNLSP	7.82 -2.4	REGENBX	REGN -0.87 -22.9	TMTCU	8.87 -26.1
WintrustFinl	WTFC 118.69	ALLR	1.26 -0.58	CVD	CVV -2.96 -3.36	GROCERYOUTLET	GOGL -0.17 -0.13	KNDI	1.33 -0.69	KNDI	1.33 -0.69	KONRADTECH	KNDI -0.69	TCR	8.82 -2.4	TEMPESTTherap	TPST -0.88 -12.9	NATResSearch	17.62 -0.8	RELAYTherap	RLAY -5.70 -3.2	TMTCU	8.87 -22.9		
XPO	XPO 138.71	ANTR	0.33 -0.54	ANTEROEnergy	ANER -0.33 -0.54	GUSS	0.17 -0.13	GRUPSimec	GRUP -0.25 -0.25	GRUP	17.16 -2.3	LIfeMed	GRUP -0.25 -0.25	TRM	1.53 -5.9	REGENBX	REGN -0.87 -22.9	LIfeMed	1.53 -5.9	GRUP	1.53 -5.9	LIfeMed	1.53 -5.9	TMTCU	8.87 -26.1
ZionsBancorp	ZION 53.85	AHL	0.18 -0.16	AntelopeEnterprise	AHEL -0.21 -0.27	CPRI	0.21 -0.27	LIfeMed	0.17 -0.25	LIfeMed	0.17 -0.25	LIfeMed	0.17 -0.25	TRM	1.53 -5.9	REGENBX	REGN -0.87 -22.9	LIfeMed	1.53 -5.9	LIfeMed	1.53 -5.9	LIfeMed	1.53 -5.9	TMTCU	8.87 -26.1
Lows		BIOT	-0.10 -0.19	Biogen	BIOG -0.75 -0.46	FOMC	FOXM -0.26 -0.25	GRUP	GRUP -0.25 -0.25	GRUP	1.26 -0.58	GRUP	1.26 -0.58	GRUP	1.26 -0.58	GRUP	1.26 -0.58	GRUP	1.26 -0.58	GRUP	1.26 -0.58	GRUP	1.26 -0.58	GRUP	1.26 -0.58
AxonOncology	ALKO 1.36	ABEV	0.45 -0.12	Biopharm	BIOP -0.57 -0.18	CenturyTherap	CTPH -0.26 -0.25	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31
AboveFood	ABVE 0.35	ADTX	0.53 -0.58	BiotaPhar	BIOT -0.35 -0.46	ContainerStore	CTNS -0.48 -0.35	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31	EdibleGarden	EDBL -0.14 -0.31
AdvanceAuto	AAP 35.77	AGC	0.26 -0.24	BlueStarFoods	BSFC -0.32 -0.11	Brilliant	BRIL -0.32 -0.22	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26
agilon health	AKAN 0.76	AGC	0.23 -0.24	BoorDrilling	BOOR -0.42 -0.13	Brownstein	BROW -0.32 -0.11	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26	CarbonTech	CRSV -0.34 -0.26
Akanda	AKAN 0.76	Broadwind	0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40	Broadwind	BWEN 0.18 -0.40		
AlgonquinPower	AQN 4.79	BungeGlobal	0.01 -0.15	BungeGlobal	BG 85.08 -0.23	DDC Enterprise	DDC -0.22 -0.96	GoldResource	GORO 0.14 -13.4	GoldResource	GORO 0.14 -13.4	GoldResource	GORO 0.14 -13.4	GoldResource	GORO 0.14 -13.4	GoldResource	GORO 0.14 -13.4	GoldResource	GORO 0.14 -13.4	GoldResource	GORO 0.14 -13.4	GoldResource	GORO 0.14 -13.4	GoldResource	GORO 0.14 -13.4

Largest 100 exchange-traded funds. Preliminary close data as of 4:30 p.m. ET

Wednesday, October 30, 2024

ETF Symbol Closing Chg YTD %

MARKETS

Nasdaq Slips From Record High Despite Rally in Alphabet Shares

The Nasdaq Composite pulled back from Tuesday's record high following mixed results in the latest corporate earnings reports.

The tech-heavy index dipped 0.6%. The S&P 500 shed 0.3%, while the Dow industrials edged down 0.2%.

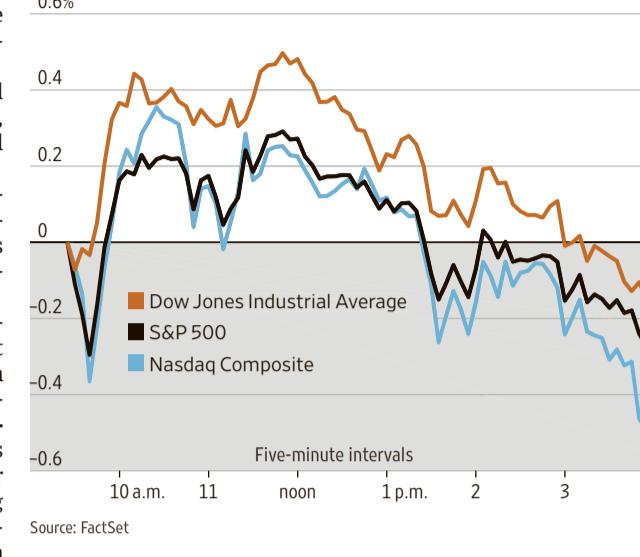
WEDNESDAY'S MARKETS Information-technology stocks were the worst-performing sector in the S&P 500, down 1.3%.

Disappointing revenue guidance from chipmaker AMD sent the stock tumbling 11%, with other semiconductor stocks including Qualcomm falling. Super Micro Computer shares sank 33% after the server maker disclosed that Ernst & Young had resigned as its auditor, saying it could no longer rely on management's representations.

Meanwhile, Class A shares of Alphabet jumped 2.8% after the Google parent reported strong results, bolstered by its cloud division. Reddit and Snap shares rallied after both social-media companies reported better-than-expected revenue.

In postmarket trading, Meta Platforms shares edged lower

Index performance on Wednesday



Source: FactSet

and Microsoft's stock ticked up after the companies reported earnings after the bell.

In economic news, the U.S. economy continued growing last quarter, but at a slower pace than the previous period, according to preliminary gross domestic product figures. Meanwhile, payroll data from ADP showed private-sector jobs in

October grew more than economists expected.

Elsewhere:

◆ The 10-year U.S. Treasury yield ticked down to 4.264%. Signs of a strong economy have lifted the benchmark yield recently as investors have recalibrated expec-

tations for interest-rate cuts.

◆ Bitcoin prices fell below \$72,000, stalling this week's rally. The cryptocurrency is increasingly viewed as a "Trump trade."

◆ Front-month Brent crude futures rose 2% to \$72.55 a barrel. A weekly report showed U.S. oil stockpiles decreased more than expected.

◆ European shares fell after regional inflation data came in slightly hotter than expected. The benchmark Stoxx Europe 600 declined 1.3%.

—Hannah Miao
and Chelsey Dulaney

AUCTION RESULTS

Here are the results of Wednesday's Treasury auction. All bids are awarded at a single price at the market-clearing bid. Rates are determined by the difference between that price and the face value.

17-WEEK BILLS

Applications	\$191,422,326,400
Accepted bids	\$64,179,856,400
*noncompetitively	\$599,190,200
*foreign noncompetitively	\$0
Auction price (rate)	98.535639 (4.430%)
Coupon equivalent	4.558%
Bids at clearing yield accepted	22.94%
Cusip number	912797NK9

The bills, dated Nov. 5, 2024, mature on March 4, 2025.

to migrate Credit Suisse client accounts and data to UBS platforms.

Executives have signaled the next stage in the integration process involves less savings and a ramp-up in costs. Nevertheless, UBS is now facing a tougher environment, with central banks across developed economies cutting interest rates and Swiss authorities considering proposals to increase capital requirements as part of new rules for "too big to fail" banks.

UBS's third-quarter reve-

STOCK SPOTLIGHT

Eli Lilly

Shares dropped 6.3% after the drugmaker reported lower-than-expected sales of its popular diabetes and anti-obesity drugs.

Visa

The credit-card company reported better-than-expected revenue and profit. Its shares jumped by 3%. The Wall Street Journal reported Tuesday that Visa plans to lay off around 1,400 employees and contractors.

Reddit

The social-media company reported its first quarterly profit as a public company. Revenue zoomed past expectations, due to increases in advertising and data-licensing sales. Shares surged 42%.

Trump Media

Shares of Truth Social's parent fell more than 22%, continuing a volatile streak. The stock was halted several times Tuesday, after surging on bets that Trump will win the election.

Robinhood

The online brokerage company reported third-quarter revenue and profit that missed Wall Street expectations, sending

shares down about 9% in afterhours trading.

Snap

The social-media company said quarterly revenue climbed 16%, narrowly beating expectations, and AI helped drive ad growth. Shares rose roughly 16%.

Chipotle

Shares declined 8% after the burrito chain's quarterly sales growth missed expectations.

Coinbase

Coinbase Global reported a surge in revenue and profit from a year ago, but fell short of analysts' expectations. Shares fell 5% in after-hours trading.

THURSDAY'S EARNINGS:

Before the bell:

Mastercard
Uber
Merck & Co.
Comcast
Kellanova

After the bell:
Amazon
Apple
Intel

UBS Swings to Profit as Credit Suisse Integration Moves Ahead

By ADRIA CALATAYUD

UBS Group swung to a third-quarter profit and the Swiss lender said it remains committed to its dividend and buyback ambitions, as it pressed ahead with the integration of Credit Suisse.

The banking group said it was unloading Credit Suisse noncore assets and achieving savings faster than expected. At the same time, strong trading-desk and dealmaking activity helped the group's key global wealth management

business and its investment bank deliver better-than-anticipated results.

UBS said Wednesday that net profit for the third quarter was \$1.425 billion compared with a loss of \$715 million in the same quarter last year. The results benefited from lower expenses arising from UBS's integration of Credit Suisse after last year's rescue takeover at the behest of Swiss authorities.

Costs linked to the deal sank the bank into the red initially, but UBS swung back to

profitability earlier this year as the integration bills shrank and exits from noncore assets picked up.

UBS said the wind-down of assets housed by its noncore and legacy unit—where the bank put former Credit Suisse assets it wants to exit—remains ahead of plan, with a reduction of \$5 billion last quarter.

It expects to achieve about \$7.5 billion in gross savings from the deal by the end of the year, ahead of its previous aim of around \$7 billion, out

of a total of \$13 billion by the end of 2026. The savings target is relative to a 2022 baseline.

Even though the Credit Suisse deal was completed more than a year ago, UBS has been effectively running two banks with their own systems and infrastructure up until now.

It completed the first integration phase—which included shedding noncore assets, merging different entities and cutting jobs—earlier this year and is beginning

to migrate Credit Suisse client accounts and data to UBS platforms.

Executives have signaled the next stage in the integration process involves less savings and a ramp-up in costs.

Nevertheless, UBS is now facing a tougher environment, with central banks across developed economies cutting interest rates and Swiss authorities considering proposals to increase capital requirements as part of new rules for "too big to fail" banks.

UBS's third-quarter reve-

nue rose 5.5% to \$12.33 billion, as growth at the group's investment bank and its key global wealth-management business offset a decline in net interest income. The bank said the units benefited from strong transactional activity.

The global wealth-management unit brought in \$25 billion of net new assets, after attracting inflows of \$27 billion in each of the first two quarters of the year.

UBS said underlying pretax profit climbed to \$2.39 billion from \$914 million.

HEARD ON THE STREET

Cheap Mortgages Aren't All Good for Builders



Home builders could get pinched when mortgage rates fall enough to lead owners of existing homes to sell.

Very little feels normal in today's housing market, including how home builders' stocks have been on a tear during a period of sky-high interest rates. Things could be equally weird as mortgage costs come down.

Home-building stocks surged within months of the Federal Reserve's first interest-rate increase in spring 2022. Costlier debt should be bad news for these businesses, damping demand by making homes less affordable for buyers and making it more expensive to finance land purchases and development. Instead, the share prices of some of America's biggest home builders—D.R. Horton, Lennar and PulteGroup—have more than doubled through this hiking cycle.

