

## What's News

### Business & Finance

**A sharp rise in fuel costs** is delivering another shock to the car business and triggering a renewed focus on fuel economy after a multiyear boom in SUV and pickup-truck sales. **A1**

◆ **Some of the world's biggest banks** worked over the weekend to resolve a crisis in the nickel market that leaves them on the hook for billions of dollars owed by Chinese metals giant Tsingshan. **B1**

◆ **IGO, an Australian base metals producer**, said the increase in nickel prices will likely delay its deal to acquire miner Western Areas Ltd. for around \$800 million. **B4**

◆ **Russia's invasion of Ukraine** threatens a big portion of the world's wheat supply and has sent prices on a dizzying ride to new highs as well as the sharpest weekly drop in years. **B1**

◆ **Hedge funds** that placed bullish bets on commodities are notching sizable returns from the biggest rally in decades following Russia's invasion of Ukraine. **B1**

◆ **The FDA will gain authority** over Puff Bar and other e-cigarettes made with synthetic nicotine under the government spending bill that Biden is expected to sign. **B3**

◆ **A group of FedEx contractors** say they were left financially hobbled after renting trucks and staffing up last holiday season to handle a flood of packages that never came. **B3**

### World-Wide

◆ **A Russian airstrike** on a Ukrainian training center close to the Polish border threw into sharp relief the hazards of the western push to deliver massive military support to Kyiv while avoiding direct conflict with a nuclear adversary. **A1, A6-12**

◆ **Russian prosecutors** have issued warnings to Western companies in Russia, threatening to arrest corporate leaders there who criticize the government or to seize assets of companies that withdraw from the country. **A1**

◆ **The U.S. won't negotiate** exemptions to Ukraine-related sanctions on Russia to save the 2015 Iran nuclear deal and could try to strike a separate accord excluding Moscow, a senior U.S. official said. **A20**

◆ **Iran's top paramilitary force** claimed responsibility for a missile attack on northern Iraq early Sunday that sent U.S. troops rushing for shelter and shattered windows. **A20**

◆ **The Biden administration** says it might have to scrap critical Covid-19 programs unless Congress moves to approve funding left out of the \$1.5 trillion omnibus spending package. **A4**

◆ **A court ruling** has weakened one of the IRS's most powerful tools for policing tax shelters, making it harder for the agency to find people engaging in what it considers questionable practices. **A4**

## JOURNAL REPORT

### 5G Technology: Why it isn't yet a game changer. **R1-8**

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# Russia Strikes Near Poland Border



A Ukrainian firefighter stands in the rubble of a food products warehouse destroyed by a Russian airstrike near Kyiv Sunday.

Ukrainian base bombed as Kremlin warns arms shipments from West can be deemed targets

A Russian airstrike on a Ukrainian military training center close to the Polish border threw into sharp relief the hazards of the Western push to deliver arms support to

By Alan Cullison in Kyiv, Ukraine, and Brett Forrest in Yavoriv, Ukraine

Kyiv while avoiding direct conflict with a nuclear adversary. The airstrike killed 35 people at the facility in Yavoriv about 10 miles from the Polish border early Sunday, far to the west of where the conflict has been concentrated, one day after Moscow warned the West that it would consider arms deliveries to Ukraine as legitimate targets.

A large portion of the military aid from the West—one of the largest transfers of arms in history—passes through Poland into western Ukraine, part of the fine line the U.S. Please turn to page A10

## Ukraine Shifts Into A Wartime Economy

By GEORGI KANTCHEV

When Russia began its invasion, Ukraine quickly switched into a wartime economy.

Companies from miners to property developers began making antitank fortifications. A women's shoe brand started using its luxury Italian leather to make military boots. The government issued war bonds to finance the military.

Two weeks into the war, Russian forces have faced much stiffer resistance than most Western experts had anticipated. This is partly due to the training and Western weaponry that Ukrainian armed forces have received since Russia's 2014 invasion, but also to Moscow's military miscalculations.

Another reason is the speed at which civil society has embraced the war effort. President Volodymyr Zelensky of Ukraine has urged civilians to take up arms and assist the military in any way possible. Many companies have answered the call, keeping factories and offices open despite the threat of missile attacks. The government has redirected its funds toward the

Please turn to page A6

## Moscow Threatens U.S. Companies

Russian prosecutors have issued warnings to Western companies in Russia, threatening to arrest corporate leaders there who criticize the government

By Jennifer Maloney, Emily Glazer and Heather Haddon

or to seize assets of companies that withdraw from the country, according to people familiar with the matter.

Prosecutors delivered the warnings in the past week to

companies including Coca-Cola Co., McDonald's Corp., Procter & Gamble Co., International Business Machines Corp. and KFC owner Yum Brands Inc., the people said. The calls, letters and visits included threats to sue the companies and seize assets including trademarks, the people said.

President Vladimir Putin of Russia expressed support last week for a law to nationalize assets of foreign companies that leave his country over its invasion of Ukraine. The pro-

secutors' warnings were directed at companies across sectors, including technology, food, apparel and banking, the people familiar with the matter said.

The warnings have prompted at least one of the targeted companies to limit communications between its Russian business and the rest of the company, out of concern that emails or texts among colleagues might be intercepted, some of the people said.

Other companies have moved to transfer executives

out of Russia, other people familiar with the matter said.

Spokespeople for Coke, IBM, P&G and McDonald's declined to comment. A Yum spokeswoman declined to comment beyond the restaurant company's past statements on its decision to pause operations at its KFC and Pizza Hut restaurants in Russia.

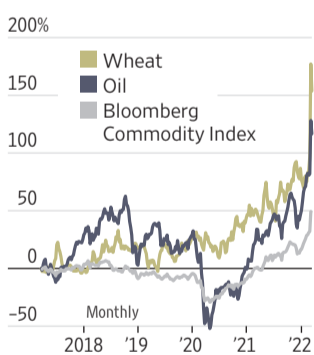
The Russian Embassy in Washington didn't respond to a request for comment.

A large number of companies Please turn to page A9

## Commodities Prices Climb

Hedge funds gain as war hits commodities prices. **B1**

### Five-year commodity-price performance



Note: Most actively traded wheat and Brent crude-oil futures  
Source: FactSet

## Scenes From a Bombardment: 'Trembling, Shaking, Crying'

By JAMES MARSON

When bombs stopped falling on the northern Ukraine city of Chernihiv, Yulia Zhdanova and her sons ran up from the basement and devoured a pot of cold vegetable soup with grimy hands. Ms. Zhdanova's phone then warned of another air raid.

The 39-year-old English teacher and her sons dashed into a hallway and hit the floor, covering their ears, when the explosions blew out doors and windows.

A man shouted, "Everyone get out quickly!" They ran outside to a scene of carnage and

the wail of an air-raid siren. A woman screamed "Children!" in a terrified lament as she ran past three bodies. One lay motionless with bare feet. Another had no legs, and a third, moving limply, was missing a right foot.

"Your first reaction is shock. You are stunned. Your mind rejects it," Ms. Zhdanova said. "You see it with your eyes, like with a camera, like you are not a human being. Then after five or 10 minutes, you realize how terrifying it is and start trembling, shaking, crying."

More than 47 people died during the March 3 assault on

Chernihiv, a city of roughly 290,000. It was one of the highest death tolls from any single attack since Russian President Vladimir Putin sent in troops and then signaled a shift in his approach to bludgeoning a civilian population.

Thousands of civilians have been killed since the start of the invasion last month, according to Ukrainian officials. After the Chernihiv raid, bodies were pulled from rubble for days, local authorities said. So many civilians are dying the city is struggling to track the total.

Slowed by Ukraine army de- Please turn to page A8

Crisis imperils Biden campaign pledges **A6**

TikTok stars join information war **A7**

Babies born to surrogate mothers are stranded **A11**

Foreign veterans sign up to fight Russians **A12**

Pressure on wheat supply jolts prices **B1**

## 'The Batman' Is Very Dark And Not Just Emotionally

It's so shadowy, the trick was making sure people could still see what's on the screen

By JOHN JURGENSEN

"The Batman" has broken out as the biggest box-office hit of the year. Unofficially, the movie might have also set a new standard for the darkest superhero blockbuster ever made.

Almost 100% of the movie plays at night. Robert Pattinson's vigilante superhero does his job in heavy rain, dim rooms and a nightclub resembling a bunker. One of the story's few daytime sequences takes place at a funeral.

"I am the shadows," Batman murmurs in a voice-over before materializing in a crypt-like subway station to pummel a gang.



In the shadows

For the filmmakers who inherited a movie franchise defined by darkness, the job was to push the three-hour movie to a new level without letting it dissolve into a murky mess.

Though fans and critics have debated whether the movie needs more jokes and remarked on the total absence of glitzy black-tie galas for Bruce Wayne, they aren't complaining about being unable to see who's who on screen.

"If you sit in a theater for an extended period, there's a point where you start struggling to read information visually, and I was very attuned to that," says "The Batman" cinematographer Greig Fraser.

Please turn to page A2

## Buyers Struggle to Find Fuel-Efficient Car Options

By NORA ECKERT AND CHRISTINA ROGERS

Americans looking to offset surging gasoline prices with a more fuel-thrifty vehicle aren't likely to find much on the car lot today.

The sharp rise in fuel costs is delivering another shock to the car business and triggering renewed focus on fuel economy after a multiyear boom in sport-utility vehicle and pickup truck sales. It also comes as new- and used-car inventory on dealership lots is at historic lows, leaving buyers with slim pickings for those looking to switch, according to dealers, executives and analysts.

Average gas prices in the U.S. hit \$4.33 Saturday after recently breaking a record set in July 2008, according to AAA. A U.S. ban on Russian oil imports—in response to Moscow's decision to invade Ukraine—is poised to drive fuel

costs higher in the near term. While still early, buyers are already showing more interest in gas-sipping models, including hybrids and electric vehicles, dealers and analysts said.

Bret Biornstad, a 62-year-old teacher living in Portland, Ore., said rising gas prices have pushed him to consider replacing the Kia Rio sedan he bought just a year ago with a fully electric vehicle.

"With the gas prices and the invasion of Ukraine, it was kind of like, 'I'm going to really seriously look into this,'" Mr. Biornstad said.

Within the past decade, the car business has moved away from the small cars and sedans that have historically been the go-to for better fuel economy and focused on bigger and more-lucrative trucks

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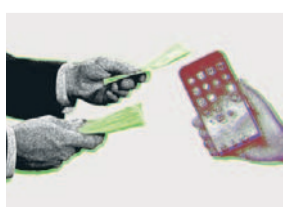
◆ Uber sets fees to offset gasoline prices..... B2

## INSIDE



### SPORTS

Tom Brady changes his mind about retiring and will return to play for Tampa Bay. **A16**



### PERSONAL JOURNAL

That unused phone in your desk drawer is quickly losing its trade-in value. **A14**

# U.S. NEWS

THE OUTLOOK | By Harriet Torry

## Remote Work Offers Rewards, Risks



A shift to remote-work arrangements is showing signs of boosting the lagging

share of women in the labor force as the economy recovers from the pandemic. That is a good thing for U.S. economic growth and productivity, although economists say that workers who never come back to the office risk isolating themselves from promotions and networking opportunities.

Companies are increasingly offering remote and hybrid work arrangements as a perk to hire workers, particularly at larger firms, and women appear to be embracing the flexibility. A February survey of job seekers by hiring platform ZipRecruiter Inc. found that women were twice as likely as men, 26% versus 13%, to say they were only looking for remote work.

That increased flexibility could help retain women in the workforce and counter the sharp decline in female workers early in the pandemic. But it could also come with risks to career progression, according to some researchers.

Harvard University economist Claudia Goldin said a potential downside to women working from home more than men is that they could isolate themselves as a group. Dr. Goldin likened a scenario in which female employees work exclusively at home to that of part-time work, which economic studies have shown hurt workers' wages, retirement savings and career prospects. Similarly, Kweilin Ellingrud, a director at McKinsey Global Institute, the re-

search arm of the consulting firm, said she fears that when workplaces reopen without restrictions, a self-selected group will return and enjoy increased visibility and networking. That group, largely men without caregiving responsibilities, could dominate promotions and relationship-building. That could put less-visible people with care responsibilities at a disadvantage.

"My hope is we see more of those million missing women come into the workforce, but my fear is that it will be slower and with negative implications on long-term career prospects," she said.

Dr. Goldin, however, said workers—and mothers in particular—also stand to benefit from the increased flexibility. High-income jobs in finance, law, consulting and engineering that once demanded frequent travel and long hours are now easier for women to take, thanks to technology.

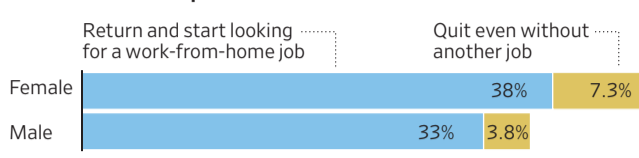
"The price of flexibility has gone down, if you can do an M&A from home or the office rather than flying to Japan, or sign a contract without having to go to Zurich," Dr. Goldin said.

With job openings and worker turnover hovering near record levels, the onus is shifting to employers to find ways to hire and retain workers, and flexibility is one of them.

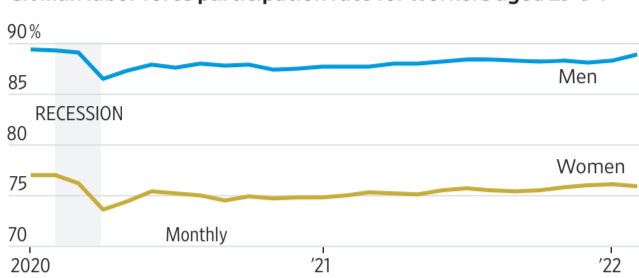
A recent survey by the Labor Department found that more than a third of employers increased telework because of the pandemic, and 60.2% expect to keep the increases permanent when the pandemic is over.

If asked to return to the workplace five days a week, nearly 40% of women with

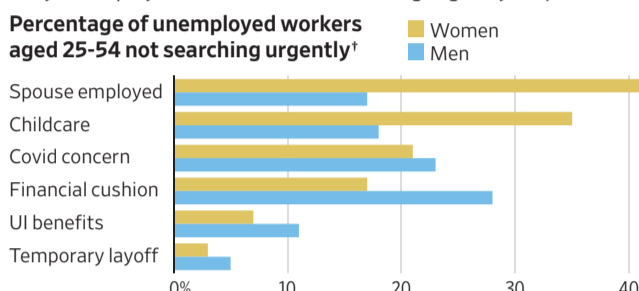
### Share of respondents with children under 18 who would quit or search for a work-from-home job if asked to return full-time in person



### Civilian labor force participation rate for workers aged 25-54\*



### Why unemployed workers aren't searching urgently for jobs



\*Data through February, seasonally adjusted. \*Respondents were able to choose multiple reasons. Sources: WFH Research's June-Sept. 2021 Surveys of Working Arrangements and Attitudes (share of respondents); Labor Department (civilian labor force participation rate); Indeed Hiring Lab job search survey, data from July 2021-Feb. 2022 (unemployed workers)

children under 18 would return and immediately start looking for a work-from-home job, according to a monthly survey of work-from-home arrangements by economists from the University of Chicago, Instituto Tecnológico Autónomo de México and other colleges. That compared with just under a third of men. A further 7.3% of women with children under 18 said they would quit outright if asked to come back five days a week, even without another

job lined up, nearly double the 3.8% of men, also with children under 18, who said the same.

Post-pandemic work arrangements could factor in determining how many Americans, especially women, can be drawn back into the labor force.

Women were harder hit by job losses at the start of the pandemic, including in the hospitality and retail sectors. Economists now are puzzling over the U.S. economy's miss-

## ECONOMIC CALENDAR

**Tuesday:** Growth in China's industrial production likely continued to slow in the first two months of 2022. January-February industrial output is estimated to be up 3.5% from a year earlier, decelerating from a 4.3% pace in December. Economists expect other key measures of activity to improve slightly. Fixed-asset investment and retail sales are both estimated to have advanced at a faster annual rate than in December.