New-home sales rose 6% in September compared with a year ago, mainly because there has been so little else available to buy. Sales of existing homes this year are expected to be at their lowest level since 1995.

To keep new homes affordable, home builders have shrunk the size of the houses they construct by around 5%. They also offer incentives to prospective buyers, primarily mortgage-rate buy downs. Thanks to the run-up in home prices and healthy profits, the big publicly traded companies can offer buyers a mortgage rate of around 4.5% or 5%, even though the market rate is significantly higher.

This has kept sales volumes up,

but it is costly. America's biggest house builder, D.R. Horton, said on Tuesday that its gross profit margin fell in its latest quarter because it needed to buy down mortgage rates to nudge people to buy homes. For every 1 percentage point a home builder buys down a mortgage, there is a hit of 3 to 4 percentage points to gross margins, says UBS analyst John Lovello. D.R. Horton thinks extra incentives may be needed to keep people buying in the crucial spring selling season next year as affordability remains so stretched. The builder says volatile mortgage rates, which have risen since the Fed cut in September, have spooked home hunters.

When mortgage rates do eventually come down, these incentives won't be as necessary. But there will be new risks to consider around supply. The big question is what is the magic mortgage rate that will unlock the supply of existing homes.

Around 60% of outstanding U.S. mortgage holders have a rate below 4%. There is pent-up demand to sell homes, and equity as a share of total real-estate value has hit 73%, the highest level since the 1950s. This may make homeowners willing to take the hit on a more-expensive mortgage sooner than peo-

ple think. Home builders are finding that buying down mortgage rates to 5% or 5.5% gets buyers off the fence, but the number that will motivate sellers is murkier.

In some pockets of the country, there is already a pickup in inventory as homeowners decide they can't wait any longer to sell. In Florida and Texas, listings of homes for sale are now 9% and 10% above pre-pandemic levels, respectively, based on data from the Fed-

eral Reserve Bank of St. Louis. In these markets, it is getting tougher to unload newly built properties.

Home builders have some advantages as new builds look more attractively priced relative to existing homes than they usually are. The median newly built single-family home was 4% more expensive than an existing home in September, according to UBS analysis. Historically, the price gap has averaged 18%.

The premium has shrunk because new homes are becoming smaller, but also because choked supply has pushed the price of existing homes to records. With buyers more focused on energy efficiency and stability of insurance costs, especially in stormier parts of the country, new builds might appeal to more buyers.

But home-builder stocks aren't cheap after their recent runup. D.R. Horton, Lennar and PulteGroup are currently trading at anywhere from 1.7 to 2 times book value, which is above the 10-year average for all three names. And the lower rates go, the more supply will unlock from regular sellers. In this strange housing market, cheaper mortgages seem more likely to mark the end of a boom for house builders than the start of a new one.—Carol Ryan

Reddit Ears A Huge Upvote

The idea of **Reddit** as an AI winner seemed a stretch seven months ago. But it is proving out—and that isn't the only thing going right for the upstart social network.

Reddit's stock price soared 42% Wednesday following the company's third-quarter report.

Revenue jumped 68% year over year to \$348.4 million, soundly beating Wall Street's targets. Reddit posted net income of \$29.9 million—surprising analysts who expected a loss of \$8.8 million. It was only the third time the company has shown a profit based on generally accepted accounting principles, but this time might stick.

Analysts now expect a net profit of \$40 million for this quarter, while the full-year profitability target for 2025 exploded to \$113 million from \$17.5 million, according to the consensus estimate on FactSet.

Reddit's licensing deals with AI companies is a big reason why its earnings are soaring. The company reported "other revenue" of \$33.2 million for the quarter coming mostly from those deals, which was up 547% from a year earlier.

Other revenue was less than 1% of Reddit's total in 2023. But that contribution has jumped to more than 9% of the company's revenue so far this year, and analysts expect it to surpass 11% next year, according to estimates from Visible Alpha. Mark Shmulik of Bernstein estimates that data-licensing revenue has a profit margin of more than 90% for Reddit.

But Reddit's success as an advertising platform shouldn't be dismissed either. The company has added more than 24 million daily active users in the first nine months of this year. That has driven accelerating growth in ad revenue. Brian Nowak of Morgan Stanley notes that the company's "low-priced inventory (and its innovation) is enabling it to capture share of brand and [direct response] experimental budgets." Reddit is clicking for more than just hungry AI models these days.

—Dan Gallagher

HEARD ON THE STREET

FINANCIAL ANALYSIS & COMMENTARY

Google Looks to What It Can Control

Share-price and index performance, year to date



Google might be the largest company in the world whose fate seems completely out of its hands these days, but the \$2 trillion internet giant still has a few cards it can play.

Some of them were on display in the third-quarter report from **Alphabet**, the parent company, late Tuesday. Revenue and operating income beat Wall Street's estimates thanks to strength in the company's core search business and its cloud-computing operation.

Google Cloud's revenue jumped 35% year over year, up 6 percentage points from the growth rate shown in the previous quarter. The unit logged operating income of \$1.9 billion, 77% ahead of analysts' consensus targets, according to FactSet.

Meanwhile, Google's services

segment, comprising search, YouTube ads, subscriptions and devices, generated operating income of nearly \$30.9 billion, 9% above expectations. It produced an operating margin of 40.3%—the highest since Alphabet began reporting profitability data for its core business going back to late 2019.

Alphabet's share price jumped nearly 3% Wednesday. The stock was well primed for some good news, having lost almost 7% of its value since the company's last earnings report because of growing worry about blowout spending on artificial intelligence capabilities. While that is a concern hanging over Google's megacap tech peers, Google also is contending with several antitrust cases brought by the

federal government. The Justice Department is expected to file papers by Nov. 20 that could seek a breakup of the company.

Questions about Google's destiny have weighed on the shares of its parent. Alphabet's stock trades at 20 times projected earnings for the next four quarters—the cheapest among megacap techs including **Apple**, **Amazon.com** and **Meta**.

Platforms. The company has vowed to fight the government's breakup efforts, which likely extend uncertainty well into next year at least.

What Google can do in the meantime is deliver a robust bottom line in an age when tech giants are pouring billions into AI investments looking to power growth. Tuesday's report gave some clues

as to how. Alphabet added nearly 1,700 workers to its rolls during the quarter after two consecutive periods of declines. But the recent hires were still well below the company's norm for the third quarter, when it has historically onboarded loads of top university graduates.

Anat Ashkenazi, Google's chief financial officer, signaled Tuesday that costs will remain a major focus. Capital spending is on track to surpass \$51 billion this year—up 59% from last year. But Ashkenazi said that next year's spending is unlikely to grow at the same pace. She added, "We will be looking for efficiencies so that we can fund innovation in priority areas."

A more-frugal Google is a better look these days. —Dan Gallagher

Electric Air Taxis Struggle

Electric air taxis may not need a lot of runway to land, but they still need a lot of cash to take off.

Lilium, a startup that develops electric vertical takeoff and landing vehicles, or eVTOL, announced last week that its principal German subsidiaries will apply for self-administration proceedings, the rough equivalent of the U.S.'s Chapter 11 bankruptcy.

Doubts surrounding the viability of the Munich-based company have long been raised, but executives kept managing to secure rounds of funding.

This time, however, the German Green Party, a member of the coalition government, moved to block an expected 100-million-euro loan, equivalent to \$108 million, to be extended by state-owned bank KfW, which "was a closing condition to already committed private funding," the company said this past week. It has since also failed

to secure money from Bavarian officials.

International competitors have been "receiving grants and loans in the U.S., France, China, Brazil, and the U.K.," Lilium added.

Indeed, California's **Joby Aviation**, Britain's **Vertical Aerospace** and Brazil's **Eve Air Mobility** all have received government aid.

Executives still believe they will find a solution to inject fresh money into the company and emerge from self-administration. The U.S.-listed shares of Lilium closed Wednesday at around 11 cents each. This represents a 99% drop from when Lilium completed its merger with a "blank-check" special-purpose acquisition vehicle on Sept. 15, 2021, and will lead Nasdaq to delist them, the company confirmed in a regulatory filing Tuesday. Still, it may reflect a small chance of a positive outcome.

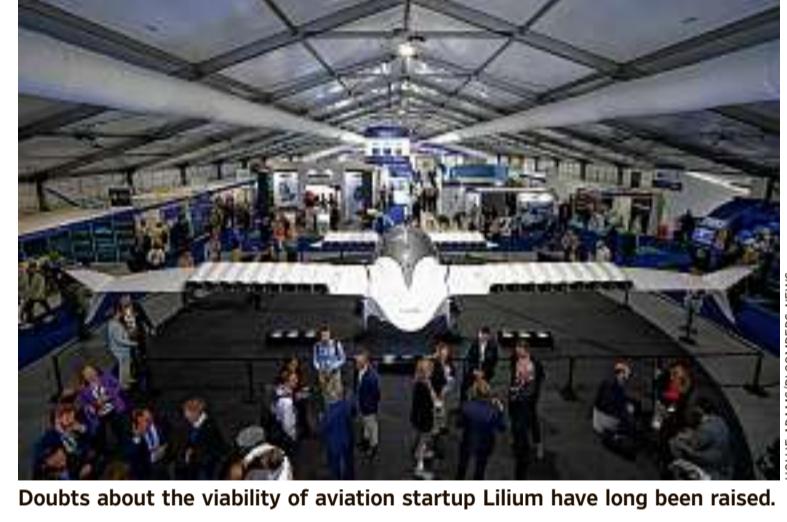
Ultimately, the main problem is

that markets are far less bullish about this sector than they were during the craze of 2021 and 2022, which channeled money into all sorts of moonshots. All of these eVTOL makers became public companies then, and have since lost most of their market value.

Lilium had a cash outflow of €191 million in the first half of 2024, across both operations and capital investments.

Wall Street's projections have it burning a further €1.2 billion over the next five years, even assuming it met its incredibly ambitious target of starting to deliver jets in late 2026. This would be 12 times the cash that Lilium was expected to have had at the end of 2024 if the capital raise had gone through.

Other eVTOL makers aren't in a flattering position either: Joby's projected ratio is 10 times and Eve's four times. These imply a lot



Doubts about the viability of aviation startup Lilium have long been raised.

of make-it-or-break-it capital raises before they are truly up and running. Still, Joby has completed about a hundred piloted test flights, which explains why **Toyota** gave it another \$500 million this month. And Eve is 80% owned by its parent company, plane maker **Embraer**.

Nevertheless, Lilium's predicament is a good reminder of why startups selling a hypothetical product in a hypothetical market have long been the domain of private markets and governments. Air taxis still need faith, not rational market calculus, to levitate.

—Jon Sindreu

Rage Against the Dying of the Light*

* Dylan Thomas

Last year, my father actually gave up on reading – the eyestrain was just overwhelming. But now, with this lamp, Dad can even read his newspaper again. Thanks for delivering on everything stated in your ads and restoring my father's favorite hobby – reading!"

—Sara H.
Arlington, Va.

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DAYLIGHT SAVINGS ENDS NOV. 3, 2024

* Dylan Thomas " – Do Not Go Gentle Into That Good Night"

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THE FUTURE OF EVERYTHING

A LOOK AHEAD FROM THE WALL STREET JOURNAL.

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ISSUE

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THE FUTURE OF EVERYTHING | HEALTH

THESE VACCINES AIM TO STOP CANCER BEFORE IT STARTS

The latest shots, some in human trials, could help patients at high risk for disease. **By Brianna Abbott**

Researchers are making progress toward vaccines that train healthy people's immune systems to eliminate signs of cancer before it develops.

Vaccines are in early trials for people with inherited genetic mutations that put them at a greater risk. Other shots are designed to destroy precancerous lesions to stop full-blown disease.

"It's the future of cancer prevention," says Dr. Ajay Bansal, a gastroenterologist at the University of Kansas Cancer Center.

He is testing three vaccines for people with Lynch syndrome, a genetic condition that carries up to an 80% risk of developing colorectal cancer, often before age 50. The trial is part of a cancer-vaccine renaissance. After decades of disappointment, advanced technologies and a better understanding of the immune system have rejuvenated the field. Companies including Moderna are developing vaccines to treat cancer or keep disease from coming back.

"It's like the little train that could has finally reached the top of the hill," says Dr. Nora Disis, director of the Cancer Vaccine Institute at UW Medicine in Washington state.

pathogens or noncontagious pieces of them. That mimics an infection, teaching the immune system to later quickly recognize and attack the real threat.

But most cancers aren't caused by infections. They start with mutated cells that blend in with healthy tissue. Researchers are testing proteins those cells produce as they become cancerous as potential targets for vaccines. The goal is to introduce those proteins to the body and flag them as dangerous. That would train the immune system to hunt down those abnormal cells, similar to attacking an infection.

Many consider cancer vaccines to be a form of immunotherapy, a kind of treatment that has revolutionized cancer care by using the immune system to beat back cancer cells. Some of those therapies release the brakes on the immune system. Cancer vaccines, by contrast, are meant to boost the immune response and direct it where to go.

"Cancer cells and even pre-cancer cells know how to hide from the immune system," says Dr. Neeha Zaidi, a medical oncologist at the Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins. "It needs that help from a vaccine."



◀ Sara Walker, left, inherited a BRCA gene mutation that increases risks for cancer, and is testing a vaccine. Right, she and her daughters look at photos of Sara's mother, who was diagnosed with cancer three times and died in 2019.

for pancreatic cancer. At four months, all the participants had generated immune responses against the KRAS proteins, with no safety concerns.

While some are using protein pieces in the shots, others are taking advantage of mRNA and DNA technologies. They send snippets of genetic material to act as a blueprint for our bodies to make those target proteins ourselves—with the aim of generating an immune response against them.

At Penn Medicine, researchers are testing a DNA vaccine followed by a small electric shock to propel the DNA into cells. There, the DNA is used to make an enzyme called telomerase, which creates a protein that is overabundant in many cancers. The shot also includes a drug meant to alert the immune system to the threat.

It is being tested for people with inherited BRCA gene mutations, which increase the odds of breast and ovarian cancers, among others.

Sara Walker, 45, got the shot four times over four months starting last summer. Her only side effect was a sore arm. Walker, a school psychologist in Philadelphia with two daughters and a son, found out she was a BRCA2 carrier in 2018. Her mother had just been diagnosed with cancer for the third time.

Walker had her fallopian tubes removed, followed by a double mastectomy, standard procedures to lower the cancer risk for healthy women with BRCA mutations. She later got a hysterectomy and takes hormone-replacement therapy. Her mother died in 2019, at age 70.

Walker and other trial participants went through these cancer-preventing steps because the early trial is measuring safety and immune response, not cancer development. And researchers don't yet know if the vaccine will work. But if it does, future BRCA carriers might be able to safely skip those procedures.

"To know my girls would not have to have their breasts removed, their ovaries removed, that's life-changing," she says. Her children haven't been tested, but each has a 50% chance of inheriting the mutation.

Dr. Robert Vonderheide, director of Penn Medicine's Abramson Cancer Center, says the work could extend to more cancers or risk factors, and that even a universal vaccine could be possible.

Others are skeptical that all cancers could be conquered with a single shot. Cancer is a scourge made up of many distinct diseases. Cancers of the same type can have multiple causes.

"We don't have a universal flu vaccine, let alone an all-infectious-disease vaccine," says Dr. G. Thomas Budd, who is leading a study at the Cleveland Clinic of a vaccine designed to prevent one kind of breast cancer. He says he can envision a future in which people hedge their biggest cancer risks with specific vaccines.

Olivera Finn, a professor of immunology at the University of Pittsburgh School of Medicine, is recruiting patients with precancerous breast lesions, hoping to stop them from turning into invasive breast cancer. She plans to vaccinate them with a shot targeting a protein called MUC1 that is overabundant in cancers including breast, colon and lung.

An earlier trial of the shot didn't generate the anticipated immune response in people at high risk for lung cancer. The researchers found that many of those in the trial, who were current and former smokers, had suppressed immune systems.

In another study, Finn and her team enrolled more than 100 people with precancerous polyps that put them at high risk for colon cancer. Their polyps were removed, and half got the MUC1 vaccine while the others received a placebo. A quarter of people who got the vaccine developed an immune response. More than two years after vaccination, those who had developed the response had a 38% reduction in polyp recurrence compared with the placebo group.

"It's a small trial," Finn says. "But it really gave us a signal the vaccine can work."



'It's the future of cancer prevention.'

◀ Dr. Ajay Bansal, a gastroenterologist at the University of Kansas Cancer Center.



Vaccines that prevent some cancers already exist; they target viruses that cause cancer. One vaccine protects people against HPV infections that can lead to cervical and other cancers. Another targets hepatitis B, which can result in liver cancer after a long-term infection.

These are more traditional vaccines, which often contain weakened

Zaidi is targeting mutated proteins connected to a gene called KRAS, which can malfunction and spur tumor growth for lung, pancreatic and other cancers. She and her team designed a vaccine that uses pieces of mutated KRAS proteins and a drug meant to activate immune cells.

The shot showed promise in an early trial with 15 people at high risk

THE FUTURE OF EVERYTHING | HEALTH



IS SLEEP ALL IN YOUR HEAD? NEW DEVICES TARGET THE BRAIN.

These wearables promise to speed up the onset of sleep, improve the quality of rest, and even help with jet lag. **By Jo Craven McGinty**

The clock is ticking. You should have been asleep long ago. But instead, you're lying in bed wide awake, wondering if you'll ever doze off.

New gadgets that target the brain promise to speed up the onset of sleep, improve the length and quality of rest, and even transition travelers to a different time zone before their planes touch down.

This isn't as far out as it sounds.

For the last decade, neuroscientists have studied the modulation of brain waves in patients with dementia, Alzheimer's disease or other neurological or mental-health conditions to improve sleep, memory and cognition.

"The scientific community believes that brain stimulation can indeed modulate the sleeping brain," said Ronald Gopal Malkani, an associate professor of neurology specializing in sleep at Northwestern Feinberg School of Medicine and the Jesse Brown Veterans Affairs Medical Center in Chicago.

In one sleep study aimed at improving memory, Malkani gives patients pairs of associated words, such as "car" and "engine." Those who receive targeted bursts of sound delivered through headphones during the deepest phase of sleep have better memory the next day when they are given one word and asked to recall the second. Malkani cautions, however, that using sound as a medical treatment is still being researched.

The timing of the stimulation is guided by electroencephalogram, or EEG, a painless recording of the brain's electrical activity using sensors attached to the scalp. While you're awake, brain waves cycle at a speed of 8 to 12 hertz, but during the deepest phase of sleep, known as slow wave sleep, the cycle slows to 0.5 to 2

hertz—as few as one oscillation every two seconds.

Now, companies are leveraging this type of research to create wearable products they say will improve sleep in healthy individuals. More than 30% of adults in the U.S. report sleep disturbances, according to the Centers for Disease Control and Prevention, and by one estimate, 60% of that number—roughly 46 million people—say they have trouble nodding off.

The devices, often packaged as a headband with a companion app, promise to help people fall asleep faster by encouraging waking brain waves to slow down sooner.

Elemind, one of the latest wearables on the market, houses five EEG sensors that read a user's brain waves and a tiny speaker that delivers targeted bursts of sound at specific points in the oscillations.

"The idea is that if we can disrupt the brain waves associated with wakefulness, then someone will fall asleep faster," said Meredith Perry, chief executive and co-founder of Elemind.

The headband delivers around 15,000 auditory pulses in 30 minutes at bedtime, or approximately 10 a second. The staccato beat is reminiscent of a sprinkler spraying a lawn. To make the experience more pleasant, the sound of rainfall plays in the background. Both sounds are intended to be inaudible to a sleeping partner.

StimScience, another company, uses electrical stimulation to encourage better sleep. Its Somnee

headband is worn for 15 minutes at bedtime and delivers an alternating electrical current that feels like a warm, tingling sensation, said Ram Gurumoorthy, StimScience's co-founder and chief technology officer. The unit takes brain-wave readings with three EEG sensors at the beginning and end of the session. It takes up to three weeks to tailor the sessions to an individual. Users have the option of listening to a selection of relaxing music while receiving the stimulation.

Elemind and StimScience have each tested their devices in small studies paid for and conducted by the companies and published in peer-reviewed journals. In a study conducted over three weeks, Elemind found that 21 participants who took 30 minutes or longer to fall asleep, dozed off 10 minutes faster on average when they received the auditory stimulation.

StimScience found that 25 participants studied over two weeks, including some with insomnia, increased their sleep duration by 22 minutes on average when they received the alternating electrical current.

Sham sessions, when participants didn't receive stimulation, were used to gauge the effects of the interventions in each study. Participants received the stimulation and sham treatments in random order.

Because wearables are still rela-

▼ Lumos's sleep mask delivers programmed flashes of light to reset people's circadian clocks while they sleep.



tively new, it's difficult to know their full impact.

"There are no long-term studies on the effectiveness and possible side effects of using a wearable device to help you sleep daily," according to Martin Dresler, principal investigator of Donders Sleep and Memory Lab in the Netherlands, which conducts research on the cognitive neuroscience of sleep. "It's a rather new development."

Malkani agreed. "Based on limited and short-term studies, they appear safe for healthy individuals, but longer-term studies are still needed," he said.

Companies, nevertheless, are betting on wearables.

Another kind of sleep aid aims to change a user's bedtime entirely. As a postdoctoral fellow at Stanford University, Biquan Luo got the idea to develop a product to help travelers avoid jet lag by adjusting their internal clocks to their destination's time zone ahead of departure.

"I was flying back and forth between the U.S. and China," Luo said. "Every time, it took me more than a week to get over jet lag. I said, 'Let's develop a product so I don't have to suffer.'"

Luo was inspired by the work of

More than 30% of adults in the U.S. report sleep disturbances, according to the CDC.

Jamie Zeitzer. A Stanford professor of psychiatry and behavioral sciences, Zeitzer specializes in understanding the impact of light on circadian rhythms. In his current research, he uses flashes of light, combined with cognitive behavioral therapy, to help sleep-deprived teens adjust to an earlier bedtime.

Flashes administered near the end of a night of sleep make participants want to go to bed earlier the next day, Zeitzer said. Flashes administered in the beginning of the night make participants want to go to bed later the next day.

Based on Zeitzer's research, Luo, now co-founder and CEO of the company Lumos, developed a sleep mask that delivers programmed flashes of light from LEDs to reset people's circadian clocks while they sleep. Luo compares the brightness of the LEDs to a typical room light filtered through closed eyelids. About 5% of users find that it disturbs their sleep, she said. Others are unaware of or not disturbed by the flashes.

The Department of Defense, impressed by the prototype, awarded the company a \$2.1 million contract in 2021 to expand the product for shift workers. Luo completed a study of shift workers in June and said she is preparing the findings for publication. Participants who consistently used the mask, she said, fell asleep faster, slept longer and reported feeling more alert during night shifts.