**Wednesday:** U.S. consumers have been resilient through most of the pandemic, facing down product shortages. Retail-sales data for February are expected to show the second consecutive month of increased spending as households adapt to a strong labor market, falling coronavirus cases and inflation.

The Federal Reserve is on track to raise its benchmark interest rate for the first time since 2018 as officials look to cool demand and control inflation. The central bank is navigating an unusually complicated environment of a tight labor market, supply disruptions, spiraling inflation and now Russia's invasion of Ukraine.

**Thursday:** The Bank of England has raised interest rates twice since December in an effort to tame accelerating inflation. Many economists expect another increase this week.

**Friday:** The Bank of Japan is expected to keep its ultra-easy monetary policy in place, given concerns over how the war in Ukraine will affect the global economy.

At the start of the year, Americans rushed to purchase homes in the face of record-low inventory and climbing mortgage rates. Economists expect that the market for existing homes cooled slightly in February. Demand is still strong, but the number of houses for sale is limited, prices are rising and loan costs increased last month.

## Extreme Darkness For Batman

Continued from Page One

His work includes the night raid in "Zero Dark Thirty," and he's up for an Oscar for the somber look of the sci-fi picture "Dune." Because of the need to help the audience follow the action through countless dark settings, he says, "The Batman" was "the toughest lighting job I've ever done."

In the 33 years since director Tim Burton's "Batman," the movie franchise has—with a couple exceptions—cornered a somber vibe that even "The Lego Batman Movie" spoofed. The reaction to "The Batman," directed by Matt Reeves, proves that audiences welcomed an even darker turn, despite a real-world backdrop of grim events. The palette of "The Batman" matches its themes: The hero struggles with his own fury as he pursues a serial killer who taps the anger in society. (Spoiler alert: It does end with a ray of hope.)

For Warner Bros., steering into the shadows with its DC Comics properties is one way of counterprogramming against the brighter Marvel Cinematic Universe. "The Batman" had the No. 2 premiere of the pandemic era after "Spider-Man: No Way Home," which went on to become the third-highest-grossing movie of all time at the domestic box office for Sony and for Disney's Marvel Studios.

"There are few films in the same genre further from each other than the new Batman film and the last Spider-Man film, which was going out of its way to please audiences," says Scott Higgins, director of Wesleyan University's College of Film and the Moving Image. Many have compared "The Batman" to David Fincher's serial-killer thrillers "Se7en" and "Zodiac."

Darkness has always been at the essence of Batman in comics. In filmmaking, it's also a signifier of prestige. The trilogy of Batman movies directed by Christopher Nolan set the bar for seriousness in the superhero genre. Christian Bale played the Dark Knight with black eye makeup and a gravel voice.

"The Nolan films had that



Star Robert Pattinson and director Matt Reeves on the set of 'The Batman.'

patina. He was able to define that franchise as one of superhero auteur films," Mr. Higgins says.

"Joker" took the doom aesthetic further. With no Batman present, the 2019 hit borrowed the grimy look of 1970s films and explored mental illness and mob mentality. It landed 11 Oscar nominations—a record for a comic-book movie—including one for best picture.

Compared with "The Batman," the "Batman" of 1989 seems sunny. At the time it was a major risk to set a summer popcorn movie in "a nightmare projection of civilization in malignant, life-threatening retreat," as the Boston Globe described Gotham.

After an even moodier Bur-

### The goal was to push this Batman film to a new level of darkness.

ton sequel, director Joel Schumacher reversed course for 1995's "Batman Forever," with skewed camera angles referencing the 1960s TV series. Candy-colored lighting showcased hammy supervillains played by Jim Carrey and Tommy Lee Jones.

Cinematographer Stephen Goldblatt bathed Val Kilmer's shiny Batsuit in hues of purple, blue and green. He sent slashes

of light across the star's masked face to bring out his features. "His lips were perfect, and it made a really strong image," Mr. Goldblatt recalls.

"Batman Forever" earned the cinematographer an Oscar nomination. He agreed—"foolishly," he says—to come back for 1997's "Batman & Robin," widely considered one of the worst iterations of the Batman brand.

Despite that, Mr. Goldblatt laments the depletion of fun from the earlier films, though he hasn't kept up with the franchise. "I just can't get into the existential bullshit about the dark nature of Batman," he says. "There are dark things in the world right now, and it ain't Batman."

Students of the genre would argue that "The Batman" is a mood-appropriate proxy for 2020s anxiety. "It has this fantastic quality that lets us play through some real fears, but with a distance that makes it more comfortable," says Travis Langley, a Henderson State University professor and author of "Batman and Psychology: A Dark and Stormy Knight."

To help make "The Batman" shadowy yet legible, the filmmakers used custom camera lenses with sharp focus at the center and a blur at the edges, and transferred their digital footage to film for a look of analog grit. A climactic fight scene unfolds in a pitch-black hall where Batman was lighted only by the muzzle flashes

from prop guns firing in time with strobe lights. Calibrating the light around Batman's eyes required occasional postproduction tweaking, and patience from Mr. Pattinson on set.

"Rob understood that the film needs to see his eyes. When you're Batman, you've got very few techniques to act with," Mr. Fraser says.

Lighting the Batsuit, source of one of the most iconic silhouettes in movies, was among the most delicate parts of the process.

"It makes all the difference about how you feel about the Batman," Mr. Fraser says. "If I overlook it, there's a danger that it becomes kind of what it is—a guy in a suit—as opposed to an enigma."

## CORRECTIONS & AMPLIFICATIONS

**The Soviet Union** collapsed in 1991. A Page One article on Friday about sanctions against Russia incorrectly said it collapsed in 1989.

### Notice to readers

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## U.S. WATCH

NEW YORK, WASHINGTON, D.C.

### Man Tied to Killings of Homeless People

Authorities are searching for a man who is believed to have attacked multiple people who were sleeping on the streets in Washington, D.C., and New York City, killing two of his victims and injuring three others, police said.

District of Columbia police said Sunday they are working with the New York Police Department to find the man who fatally shot and stabbed a man Wednesday in the district and killed another man Saturday in New York City.

The man shot and injured two other homeless people earlier in the month in Washington and one other person Saturday in New York, police said.

The cities are committed "to bring this investigation to a swift conclusion and the individual behind these vicious crimes to justice," Washington Metropolitan Police Chief Robert Contee said.

—Associated Press

NEW YORK

### Suspect Sought in Museum Stabbings

The Museum of Modern Art remained closed on Sunday after two employees were stabbed by a man who was up-set over a revoked membership, police said.

The New York Police Department released surveillance video of the attack on Sunday along with photos of a possible suspect, who they have identified

as Gary Cabana, 60 years old.

The incident in the Midtown Manhattan museum unfolded around 4:15 p.m. Saturday and sent visitors fleeing into the streets. A man had jumped over the reception desk and stabbed two museum workers several times after they denied him entry because his membership was revoked, the NYPD said.

One of the victims, a 24-year-old woman, was stabbed twice in the lower back and once in the back of the neck, police said. The second victim, a 24-year-old man, was stabbed once on the left collarbone.

None of the wounds were life-threatening. MoMA said it would reopen on Tuesday.

—Ginger Adams Otis

## OBITUARY

### William Hurt, Leading Man, Oscar Winner

William Hurt, whose laconic charisma and self-assured subtlety as an actor made him one of the 1980s' foremost leading men in movies such as "Broadcast News," "Body Heat" and "The Big Chill," has died. He was 71.

Mr. Hurt's son, Will, said his father died Sunday of natural causes.

In a long-running career, Mr. Hurt was three times nominated for an Academy Award, winning for 1985's "Kiss of the Spider Woman." After his screen debut in 1980's "Altered States" as a psychopathologist studying with sensory deprivation, Mr. Hurt quickly emerged as a mainstay of the '80s.

—Associated Press

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## U.S. NEWS

# Infrastructure Funds Stir Up State Battles

In Texas, city of Austin plans light rail, bus lines, but billions are already set aside to widen I-35

By JULIE BYKOWICZ  
AND TED MANN

AUSTIN, Texas—Multibillion-dollar transportation projects in this Democratic stronghold of Republican Texas show how tough it will be for President Biden to accomplish his goal of shaking up federal infrastructure investments.

Austin has ambitious plans for new light rail and rapid bus lines and a vision of covering a downtown stretch of Interstate 35 with acres of parks and public spaces.

Mayor Steve Adler is seeking federal funding from the nearly \$1 trillion bipartisan infrastructure law for both projects, but he acknowledges those awards will be highly competitive since cities, counties and states all across the country are eager for the money. “Nothing is guaranteed,” he said.

What isn’t in question: a four-lane expansion of I-35 through Austin. Federal highway funding, including about \$28 billion from the new law, means Texas has the money to begin construction soon on its Austin project.

Mr. Biden has repeatedly called his infrastructure law transformative and a chance to rethink public-works spending—financing the kind of projects Mr. Adler envisions for Austin. He and Transportation Secretary Pete Buttigieg say they want the money spent to better serve people in disadvantaged areas and slow climate change; they want fewer new roads, more mass transit.

The law’s fine print could make that mission difficult to achieve. More than half of the roughly \$600 billion in transportation money is being transferred to states through federal highway funding, giving governors and state departments of transportation—not the Biden administration—control over how it is spent.

Some Democrats in Congress have long said that any infrastructure bill would need to rewrite funding formulas to meet the goals of boosting transit and combating climate change. But to win enough Republican votes to pass the bill, Democrats shrank their initial request for mass transit and other non-highway programs and ditched a requirement that states repair roads and bridges before building new ones.

“We’re stuck with a pretty bitter reality here, and that is the Senate is a basket case,” said Rep. Peter DeFazio (D., Ore.), the chairman of the House Transportation Committee, whose own more transit-focused infrastructure bill was cast aside for the bipartisan Senate plan.

Sen. Shelley Moore Capito (R., W.Va.), a Republican infrastructure negotiator, said the legislation never would have passed had it not preserved the ability of states to set their own priorities when they receive federal highway money.

States may choose to give priority to expanding roadways in rural areas, high-growth regions or developing job centers that will mean hundreds of commuting workers, she said. “In certain instances, new capacity is what you need,” she said.

In December, the Transportation Department said it would encourage projects that



Austin City Council member Sabino ‘Pio’ Renteri, above, says infrastructure projects decades ago, under which highways were built, also reinforced segregation. Mayor Steve Adler, below, is seeking U.S. infrastructure funds for different types of projects this time.



improve “the condition and safety of existing transportation infrastructure” over those that add “travel lanes serving single-occupancy vehicles.” But administration officials acknowledge this is guidance, not a mandate.

Still, 16 Republican governors, including Texas Gov. Greg Abbott, and Senate Minority Leader Mitch McConnell (R., Ky.), responded with letters saying the administration shouldn’t push a social agenda

through infrastructure investments.

“Attempts to disallow the use of funding for general purpose widening projects would be biased against rural states and states with growing populations,” the governors wrote.

Some Democrat-led states also plan to spend huge amounts of infrastructure money on new or larger highways.

Austin is on track to double its population to 2 million

## Where the Federal Money Is Going

Breakdown on how infrastructure funds will be spent, according to a detailed analysis of the 1,000-page law from transportation analysts at the Brookings Institution.

<b>Transportation:</b>	\$591 billion
<b>Highways, roads and bridges:</b>	\$361 billion
<b>Transit:</b>	\$92 billion
<b>Rail:</b>	\$68 billion
<b>Airports:</b>	\$25 billion
<b>Safety:</b>	\$18 billion
<b>Multimodal and freight:</b>	\$13.5 billion
<b>Ports:</b>	\$11 billion
<b>Broadband and other non-transportation related projects:</b>	\$137.5 billion
<b>Total:</b>	\$864 billion (Brookings arrived at a lower figure than the roughly \$1 trillion from the congressional analysis.)

structured downtown tunnel. Texas transportation officials say the city’s projects and the roughly \$5 billion highway expansion aren’t in tension and that Austin will need an all-of-the-above strategy to ease congestion as its population booms.

Conditions attached to the last major federal infrastructure investment, President Dwight Eisenhower’s 1956 highway law, meant that Black and brown neighborhoods in cities across the country were obliterated by pavement, or cut off from whiter economic hubs. Austin was no exception.

“When the highway went up, it was like a wall that reinforced segregation,” said Austin City Council member Sabino “Pio” Renteria, a 71-year-old who grew up east of the highway and remembers its construction in the late 1950s and early 60s.

Austin can’t stop the state’s I-35 expansion, which will mean 20 lanes of highway, turnways and frontage roads in some places. The highway department says traffic in the new lanes will be managed to give priority to buses and other high-occupancy vehicles.

# Rent-Control Bills Advance as Housing Prices Surge

By WILL PARKER

Lawmakers across the U.S. are looking to enact rent control, reviving measures largely shunned in recent years in an effort to curb the surge in home rental prices throughout the country.

These proposals, which would generally allow landlords to boost monthly rents by no more than 2% to 10%, are on the legislative agenda in more than a dozen states. Rental prices are up about 18% on average over the past two years, according to real-estate broker Redfin Corp., hitting record levels across the U.S.

Large cities like Boston, affluent suburbs like Montclair, N.J., lower-income mobile-home communities in Colorado and fast-growing metros in

Florida are among the places considering rent control.

“Rents are exploding at a pace far faster than income,” said Stijn Van Nieuwerburgh, an economist and professor at Columbia Business School. “The problem is now as bad as it has ever been. And probably much worse.”

Rising rents are a big contributor to the recent surge in inflation that is starting to weigh on the U.S. economy. Cost of shelter accounts for 40% of the core Consumer Price Index, CPI’s biggest component. Economists at the San Francisco Federal Reserve said in a February inflation forecast that rent increases “point to significant upside risks to the overall inflation outlook.”

Rent-control measures in the U.S. date to the years fol-

lowing the first and second World Wars, but the concept saw a major resurgence in the 1970s, a period marked by high inflation. Its resurgence was somewhat short-lived, and many lawmakers adopted the view that rent controls hurt housing markets more than they helped tenants, by discouraging new development and disincentivizing apartment maintenance.

More recently, some economists and politicians have reconsidered that thinking, pointing to rent control as one of the few ways to protect low-income renters, who often face the greatest hardships. In 2019, New York Congresswoman Alexandria Ocasio-Cortez, a progressive Democrat, proposed a national rent-control law. California and Oregon

advanced rent-control bills the same year, now laws in both states.

Some cities are weighing more restrictive rent caps than previously considered. St. Paul, Minn., enacted last fall the only rent control in the Midwest, and it now has one of the most stringent policies in the country.

In Santa Ana, Calif., local officials have gone beyond the state’s rent-control measure, which caps annual rent increases at 5% plus local inflation, to limit local rent increases to 3% at apartments built before 1995.

Those measures passed despite laws in both states that generally prevent local governments from writing their own rent rules.

Other rent-control efforts

will also have to navigate prohibitions, which still exist in more than two-dozen states. First-term Boston Mayor Michelle Wu, for example, campaigned on bringing rent control back to the city, and a poll shows a majority in the city would support it.

But local rent controls were banned there nearly three decades ago. Massachusetts Democrats are advancing a bill that would repeal that ban, though Republican Gov. Charlie Baker has said he would probably not sign such a law.

In Florida, another state that pre-empts local rent controls, lawmakers in Miami and Tampa—where asking rents are up more than 30% over the past year—have discussed declaring housing emergencies to pass rent control.

The real-estate business successfully lobbied several states to write anti-rent control statutes decades ago, and the industry is active again. “We consider it an existential threat,” said Jim Lapides, a spokesman for the National Multifamily Housing Council, a landlord trade group.

Building owners continue to argue that rent control would stunt the supply of new housing and ultimately make the rental market worse for everyone. In St. Paul, for example, developers have temporarily placed more than a third of planned apartment units on hold due to concerns over the new law there, according to property management software firm RealPage, which compiled permit records and public reports and surveyed builders.

# Teachers and Schools Navigate Mask-Optional Policies

By BEN CHAPMAN  
AND SARA RANDAZZO

Teachers thought getting children to wear masks was challenging but now, with mask mandates lifting, they are finding navigating the new world is tougher than they anticipated.

New York City permitted students to unmask themselves in class starting last week. In the city’s schools, and nationwide, the classrooms where some kids wear masks and others don’t can be difficult to manage.

The majority of U.S. schools are dropping mask mandates first enacted in 2020, but that also brought tension to many classrooms. In most states, districts can now choose their own policies.

Chicago Public Schools will drop its mandate Monday, and the school districts in San Francisco and San Diego are ending mask requirements in early April.

Last Tuesday, nearly half of the students at Forest Elementary School in New York City weren’t ready to remove their masks. “The pandemic isn’t over,” said Anderson Rosa, a fourth-grade student who wore a face covering to class that



On a recent day at Forest Elementary in New York, teacher Nicholle Montecalvo wore a mask because of a previous bout with Covid-19, while many students didn’t wear face coverings.

day. “Wearing a mask still helps keep you safe.”

The Centers for Disease Control and Prevention on Feb. 25 dropped its blanket recommendation for universal masking in schools, saying about half of U.S. counties met thresholds for removing masks indoors.

Changes in school mask policies have been met with some conflict. Parents in Rhode Island and New York said some

students have been bullied for wearing masks or not wearing them. Lawsuits over mandates are ongoing in many states.

In California, districts can now choose to lift requirements. A few dozen school districts stopped enforcing mask mandates for students before they had permission from the state.

In one of those districts, in the Sacramento suburb of Rocklin, geography teacher Travis Mougeotte said he has

noticed students naturally separating in class into those wearing masks and those without. “It’s interesting but it’s also kind of sad,” said Mr. Mougeotte, who is the local union president.

Even as the majority of the country moves away from masks, some large California school districts plan to carry on the precaution for now, including those in Los Angeles and Sacramento.

In Oakland, the school board said Wednesday night that children must remain in masks outdoors at least two more weeks, and indoors until mid-April, when they will reassess.

“My 9-year-old was in tears last night when I told him,” said Megan Bacigalupi, a parent of two students in the district and executive director of parent advocacy group CA Parent Power. “If my kids can go to the movie theater, department stores, literally anywhere except their school without a mask, something is wrong.”

Teachers at Forest Elementary in New York said less than half of students wore masks March 7, the first day the requirement was dropped, and fewer students wore face coverings on subsequent days.

In a fourth-grade class on March 8, Forest Elementary co-teachers Nicholle Montecalvo and Nirvana Viganì had mixed responses to the new rules. Ms. Montecalvo wore a mask due to a previous bout with Covid-19. Ms. Viganì, who said she could better project for students’ reading lessons without a face covering, went without.

Students with masks mixed freely in the class with those

who didn’t, and the children said they felt little peer pressure over whether to don the face coverings.

“I’m happy we don’t have to wear them, but I’ve got mine on because one of our classmates has a cold today,” fourth-grader Omari Jackson said.

Forest Elementary teachers said it is easier to hear students and to make themselves heard without masks. Teaching phonics in particular is easier, they said, as students can see how sounds are formed with their mouths.

Each time fifth-grader Cloris Rose pulled her mask up, she was reminded of the sickness and fear caused by Covid-19, she said.

That has changed, somewhat, since she no longer has to wear a mask in class. Cloris said she is still concerned about catching Covid-19. But the chance to go maskless is easing her concern, she said.

“I wasn’t sure if I would survive the pandemic,” said the 10-year-old from Queens, who last attended school without a face covering as a third-grader. “But the fact that we can take our masks off now makes me feel like things will be all right.”

U.S. NEWS

# Fight Over More Covid-19 Aid Looms

WASHINGTON—The Biden administration says it might have to scrap critical Covid-19 programs unless Congress moves to approve funding left out of the \$1.5 trillion omnibus spending package.

By *Stephanie Armour, Natalie Andrews and Sabrina Siddiqui*

The administration initially floated a \$30 billion request, which it then formally cut to \$22.5 billion, only to be reduced further to \$15.6 billion by congressional negotiators. With Republicans insisting that no new money be allocated until previous funding rounds were exhausted, rank-and-file Democrats then balked at a proposal to reuse unspent funds intended for state governments, prompting party leaders to pull the provision altogether.

Democratic leaders now plan to hold a stand-alone vote in the House this week on \$15.6 billion in Covid-19 aid, without paying for it by clawing back

state funds. Such an approach would likely hit a wall in the 50-50 Senate, where Democrats would need at least 10 Republican votes to advance the proposal.

“What the president was asking for in the legislation was a good start,” said House Speaker Nancy Pelosi (D., Calif.) at the Democrats’ retreat in Philadelphia on Friday. “It wasn’t everything. So we would have to do more anyway.”

The administration says it needs money soon to lock in orders for treatments and vaccines. While Covid-19 cases have plummeted since a surge earlier this year and jurisdictions nationwide are ending pandemic-related restrictions, officials say the nation must be prepared for further outbreaks.

For instance, the administration has said it needed funds to place orders now for the purchase of antivirals to treat Covid-19—especially as other countries vie for limited supplies—to prevent a shortfall this autumn. Domestic manufacturing of tests and labora-

tory capacity could be cut back by more than half without more funding, officials say.

The lack of additional Covid-19 funding also means it can’t be determined whether the U.S. will have the quantity of shots it would need for a possible booster campaign in the fall, officials said, or have adequate vaccine supply for

### The administration says it needs money to lock in orders for treatments, vaccines.

children under 5 years old.

As of mid-February, no money was left in the Department of Health and Human Services’ public-health and social-services emergency fund for healthcare providers, according to documents that the department shared with Congress and were viewed by The Wall Street Journal.

“As we have said, failing to take action and secure urgent Covid-response funding now will have near-term consequences for the American people and leave us more vulnerable to a new variant,” said White House spokesman Kevin Munoz.

Republicans aren’t convinced, saying the administration shouldn’t ask Congress to approve more money while states are sitting on unspent federal Covid-19 relief funds. As of the end of January, the Treasury had about \$105 billion in unobligated state and local funds and \$10 billion in an unobligated coronavirus capital-projects fund.

“Does the White House agree that states that are already flush with cash should be prioritized over spending more money on vaccines for kids and therapeutics?” asked a spokesman for Senate Minority Leader Mitch McConnell (R., Ky.).

Still, some see a way forward.

“I’m for doing something,”

said Sen. Roy Blunt (R., Mo.), who sits on the Senate appropriations committee. “Those accounts are out of money, and if you see a need for somebody continuing to produce vaccines, therapeutics and tests, you’re probably going to have some federal money to put in.”

The White House plans to underscore publicly the urgency of securing more Covid-19 aid this week, in the hopes of escalating pressure on lawmakers.

One White House official said the administration was looking at other potential funding vehicles for attaching the money should the House stand-alone proposal fail to pass the Senate.

The White House reached out to governors’ offices, a senior aide to one governor’s office said, to get bipartisan support for its Covid-19 funding request, then set at \$22.5 billion. There wasn’t enough support across the entire National Governors Association to get governors to endorse it as a group.

# IRS Tool For Tax Shelters Is Weakened

By *RICHARD RUBIN*

A court ruling has weakened one of the Internal Revenue Service’s most powerful tools for policing tax shelters, making it harder for the agency to find people engaging in what it considers questionable practices.

The latest decision—which came this month in a case involving Michigan business owners and life-insurance products—could slow the government’s ability to require taxpayers to disclose their participation in aggressive tax shelters, tax lawyers said. It continues a yearslong trend in which courts are requiring that the IRS and Treasury Department follow detailed regulatory procedures that the government and academic experts had long assumed didn’t apply to the tax system.

The ruling from the Sixth U.S. Circuit Court of Appeals in Cincinnati applies only in a handful of states, but it provides a road map for taxpayers to challenge the IRS in the absence of further action by the administration or Congress.

The court in the case in question found a flaw in a 2007 notice from the IRS. That announcement warned participants in certain transactions involving cash-value life insurance that purported to give tax advantages to business owners and required them to notify the government of the deals on their tax returns. The IRS uses such disclosures to attack a list of transactions or products that it sees taxpayers using and that it deems particularly abusive.

The requirement acts as a deterrent because many tax advisers will steer clients from the listed transactions. The IRS publishes its list to warn tax-

### The circuit court ruling provides a road map to challenge the IRS.

payers it is likely to pursue audits and challenge their returns if they engage in the transactions. The repercussions of the audits vary depending on individual circumstances.

The case turned on a federal law about regulatory processes, known as the Administrative Procedure Act, which businesses have used to challenge rules.

The IRS should have sought public comments before imposing the disclosure requirement, according to the unanimous ruling from the three-judge appeals-court panel. The decision halted nearly \$30,000 in penalties that the IRS had assessed against **Mann Construction** and its owners. A lawyer for Mann Construction said the Michigan company was pleased with the ruling.

Representatives for the Treasury and Justice departments declined to comment. The IRS generally doesn’t discuss pending litigation.

“Decisions like this one threaten to hobble our government’s ability to administer a tax system that is fair to all Americans,” said Rep. Bill Pascrell (D., N.J.), chairman of the House Ways and Means Committee’s oversight subcommittee. “It is my hope this holding is appealed and overturned.”

Congress could overturn the ruling by declaring that reportable transactions are exempt from government regulatory procedures, but lawmakers have had little discussion on doing so.

Lower courts have been following the Supreme Court’s lead on the expansion of administrative-law requirements into tax law, limiting the long-held view that tax law was different, said Joseph Bishop-Henchman, vice president of policy and litigation at the National Taxpayers Union Foundation.

“The IRS keeps losing. And so they need to change their position.” Mr. Bishop-Henchman said. “As an advocate for taxpayers, it’s very ironic that the IRS is asserting that they can cut corners and not follow rules, because that’s not certainly the position they take with taxpayers.”

# Opioid Overdoses Take Toll on Black People

By *JON KAMP AND JULIE WERNAU*

The fatal overdose rate among Black people surpassed that for white people in the first year of the pandemic, as an increasingly lethal drug supply and Covid-19’s destabilizing effects exacted a heavy toll on vulnerable communities in the U.S.

The proliferation of the potent opioid fentanyl, and a pandemic that has added hazards for people who use drugs, are driving new records in U.S. overdose deaths, and Black communities have been hit especially hard. Black people often have uneven access to healthcare including effective drug treatment, putting them at high risk, researchers and public-health experts say.

The most recent full-year of federal data, through 2020, shows the rate of drug deaths among Black people eclipsed the rate in the white population for the first time since 1999, researchers at the University of California, Los Angeles recently demonstrated.

The gap in overdose rates between the Black and white populations was narrowing before the pandemic. Iris Lattimore lost her 35-year old son, Corey Rucker, to a fatal overdose in late 2017. Her older son, Greg Wiley, overdosed and died at age 41, in July 2020. She said assistance and messaging around the crisis seemed aimed at white people rather than her community.

“We’ve been fighting this for a long time,” said Ms. Lattimore, 61 years old.

There were more than 15,200 overdoses among Black people in 2020, more than double the number from four years earlier, according to data the UCLA researchers published in March in the medical journal *JAMA Psychiatry*. The toll represents nearly 37 drug overdose deaths per 100,000 Black people that year, the UCLA researchers found, trailing only the death rate in the signifi-



Iris Lattimore holds a blanket with photos of her two sons who died from overdoses. The latest data show the rate of drug deaths among Black people has eclipsed the rate in the white population.

cantly smaller American Indian or Alaska Native population.

“The Black death rate rose much faster than the white death rate,” said Helena Hansen, co-author of the new paper and professor of psychiatry at UCLA’s David Geffen School of Medicine.

The researchers said the findings demonstrate the need to close gaps in access to treatment and harm-reduction services, which are meant to make drug use less risky, among other steps. They said ending routine incarceration of drug users could help prevent fatal overdoses among people after they leave prison.

In Boston, opioid-related overdoses in the Black population doubled to 82 in 2020 versus the prior year, while opioid deaths in the city’s larger white population increased 16% to 101. The city has stepped up efforts to bring mobile harm-reduction services to Black communities,

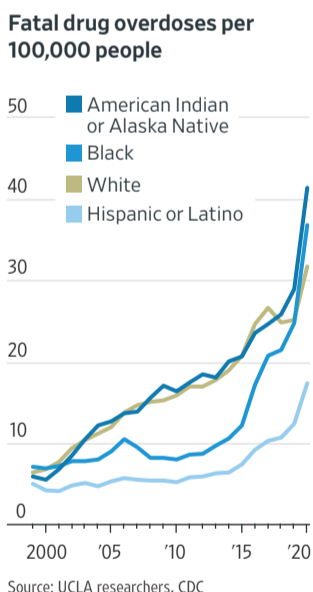
exchanges and testing for HIV and other health issues.

“We have to go where people are,” Dr. Ojikutu said.

Fentanyl was a major driver when drug overdose deaths jumped roughly 30% to about 92,000 in 2020, the most recent federal count for that year shows. The scourge is getting worse: There were an estimated 104,288 overdose deaths in the 12-month period running through September, according to the most recent preliminary data from the Centers for Disease Control and Prevention.

Use of stimulant drugs like cocaine among Black people may also be exposing some to fentanyl, which sometimes contaminates other drug supplies, health experts say. A recent paper published in the *American Journal of Epidemiology* found Black Americans had a sharper increase in combined stimulant and opioid deaths than did white people between 2007 and 2019, espe-

said Bisola Ojikutu, executive director of the Boston Public Health Commission. This includes distribution of the overdose-reversal drug naloxone and other services like syringe



Source: UCLA researchers, CDC

cially in the eastern U.S.

Black people can also face higher hurdles to getting effective care for opioid use, doctors and public-health researchers say. Researchers at the University of Michigan examining outpatient visits for substance use in recent years found white patients were three to four times as likely as Black patients to receive buprenorphine, a prescription medication to treat opioid dependence that is more readily available to people with health insurance or the means to pay out of pocket.

Health providers are more likely to direct Black patients to methadone, which is delivered by highly regulated opioid-treatment programs that often require daily visits to obtain the medication, researchers have found.

The history of Black Americans facing a higher rate of criminal penalties and incarceration for drug-related offenses than whites has also made some Black drug users reluctant to seek help, researchers and treatment specialists say.

“I would wait until I was almost dead to go to the hospital,” said Chetwyn “Arrow” Archer II, 62 years old and a former opioid user who is now a peer-support specialist with IDEA Exchange at the University of Miami, which provides harm-reduction services to drug users.

Ms. Lattimore’s eldest son, Greg, had a criminal record that made it challenging for him to find consistent work as an adult, she said. He appeared to be on the upswing in mid-2020, when he had found a new job at a factory and planned to marry his longtime fiancée. That July, the fiancée found Greg in the basement at their Columbus, Ohio, home, dead from an overdose.

Ms. Lattimore keeps a blanket she made with her two sons’ photos by her side. “Some days I look over at it and I say, ‘I can’t believe you guys left me,’” she said.

# Crypto Hires Aim to Boost Washington Influence

By *PAUL KIERNAN AND DAVE MICHAELS*

WASHINGTON—The cryptocurrency industry has staked out a spot at Washington’s revolving door, hiring scores of former government officials and regulators as it seeks to shape policies to govern the largely unregulated market.

Those working for or advising cryptocurrency firms or investment funds include three former chairs of the Securities and Exchange Commission, three former chairs of the Commodity Futures Trading Commission, three former U.S. senators and at least one former White House chief of staff, former Treasury secretary and former chair of the Federal Deposit Insurance Corporation.

The Tech Transparency Project, a watchdog group, has identified more than 200 former staffers of federal agencies, congressional offices and national political campaigns who have worked in crypto. They have gone to companies such as



Lawrence Summers



Mary Jo White



Brian Brooks



Christopher Giancarlo

Coinbase, Circle and FTX, venture-capital funds such as Andreessen Horowitz, law firms representing cryptocurrency clients and crypto-focused trade associations.