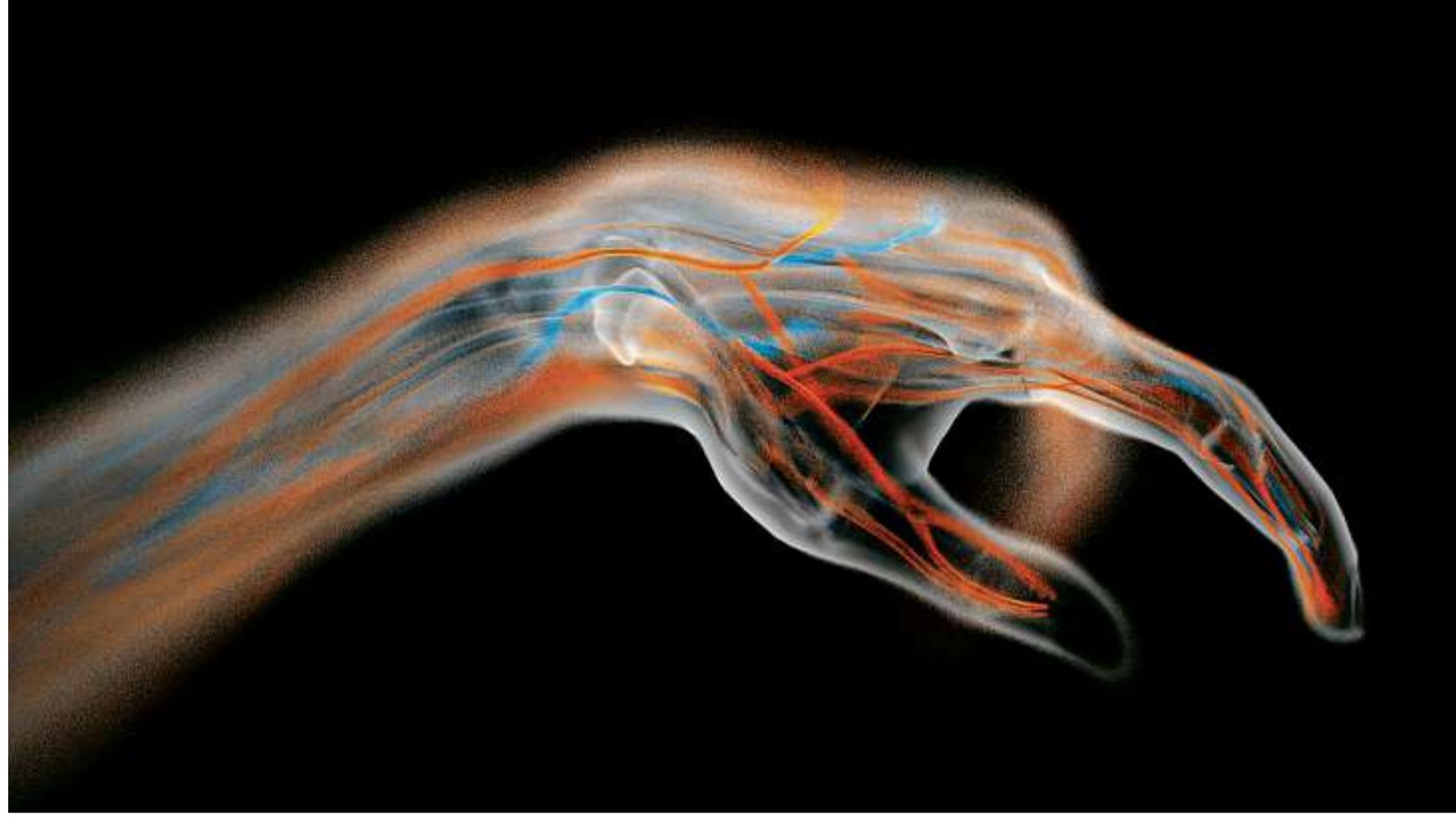
The mask comes with an app that has different modules to prepare for travel, alter bedtime or enhance sleep in other ways. The timing and duration of the stimulation depends on the module and the individual, who plugs in parameters such as flight details and usual bedtime.

Despite all of these new avenues for getting a good night's rest, Dresler said there are other ways for healthy people to get to their Zs.

"There are a lot of strategies that cost nothing and that are very simple and that are almost guaranteed without side effects," he said. "It's just sort of basic sleep hygiene, like sleeping in a dark room, sleeping in a quiet room and trying to reduce stress."

Stress, he said, is the No. 1 sleep killer.

THE FUTURE OF EVERYTHING | HEALTH



Scientists hope body tissues grown in labs will become a familiar sight in medicine.

Researchers around the world are working to grow heart valves, lungs and more from human cells. They have succeeded in bringing some to market such as knee cartilage and skin grafts, but advances for more complicated anatomy have been slow-going for years.

Now scientists are gaining ground in tissue engineering that could help a host of people who deal with circulatory system problems.

One of the companies furthest along is Humacyte, a Durham, N.C.-based biotech that makes lab-grown blood vessels, which could help patients with traumatic injuries along with those who use catheters for dialysis or suffer pain from narrowed circulation to the limbs.

Using new, lab-grown blood vessels to replace the old would offer surgeons a method drastically different from today's to help patients whose arteries have been torn in explosions or car crashes, for example. Doctors typically go with synthetic grafts made of plastic, which can cause clotting and other problems, or a patient's own blood vessels cut from a different part of the body.

"This is spare parts for people," said Dr. Laura Niklason, chief executive of Humacyte. The company's blood vessels, which have thick walls

'SPARE PARTS FOR PEOPLE': BLOOD VESSELS FROM A LAB

Scientists grow vessels with human cells to replace arteries and veins, advancing care for trauma and circulatory problems. **By Liz Essley Whyte**

similar to arteries, can also replace veins, though surgeons rarely repair or replace those.

The company starts the process with a 40-centimeter-long tube of degradable plastic mesh in a bag filled with nutrition for cells, such as proteins, growth factors, vitamins, minerals and glucose.

Next, they add blood-vessel cells from human donors to the bag. Over two months, the plastic scaffold dissolves, while the cells form a human artery complete with the collagen and proteins that give blood vessels their strength.

Humacyte then washes the living cells away with a special detergent. What's left behind is a pale, white tube that feels and works like a blood vessel.

The company has already begun to test its technology in patients

and applied for approval from the Food and Drug Administration for treating trauma injuries.

The approval would be a milestone in the field of tissue engineering, and if it is approved, Humacyte could offer the blood vessels in different sizes and for different uses in the future. Humacyte has already implanted more than 500 of its blood vessels in humans.

When a surgeon implants the collagen tube, the device begins shuttling blood through the body. Then, the patient's own cells begin to populate the tube.

"What we implant is like an empty apartment building," Niklason said. "Once cells move in and they feel all the collagen and proteins around them, they say, 'Oh, I'm in a blood vessel,' and they become blood-vessel cells over time."

Sixteen weeks later, patients have grown their own layer of living blood vessel cells along the implanted collagen tube, the company's research shows.

The artery—dubbed the "acellular tissue-engineered vessel," or ATEV—will first be used, pending FDA approval, in situations where surgeons don't have time to look for a piece of blood vessel from somewhere else in a patient's body, or when there are no other healthy blood vessels available.

The company said there haven't been unexpected concerns about safety from its technology, but in clinical trials some patients experienced anemia, blood clots, constipation, fever and swelling. People treated with synthetic grafts often experience those, too. The lab-grown blood vessels will be priced based on the value linked to reducing costly complications such as infections and amputations that were exhibited in clinical studies, according to Humacyte.

Humacyte's lab-grown vessel will be ready off the shelf and won't require thawing or rehydrating as some other types of tissues and blood products do, making it easy for hospitals to store. And the company's data shows it performs better than synthetic versions, often made of plastic fabric such as Gore-Tex, which can cause clotting and infections.

The technology has already shown itself to be effective in some trauma patients. The company's approach has helped treat 69 people who participated in a clinical trial in the U.S. and Israel, with injuries from gunshots, workplace accidents, car crashes and other traumas. Humacyte's product has also been used on 19 soldiers in Ukraine via a special humanitarian program that was

approved by the FDA. Many of the soldiers were wounded by explosives.

Data collected by Humacyte showed that the patients had better blood flow and were less likely to need amputations than has been historically needed with synthetic grafts. Niklason and her colleagues didn't expect to test their technology in Ukraine but got calls from Ukrainian surgeons asking them to send their product to the war zone. Humacyte trained the Ukrainian surgeons how to use the lab-grown vessels over Zoom.

"It has saved lives and saved limbs," said Dr. Oleksandr Sokolov, a Ukrainian vascular surgeon who operated on 10 soldiers using the Humacyte product.

Humacyte is studying whether the blood vessels could also help people undergoing dialysis, who often have to rely on plastic catheters, which can lead to infections. They are also testing them in people with peripheral artery disease, which causes pain from narrowed blood vessels.

Humacyte could help cardiac bypass patients as well, says the company. The procedure involves harvesting an artery or vein from somewhere else in the body and sewing it into the heart to circumvent a blocked vessel. The lab-grown vessels could make the harvesting unnecessary. Cardiac bypass and pediatric heart surgery are next for clinical tests.

"It's a major, major advance, if it does what it says it's going to do," said Dr. Allan Kirk, chairman of the Department of Surgery at Duke University School of Medicine, who doesn't have an official role with the company and hasn't been involved in its clinical trials but did help Humacyte apply for a grant. "The brilliance here is the realization that you don't need to grow the blood vessel, you just need to put the scaffolding down, and the body will do the rest."

Scientists first reported growing artificial human blood vessels in 1986. Niklason implanted lab-grown arteries in pigs in 1999. Doctors sewed a tissue-engineered blood vessel into a human in 2001.

After years of research, cardiovascular medicine is ripe to be transformed by lab-grown tissue, according to Dr. Christopher Breuer, who directs the Center for Regenerative Medicine at Nationwide Children's Hospital in Columbus, Ohio.

Breuer is overseeing a clinical trial in which doctors extract bone marrow from a child born with a heart defect, layer those bone marrow cells onto a biodegradable scaffold in a matter of hours and use it in surgery to repair the defect. Once implanted, the scaffold degrades and a new blood vessel is formed.

Children in particular could benefit from tissue-engineered heart parts, as they are likely to grow along with the patient, said Breuer, unlike synthetic fixes that have to be replaced when youngsters get bigger.

Further down the road are lab-grown organs, such as livers or hearts. Scientists have grown lungs and implanted them in rats. But anything that requires a network of tiny, delicate blood vessels is more difficult to perfect, Breuer said.

How to Grow a Blood Vessel

Humacyte's tissue-engineered arteries get their start in the lab and are completed by a patient's own cells.

From lab to shelf-stable blood vessel

1 The starting point is a scaffold of plastic mesh, in a bag filled with nutrient-rich fluid.

2 Cells from adult donors are added to the scaffold and begin to form a blood vessel.

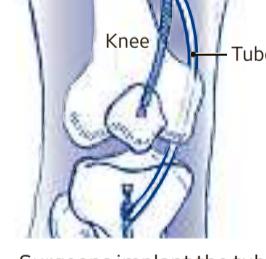
3 The cells form a strong matrix of collagen and other proteins over two months.

4 The plastic scaffold gradually dissolves.

5 Scientists wash the vessels for about five days, stripping away living cells.

6 What remains is a tube of collagen and other proteins that can shuttle blood but is free of foreign cells that would trigger an immune reaction.

From the shelf to the body



Surgeons implant the tube, and 16 weeks later, the patient's own blood-vessel cells have moved in and grown along the collagen.

16 inches

TONIA COWAN/WSJ

THE FUTURE OF EVERYTHING | HEALTH

WHAT'S AHEAD FOR DENTAL HEALTH

IMAGINE A WORLD where you could regenerate a missing tooth with a single drug, and microrobots clean your teeth every night. That future is getting closer, scientists say. "We are really looking for disruptive technology," says Dr. Hyun (Michel) Koo, co-founding director of the Center for Innovation & Precision Dentistry at the University of Pennsylvania. Here, brush up on discoveries that could transform your oral health. **By Kayla Yup**



TEETH-CLEANING MICROROBOTS

A swarm of microrobots could clean your teeth for you.

It is a three-in-one solution, says Koo. In an automated system, the swarm acts as a toothbrush, flosser and mouthwash.

Koo and Edward Steager, a senior research investigator at the University of Pennsylvania's School of Engineering and Applied Science, have led development of the microrobot technology, which uses tiny particles known as nanoparticles—in this case from iron-oxide compounds. These nanoparticles are approved by the Food and Drug Administration for uses from imaging to food coloring. "You can eat them," Koo says.

These particles can also come together to form a microrobot, a small device that can complete a complex task. Magnets guide the microrobot swarms to form different shapes, from bristles for brushing to an elongated thread for flossing. With a push of a button, the oral routine is automated by programming when and where these magnets turn on.