The push comes as regulators are scrambling to craft rules to protect investors in the cryptocurrency market and safeguard against illicit activity or financial instability. President Biden last week signed an executive order tasking federal agencies with a broad review of cryptocurrencies.

“You just don’t normally

have industries this new accumulate this much hard and soft power in Washington,” said Jeff Hauser, executive director of the Revolving Door Project, a progressive group.

The hires span a variety of roles and include alumni of GOP and Democratic administrations. Industry representatives say former government officials can help companies comply with the law and understand regulatory expectations.

Former SEC Chair Mary Jo White, now an attorney at Debevoise & Plimpton LLP, is de-

fending cryptocurrency issuer Ripple Labs Inc. against an SEC enforcement action. Ms. White ran the SEC during the Obama administration. Former Treasury Secretary Lawrence Summers advises crypto investment firm Digital Currency Group Inc. and sits on the board of Block Inc., a financial-technology firm that is investing in cryptocurrency-payments systems. Former acting Comptroller of the Currency Brian Brooks is CEO of bitcoin-mining firm Bitfury Group.

Total compensation pack-

ages for former officials in the cryptocurrency industry can reach into seven figures, a person familiar with several hiring arrangements said.

Christopher Giancarlo, who stepped down as CFTC chairman in 2019, argued in a June 2020 article that XRP, Ripple’s digital coin, shouldn’t be under SEC oversight. His law firm had represented Ripple, and Mr. Giancarlo relied on information provided by Ripple to write the article. In an interview, he declined to say whether he knew that Ripple was under SEC investigation at the time the article was published.

Mr. Giancarlo ran the CFTC when the agency approved bitcoin futures contracts, a move he said brought cryptocurrency “into the regulated sphere.” Since then, he has helped companies because he believes the technology underpinning cryptocurrencies will change how finance works for the better.

◆ **Heard on the Street: Possible fallout of a digital dollar... B10**

## U.S. NEWS

## Oklahoma Braces for Latest Tribal Case

By SADIE GURMAN

TULSA, Okla.—A year and a half after the Supreme Court ruled that much of eastern Oklahoma remains a Native American reservation, law-enforcement officials are settling into a changed legal world, learning new rules about who can be prosecuted on expanded tribal lands home to nearly two million people.

Now they face the prospect that those rules could change again.

Native Americans saw the July 2020 ruling in *McGirt v. Oklahoma* as a landmark victory in their long bid to reclaim tribal sovereignty after a history of forced removals and broken treaties. But it also reordered Oklahoma's justice system, as suddenly hundreds of cases involving Native Americans could no longer be brought by state prosecutors or heard by state courts. That saddled federal and tribal courts with a deluge of cases they weren't equipped for, sowing uncertainty for defendants and victims alike.

Oklahoma Gov. Kevin Stitt, saying the decision imperiled convictions and left crimes unpunished, petitioned the Supreme Court to have it overturned. The court rejected that request in January but agreed to hear a case that could partially restore the state's power to prosecute crimes in Indian country. Its ruling in that case, *Oklahoma v. Castro-Huerta*, could potentially shake up the legal system again, this time with consequences that could span beyond Oklahoma. Arguments will be in April and a decision is expected before July.

"It feels like it would be whiplash," Steve Kunzweiler, the Tulsa County district attorney, said of the prospect of another change. He saw many of the cases his office prosecuted transferred to federal court in the weeks after the Supreme Court's 2020 decision—and could soon have to take some of them back.

Understaffed for the new workload, federal prosecutors in 2020 picked up hundreds of homicide, rape and assault cases normally handled by local authorities. The FBI's Oklahoma City field office became one of the agency's busiest, borrowing scores of out-of-town agents versed in terrorism, counterintelligence and civil-rights investigations.

Federal judges poured in to help process the exploding

### A Supreme Court ruling potentially could shake up the legal system again.

docket of cases. After Julia O'Connell, Oklahoma's federal public defender, put out a call for volunteers, her staff more than doubled.

By the end of 2021, the U.S. attorney's office in Tulsa said it had opened more than 1,000 cases involving Native Americans and routed 2,000 to tribal courts, which generally handle lower-level offenses.

Twenty-four prosecutors—from Pittsburgh, Seattle, Buffalo, N.Y., and elsewhere—were later hired to take on what Clint Johnson, U.S. attorney for the Northern District of Oklahoma, called "a crushing onslaught of cases initially."

McGirt's impact on criminal justice overall isn't easily characterized. Some offenders have ended up with a similar sentence to what they might have received in state court; others got harsher punishments, and some got off more easily.

Dozens of violent crimes have gone unpunished because federal statutes of limitation expired, witnesses died or evidence vanished. In one case, a man suspected of raping five women in the 1990s was charged by the state in 2020 after DNA evidence surfaced, but had his case dismissed on McGirt grounds. A five-year federal statute of limitations kept the Justice Department from adopting the case, allowing him to go free without facing trial.

Tribal leaders reject the charge that justice is being left undone. "What the tribes want is the ability to make their own laws and be governed by them, and that means the ability to enforce those laws," said Sara Hill, attorney general for the Cherokee Nation, which handled roughly 60 times as many criminal cases in 2021 than in an av-

erage year before McGirt.

On Tuesdays, known as "McGirt Days," hundreds of people line the halls of the Cherokee Nation courthouse waiting for their cases to be heard. The Muscogee (Creek) and Cherokee Nations say they have spent millions of dollars expanding their justice systems to accommodate the workload.

For many of Oklahoma's Native Americans, any upheaval is a small price to pay for a high-court ruling that reckoned with the government's sometimes shameful treatment of the tribes.

The case was brought by Jimcy McGirt, a Seminole citizen who was originally convicted in

state court and received two 500-year sentences and life without parole for sexually abusing a 4-year-old girl on Muscogee (Creek) Nation land. He argued that only federal prosecutors were entitled to try him because Congress had never formally extinguished the tribe's sovereignty when Oklahoma became a state in 1907.

In a 5-to-4 decision, the Supreme Court agreed. Justice Neil Gorsuch, writing for the majority, noted that the lands at issue, the terminus of the Trail of Tears, had been promised to the tribes in exchange for territory in Georgia and Alabama taken from them by white settlers.

The ruling, which led to the affirmation of five other reservations, didn't much alter Mr. McGirt's fate. He was retried in federal court and sentenced to life.

In the Supreme Court's new case, the justices are considering whether to allow Oklahoma to retain jurisdiction over crimes committed by all nontribal citizens in the state, even if they happen on tribal lands. Legal experts said the outcome of the case could open battles in places where the jurisdictional balance has long been settled. Five other states—Texas, Nebraska, Louisiana, Kansas and Virginia—filed court papers supporting Oklahoma.



Twenty-four prosecutors were hired to take on what Clint Johnson, above, U.S. attorney for the Northern District of Oklahoma, called 'a crushing onslaught of cases initially.'

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## THE UKRAINE CRISIS

## War Imperils Biden Campaign Pledges

Search for more oil prompts overtures to authoritarian regimes he had vowed to isolate

BY ANDREW RESTUCCIA  
AND TARINI PARTI

WASHINGTON—Joe Biden campaigned on isolating the world's autocrats, getting the U.S. out of foreign conflicts, weaning it off fossil fuels and building a more resilient economy.

The Ukraine crisis is now forcing President Biden to recalibrate how he tries to deliver on those promises.

He has rallied the West behind sanctions on Russia in an effort to pressure President Vladimir Putin to end the war. But his decision to ban Russian oil imports is expected to contribute to high gasoline prices at home, further straining American families who were already dealing with inflation that hit another four-decade high last month. Mr. Biden's push to shore up the world's oil supply has involved overtures to authoritarian regimes with rich oil reserves like Saudi Arabia and Venezuela—and frustrated those on the left who see this as a moment to break away from fossil fuels, not encourage more production.

So far, Mr. Biden's handling of Ukraine has been a relative bright spot for him in polls after months of poor marks from the public on the economy and inflation. In a recent Wall



President Biden's handling of Ukraine has so far been a relative bright spot for him in the polls.

Street Journal poll, 50% of voters said they approved of how he has dealt with Russia and 44% disapproved. But some Democrats said they worry those numbers could fall if the war drags on for months and gasoline prices remain high.

As Mr. Putin continues his advance in Ukraine, some U.S. lawmakers and Ukrainian officials are urging Mr. Biden to become more deeply involved in the crisis, presenting difficult choices about how to punish Moscow and keep allies united without entering the conflict militarily. In addition, Mr. Biden and Democrats could face November's midterm elections with high inflation and key parts of his agenda un-

filled, such as bringing down costs of prescription drugs and expanding child care.

"He wanted to pivot to Asia and Build Back Better at home, and suddenly he finds himself pivoting to Europe and facing intense inflation and much more foreign entanglement than he bargained for," said Council on Foreign Relations President Richard Haass, who worked in senior roles for President George H.W. Bush during the Gulf War and President George W. Bush during the war in Iraq.

As Moscow escalates and U.S. officials warn that Mr. Putin could launch a chemical attack, Mr. Biden has stressed that he won't send American

troops into Ukraine to fight Russia. That decision has the backing of the majority of the public, with only 10% supporting sending troops in the recent Journal poll.

Lawmakers from both parties have urged the administration to move Soviet-style jets into Ukraine, and a group of former national security officials called for imposing a limited no-fly zone over the country's airspace. Ukrainian President Volodymyr Zelensky has made impassioned pleas for both measures.

Administration officials say those steps risk dragging the U.S. into direct conflict with Russia.

The fast-moving events in

Ukraine have prompted the president and his advisers to make unpalatable choices that contradict stances taken during the campaign.

Senior administration officials have made direct pleas to the U.S. oil industry to pump more oil from existing leases.

Administration officials say they haven't abandoned their longer-term goal of reducing U.S. reliance on fossil fuels and have no immediate plans to dramatically expand oil and gas drilling on federal land. But they say high prices necessitate an immediate response that requires more supply at home and abroad.

Last week, Mr. Biden banned Russian oil imports into the U.S. after some in the administration initially resisted the idea. He acknowledged that the move would likely push up gasoline prices further, but said it was a necessary move to punish Mr. Putin. The Journal poll found 79% of Americans support banning the sale of Russian oil to the U.S., even if doing so raised energy prices at home.

Some close to the White House worry that sustained high gasoline prices would nonetheless be a major political liability ahead of the midterm elections, as voters feel the financial squeeze and Republicans zero in on prices at the pump and inflation.

Republican lawmakers have called on Mr. Biden to expand domestic oil and natural-gas production in response to high prices and criticized Democrats

as putting too much of a focus on renewable energy, including the administration's push in favor of electric vehicles.

"You couldn't have an administration that's more out of touch," said Brad Todd, a GOP strategist. Pointing to the high cost of electric vehicles, Mr. Todd added that the approach from Democrats "reflects the fact that it's the party of elites."

Climate activists said the administration should use the crisis to transition to cleaner energy sources, not call for more drilling. Mr. Biden has said climate change is an existential threat to the planet, and he has proposed halving U.S. greenhouse-gas emissions by 2030.

Mr. Biden, who attacked former President Donald Trump on the campaign trail for "embracing dictators," has tried to make rallying democratic countries against authoritarian regimes a cornerstone of his presidency. But in seeking to contain gasoline prices, administration officials have recently reached out to Saudi Arabia and Venezuela—oil-rich countries that Mr. Biden had vowed to be tough on.

The White House wouldn't disclose how much oil it is seeking or describe progress of talks with other nations. U.S. officials also say their talks with countries like Venezuela and Saudi Arabia have often been focused not on oil but other geopolitical and security issues. Venezuela released two Americans from prison last week after recent diplomatic talks with the U.S.

## Invasion Shifts Economy

Continued from Page One military, and the central bank launched a crowdfunding campaign within hours of Russia's forces rolling in.

"We've moved into a war economy," said Tymofiy Mylovanov, an adviser to Mr. Zelensky's administration and a former economy minister. "Now plants that made sweaters are making weapons."

On Feb. 24, Sergii Pylypenko, chief executive of property developer Kovalska Industrial-Construction Group, was awakened by the missile attacks that marked the start of Moscow's war on Ukraine.

Mr. Pylypenko gathered the management for an urgent conference call and a decision was made: to cease operations at Kovalska's 13 factories and at various building sites. But instead of completely closing shop, the company quickly redirected its efforts to helping the military.

It handed over its entire fleet of 600 vehicles, including concrete mixers, dump trucks and excavators to the Ukrainian army. Some of its dump trucks have been converted into anti-aircraft missile systems.

Kovalska also gave the military over 2 tons of TNT and other explosives, which it normally uses to blast rock in its granite quarries. Recently, it started production of hedgehogs, the giant metal Xs used as antitank obstacles, for reinforcing military checkpoints.

"We are a family company and we have only one way—to win this war and then to rebuild Ukraine," Mr. Pylypenko said.

Steel-and-mining group Metinvest also switched its production facilities and plants to making antitank obstacles. The company said Thursday that it has provided the military with 3,500 hedgehogs and more than 2,000 concrete blocks for shelters.

Such donations are small compared with what Ukraine's allies in Europe and the U.S. are providing in terms of military and financial assistance. North Atlantic Treaty Organization members have mounted a sizable operation in recent days to transfer weapons and resupply Ukrainian soldiers. In the U.S., Congress passed a spending package that includes \$13.6 billion in emergency aid for Ukraine, including support for the military.

Many Ukrainian businesses have sought to augment this international effort. At Kachorovska, a high-end women's shoe brand dating back to 1957, Chief Executive Alina Ka-



Civilians and businesses are supporting the war effort by making giant metal Xs used as antitank obstacles. Communication agency ISD's founder Viktor Shkurba, below, and staff are showing Russians 'the prisoners, the corpses,' to combat disinformation.

chorovska was just back from a Milan leather exhibition when the invasion began.

The company, which usually sells items like red leather pumps and beige loafers, saw more requests from all over the country for another type of shoe: army boots.

Kachorovska began contacting other factories to look for soles and laces. It used some of its own materials, originally earmarked for the spring/summer collection, including expensive Italian leather in dark olive.

"It's very different than our usual shoes," Ms. Kachorovska said. "But we clearly understood that we needed to start doing something, to support the army, to support the country."

Some 40 workers go to work at several factories, their days punctuated by air-raid sirens. Ms. Kachorovska wouldn't disclose the factories' precise location out of security fears, but said the town was under bomb attacks almost daily. The company has produced about 700 pairs of army boots and requests continue to pour in.

Communication agency ISD Group decided to focus on another front of the war: Russian disinformation.

With Moscow cranking up its propaganda machine and muzzling independent coverage of the war at home, ISD founder and managing partner Viktor Shkurba said he wanted to show Russians the reality on the ground: "blown-up columns of military equipment, the prisoners, the corpses."



The agency set up a team of more than 60 people who collect information and populate a map of Russia and Ukraine with pictures and videos from the war. The names of captured or killed Russian soldiers are linked to the city they are from.

"This way is more likely to reach [their] relatives," Mr. Shkurba said.

Reaching the Russian public has been a challenge given state censorship, including the Kremlin's blockage of Facebook and Twitter. Mr. Shkurba and his team spread their material via messaging app Telegram, which is popular in Russia, through Ukrainians who have family and friends in Russia, and by buying ads on

Russian websites.

"We are still trying to find their blind zones," Mr. Shkurba said.

Charities have also joined the fray. Come Back Alive, which has been active since Russia's 2014 annexation of Crimea, has donated drones, heat visors, flak jackets and other equipment worth over 700 million hryvnia, equivalent to about \$23.8 million, to the army.

Charity Army SOS has raised money for shields, radio stations and tactical medical kits.

When Russia began dropping bombs on Kyiv, officials at Ukraine's central bank quickly ditched orthodox monetary policies. The bank set up

crowdfunding accounts for donations for the troops and humanitarian aid, collecting nearly \$400 million so far. Ukraine later issued war bonds, raising about \$270 million.

As part of its fundraising, Kyiv is planning to issue NFTs, or nonfungible tokens, which act as virtual deeds conveying ownership of a digital asset.

"We do not pretend that we are now in normal circumstances and so we can't rely on the standard market-friendly monetary tool kit," said Sergiy Nikolaychuk, deputy governor at the National Bank of Ukraine. "We started to adjust these measures to the changing circumstances from day one of the war."

## American Journalist Killed Near Front Line

BY PAUL KIERNAN

WASHINGTON—An American journalist was shot and killed near the front line of the war in Ukraine, foreign press and local police said Sunday, drawing condemnation from the White House and tributes from his former colleagues.

The journalist was identified as Brent Renaud, 50 years old, an award-winning documentary filmmaker from Arkansas. Andrey Nebitov, a police official in the Kyiv region, posted photos on Facebook of Mr. Renaud's body and identification documents, including a passport and New York Times press badge, though a Times spokeswoman said he wasn't currently on assignment for the newspaper. In accompanying posts, Mr. Nebitov blamed the killing on Russian troops and said two other correspondents were injured and taken to a hospital in the Ukrainian capital for treatment.

Agence France-Presse reported that its journalists in Irpin, a suburb northwest of Kyiv, saw Mr. Renaud's body.

One of the wounded journalists has been identified as American photographer Juan Arredondo.

National security adviser Jake Sullivan called the killing "obviously shocking and horrifying" in an interview on CBS News' "Face the Nation."

Mr. Renaud was in Ukraine working on a project on the global refugee crisis for Time Studios, according to a statement from Time Editor in Chief Edward Felsenthal and Time Studios head Ian Orefice.

"Our hearts are with all of Brent's loved ones," they said.

Mr. Renaud and his brother, Craig, won a 2014 Peabody Award for a Vice News documentary on a Chicago school serving at-risk students.



Brent Renaud

## THE UKRAINE CRISIS

## Russia Expands Social Media Bans

BY SAM SCHECHNER  
AND KEACH HAGEY

Russia is dropping a digital iron curtain over its population, creating a big, new fracture in the global internet—but there are still big gaps in President Vladimir Putin's efforts to cut off the country from online information accessible in much of the rest of the world.

Just over two weeks after Russia's invasion of Ukraine, the Kremlin on Friday ramped up its war on outside information about the invasion, saying it would start blocking Instagram. It called the photo-sharing app's parent company, **Meta Platforms Inc.**, an "extremist organization" for allowing violent statements about invading Russian troops.

Russia last week started restricting access to Twitter Inc. and Meta's Facebook. It also passed a law that threatens prison time for spreading what authorities say is false information about Russia's armed forces—effectively silencing many independent media outlets inside the country.

At the same time, more Western companies are pulling back some digital services from Russia under pressure from Western sanctions. **Netflix Inc.** is suspending its streaming service in the country, and **Alphabet Inc.**'s Google said its app store for Android phones will no longer allow the sale of paid apps or app subscriptions in the country—though it is keeping its free services available for now.

It is too early to say how permanent the restrictions will be. But legal experts and digital activists say it already represents a big, new tear in global internet connections, which have been slowly pulling apart under several different pressures—something experts call the "splinternet."

China has a massive censorship and filtering system sometimes called the "Great Firewall." Iran blocks a large

number of foreign media and social-media sites. Turkey and other countries have tried to force social-media companies to remove content they find objectionable through tough local laws.

In Western countries, too, new laws requiring companies to store data locally and rules on the removal of certain types of content have erected digital borders where none had existed before.

"The war has taken existing trajectories and catalyzed them," said Daphne Keller, a former associate general counsel at Google, who now directs the platform-regulation program at Stanford University's Cyber Policy Center. "Russia is isolating itself on purpose in some really dramatic ways."

**'Russia is isolating itself on purpose in some really dramatic ways.'**

Autocratic governments have been trying to limit access to the internet for as long as it has existed. Before the invasion, Russia sent hundreds of thousands of takedown requests to companies including Google, Facebook and Twitter according to the companies' transparency reports. In some cases, the companies resist the orders, particularly when they believe there are issues of free speech involved, employees say. But in many cases they comply, the reports show.

Still, everyday Russians had relatively wide access to the same sites and information available elsewhere. Russia's crackdown has—so far at least—spared a handful of digital-media platforms that are highly popular in Russia, including Telegram Group Inc.'s social media and chat app and Google's YouTube video service.

## TikTok Stars Join Information War

BY SARAH E. NEEDLEMAN  
AND DEEPA SEETHARAMAN

Victoria Hammett is a 23-year-old recent University of Southern California graduate who almost daily posts short TikTok videos of herself talking about, as she puts it, "politics and other stuff."

This past week, she put up a roughly 30-second post arguing that imposing a no-fly zone over Ukraine risks escalating the conflict. The basis of her analysis: a private briefing Thursday with White House officials.

Ms. Hammett was one of about 30 social-media creators who joined the remote briefing. It was perhaps the starkest example yet of how the fight to control the narrative about Russia's invasion of Ukraine is playing out across social media, often with unlikely actors who are far outside the traditional channels of mass communication.

Ms. Hammett is the deputy executive director of Gen-Z for Change, a group formerly known as TikTok for Biden that comprises about 500 TikTok influencers who collectively have about half a billion followers.

"The access we have to this creator network allows us to reach an incredibly large audience," said Ms. Hammett, whose TikTok channel has about 750,000 followers.

The briefing, which was later parodied on "Saturday Night Live," included creators active on TikTok, though many of them also have significant presences on YouTube, Twitter and other platforms. Administration officials said it is important to provide digital creators with factual content that they can use to explain the conflict in Ukraine to their millions of followers. And they said that the U.S. needs to counter efforts from Russia's government, which they said is paying TikTok creators to generate materials that are pro-Kremlin.

The Kremlin has said its military actions are aimed at protecting Russia's security and that of Russian-speaking



Oleksandr Zinchenko, center, and Victoria Hammett, below, both posted on social media about Ukraine.

people in Ukraine's eastern Donbas region.

"Whether people agree with it or not, digital creators and influencers have become a source of truth to many, especially millennials and Gen Z," said Krishna Subramanian, chief executive and founder of Captiv8, a data analytics firm that analyzes influencers.

On Friday, Media Matters for America, a liberal watchdog group, produced a report analyzing 186 Russian influencer accounts on TikTok that it said were trying to drum up support for Russia through an apparently coordinated campaign. The Russian influencers—many of whom don't normally discuss politics—posted nearly 200 videos between March 4-8 using the caption "Russian Lives Matter #RLM," indicating support for Moscow, the report said.

Ukrainian influencers also have leveraged social media—as has the country's president, Volodymyr Zelensky, who has posted prolifically to get his message out. Influencer feeds that a few weeks ago were full of Gucci purses and skin care tips changed almost immediately after Russian tanks rolled across the country's borders. One Ukrainian influencer with a million Instagram followers posted instructions on how to



while, has clamped down on various types of media.

The White House's embrace of influencers at Thursday's meeting, which was previously reported by the Washington Post, is a recognition of how TikTok and other social-media platforms shape thinking today. Administration officials view such influencer-produced content as one of the important ways that Americans—especially younger Americans—are learning about the war and its progress.

"People are using TikTok to stay informed," said Joan Donovan, director of research at Harvard University's Shorenstein Center on Media, Politics and Public Policy. "We had not previously thought about TikTok as a news app."

The embrace is also fraught, she said, thanks partly to the nature of the platforms. TikTok has become flooded with propaganda since the war began, and it is difficult to discern truth from rumor in many cases, in part because of the lack of dates and time stamps on many posts. "People may think they're seeing something current, but they might be seeing something days or years old," she said.

—John D. McKinnon  
contributed to this article.



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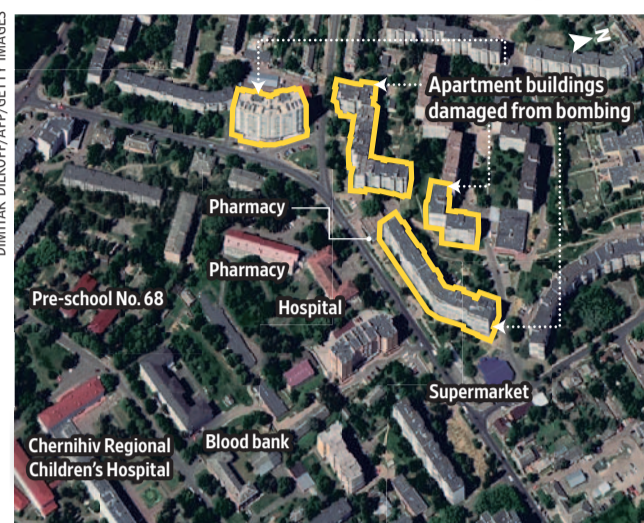
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## THE UKRAINE CRISIS



A residential area in the northern Ukraine city of Chernihiv following Russian bombing early this month.

## Selection of locations hit by bombs on March 3



Source: Google Earth and Maxar Technologies (satellite imagery); Amnesty International (location of damaged apartment buildings); Andrew Mollica/Wall Street Journal

## Russia's Assault on One City

Continued from Page One

fenses, Russian forces appear to be attempting to encircle cities, including Kyiv, Kharkiv in the east, and Chernihiv. They are intensifying bombardments that have knocked out utilities and cut off food supplies.

Russia says it is targeting Ukraine's military, not civilians. Evidence points to the contrary. "They know where they are hitting," said Oleksandr Lomako, secretary of the Chernihiv City Council. "They want to terrorize."

Bombed-out schools, hospitals and residential buildings across the country echo the air and artillery bombardments Mr. Putin used to pummel Chechnya and Syria. People in Chernihiv compare the attacks to the Nazi bombing of

the city in August 1941.

"Eighty-one years later, the Russians bomb us in exactly the same way," said Chernihiv Mayor Vladyslav Atroshenko. "They are annihilating civilians."

War came quickly to Chernihiv, which is located some 50 miles from the spot where the former Soviet republics of Ukraine, Belarus and Russia touch.

Russian armored units faced strong resistance in and around Chernihiv, a predominantly Russian-speaking city. Unarmed civilians tried blocking the columns. Ukraine's army destroyed or captured several tanks.

Thousands of residents, young and old, joined in the defense, picking up weapons and setting up street checkpoints. Public buildings, including School No. 18 in the west of the city, became coordination centers.

Thwarted on the outskirts, the Russians shelled residential buildings in the suburbs and the city center, local officials said.

Chernihiv, with more than a

millennium of history, is known for its church buildings, public squares and parks. Ukrainian and foreign tourists were drawn to "our peaceful, European, nice-looking city," said Ms. Zhdanova, who owns a chain of educational centers where children could learn anything from foreign languages to chess.

On Feb. 27, shelling of central Chernihiv damaged a children's dental clinic and youth center housed in a former movie theater built in the 1930s. "They bomb everything they see," Ms. Zhdanova said. Residents have gotten used to their new way of life, running down to basements at the sound of air-raid sirens or when officials post warnings on social media. They made the hiding spaces as comfortable as possible, adding mattresses, chairs and piles of blankets to stay warm.

Warnings to take cover became so frequent that some people ignored them. Others were too old or just didn't want to dash down stairs to basements. Some remained at shops and pharmacies, unwilling to give up spots in line.

Ms. Zhdanova, her husband and two boys, ages 11 and 13, largely stayed in the cellar of their building, darting home only to eat the soups she prepared in between bombardments. Their apartment was in a nine-story building on Chorovola Street, a central neighborhood with food stores, a pizzeria and a beauty salon.

In crisis, the neighborhood pulled together. Christina Lavryshcheva-Novikova, chief editor of the 174-year-old regional newspaper, put out an edition with her staff working in basements. Oleksandr Salva, a 33-year-old entrepreneur, ferried food and medicine.

Yaroslav Yachnyi, who works for a Belgian brewer, took coffee and snacks to the men at a nearby checkpoint. Ms. Zhdanova's husband joined his building's unarmed patrol.

### Cries for help

In the late morning on March 3, the city had a rare break from air-raid warnings. Ms. Lavryshcheva-Novikova went to the market, leaving her son with his grandmother. She drove past a checkpoint and waved at the territorial-battalion soldiers. She recalled a line outside the pharmacy.

Ms. Zhdanova, the teacher, and her sons went upstairs for soup. She happened to glance at her phone, saw an air-raid warning and hurried her boys to the corridor.

Mr. Yachnyi was grabbing eggs, frozen dumplings and meat from his apartment when the siren sounded. Out the window he and two friends saw a plane coming in from the west dropping bombs and dived into the corridor.

At 12:16 p.m., a car's dashboard camera showed several bombs dropping from the sky and exploding with a flash. The explosion blew out the doors and windows of Mr. Yachnyi's apartment, showering him with pieces of concrete and dust. "Is everyone alive?" he asked.

He glanced through the hole where his neighbors' door used to be and saw daylight. Half of the apartment unit had been blown away.

Ms. Zhdanova and her sons rushed outside where her husband had been on patrol. After he found his wife and sons safe, he hurried to a neighboring building where his parents lived. He recorded the scene on his phone: orange flames, mangled cars and debris, everything covered by a brown-gray layer of concrete dust.

"A f—ing pharmacy!" he exclaimed, pointing the camera at the charred exterior of the single-story building. People

hurried in all directions, past fallen bodies.

"No socks," said a man with a gun, glancing at the first body and dashing onward.

Ms. Lavryshcheva-Novikova, the editor, hurried to her apartment building. She saw a bloodied woman emerge, screaming, "Where is my son?" Ms. Lavryshcheva-Novikova reached her apartment and found it blown apart, but her family was spared.

Fire trucks, ambulances and members of the defense battalion moved people to a local hospital, which had also been damaged.

Mr. Atroshenko, the mayor, said there were no military targets in the neighborhood. "The plane was flying low, it was the middle of the day, and very visible that it was a residential area," he said.

### A bloodied woman emerged after a bombing screaming, 'Where is my son?'

Mr. Salva, who had been sheltering near School No. 18, sped to the school to lend help. A bomb had hit one corner, leaving a hole and a pile of bricks. He saw a head, arm and leg poking out from under a concrete slab and heard a man's cry for help. Mr. Salva and a dozen or so others lifted the slab off the man. They used a door as a stretcher.

Another man, trapped beneath several slabs, was moaning, but rescuers couldn't move the pile. A third man hung head-first from the second floor, limp.

Mr. Salva, the entrepreneur, moved his family to western Ukraine at the start of the conflict but said he planned to stay put in Chernihiv. "If someone came and did this to your home," he said, "would you just leave?"

Ms. Zhdanova escaped Chernihiv, she said, "crying and praying." Her family drove along small village roads that officials had warned could be mined. They took only two bags.

"All our life is in those two bags," she said. "But it doesn't matter. The only thing that matters is that you are alive."

—Oksana Grytsenko contributed to this article.



Brewery worker Yaroslav Yachnyi took shelter from Russian attacks in a basement in Chernihiv.

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## THE UKRAINE CRISIS

# Healthcare Suppliers Keep Selling to Russia

Healthcare companies say they are duty-bound to continue supplying drugs, vaccines and medical equipment to Russia, though Western sanctions and other measures have thrown up hurdles.

By Denise Roland, Jared S. Hopkins and Peter Loftus

The Ukraine invasion has prompted Western car makers, luxury-good purveyors and other companies to leave Russia. Makers of drugs, vaccines and medical equipment continue to do business, however, saying they have an ethical responsibility, though some drug and device firms have spoken out against the invasion and scaled back operations.

"If our products don't get to the patients in need, people will die or have severe consequences," Johnson & Johnson Chief Financial Officer Joseph Wolk said at an investor conference last week.

J&J plans to continue to provide what it said are essential products to Russia. Drug distrib-

utor AmerisourceBergen Corp. said it has stopped doing new business in Russia, though it will keep distributing certain cancer drugs and finish clinical trials.