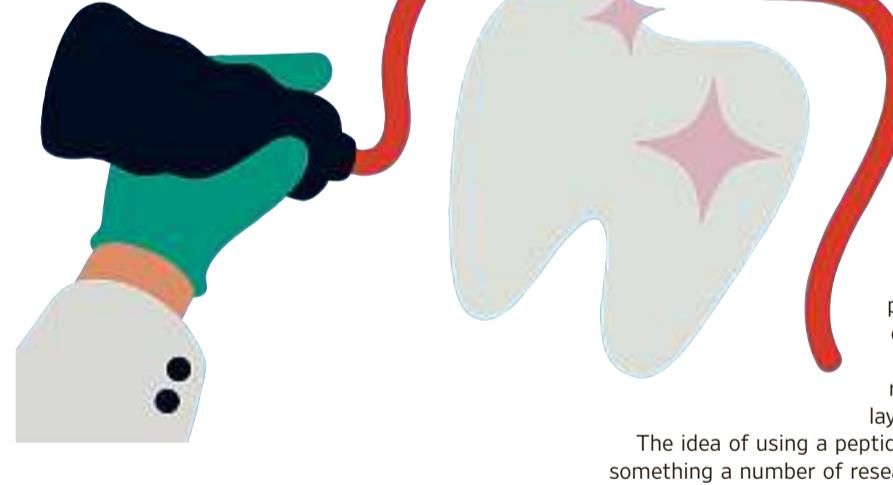
There are two prototypes: a mouthguard-like device and a toothbrush-like device. You turn on the magnets and inject a solution containing the microrobots and hydrogen peroxide, a common cleaning agent. The microrobots act like

a disinfecting mouthwash when combined with hydrogen peroxide.

The system can remove 100% of plaque on a 3-D printed model of human teeth and gums, and 80% in animal testing. They hope to improve the latter number as they wrap up their trials in animals by the end of 2024.

The current prototype would cost less than a fancy electric toothbrush, Koo says. This is estimated based on the device using simple electronics and low-cost nanoparticles that they can make in their lab. Researchers see the initial market as people with disabilities who have difficulties brushing their teeth, though they also see eventual uses for people looking for convenience. "I have a son who hates brushing his teeth," Koo says.

REBUILDING ENAMEL



arranges calcium and phosphate into a repeating pattern. In 2016, Moradian-Oldak and her team had a breakthrough when they designed a peptide—a shorter chain of amino acids—based on amelogenin that mimicked its function. When that peptide was put in a gel and painted on extracted wisdom teeth, a new enamel-like layer formed. It also remineralized dentin, the layer underneath enamel.

The idea of using a peptide to rebuild enamel is something a number of researchers have been working on, with teams at the University of Washington and universities in China developing similar technologies.

In traditional treatments, fluoride forms patches of mineral deposits on the surface of the tooth. But that doesn't preserve the strength of enamel as well as the structured layers created by the gel, Moradian-Oldak says. Toothpastes containing calcium and phosphate provide the building blocks for mineralization, but they don't have the peptide needed to build organized layers.

Now it takes at least 16 hours to grow one enamel-like layer, and each is thin. It would take hundreds to match the thickness of natural enamel. "We still need to make them thicker, stronger," says Moradian-Oldak, who is applying for FDA approval to start clinical trials.

Can scientists engineer stronger, less sensitive teeth?

Enamel, the hard outer layer of a tooth, protects teeth from damage. But the body can't regenerate it once it is eroded, and dentists can't replace it either. Scientists are working on a gel that rebuilds enamel by copying mother nature.

Such a technology has long been a dream, says Janet Moradian-Oldak, a professor of biomedical sciences and bioengineering at the University of Southern California who leads a team working on it. She spent the past 25 years studying the proteins that build enamel, with a special interest in one called amelogenin.

Our bodies use amelogenin early in teeth development. The process is similar to laying bricks: Amelogenin



RED-LIGHT THERAPY FOR YOUR GUMS

Imagine a tooth implant with built-in technology to deliver immune-boosting red-light therapy. It doesn't even need a battery—the light is powered by the movements of your mouth.

Tooth implants carry the risk of peri-implantitis, a bacteria-driven disease that destroys the gum and bone tissue around the implant. Geelsu Hwang, an associate professor in the department of preventive and restorative sciences at the University of Pennsylvania, sees a solution in a high-tech implant that emits light.

Hwang's team found that both red and near-infrared light stimulate gum tissue to release antimicrobial peptides, proteins of the immune system that kill bacteria. They went with near-infrared light, which is invisible. "I'm pretty sure not many people would like to have a visible red light from their mouths," Hwang says. The light targets the gum around the implant to help it fight off bacteria that would breed infection.

The artificial tooth is made of barium titanate, a piezoelectric material that generates electricity in response to physical stimulation. Motions such as chewing help power its light-therapy LEDs. It isn't as strong as zirconia, a ceramic material used for implants, and Hwang says the team is working to strengthen it.

In the lab, they tested the light therapy on gum-tissue cells surrounded by disease-causing bacteria and found 90 minutes daily was sufficient to minimize inflammation. The product will be tested in pigs later this year.



MOUTH BACTERIA AS MEDICINE

One person's mouth bacteria might be another's medicine.

That's the idea behind oral microbiota transplants: transfers of bacteria from the mouth of a healthy donor to a patient. Scientists at Pennsylvania State University and the University of Adelaide believe this treatment could one day curb tooth decay and gum disease.

We each have around 200 species of bacteria in our mouths, according to Laura Weyrich, an associate professor at Penn State who leads a team developing this treatment. Different bacteria can either cause oral disease or prevent it.

The team hunted for two years for a "super donor"—someone with the best balance of good and bad mouth bacteria and no tooth decay or gum disease. They chose a young adult who only brushes once a day, never flosses and hasn't seen a dentist in five years—yet has no cavities. This person's microbiome was so healthy, such oral hygiene habits didn't matter, says Dr. Sonia Nath, a researcher at the University of Adelaide.

The scientists took plaque—the gunk that coats teeth and gums—from the donor's mouth, mixed it with gel and painted it on the teeth of rats. The rats showed a significant drop in tooth decay.

The team aims to start clinical trials in humans in 2025. The treatment would likely need to be stored at very low temperatures, and the scientists envision an application every few months at a dentist's office. "You get a quick transplant, and then you've got your mouth sorted," Weyrich says.

A DRUG TO GROW TEETH

An innovative drug could regenerate missing teeth.

In mice with congenital tooth agenesis—a condition where teeth are absent as a result of failed development—one intravenous injection of this drug allowed teeth to form. The new drug is an antibody designed to block a protein called USAg-1 that normally stops extra teeth from growing. Blocking the protein allows tooth buds, the first stage of tooth formation, to mature.

"One molecule has potential to make a whole tooth," says Katsu Takahashi, head of the dentistry and oral-surgery department at Kitano Hospital in Osaka, Japan, who is leading the project. His team's first human trial, planned for this fall, will test for safety in healthy adults. If that trial succeeds, they will move on to test the drug on children ages 2 to 7 who have congenital tooth agenesis.

Children with this disease have the beginnings of tooth

buds that don't develop properly due to genetic and environmental factors, Takahashi says. The team hypothesizes the drug could allow the formation of permanent teeth. The trial would take three to five years, the typical time it takes to grow a permanent tooth, from the bud stage in the jaw to eruption through the gum.

The team will also continue its basic research in hopes of expanding the drug's potential uses to adults, Takahashi says.



Special Advertising Feature

INNOVATING FOR IMPACT CONNECTING THE DOTS IN HEALTH DATA

In an era in which health data is more dispersed than ever, managing and interpreting this information can be overwhelming. Consumers are bombarded with fleeting trends—ranging from cold plunges to celery juice—within a \$1.8 trillion global consumer wellness industry, which can feel more confusing than helpful. According to McKinsey, consumers prioritize efficacy and scientific credibility when selecting wellness products, revealing a pressing need to streamline decision-making in an oversaturated market.

Samsung is stepping in to mitigate this fragmentation, providing a consolidated Samsung Health platform that connects users, their devices and biometric data analyses to present actionable feedback. The company's latest wearable innovations—Galaxy Ring, Galaxy Watch7 and Galaxy Watch Ultra—leverage AI to deliver personalized insights and proactive tracking, helping users turn scattered datasets into accessible guidance for preventative care.

Personalized Precision

Individualized care is becoming an increasingly high priority for consumers. McKinsey research reveals that over half of surveyed consumers are interested in utilizing their health data to manage chronic conditions and receive customized observations. Recognizing that wellness is not a one-size-fits-all journey, Samsung offers a diverse portfolio of connected wearables tailored to different lifestyles.

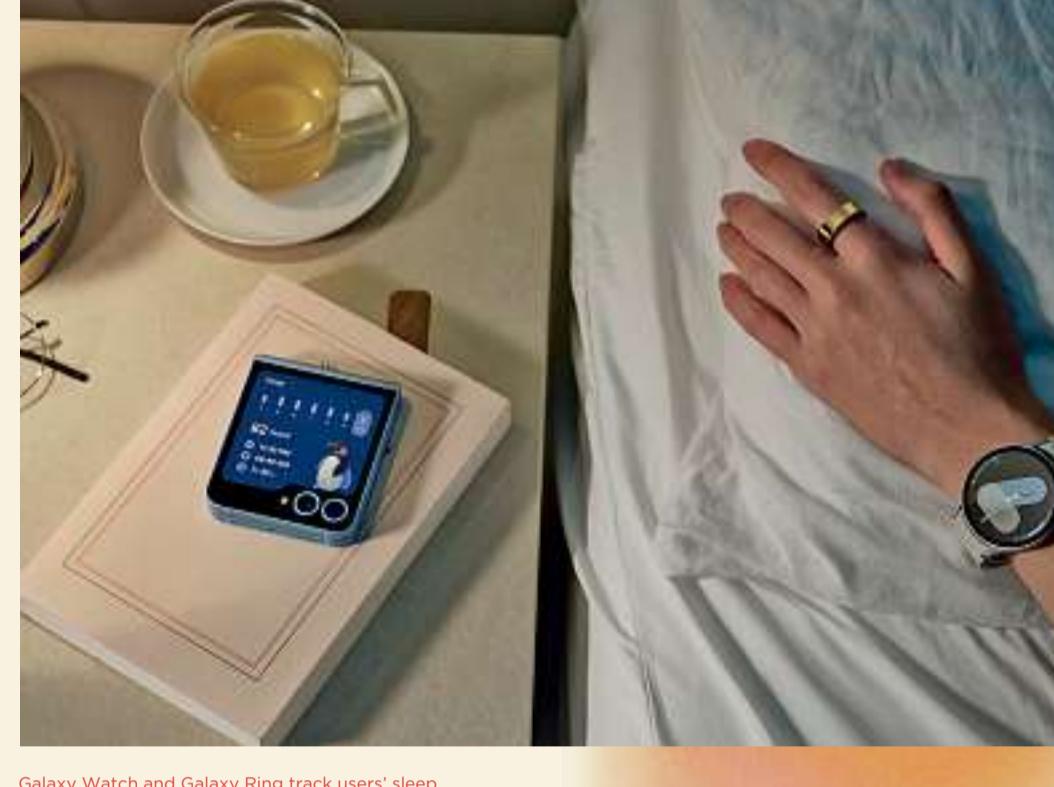
Galaxy Ring is a new addition, utilizing an unobtrusive form to ensure comfort and durability during extended wear. Providing 24/7 health monitoring with little effort from users, Galaxy Ring specializes in sleep tracking and insights designed to help users easily understand their health patterns, including activity levels, heart rate and stress.

Building upon these capabilities, Galaxy Watch series constructs a more sophisticated assessment of users' health from more varied datasets. For instance, it features advanced biomarkers like the AGEs (advanced glycation end products) Index, which analyzes metabolic health and biological aging in relation to lifestyle factors. Galaxy Watch7 is best suited to those who prioritize achieving wellness through everyday improvements. Meanwhile, offering even more durable design and longer battery life, Galaxy Watch Ultra meets the needs of users who enjoy outdoor exercise and beating personal bests.