Bayer AG's drug and crop divisions are still operating in Russia. Withdrawing seeds, pesticides and other products, a company spokesman said, would exacerbate food shortages due to the important role of Ukraine and Russia in the global wheat supply.

"A suspension of deliveries for cancer or cardiovascular patients would not be ethically justifiable and would heavily impact the civilian population of Russia," the spokesman said.

Russia isn't a big market for Western healthcare companies. Sales in the country account for less than 2% of the companies' world-wide total, according to analysts and companies. Russia imported about \$700 million in U.S. pharmaceutical products last year, according to S&P Global Inc.'s market intelligence unit.

Some 80% to 85% of Russian-made drugs, however, depend on imported ingredients,

according to RNC Pharma, a Moscow market research company. Russian pharmaceutical companies are struggling to import the main ingredients, said Pavel Rasshchupkin, RNC's commercial director.

Medicines haven't gone into shortages so far, but the devaluation of the ruble has driven up prices, Mr. Rasshchupkin said. Pharmacies are seeing panic buying, he said.

Russian President Vladimir Putin last week signed into law "anticrisis" measures, among which were policies aimed at boosting supplies of domestically made medicines and medical devices, such as the option to ban exports of certain drugs. An Interfax news agency report on the law didn't specify vaccines.

Many Western drugmakers have issued statements voicing opposition to the Russian invasion, expressing support for Ukrainians and making donations to help Ukraine and refugees.

Merck & Co., Pfizer Inc. and Bristol-Myers Squibb Co., which have continued most activities



A pharmacy in Russia, where medicines haven't gone into shortages so far.

in Russia, are among drugmakers that say they have paused enrollment in clinical trials in the country.

Bayer and other larger companies that sell over-the-counter drugs and healthcare-related consumer goods said they have pulled advertising from Russia. Russia bans direct-to-consumer advertising for prescription drugs.

GlaxoSmithKline PLC said it wouldn't enter into any contracts that support the Russian administration or military, such as agreements to supply vac-

cines for military immunization drives. Royal Philips NV has stopped selling consumer products like electric toothbrushes in Russia but continues to supply medical equipment, a spokesman said.

Some 300 biotech CEOs signed a pledge to halt business development in Russia. "The goal was to influence Russian political thinking through those that surround Putin, said Jeremy Levin, chief executive of Ovid Therapeutics Inc. and one of the letter's authors. The pledge made an exception for

the transport of medicines.

Drugmakers have also said they are working to protect their employees and ensure their medicines reach Russian patients.

So far, companies haven't reported significant disruptions to their supply chains or operations in Russia. Official sanctions haven't targeted health products. Yet sanctions are forcing companies to scramble to provide their products and are likely to create more disruptions, according to experts and industry officials.

## Moscow Threatens Companies

Continued from Page One  
nies have made public their plans to suspend or scale back operations in Russia in the wake of Mr. Putin's invasion of Ukraine and sanctions imposed by Western governments.

Many companies, particularly retailers and manufacturers, have said their decisions to stop operations are temporary. Some said they were necessitated by the disruption that sanctions have had on supply

chains. Others have committed to leaving for good.

Companies are also evaluating their business in Russia in a different way given the economic instability and expectations that conditions will be volatile for some time, according to people briefed on the matter. Despite the prosecutors' warnings, a number of the companies aren't planning to change their decisions to withdraw or suspend operations, the people said. It would also be difficult for companies to smoothly transfer operations to Russia if the government sought to impose its own managers, one of the people said.

The Russian prosecutor general's office said on Friday it would ensure that companies that have said they are pausing

or exiting operations comply with labor laws. More than 350 foreign companies have said they are leaving or temporarily suspending work in Russia, according to the Yale School of Management.

Wall Street banks such as Goldman Sachs Group Inc., consumer-goods companies such as Coke, retailers such as Levi Strauss & Co. and tech giants such as Apple Inc. have made public their plans to pull back. Energy giants such as BP PLC and Exxon Mobil Corp. said they would exit Russian operations.

Mr. Putin endorsed a plan floated last week by a senior member of his dominant United Russia party to nationalize the operations of Western companies exiting the country. Such a move would help prevent job

losses and maintain Russia's ability to produce goods domestically, said Andrei Turchak, secretary of the general council of the United Russia party.

Washington warned against a nationalization effort.

Coke last week said it would suspend operations in Russia. Coke's business in Russia and Ukraine contributed about 1% to 2% of its operating revenues and income in 2021. The company had an ownership interest of about 21% in Coca-Cola HBC AG, Coke's bottling and distribution partner in the region, as of Dec. 31.

Yum said last week it was temporarily closing its 70 company-owned KFC locations and signing an agreement with its Pizza Hut franchisee to halt business at its 50 locations. It

was also suspending all investment and restaurant development in Russia.

The company is "focused on the safety of our people in the region and will continue to support our teams in Ukraine while evaluating the ways Yum Brands can make a positive impact in the region," the spokeswoman said.

IBM Chairman and Chief Executive Arvind Krishna wrote in a blog post last week that the company had suspended all business in Russia. "The safety and security of IBMers and their families in all areas impacted by this crisis remains our top priority," he wrote.

McDonald's said last week it was temporarily closing its roughly 850 restaurants in the country and would continue

paying the 62,000 people it employs in Russia. The company said it couldn't yet determine when it might reopen the restaurants in Russia and would consider whether any additional steps might be required.

Closing the restaurants is expected to cost the company an estimated \$50 million a month for payroll, leases, supply-chain and other costs, McDonald's said.

P&G said it would halt spending in Russia on capital investments, advertising and promotions while selling only products that focus on basic health, hygiene and personal care. P&G said that Russia and Ukraine combined account for less than 2% of annual revenue.

—Sharon Terlep contributed to this article.

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THE UKRAINE CRISIS

# Thousands Who Fled Head Home

Many are returning to Ukraine to care for relatives and pets, do their part in war effort

BY MATTHEW LUXMOORE AND IAN LOVETT

PRZEMYSL, Poland—Just two weeks ago, Yulia Rabievska and her mother, Ira, frantically threw their possessions into bags and fled Ukraine ahead of invading Russian forces. They reached Poland after three days on the road with Yulia's 6-year-old son, her sister and her nephew.

But on Friday, Ira went back into war-torn Ukraine, ignoring Yulia's pleading that she remain. She joined a steady stream of Ukrainians heading home, going against the epic wave of refugees fleeing the country.

"I'm very frightened," said Yulia, 31, after she watched her mother board the train in Przemysl, a small city near Poland's border with Ukraine. "I tried to convince her to stay, but she kept saying she wanted to go, and I had to let her."

It is unclear how many people are returning to Ukraine for personal reasons. They get less attention than those returning to fight, which Ukraine's prime minister, Denys Shmyhal, said on Friday numbered 215,000.

Since Russian President Vladimir Putin launched his war in Ukraine on Feb. 24, more than two million people

fled the country. One Ukrainian now enters Poland every second, a total of 1.5 million that is expected to keep rising.

But some are going back. Heading home are people from all walks of life: men signing up to defend their cities, often accompanied by their wives; mothers returning to their husbands after taking children to safety abroad; Ukrainians going to care for ailing parents and relatives. Some people were on vacation abroad when the war broke out and decided they must return to do their part.

Ukrainian doctor Oleh Trehuba was on vacation in the Dominican Republic when Russia invaded. He and his wife, Iryna, a nurse, traveled through Austria, Germany and Poland to reunite with their three children and care for their patients in their city about 100 miles west of Kyiv.

"I walked around crying for three days" after the war began, said Dr. Trehuba, 44, just before he crossed into Ukraine last week. "But we gathered the whole family on a video call, and decided we will remain in Ukraine. A doctor must help."

Every evening outside the train station in Przemysl, a long line forms for the 7 p.m. train to Odessa, a Ukrainian port city that is hunkering down in advance of an expected Russian attack. Trains headed for Ukraine are so delayed that security guards at the station tell passengers to ignore the posted schedule.



Yulia Rabievska and her mother, Ira, made it to Poland, but the elder Ms. Rabievska went back to be with her brother and her pets.

Hundreds of Ukrainians, plus a few foreign young men hoping to aid the country's defenses, line up all through the day, standing outside in freezing temperatures, sometimes singing Ukrainian patriotic songs. "It's warmer when you sing," one woman told them on Thursday.

As passengers wait to board, weary travelers arriving from Odessa and other cities along the train's route walk by the crowd, seeking shelter in Poland.

Nearby, in the main building of the Przemysl train station, the arrival halls, waiting lounges and cafeteria are packed with Ukrainian families waiting to travel into Poland and Germany, many of them sleeping rough.

"Why should we sleep on the floor if we have homes in Ukraine?" said Yulia Boy-

chenko, a supermarket cashier who was in line for the Odessa-bound train with her two children so she could return to her apartment in Lviv, a city in western Ukraine that is one of the train's stops en route.

Like most Ukrainians heading back, Ms. Boychenko said she had carefully calculated the risks and wouldn't hesitate to leave Ukraine if Russian forces reach Lviv, which is currently far from the worst fighting and has become a temporary safe haven for thousands of Ukrainians fleeing bombardment.

Others in line say they are heading home because they feel a duty to do their part in helping Ukraine fend off the Russian attack. Katia, a 30-year-old beauty salon worker who was visiting relatives in Poland when the war broke out, was heading back with her

husband, Pavel, so he could join the territorial defense force in the town of Khmelnytsky in western Ukraine.

"Wherever he goes, I go," she said. The Wall Street Journal agreed to use only her first name.

On the road going into Ukraine, trucks and cars carrying humanitarian aid are mixed with people heading home. Among them last week was Elena Strushkina, who had dropped off her kids in Poland and was heading back to care for her 86-year-old mother.

"She needs my care, she cannot be alone," said Ms. Strushkina, who had attached a Ukrainian flag to her steering wheel and admitted she was nervous about going back. "I tried to persuade her to leave, but she says she is too weak."

Ms. Rabievska, who saw her mother off in Przemysl on Fri-

day, is now staying in Poland with her son and her truck-driver husband, who has a home there.

She said her mother Ira returned because she missed the comfort of her house in Khmelnytsky, and had a dog and two cats to look after. The elder Ms. Rabievska also wanted to join her brother, who like most Ukrainian men wasn't allowed to leave Ukraine.

Air-raid sirens were almost constant in Khmelnytsky, according to neighbors who had stayed there, but the elder Ms. Rabievska said she wasn't afraid and would head back to Poland with her pets if she feels her life is at risk.

"If I had no one to come to in Poland," said Yulia Rabievska, "I might also have stayed in Ukraine."

—Anastasiia Morozova contributed to this article.



## Russia Hits Base Near Poland

Continued from Page One and its North Atlantic Treaty Organization allies are walking between aiding Ukraine militarily while steering clear of providing troops or enforcing a no-fly zone that Ukraine has called for.

The expansion of Russia's aggression to a target close to Poland also increases the risk of the war encroaching on NATO territory, which the U.S. has warned would be treated as an attack on the alliance. Any strike on Poland would bring "the full force of the NATO alliance to bear in responding to it," Jake Sullivan, the U.S. national security adviser, said in an interview Sunday on CBS News.

Russia's defense ministry said more attacks aimed at supply lines and foreign mercenaries supporting Ukraine were in the offing.

Armaments supplied to Ukraine by the U.S. and its European allies—especially anti-tank and anti-aircraft weapons—have played an important role in checking the advance of Russian ground troops, who have suffered heavy casualties in the north as they have tried to encircle the Ukrainian capital, Kyiv.

But President Volodymyr Zelensky of Ukraine has warned that military aid alone might not be enough to enable Ukraine to fight off Russia's invasion. He has made increasingly urgent calls for a no-fly zone that would protect the supplies entering the country and the refugees fleeing to neighboring countries.

The U.S. and its European allies have said a no-fly zone that involved other countries' air forces risks escalating the conflict because it would only be effective if it were empow-



A soldier wounded in Russia's Sunday rocket attack on the training complex in Yavoriv is treated at a hospital in Novoyavorivsk. Survivors said barracks were targeted.

ered to deter Russian planes. The U.S. also refused last week to support a Polish push to supply Soviet-built MiG-29 combat jets to Ukraine.

While the West aids Ukraine, Russia has asked China for military equipment and other assistance for its war effort, according to U.S. officials, who didn't specify what Russia had requested.

News of Russian President Vladimir Putin's request for help from Beijing, earlier reported by the Washington Post, comes as Mr. Sullivan heads to Rome Monday to meet with a top Chinese official to discuss Ukraine.

Mr. Sullivan spoke on CNN Sunday of the growing concern inside the Biden administration that Russia might be looking for help in the conflict, though he didn't acknowledge a specific request from Russia to China.

"We are also watching closely to see the extent to which China actually does provide any form of support, material support or economic support, to Russia," Mr. Sullivan said. "It is a concern of ours, and we have communi-

cated to Beijing that we will not stand by and allow any country to compensate Russia for its losses from the economic sanctions."

In addition to supplying arms, the Biden administration and its allies have shared intelligence with Kyiv and inflicted sweeping economic sanctions against Russia. But they are facing calls from some quarters to do more.

A Republican senator on Sunday said the Biden administration shouldn't necessarily let the prospect of the U.S. entering direct combat with Russia stop it from sending more assistance to Ukraine.

"You always have to keep in mind that you don't want to escalate to a direct confrontation with Russia," Sen. Jim Risch of Idaho, the top Republican on the Senate Foreign Relations Committee, said on Fox News.

But he added: "I wouldn't call it World War Three. I think if the thing did get away there, I think it would end pretty quickly because with the conventional forces that [Russia has] had there, you know, we haven't seen this

kind of ineptness in a long, long time."

The tenor of the discussions over how much assistance the West should provide Ukraine has been followed closely in Moscow, with state-run media noting last week that Poland had become a supply hub for Western military aid flowing into Ukraine—a fact the West trumpeted until recently.

NATO allies openly publicized their first shipments, with some sharing news of their deliveries on Facebook and Twitter.

Allies have since become more discreet, although the furious pace of deliveries has continued. At least seven military cargo jets from NATO allies landed on Saturday alone at the provincial airport of Rzeszow, in southern Poland.

Sunday's strike on the training facility comes as Moscow has shown off its ability to bomb targets throughout Ukraine. Ukraine's military said that a Russian bomber, based in the Russian city of Saratov, launched the rockets from over the Black Sea.

Ukrainian anti-aircraft missile batteries destroyed most

of the rockets, but eight reached their target at the base, Ukraine's military said. Survivors of the attack said the rockets targeted barracks.

For years, the military base in Yavoriv hosted maneuvers involving live small-arms fire, tanks, artillery, air defense and helicopters. The U.S. and other countries have instructed the Ukrainian military there on NATO weapons and standards; troops from the Florida National Guard left last month.

Ambulances carried the wounded to the nearby city of Novoyavorivsk, where doctors triaged dazed men.

"I heard the first flash, the second, the third," said a soldier who gave his name as Oleksandr and was treated at a Novoyavorivsk hospital. "Everyone was asleep. We didn't hear any sirens."

Several said the strikes concentrated on living quarters. "They hit exactly where the manpower was, exactly where we were," said a man who gave his name as Volodymyr, as he smoked a cigarette through a gap in the bandages on his face.

When an air raid sounded,

doctors aided the wounded in a darkened hospital cellar, where several women clutched newborns and prayed.

Russia's defense department claimed its strike on the facility in Yavoriv killed as many as 180 foreign mercenaries, a figure that couldn't be confirmed.

A Ukrainian military spokesman said there were no foreigners among the dead or wounded at the base, as did the Yavoriv mayor's office. Doctors at the hospital treating the wounded said there were no foreigners among them.

The Yavoriv military base targeted by Russia sits near a thoroughfare leading between Poland and Lviv, a city in western Ukraine that has been serving as a major logistical hub.

Missiles also hit an airport near the city of Ivano-Frankivsk in western Ukraine on Sunday, the mayor said.

—Drew Hinshaw in Warsaw contributed to this article.

**Watch a Video**

Scan this code for footage of an attack on a Ukrainian military complex.

IAN LOVETT/THE WALL STREET JOURNAL DAN KITWOOD/GETTY IMAGES

## THE UKRAINE CRISIS

## Babies Born to Surrogate Moms Are Stranded

By ISABEL COLES

In the basement beneath one apartment block in Kyiv, 19 newborns lie in plastic cots, their cries mingling with the blare of air-raid sirens warning of incoming Russian strikes.

The war in Ukraine has prevented their biological parents, in Canada, Germany, France and elsewhere from claiming babies born via the country's many surrogate mothers.

"The number is growing every day," said Denys Herman, legal adviser to Ukraine's largest surrogacy agency, BioTexCom. It works with 600 surrogate mothers, some of whom gave birth to the babies being kept there. They are currently in the care of Ukrainian nannies.

As Russia ramps up a violent push to take strategic cities, the fate of hundreds of surrogate mothers carrying babies, and newborns, across the country is becoming increasingly perilous. Hundreds of expectant parents are struggling to reach them.

"I don't know how I'm going to get my son out," said American Eileen Cornell, who had planned to travel from New York to Kyiv for the birth of her son this month.

Her Ukrainian surrogate, Anna, was in the capital preparing to deliver the baby when Russia invaded more than two weeks ago. "I really do not want to give birth to a child where there is a war," said Anna, via a messaging app.

Some surrogacy agencies in Ukraine have been scrambling to relocate surrogate mothers to safety since Russian tanks started rolling across the border.

Natural disasters, geopolitical upheaval and most recently the pandemic, have jolted the surrogacy market in Ukraine and other countries over the years. But Russia's invasion has thrown up some of the most difficult challenges yet. In cities under fire, few places are safe; a maternity ward in the besieged city of Mariupol



Nannies comfort babies in the basement of a Kyiv surrogacy clinic. The war has prevented biological parents from claiming their children.

was hit Wednesday by a Russian airstrike, with many casualties, according to Ukrainian authorities.

Australian nonprofit Growing Families, which is helping foreign couples navigate the crisis, said it contacted private security contractors to see if they could help extract surrogate babies from Ukraine.

"I am overwhelmed with requests from around the world for babies or surrogates to be evacuated," said Sam Everingham, founder of the group. He estimated about 800 couples world-wide were expecting a child from a surrogate mother in Ukraine.

Surrogacy is big business in the country. While commercial surrogacy is legal in the U.S., Ukraine is a more affordable

option for many couples looking for surrogate mothers. The process costs \$43,000 in Ukraine, compared with \$130,000 in the U.S., according to a 2020 study conducted by Australia's Monash University. That has helped turn Ukraine into the second-most popular international surrogacy destination after the U.S., according to the study.

In normal circumstances, both parents must travel to Ukraine to claim their baby. That now means venturing into a war zone when commercial flights have been suspended and governments around the world have advised their citizens to leave Ukraine.

While refugees spill out of the country, some foreign couples have joined the stream of

people crossing the border into Ukraine along with journalists and volunteers taking up arms against Russia.

In the early chaos of conflict, some surrogate mothers lost contact with their agencies and were reduced to searching for the biological parents on social media. Others may be stuck in cities under Russian bombardment, said Sergii Antonov, a Kyiv-based lawyer specializing in the medical and reproductive field.

Mr. Antonov, who is part of a small team trying to track down and assist them, said: "We do not know where these unfortunate women are."

"Everywhere is chaos," he said.

Some surrogate mothers are reluctant to leave Ukraine be-

cause they don't want to be separated from male relatives banned from leaving the country because of the war. "We can't force them obviously," said Julia Osiyevska, the head of the surrogate agency New Life.

Ms. Osiyevska recently decided to evacuate Anna and other surrogate mothers working for her agency, to the neighboring country of Moldova. It is a journey that usually takes less than four hours but took 19 on roads gridlocked with vehicles fleeing west. Photographs Ms. Osiyevska sent from the border showed hundreds of people huddled together against the cold, waiting to cross.

"It is just surreal," said Ms. Osiyevska. "You can't stop deliveries. You can't delay or

cancel a birth."

Surrogacy is illegal in Moldova and Ms. Osiyevska, who had forgotten important documents in the clinic in Kyiv, returned to Ukraine with Anna. With the money she earned from bearing someone else's child, Anna had hoped to provide a better future for her own daughters, a future Russia's invasion has now rendered uncertain.

Ms. Cornell, who has remained in contact with Anna throughout, said: "She's the hero in all of this."

Days before the invasion, the Delivering Dreams surrogacy agency said it relocated all its surrogate mothers to safety in the western city of Lviv, except one for whom the journey was considered too risky. Now, that surrogate mother is trapped in a maternity ward in a city in Russia's crosshairs.

When troops first began massing on Ukraine's borders at the end of last year, an Australian couple, Jessica Van Nooten, 39, and Kevin Middleton, 40, said they deliberately tuned out the drumbeat of war.

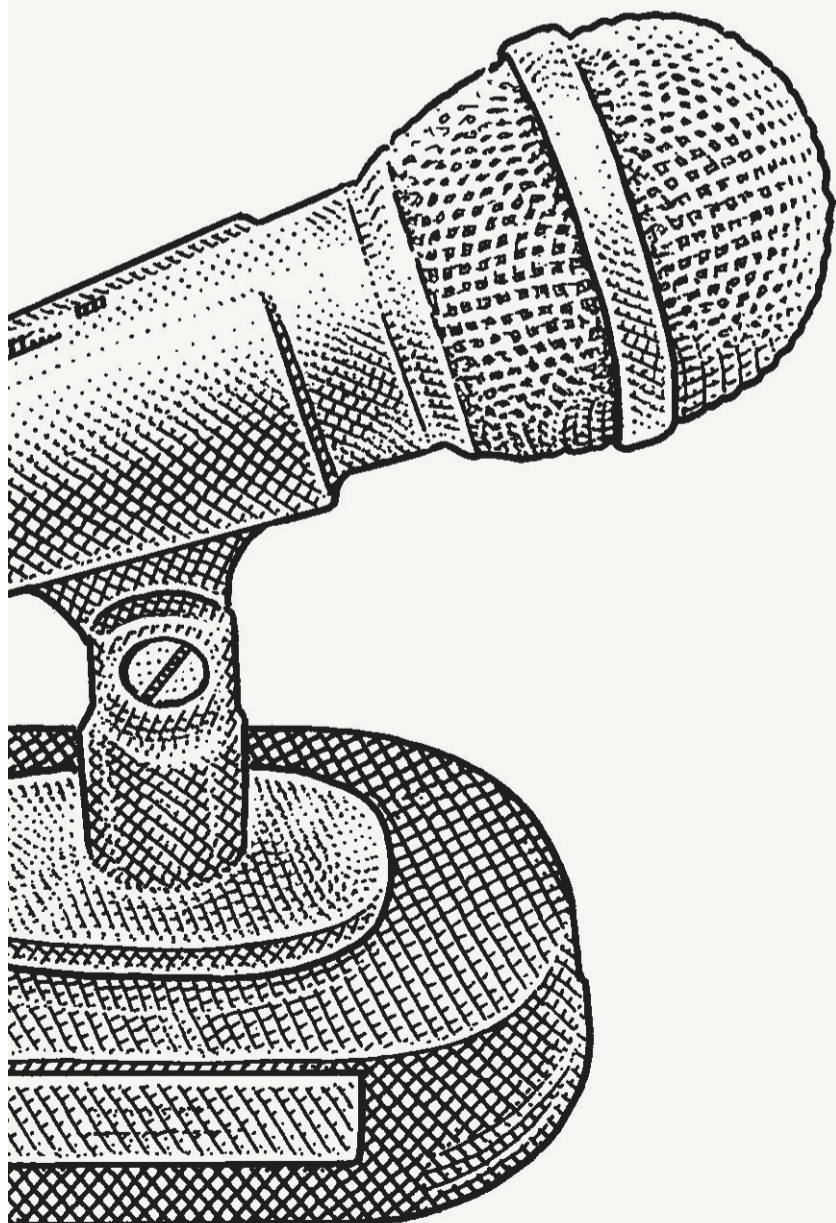
"I tried to live in a bit of a bubble," Ms. Van Nooten said, adding that the couple had tried IVF for four years in vain before being matched with a surrogate in the port city of Odessa in southern Ukraine. The couple was forced to try to get into Ukraine in late February when their daughter, Alba Middleton, was born prematurely at 29 weeks.

"We dropped everything and just said, 'We've got to get to Ukraine,'" said Ms. Van Nooten. By the time they had checked in for a flight to Odessa, however, all flights to Ukraine were canceled.

The couple is now in Moldova, within about 30 miles of Odessa, now threatened with an amphibious attack by Russian naval forces in the Black Sea. Ms. Van Nooten occasionally balks at the prospect of entering a war zone, but the "mom instinct" prevails.

She said: "We need to be with our baby girl."

CHRISTOPHER OCHCHIONE FOR THE WALL STREET JOURNAL



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## THE UKRAINE CRISIS

## Foreign Veterans Sign Up to Fight Russians

By BRETT FORREST

LVIV, Ukraine—Irakli Okruashvili, a former defense minister of Georgia, last week joined a Ukrainian foreign-fighter regiment created to face down the Russian invasion in a hurry. Three days later, he and a group of countrymen, former special-forces soldiers, made contact with Russian troops north of Kyiv.

With a U.S.-supplied .50-caliber Barrett M99 single-shot anti-armor precision rifle, the Georgian unit disabled two Russian armed vehicles, Mr. Okruashvili said, before falling under a sustained reply from 152-millimeter howitzer cannons.

After several hours, Ukrainian planes bombed the Russian artillery positions, silencing them.

A combination of international arms and foreign volunteers has joined Ukraine's efforts to impede the Russian advance in the third week of the conflict, and are now playing a growing role as the fighting spreads.

"We already passed this way in 2008 when we had a war with Russia," Mr. Okruashvili said, referring to Moscow's invasion of Georgia that year. "Ukraine is not fighting only for its own freedom, its own sovereignty, its own independence. This is not the war of Ukraine only."

Kyiv is welcoming all outside assistance. The forces at its disposal are far smaller than those of Russia and are unable to fight on an equal footing. Russia's armed forces count 900,000 personnel, compared with Ukraine's 209,000 active troops, according to the International Institute for Strategic Studies, a London think tank. The Ukrainian number doesn't include recent mobilizations.

Addressing this imbalance, Ukrainian President Volodymyr Zelensky last month announced the formation of the



Former Georgian Defense Minister Irakli Okruashvili, third from left in the back row, with fellow Georgians fighting for Ukraine.

International Legion of Defense of Ukraine, appealing to veteran soldiers outside the country who have specialized skills and experience in war to join the fight.

The international units are a component of the country's regular armed forces and report to its general staff. Foreigners serve under Ukrainian officers. A spokesman for the group confirmed that some foreign units were already fighting on the front line.

Russia said it would consider these foreign fighters mercenaries. If captured, a Russian Defense Ministry spokesman said, they wouldn't "enjoy the status of prisoners of war" under the Geneva Conventions.

The U.S., like many other countries, discourages its citizens from going to fight in Ukraine, as that could have legal and security ramifications.

U.K. Foreign Secretary Liz Truss this week withdrew her support for British nationals going to Ukraine to fight after earlier saying she would back them if they wanted to join the struggle. Canadian Foreign Minister Mélanie Joly has said her government understood that people of Ukrainian descent would want to help defend their motherland and that doing so would be up to them.

Kyiv said 20,000 foreigners had enlisted in the International Legion and that there were nearly 13 million visits to the group's website in its first 24 hours. The Wall Street Journal couldn't independently verify these figures.

The group is seeking veterans with combat experience, and a number of Americans and British citizens who have served in Iraq and Afghanistan have already regis-

tered, the spokesman said.

Ukrainian diplomatic missions abroad have been funneling recruits via Poland, and volunteers have been arriving there from Belarus, Belgium, Germany, Sweden and dozens of other countries, according to an official at the Ukrainian Embassy in Warsaw.

On Friday, more foreign volunteers were at Przemysl train station on the Polish border, preparing to cross over to fight with Ukrainian forces, either with the International Legion or informal groups of fighters. Many carried camouflage backpacks and were speaking English rather than the mix of Slavic languages usually heard there.

A 30-year-old American veteran from Massachusetts said he wanted to help the Ukrainian cause however he could. "I served a tour in Afghanistan,"

he said. "I feel like I have decent tools to help these people get out of harm's way. I have medical skills as well. Anything I can do to help them."

Matyas Kotyk, 32, said he had served a year in the Czech Republic's military in 2010. He was also heading into Ukraine, carrying with him only a small backpack. Now a private security guard, he hadn't told his parents or 4-year-old daughter where he was headed.

"I couldn't just stay home and watch it," he said, adding that he had never been in a firefight and didn't have any military gear except a tactical vest. "I'm nervous, a little bit."

Foreigners have been fighting in Donbas, in Ukraine's east, during the eight years of war that preceded Russia's wider invasion of the country last month, with mixed results. The Justice Department has

probed the alleged role of several Americans in Donbas war crimes.

With the International Legion, Kyiv is attempting to get a stronger grip on the flow of volunteers who are typically drawn to war, formalizing the participation of foreign combatants and directing veterans with valued skills and battle experience to areas Ukraine most needs them.

For now, the legion is giving priority to the creation of infantry units, assigning foreign fighters based on their individual skills, the spokesman said.

Some foreigners have come to Ukraine and judged the International Legion to be more an exercise in publicity than an effective force and instead joined informal fighting brigades or the Ukrainian territorial defense, a formal citizen militia.

Volunteers who join the International Legion are required to sign a contract binding them to military service for the war's duration, which can qualify them for Ukrainian citizenship, a senior Ukrainian official said Wednesday.

Matthew Parker, a U.S. Army veteran and private investigator in South Carolina, has been assisting the Ukrainian Embassy in Washington, D.C., by vetting Americans who hoped to enlist. He has cleared a group of 10 veterans, most of whom have more than a decade of military experience and were deployed in Afghanistan or Iraq, he said.

Mr. Parker said his Ukrainian contacts hadn't explained how they would utilize his group and that he feared the men would be sent with little forethought toward Russian guns or assigned menial tasks.

"We have specialties," he said. "Don't waste my people's time by giving them a rifle and telling them to guard a bridge."

—Ian Lovett contributed to this article.

## Sanctions Ensnare Abramovich Rent Money to Queen

By ELIOT BROWN

Roman Abramovich isn't allowed to pay rent to Queen Elizabeth II.

The U.K. has sanctioned nearly two dozen Russian oligarchs as well as a set of Russian banks and other companies tied to the Kremlin, and added Mr. Abramovich, the Russian billionaire owner of Chelsea Football Club, on Thursday.

These sanctions are designed to block oligarchs from making money in the West—to exact financial pain on those close to President Vladimir Putin. But they have also spawned a raft of rules that upend more routine transactions related to properties and businesses they own. These include ground rent payments to the monarchy.

Mr. Abramovich paid \$140 million for a 15-bedroom home in 2011 just down the street from Kensington Palace, home to Prince William. While he owns the 1848-built mansion—complete with the skylit underground pool he built beneath expansive gardens—the land beneath is owned by the Crown Estate, an entity cre-

ated by Parliament that oversees a roughly \$18 billion portfolio of land and other assets on behalf of the British crown.

Under the terms of a 125-year ground lease, Mr. Abramovich must make modest lease payments—which start at £10,000 a year and go up to £160,000 over the term of the lease—to the Crown Estate, according to land records.

A spokeswoman for Crown Estates said the organization was examining its portfolio and doing all it can "to comply swiftly with the introduction of sanctions or other directions that may apply."

She declined to comment on specific properties or Mr. Abramovich.

A spokeswoman for Mr. Abramovich didn't respond to requests for comment.

Sanctions under U.K. law bar any U.K. companies or individuals from receiving, paying or moving any money tied to a sanctioned individual. Based on the law, sanctioned oligarchs need to apply for exceptions for any payments in the form of special licenses from the Office of Financial Sanction Implementation.