Galaxy Ring and Galaxy Watch stand out as individual wearables, each equipped with advanced sensors and algorithms offering valuable information—and both devices integrate smoothly with the Samsung Health app, a holistic health platform where users can access actionable insights based on their health metrics. The app can also consolidate data from multiple gadgets, enabling users to grasp their health needs with greater accuracy.

“Samsung is committed to delivering truly holistic and preventative healthcare solutions for our communities—which is why we partner with various industry leaders. We combine their expertise with our advanced technologies to push the limits of what’s possible.”

Dr. Hon Pak
Senior Vice President and Head of Digital Health Team, Samsung Electronics



Galaxy Watch and Galaxy Ring track users' sleep patterns, offering AI-driven tips to help optimize rest and recovery.

Invisible Intelligence

As wearables become increasingly integral to everyday life, consumers are seeking cutting-edge products that keep pace with technological evolution and streamline tailored experiences. To manage the wealth of comprehensive health information collected by its devices, Samsung is harnessing AI algorithms. One standout feature is the Energy Score, which provides a single index of overall energy levels.



From minimalist rings to versatile watches, Galaxy Watch and Galaxy Ring can be designed to suit users' lifestyle needs.

Using data tracked by Galaxy Ring, Galaxy Watch7 or Galaxy Watch Ultra, the Energy Score evaluates physical and mental biomarkers tied to sleep quality, heart rate and heart rate variability during sleep, as well as the previous day's activity levels. The index also provides personalized feedback based on large language models, motivating users to better understand their energy fluctuations and, if indicated, consider lifestyle changes.

Additionally, the Wellness Tips feature provides guidance tailored to the user's goals. Whether the focus is on improving fitness or optimizing sleep, these tips offer regular recommendations to help users stay motivated throughout their health journeys. Those aiming to stay in shape, for instance, can retrieve insights into their current body composition and trendlines, helping them assess progress effectively.

This personalization enables users to make smarter decisions, set pragmatic health goals and detect abnormal vital signs: Galaxy Watch detects signs of moderate to severe obstructive sleep apnea, while Galaxy Ring instantly alerts users when their heart rates are unusually high or low. As evidenced by these devices, today's technology contains the potential to empower users with sophisticated, real-time metrics to optimize their health and wellness experiences.

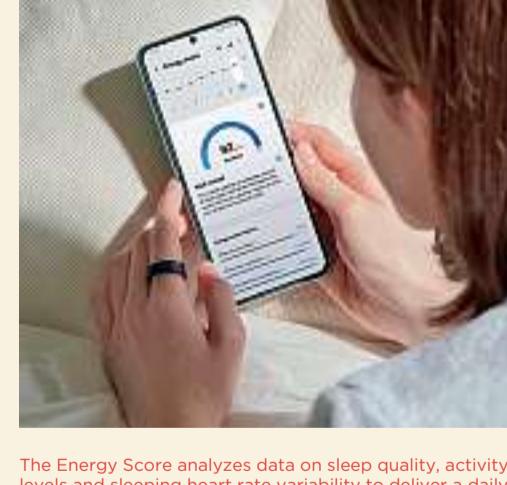
Open Collaboration

Ambitious visions for digital health can't be achieved in isolation. By partnering with medical experts, researchers and industry partners, tech companies can holistically push the boundaries of what's possible in health care.

Leveraging its advanced sensor technologies, Samsung is partnering with renowned institutions to explore new possibilities in health and wellness. With Massachusetts General Hospital, the company is analyzing the relationship between depression and various biomarkers, such as sleep metrics, activity levels and other biometric data patterns, captured through Galaxy Watch. The findings will help researchers better understand the interaction between mental and physical wellbeing.

At Brigham & Women's Hospital, the focus is on quantifying resilience and frailty by studying the relationship between digital biomarkers and an individual's ability to recover from a major stressor. This could reveal how different individuals respond to surgery or disease and how people could prepare—mentally and physically—for health challenges down the line.

As digital health becomes more integral to everyday life, connecting the dots in health data is helping to bridge the gap between fragmented figures and actionable insights. Modeled by Samsung's technology—which emphasizes a robust ecosystem of devices, AI-driven interactions and industry partnerships—the result is a holistic approach to wellness that helps users take control of their health in unprecedented ways.



The Energy Score analyzes data on sleep quality, activity levels and sleeping heart rate variability to deliver a daily health index.



To explore Samsung's connected health monitoring solutions, please scan this QR code or visit <https://www.samsung.com/samsung-health>

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1. The Sleep Apnea Feature is an over-the-counter (OTC) software-only, mobile medical application operating on a compatible Samsung Galaxy Watch and Phone. This feature is intended to detect signs of moderate to severe obstructive sleep apnea—in the form of significant breathing disruptions in adult users 22 years and older, over a two-night monitoring period. It is intended for on-demand use. This feature is not intended for users who have previously been diagnosed with sleep apnea. Users should not use this feature to replace traditional methods of diagnosis and treatment by a qualified clinician. The data provided by this device is also not intended to assist clinicians in diagnosing sleep disorders. Availability may vary by market or device.



SAMSUNG

Galaxy Ring

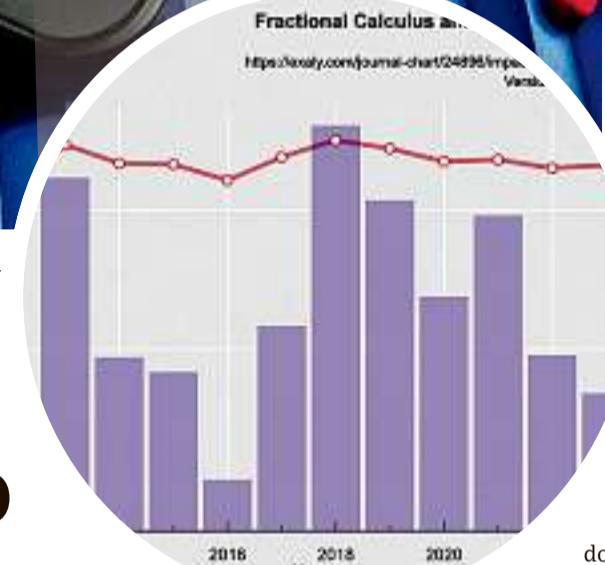
Galaxy AI  is here

Welcome to the new era of
AI-powered health

samsung.com

Image simulated. Availability of colors and sizes may vary by country or region. Galaxy Ring is supported by devices operating on Android R OS and later, and requires Samsung Health app (v6.27 or above) and Samsung account log-in. For Energy Score, the health data tracked from Samsung Galaxy Ring must be synchronized with the Samsung Health app. Needs at least the previous day's activity data, and sleep and heart rate data during sleep. Not intended for use in detection, diagnosis, treatment of any medical condition. Intended for general wellness and fitness purposes only.

THE FUTURE OF EVERYTHING | HEALTH



NEW TOUCH TECHNOLOGIES BRING SCREEN TIME TO THE BLIND

Tactile displays on devices could supplement audio learning for students and one day even show moving images and live sports. **By Jared S. Hopkins**

Many blind people miss out on how the rest of the world uses smartphones and other electronics for reading, movies and perusing the internet. Breakthroughs in technologies that use touch could change that.

A wave of new digital devices is emerging to access information digitally and display raised Braille text and tactile graphics, refreshing in real time. Researchers are pursuing ways to eventually even show moving images and live sports that can be followed by touch.

"We're hoping that this will be almost a revolution," says Karen Anderson, education programs coordinator at the National Federation of the Blind, who herself is blind.

Innovation has been slow for decades, hampered by lack of investment. Braille, the reading and writing system with characters made of raised dots, was developed in the 1800s. Digital Braille equipment has been clunky, expensive and limited in capability.

Among the new technologies, South Korea-based Dot created an electromagnetic system that allows thousands of tiny pins to move up and down on the surface of a digital pad as part of a refreshable Braille display. NewHaptics, a company founded by University of Michigan researchers, is working on a device with a different technology that uses air pressure to move dots on a display.

Other researchers are testing whether artificial intelligence can be used to more quickly translate books into Braille—an arduous process that can now cost more than \$50,000 for a textbook—and convert images to tactile forms.

Some hope the new tactile devices will help level the playing field for visually impaired students, who typically learn using Braille or audio tools. Children who can see are exposed to many pictures by the time they begin preschool, and that also helps with spatial understanding. Math and physics, because of their symbols and equations, are easier to teach and learn through Braille than audio devices. Dependence on audio can also hurt spelling, as it's difficult

to distinguish when words sound the same but are spelled differently, for instance.

"Listening is not literacy," says Anne Lancaster, chief officer of innovation and strategy at American Printing House for the Blind, a non-profit founded in 1858 that helps visually impaired people and students access books, classroom materials and technologies. "You're creating a complete alternate reality from the rest of the world."

In the U.S., more than seven million people have impaired vision, including one million who are blind, according to the Centers for Disease Control and Prevention. About half of the adult blind U.S. population isn't employed, according to researchers at Cornell University's Yang Tan Institute on Employment and Disability—a statistic some experts say stems largely from lack of Braille access and proficiency.

Only about 10,000 Braille devices are sold annually around the world, with many of the purchases made with government funds, according to the American Printing House for the Blind.

The 1950s Perkins Brailler, a typewriter-like device that creates raised Braille characters on paper, remains widely used and costs more than \$800. Most of the electronic devices developed up to now have used "piezoelectric" technology, which generates electricity using pressure to move small raised pins to create Braille dots that refresh, rather than embossing on paper. With this technology, it's difficult to build a multiline Braille display and they usually show a single line, which means only up to 40 characters at a time can be read.

Ki Kwang Sung and Eric Ju Yoon Kim, childhood friends in South Ko-

rea, founded Dot in 2015. Seeing pictures of a Braille Bible that—due to the size of the characters—had multiple volumes and weighed more than 90 pounds helped inspire the effort to create an affordable and convenient device for the blind, Kim says. Widening access to Braille is a major goal, he says. "We thought that if we create a tactile screen that meets a global standard, that might open the door for education, jobs, entertainment, rehabilitation."

In 2016 Dot introduced a tactile smartwatch called the Dot Watch, which used magnets and electromagnetic technology to enable four

▼ The Monarch, a stand-alone device that uses Dot's technology, was released in September.



refreshable Braille cells, or characters, to show the time. Building on that technology, they assembled a team of engineers and collaborated with the Korea Advanced Institute of Science and Technology to create their latest device, the Dot Pad.

Roughly the size of an iPad, it shows 320 Braille cells, which can display text as well as graphics and images. The underlying technology uses 2,400 pins that respond to more than 5,000 control lines that are run by an electronic microcontroller. Users can access content from connected computers and smartphones and display it in Braille, updating in real time. Dot Pad is compatible with Apple devices and works with Apple's VoiceOver.

Dot hopes its technology will lead to displays of moving images, animation and live sports, in part by improving the dots on displays to move faster and at different heights, providing a more complex picture to users. It is also working on improving the resolution of tactile images.

American Printing House for the Blind, working with Humanware, a subsidiary of eye-care company Essilor-Luxottica, used Dot's technology to help create a device the size of a laptop called the Monarch, released in September. The Monarch's display shows 10 lines of Braille, aimed to make it easier for students to read textbooks.

Unlike the Dot Pad, it is a stand-alone device that doesn't need to be connected to another computer. It includes a Braille keyboard, and its word processor allows formatting, such as headers and paragraphs, which hasn't been available previously. Graphics and text can display concurrently, and touch-screen capabilities enable zooming in. Users can also play chess.

These devices remain costly. Some distributors in the U.S. list the Dot Pad for more than \$12,000. Kim says the company uses affordable materials and that the device should eventually be available at about the same cost as a laptop as volume and distribution increase. The Monarch retails for \$17,900, and, with government subsidies, drops to \$14,900. Federal funds helped purchase many of the 400 Monarch devices that U.S. schools have ordered.

In the U.S., Dot is pushing to sell its device to corporate employers. Internationally, it is being used by some universities for research purposes.

Schools for the blind, in South Korea and other countries, are supplying it to their students.

The Dot Pad recently won registration from the U.S. Food and Drug Administration as a medical device, which could lead it to be used in facilities serving the blind. Dot plans to start a clinical trial next year to see whether the device can improve a blind person's sensorimotor learning, which, if successful, it says could potentially lead to insurance coverage.

THE FUTURE OF EVERYTHING | HEALTH

t's hard to mend a broken heart, but in a few years doctors may be able to do essentially that.

Scientists are closing in on ways to help patients grow new heart muscle after a heart attack, as well as new lung tissue to treat fibrosis, corneas to erase eye pain and other body parts to gain a new chance at life.

If the science works, it could represent a new approach to medicine: reversing rather than alleviating chronic illnesses.

The idea "is really to restore function to the organ such that the quality of life of that person is normalized," says Peter Schultz, president and chief executive of Scripps Research, a nonprofit scientific institute in La Jolla, Calif., that is testing medicines to regenerate hearts, lungs and other organs.

These treatments eventually might also be used to reverse the effects of aging, Schultz says. If they prove effective in people with disease, he says, they could be tested in healthy people to see if they can, say, "turn a 70-year-old heart into a 40-year-old heart."

The need for regenerated hearts alone is huge. Up to 3% of the world's population suffers from heart failure, in which a heart whose muscle has been damaged by a heart attack or another disease gradually loses its ability to pump blood. The condition affects about 6.5 million people in the U.S. and is the leading cause of hospitalization among Medicare patients.

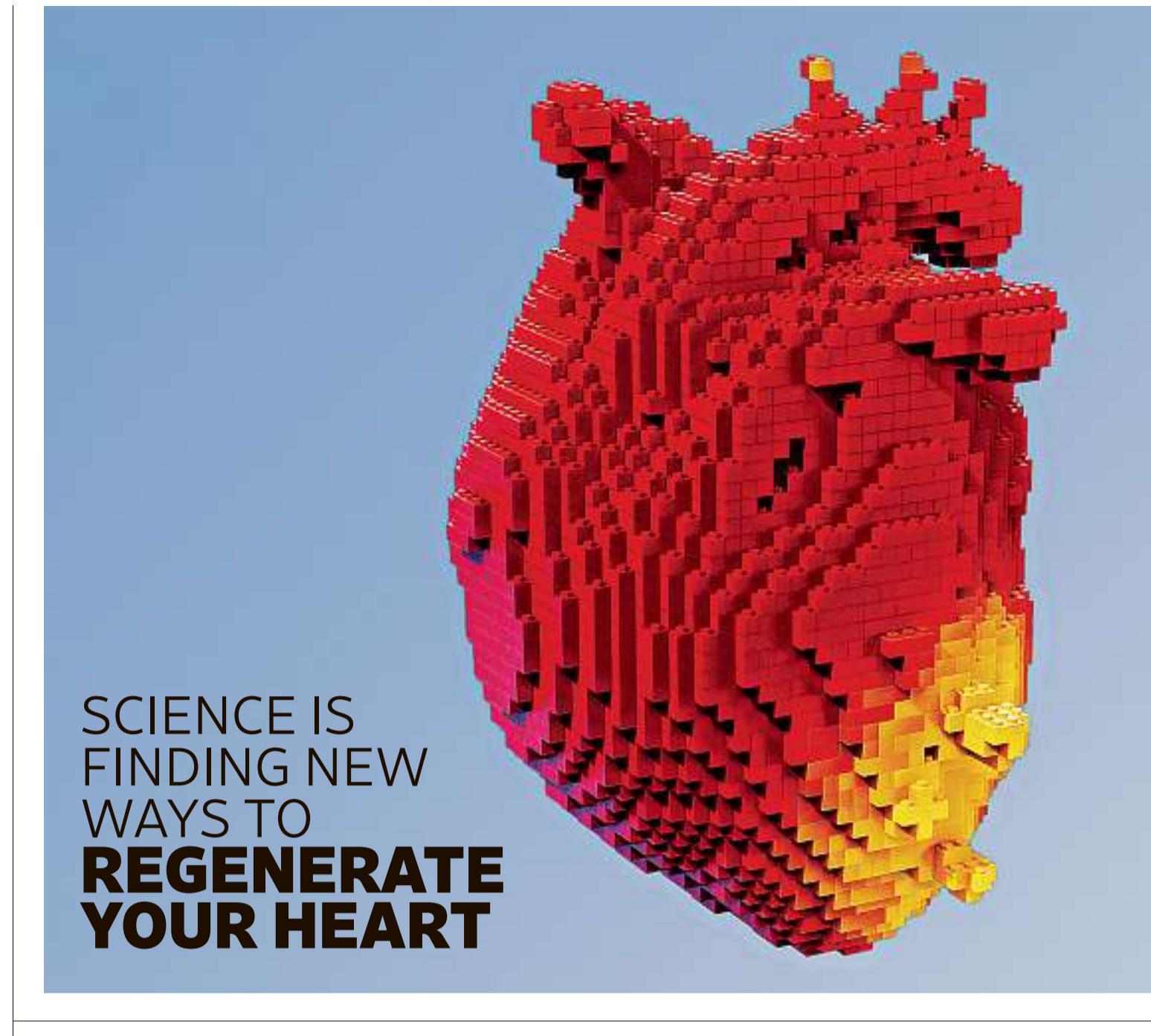
Certain salamanders and zebrafish can regenerate their hearts, along with limbs and other organs. Humans have only a limited capacity to regenerate, with skin and the liver as the main examples. They die with most of the same heart-muscle cells they were born with. "We're built for performance and not repair," says Dr. Chuck Murry, director of the Eli and Edythe Broad Center for Regenerative Medicine and Stem Cell Research at the University of Southern California's Keck School of Medicine.

Scientists are testing different approaches to regenerate the heart.

Some, like Murry, are working with stem cells. Others are working on stimulating existing heart-muscle cells—those that survive a heart attack—to proliferate.

One billion heart-muscle cells—about 25% of muscle cells in the left ventricle—can die as a result of a major heart attack, when blood flow to the heart muscle is abruptly cut off, says Dr. Mauro Giacca, head of the School of Cardiovascular and Metabolic Medicine & Sciences at King's College London. The left ventricle is the heart's main pumping chamber.

Giacca is developing a therapeutic that uses microRNA, molecules that help regulate how genes are expressed, to induce surviving cardiac cells to multiply. Tests in pigs showed the therapeutic improved the heart's pumping function, increasing muscle and reducing scar tissue. But he



SCIENCE IS FINDING NEW WAYS TO REGENERATE YOUR HEART

A range of tissue-engineering techniques are in the works to regrow heart muscle after a heart attack and repair lungs and other organs. **By Betsy McKay**

tions are there for repair."

The drug restored heart-pumping capacity almost back to normal in mice and pigs, according to Scripps. The research institute's drug-discovery arm, Calibr-Skaggs, aims to begin testing the drug in humans in early 2026.

Some studies have associated the protein used to activate heart-muscle cell growth with tumor growth as well. Scripps has addressed that by administering the drug for a short time, in a one-time injection, Bollong says. It would likely be administered three to five days after a heart attack, when a patient has been stabilized and acute inflammation has subsided, he says.

Murry at USC is developing a therapeutic in which new heart muscle is grown in a lab using stem cells, then

These treatments eventually might also be used to reverse the effects of aging.

Another scientist, Doris Taylor, is working on growing entire hearts. Her company, Organomet Bio, grows heart cells using stem cells cultured from a patient's blood. Those cells are engrafted into a scaffold created with a pig's heart—a white mass that contains the heart's structure and framework of its blood vessels.

"We can give you a heart that matches your body," says Taylor, chief executive officer and a stem cell biologist. The pig heart closely resembles the human heart anatomically.

The company is testing its heart's durability in the lab, Taylor says. It plans to study it in animals and hopes to begin clinical trials in humans in five years.

Clinical trials in humans are already under way to regenerate cells in another organ: the lungs. Scripps and Calibr-Skaggs are testing a drug to repair lungs damaged by idiopathic pulmonary fibrosis, or IPF, a disease that scars the lungs, restricting breathing. The drug, inhaled directly into the lungs, works by stimulating stem cells in the lower

airway so that they produce cells on the surface of the lung that handle gas exchange. It is a new drug from a class used to treat diabetes.

An early-stage clinical trial began in September at the Fraunhofer Institute for Toxicology and Experimental Medicine in Hannover, Germany. The drug's safety and how it gets into the lung are being studied in healthy volunteers and a small number of IPF patients, says Dr. Jens Hohlfeld, division director for airway research. Researchers there also hope to learn about the drug's effectiveness in the IPF patients, he says.

Jannik Bruns, a 26-year-old data scientist, held an inhaler to his mouth and took in his dose of the drug or a placebo—he's not sure which—in a hospital room at the institute. Over three days, Bruns—one of the healthy volunteers—underwent blood, oxygen saturation and other tests.

He has felt no side effects, and returned to the institute a few times for more tests. "Supporting science is something I really want to do," he says.



Dr. Chuck Murry, center, in his lab at USC, is developing a therapeutic that uses stem cells to regenerate heart muscle.

needed to find a better way to deliver the therapeutic and control the dosage than the viral vectors he first tried. A company he founded, Heget Therapeutics, is testing delivering the therapeutic by injection to the heart in pigs, he says, using two types of lipid nanoparticles similar to those in messenger RNA vaccines for Covid.

Scripps Research scientists are working on a drug to grow new heart muscle from surviving heart-muscle cells. It targets proteins that activate cell growth and also control the size of the organ, so that new cells form but proliferation stops before the heart gets too big, says Michael Bollong, associate professor of chemistry.

After a heart attack, the immune system clears out dead heart-muscle cells, leaving gaps that are normally filled with scar tissue. The drug, in a hydrogel form, would be injected into the sac that surrounds the heart and slowly bathe the damaged area for a week, instructing the surviving cells to multiply and fill in the gaps.

"We all came from a single cell in our mothers' wombs," Bollong says. "We know that those genetic instruc-

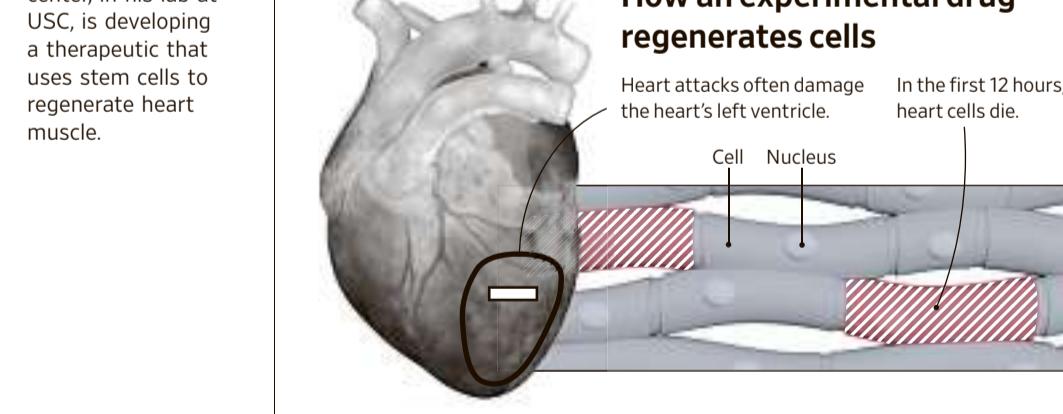
ted into a damaged heart to allow it to "remuscularize," he says. A focus is putting new heart muscle into the left ventricle.

Murry and his team have tested the treatment in animals. Macaques that received it regained full pumping function in their hearts, he says. In more than 40 years in heart research, "I've never seen anything that could do this before," he says.

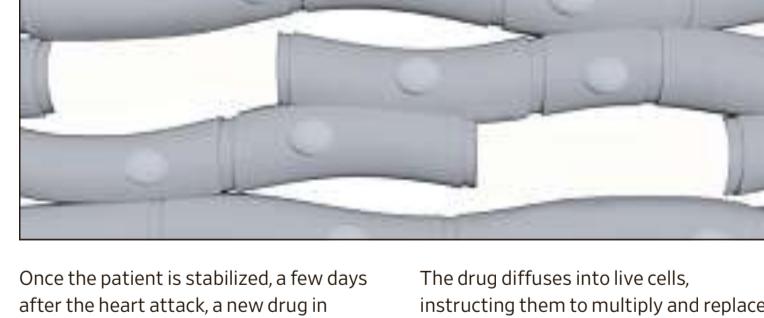
He had to overcome one big problem: The young new heart cells initially beat to their own rhythms "like stressed-out adolescents" when grafted onto the macaques' hearts, causing arrhythmias. Murry developed a method to control the beating with a cocktail of antiarrhythmic drugs and genome editing to change the cells' electrical circuitry.

He hopes to begin clinical trials of the treatment in humans in early 2026, through a company he co-founded called StemCardia. "Society has become OK with the notion of dying from heart disease," Murry says. "It does not have to be this way, because we can do something about this now."

25%
percentage
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heart attack



Between 12-72 hours, dead cells are cleared out and leave gaps.



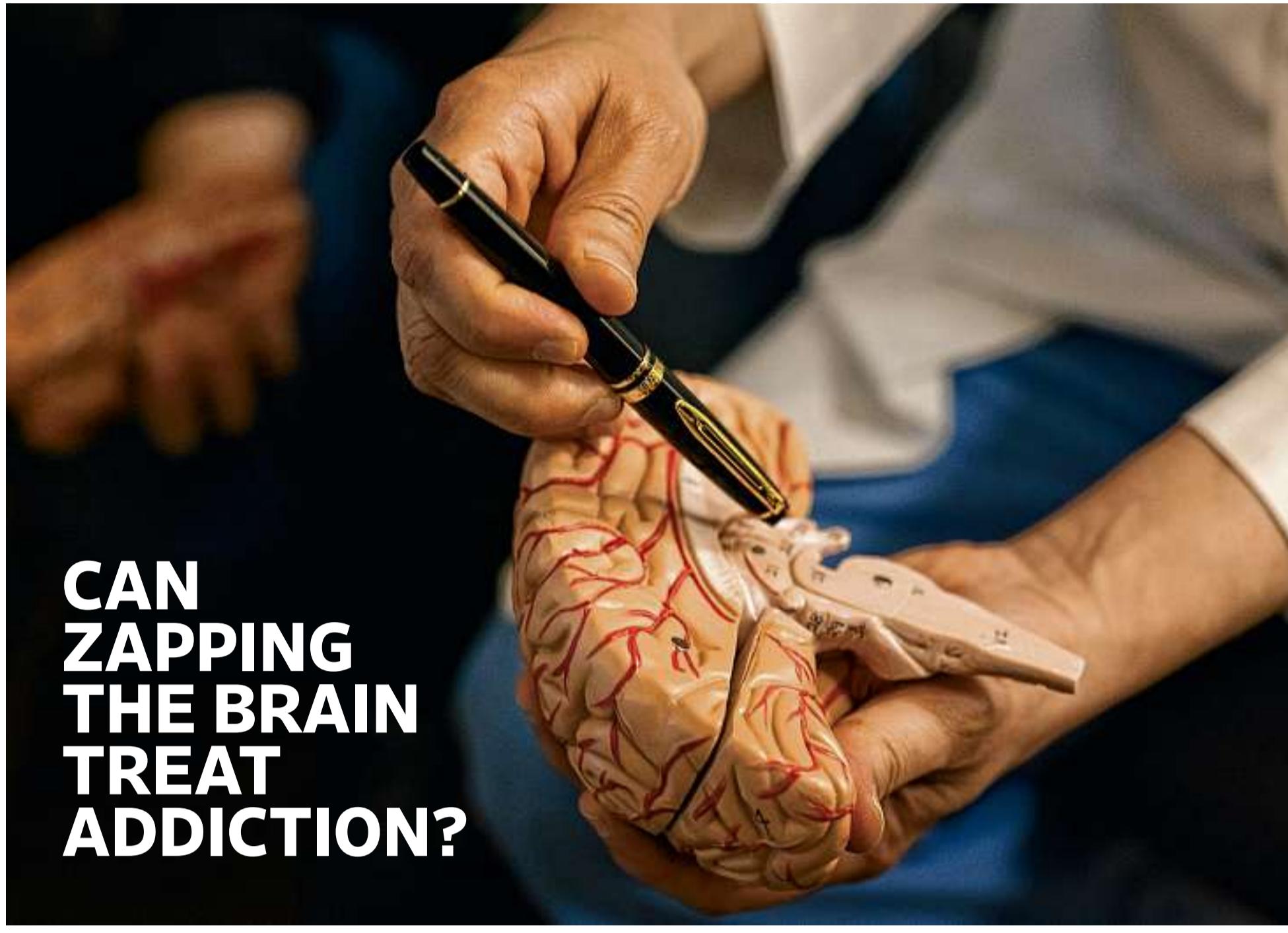
The drug diffuses into live cells, instructing them to multiply and replace the gaps left by dead cells. This stops the formation of scar tissue, which would normally replace dead cells.



Source: Scripps Research

PETER CHAMPELLI/WSJ

THE FUTURE OF EVERYTHING | HEALTH



CAN ZAPPING THE BRAIN TREAT ADDICTION?

A radical experiment uses focused ultrasound waves to reset cells inside the brain's reward center to combat cravings. **By Julie Wernau**

Morgantown, W.Va. Joe Hilton was inside an MRI machine, wearing a \$1 million helmet and goggles showing him pictures of heroin being cooked in a spoon and injected into an arm.

Doctors behind a glass partition used the MRI images to ensure ultrasound waves from the helmet were correctly aimed at a target in Hilton's brain a couple of millimeters in size. Then, more than 1,000 probes pulsed ultrasound waves to this area, known as the brain's reward center.

After the treatment Hilton, 39, tried to mentally connect with the pictures of a drug he had used for more than two decades. Instead of causing him to sweat and shake with cravings as he had minutes earlier, the pictures felt meaningless. Inside the MRI machine, he pressed a button on a joystick to let the doctors know his cravings had dropped to near zero.

"It just wasn't there, the feeling," he said later in a hospital room.

In Appalachia, in the heart of one of the earliest and deadliest waves of the opioid crisis, doctors at West Virginia University's Rockefeller Neuroscience Institute are conducting a radical experiment. Using focused ultrasound waves, they are resetting cells inside the brain's reward center, the nucleus accumbens. They hope the procedure can treat addictions ranging from drugs like opioids and methamphetamine to gambling and eating.

While neuroscientists have long defined addiction as a brain disease, tools to fight the U.S. drug crisis that is behind 100,000 overdose deaths a year have changed little in decades. Most treatment involves medications like methadone and buprenorphine to replace other opioids, or naltrexone to block the part of the brain that feels pleasure from alcohol or opioids. For many addictions, counseling and abstinence-based 12-step programs remain the go-to treatment.

At RNI's 30-patient residential-treatment program, more than two-thirds of patients relapse within the first few weeks. Many illicit drugs, including meth and cannabis, don't have any prescription medications to treat the addiction.

Now, the institute's trial using ultrasound is a peek at a future that treats the physical brain, rather than using medication or behavioral approaches to alter outcomes. "We need to inject technology into this," said Dr. Ali Rezai, a neurosurgeon and executive chair at the institute.

The RNI team is also studying a pill that monitors vital signs and releases overdose-reversal medication automatically in people who overdose. In another trial, they are monitoring the

heart rates, emotions, sleep and cravings of thousands of drug users who are helping to train artificial intelligence to predict a relapse before it occurs, so that recovery coaches can intervene.

Neuroscientists are finding that in people struggling with addiction, the nucleus accumbens, which sits deep in the brain near the midline above the ears, creates unusual traffic to the prefrontal cortex, which is responsible for decision-making and problem-solving and helps regulate emotions.

The RNI trial uses ultrasound waves to vibrate cell membranes in this area to disrupt those connections and reset them. Rezai, the neurosurgeon, said it is much like resetting traffic patterns on a highway. "There's a lot of traffic going on between the addiction center of the brain and the rest of the brain. Over time, that traffic is gone," Rezai said. "The addiction center isn't in charge anymore."

The hope is that by taking away cravings—one of the biggest distractions in recovery—people will have an easier time focusing on learning to manage the daily stressors of life that often lead to continued addiction.

To Hilton, the treatment felt like quieting a chattering room.

He was the third patient to participate in an ongoing blinded, randomized clinical trial for the procedure, with support from the National Institutes of Health. This 30-patient trial follows promising results from an earlier trial of 20 patients who were aware of the treatment protocol they received. Patients who had spent much of their lives using drugs saw their cravings drop to near zero. About three-quarters of participants remained substance-free several months later.

Overall, \$5 million from NIH, WVU and donors has helped fund the ultrasound research. Weill Cornell



From top: The reward center of the brain indicated on a model. Neurosurgeon Dr. Ali Rezai shows the helmet used to administer focused ultrasound waves to the site. The team prepares Joe Hilton, who has struggled with addictions, for a trial of the treatment. Below, the procedure targets cells in the brain responsible for cravings.

Medicine and the University of Maryland are working with RNI to begin similar trials in coming months with funding in part from the Florida Brain State Program, a consortium made up of the state of Florida, the State University System of Florida and Insightec, the manufacturer of the focused ultrasound equipment.

Hilton says he grew up in a home where drugs and alcohol were around all the time. His early memories from his Ohio childhood are of constant bonfire parties, funny smells coming from the backyard and people going in and out of the bathroom wiping their noses and sniffing.

"I pretty much was screwed from birth," he said.

Hilton was already using heroin, marijuana and cocaine by the time he was a teenager. At 30 years old, Hilton moved with his girlfriend, pregnant with their child, to West Virginia hoping to get away from heroin. They married when their daughter was 3 years old. His wife got sober but Hilton had found methamphetamine.

Hilton says he tried getting off drugs many times for the sake of his wife and daughter. Over the years, he spent time in multiple treatment centers and hundreds of 12-step meetings. He had more than a dozen overdoses and spent time in prison because of drug-related offenses. Eventually his wife left him and

child protective services denied him access to his daughter. But none of that was enough to stop his use of drugs.

"My drug of choice is more. More of anything," he said.

In July, as he awaited his procedure, head shaved, doctors scurried around him, getting ready to direct powerful ultrasound waves at his brain. He said nothing could be scarier than what he had already been through with his drug addiction. "I'm excited to feel what normal feels like. What it's like to not think about wanting drugs all the time," Hilton said.

Despite researchers' hopes for the treatment, they caution that it isn't a miracle cure.

"If you take away the craving, but you don't remove the stressors and you don't replace the craving with more adaptive coping mechanisms, eventually you're going to revert back," said James Mahoney, clinical neuropsychologist at RNI.

Terry "T.J." Sanders, 49, was in the first round of patients who received the ultrasound procedure. Recently, he returned to RNI asking if he could have the treatment again. He had relapsed after five months.

At first, he said, the procedure gave him time for a voice of reason to set in so that he wouldn't resort to drugs. Then his financial situation deteriorated. The recent death of his wife added stress. He started losing that pause, he said. "I went back to survival."

In early October, Sanders had the procedure again. He has since used fentanyl once. Aside from that, he hasn't returned to using drugs and alcohol, according to his doctors.

Hilton's wife, Maggie Bracken, 35, said she has seen a dramatic change in her husband. "Instead of getting frustrated and relapsing, he is more willing to talk it out and figure it out," she said.

The two have reunited and are working together through child protective services to return Hilton's rights to his daughter, so that the family can live together. He is attending 12-step meetings five days a week, taking addiction-treatment medication and visiting a therapist weekly.

On Oct. 7, Hilton learned that what he had received 12 weeks before was the actual ultrasound treatment and not a placebo. The next day, he talked over a video call from his job at a pizza restaurant. "My drive to want drugs is damn near depleted," he said. "I never thought I'd say that in my life."