16 Kensington Palace Gardens in London is built on land leased from the crown.

That means that while sanctioned oligarchs would be able to keep their U.K. houses, without a license, they can't pay gardeners, pay a utility bill or make pension payments for their staff, attorneys said. They can't even pay lawyers to sort through the new sanctions bureaucracy, according

to the Office of Financial Sanction Implementation, though the lawyers may provide legal advice and not be paid.

"It's extremely restrictive," said Paul Feldberg, a London-based partner at Jenner & Block who works on sanctions. While the government is likely to grant some leniency on ba-

sic expenses," You're not going to be able to get a license to increase your personal wealth."

The U.K. government was quick to offer Mr. Abramovich a license to allow his Chelsea Football Club to keep running, although it is highly restrictive, preventing the soccer

## FROM PAGE ONE

## Car Buyers See Options Are Limited

Continued from Page One and SUVs during an era of low gasoline prices.

Buyers, too, have gravitated to larger, more fuel-thirsty models, leading many auto makers to discontinue some of their most fuel-efficient offerings in the U.S.—models such as the Ford Fiesta, Honda Fit and Toyota Yaris.

Nearly 78% of all vehicles sold last year were SUVs and trucks, a reversal from a decade ago when those types of vehicles accounted for about 55% of total U.S. industry sales, according to data from Wards Intelligence.

Auto executives are bullish on EV sales, but the selection

on dealership lots is limited.

Many models, including those sold by Tesla Inc. and Ford Motor Co., have long wait times that stretch out for several months and carry hefty price tags—selling for nearly \$15,000 more than the average price paid for all vehicles in February, according to car-shopping firm Edmunds.com.

"Are the dealers ready? Yes. We are excited. We're all in on EVs," said Mike Stanton, president of the National Automobile Dealers Association, at a gathering of dealers in Las Vegas over the weekend. "We just don't have the product right now."

Further adding to the challenges for buyers is a nearly yearlong shortage of new and used vehicles that has pushed up prices and left new-car lots stripped of stock.

The inventory crunch is particularly acute on passenger cars, such as compacts, sedans and even some hybrids, industry data show. That is

because supply-chain constraints led many car companies to pull back on building these cars to focus on higher-profit trucks and SUVs, analysts and executives said.

At the end of February, there were a little more than one million vehicles in transit or in stock at U.S. dealerships, compared with 2.7 million in the same month last year, according to Wards Intelligence. Most vehicles are already pre-sold, meaning shoppers walking into showrooms won't find many options on the ground.

Typically a \$2-a-gallon jump in gasoline prices is enough to alter consumer behavior, but in today's market, it is tough to quantify that change, said Jay Joseph, vice president of marketing and consumer experience at American Honda Motor Co.

"We're not seeing a true open market," Mr. Joseph said. "If we had cars on the ground, I think we would see a temporary shift to passenger cars

right now. But there is no supply of anything."

The auto industry has long scrambled to adjust to sudden increases in fuel costs. In 2008, when gasoline prices topped \$4 a gallon, the rush among buyers to snatch up small cars was so sudden that some used models were fetching prices close to new ones.

## ‘Are the dealers ready? Yes...We just don't have the product right now?’

During the financial crisis, the Detroit auto makers—stung by higher fuel costs—vowed to better balance out their truck and SUV-heavy lineups with more fuel-efficient offerings, adding more small cars and sedans, and even rolling out new electri-

fied options.

But the move was short-lived. Once fuel costs fell again, buyers swung back, and many of those models were killed off.

Still, the auto industry has improved the gas mileage of today's SUVs and trucks, using lighter materials, smaller engines and offering downsize versions of the bigger, popular body styles.

In 2020, crossover SUVs on average achieved a real-world fuel economy of 28.4 mpg, compared with 23 mpg a decade earlier, according to Environmental Protection Agency data. Sedans and wagons are still more efficient, averaging 31.7 mpg in real-world driving.

"Even if you do get something that is a little bit larger, it is more fuel efficient than it was back then," said Jessica Caldwell, an auto analyst at Edmunds.

Some car companies, such as Honda Motor Co., Toyota Motor Corp. and Hyundai Mo-

tor Co., are better positioned to accommodate buyers looking for better fuel economy, mostly because they have stuck to their small-car and sedan offerings. The challenge is they don't have many in stock, she said.

Dealers said for now, it is too soon to tell how big an impact gasoline prices will have on buyers' behavior, especially because for most car shoppers the lack of vehicle availability remains top of mind.

JP Miller, chief executive officer of Paul Miller Ford in Kentucky, said the car business has weathered previous gasoline spikes in the past, which makes this increase feel less daunting. If anything, the higher fuel costs are helping to build awareness around EVs as car companies and regulators are trying to push greener options.

"I think the pent-up demand is there, and this awareness is allowing them to see that new vehicle," Mr. Miller said.

Sanctions attorneys said Mr. Abramovich should qualify for such a license, although processing can be lengthy—and just what is included is up to U.K. officials.

What happens if he isn't able to pay or get a license for his rent? The Crown Estate spokeswoman declined to comment.

Shams Rahman, a litigator at law firm Edwin Coe, has worked on a case involving a neighboring property with a similar lease to Mr. Abramovich's. He said that in theory, if the Crown Estate isn't paid, it could begin the process of taking possession of the property.



## Making a Career Break Work

Don't be cavalier about what it will take to get back into the game after taking time off



**WORK & LIFE**  
**RACHEL FEINTZEIG**

**Y**ou got burned out. Your kids needed you. You became a crypto millionaire overnight. Whatever the reason—congrats. Welcome to your career break, length TBD.

Time off by choice can be wonderful if you can swing it, a chance to recalibrate your priorities and detox from the stress of the working world. It can also be a kind of limbo. How to keep your edge without getting sucked back into corporate overwhelm? How do you know when it's the right moment to job hunt again? And what comes next, anyway?

"It's the 'I don't know what I want to be when I grow up' kind of feeling," says Tami Forman, the executive director of Path Forward, a nonprofit dedicated to helping people re-enter the workforce.

Those on work breaks can floun-

der, unsure what to do once they've stepped off the corporate conveyor belt that for years powered their careers, she says. And hiring managers, flooded with job applicants and their own work, often opt for the easiest choice: picking someone who's currently doing the same job somewhere else.

Don't be cavalier about what it will take to get back into the workforce, Ms. Forman advises. Start looking before you're ready.

Carve out five minutes every morning to send a relevant article to two former colleagues, saying why it made you think of them. Ask that parent on the sidelines of the soccer game, the one with the cool job, if they have time for coffee. Explain that you're on a break and not looking yet, but you'd love to learn more about their role and experience.

"People will be much more open to talking about what's going on at their company if they don't think you're going to say, 'Can you put my résumé on someone's desk?'" Ms. Forman says.

Brett Delgado stays in touch with former coworkers via Insta-

gram comments, Discord video chats and online gaming. The 37-year-old left his job at a professional services firm in the Los Angeles area last April, moving in with his parents in Lake Havasu City, Ariz.

**'It's easy sometimes to become preoccupied with, what's the future going to look like?'**

Working 80 hours a week in L.A. while studying for his CPA exam had left him exhausted and anxious. He decided to take a year off to focus on passing the exam, improving his health and connecting with his parents.

So far he's lost 60 pounds, passed three of the four exam sections (he takes the final one this month) and thought about where he might want to live next. But he won't start looking for a job until his CPA certification

comes through.

"It's easy sometimes to become preoccupied with, what's the future going to look like?" he says. "I've been trying really hard to take things day by day."

Even if you've been craving "funemployment," it's normal to have some pangs of, "What have I done?" after handing in a resignation, says Ethan Kross, a professor of psychology and management at University of Michigan.

"We like to know that we have control of things and that they're certain," says Dr. Kross, the author of "Chatter," a book about the internal messages we give ourselves.

If you're feeling adrift, talk to yourself like you would a friend, addressing yourself as "you" or by your name as you dispense advice. Think about how you might view the situation in six months or 10 years—will you wish you obsessed more over the next entry on your résumé, or spent time with family? And set boundaries from the beginning of your career break, rehearsing how you'd react if someone, say, offered you a free-

lancing assignment.

Kristen Witte left her job with a healthcare software company last June, after her younger daughter was diagnosed with cystic fibrosis, a genetic disorder that affects the lungs. She pulled her older daughter out of daycare, and is thankful for time spent coloring and molding Play-Doh at her Houston home. Still, when LinkedIn job alerts land in her inbox, or she hears of others in her field receiving lucrative offers, she sometimes has second thoughts.

"Am I missing out? Is this the right time for me not to be working?" the 32-year-old wonders.

Taking on a 10-hour-a-week contracting gig in January has been "freeing," she says, helping her feel like she's keeping one toe in the professional world, while still staying flexible for her girls.

If you're open to jumping back in for your dream job, set up your LinkedIn profile to do the work for you, says Omar Garriott, who previously worked for the company and co-authored "Linked," a book about using the social network.

The brief description right below your name should match your ideal job title, even if you haven't held it yet, he says. For example, you could write, "aspiring product manager," "future product manager," or "taking work hiatus—seeking product manager opportunities." In the longer "About" section, include a list of your skills, especially ones that are being used as key words in the job descriptions that interest you most, so the algorithms can find you.

Recruiters will start coming to you, Mr. Garriott says. They're used to people saying no, he adds, so it's fine to open your profile for them to search even if you don't think you want a new job anytime soon. Just make sure to reply to their messages with a yes or a gracious no, and let them know what opportunities you would consider.

Blake Lawson, of Costa Mesa, Calif., initially turned down a job offer he got from a tech company in December. A few months into a career break prompted by burnout and the desire to try something new, he was intent on learning improv, earning his pilot's license and laying the groundwork for his own consulting business.

Then the hiring manager came back with a 19% pay bump from the initial offer, plus the opportunity to learn skills that Mr. Lawson was eager to grow. He said yes.

He started the new job, leading a product team, in January, and likes having more structure in his days. But he misses the time and freedom that came with not having a 9 to 5 and says he's intent on seeing his side hustles through.

"There's been a little bit of sadness in knowing what I left behind," he says.

### MY RIDE | A.J. BAIME

## On a Honda Racing Bike, 70,000 Miles Of Adventure

Cyril Visovsky, 64, a retired banker living in Brooklyn, N.Y., on his 2000 Honda RC51, as told to A.J. Baime.

**W**orking in banking over the years, I had postings in Asia and England. I could not have asked for a better career path, in part because it enabled me to ride motorcycles all over the world.

I had always wanted to buy a Honda RC—which is a series of racing motorcycles—but I could never afford one. Then, in 2000, Honda created the RC51, a bike with a 999-cc fuel-injected V-twin engine, that the Japanese manufacturer produced to beat the Italian-made Ducatis in the Superbike World Championship. To qualify the bike for racing, the company had to sell a certain number to customers.

I had to have one.

Shortly after hearing the announcement about this bike, I started searching all over the East Coast. I found one from a dealership in Oklahoma, and bought it for \$9,995.

It was affordable for a bike like this, and I think Honda priced it that way because the company wanted to sell these motorcycles quickly. That same year, in 2000, the American rider Colin Edwards captured the Superbike World Championship, on an RC51. It has



Cyril Visovsky with his Honda RC51, in Danbury, Conn., where he keeps the motorcycle. In 2019, on an airport runway, he clocked 159.822 mph,

since become an iconic bike—called a "Ducati killer"—and I still have mine from the first year of production.

For the last 22 years I have been riding this motorcycle, and I call it my multi-tool. It is a production race bike, but I have used it for all kinds of adventures. I've ridden it all over the East Coast, throughout eastern Canada and around the Great Lakes.

In 2008, a friend of mine had the idea to ride the Trans-Labrador Highway. So we started from Connecticut and rode about 1,000 miles, including about 700 miles on the Trans-Labrador Highway through northeast Canada on almost entirely unpaved roads. Throughout, there was almost no sign of human civilization except the dirt road itself. I remember pulling into a town called Happy



Valley-Goose Bay. A guy saw us and said to me, "I've never seen anyone riding a sport bike on the Trans-Lab." It wasn't easy, let me tell you.

In 2019, I took the bike to the Loring Air Force Base in northern Maine, where the Loring Timing Association holds land-speed racing events. On my RC51, on an airport runway, I clocked 159.822 mph, which set a record for a

"pure production" motorcycle in its class.

I also belong to a group called the Iron Butt Association and, to join, I had to be able to prove that I'd ridden 1,000 miles in 24 hours, which I did on my RC51.

What I love most about this motorcycle is all the friends I've made while riding it. The bike has 70,000 miles on it, and I've loved every one.

PERSONAL JOURNAL.

By SHARA TIBKEN

# Trade In Your Old Phone for Cash Instead of Stashing It in a Drawer

That unused phone sitting in your desk drawer isn't just collecting dust. It's also quickly losing value—hundreds of dollars in cash you could put in your pocket by trading it in or selling it online.

It's likely you have one or two unused old devices you've forgotten. Once we upgrade to a newer model, roughly every 38 months in the U.S., according to market researcher International Data Corp., many of us just set our old phones aside. There are hundreds of millions of such idle devices in the U.S., according to used-device buyer EcoATM.

Apple and Samsung buy back older devices when you're purchasing a new model. Retailers such as Best Buy and Amazon offer gift cards. U.S. wireless providers give credit toward a new phone. Some third parties, including EcoATM and Back Market, will buy your old device for cash, while others such as Swappa will help you find a buyer. If you're enterprising, you can hawk your old phone directly to buyers on Craigslist, eBay or Facebook Marketplace.

Companies typically set the prices based on what they can get for reselling your old phone. But those amounts fluctuate depending on model demand, timing and condition. Around phone launches, some carrier buyback promotions can be so aggressive they make the new device free.

AT&T, T-Mobile and Verizon have offered as much as \$1,000 off new phones with trade-ins, while selling your 2.5-year-old iPhone 11 on Swappa could get you about \$400.

In parting with your old phone, here's what you'll want to consider:

### Manage expectations

If there's any possibility of selling your device in the future, there's one major rule: Put a case on it, and



PHOTO ILLUSTRATION BY ELENA SCOTTI/THE WALL STREET JOURNAL. GETTY IMAGES/ISTOCK

possibly even a screen protector. Devices in "like-new" condition will net you more money.

The model of your phone will determine how much it can fetch. Unlocked variants, those not tied to a specific wireless provider, are generally worth more. And iPhones tend to hold their value longer than Android devices.

### Determine priorities

When getting ready to sell, think about what matters more: getting the most money, or having the easiest process. Selling directly to a buyer likely will get you the biggest return (bar-

5,400

The approximate number of EcoATM trade-in kiosks in U.S.

ring some crazy carrier deal). But it also takes the most legwork.

Swappa emerged as an option to make that process easier. For a small commission, it verifies that devices aren't stolen, suggests pricing based on demand and helps connect sellers with buyers.

You still have to handle

the transaction and ship the device.

The next option is selling your phone directly to a reseller, such as Decluttr and EcoATM, that will refurbish it.

EcoATMs—trade-in kiosks found in nearly 5,400 malls, Walmart stores and other locations around the U.S.—use cameras and computer smarts to examine your old device, pull the IMEI number to be sure it isn't stolen, and make an offer on the spot. If you accept, you're immediately given cash, and the machine keeps your phone. If you don't like the offer, you can take your device back.

Gazelle, owned by the same company, gives you a quote online after you provide details about your device. It then asks how you want to be paid, with either an Amazon credit, which earns you 3% extra; a check delivered by mail within 10 days; or a payment through PayPal.

You ship the device to Gazelle at no charge. The final offer is confirmed after a physical inspection. If you don't like the bid, Gazelle will send back your phone. It could be worth the extra effort: Gazelle offers are typically higher than EcoATM offers.

The easiest and most typical route is a handoff with the carrier or retailer that will sell you your next phone. Apple ships a box to send back your old device, or will take it at an Apple store. Many retailers will also recycle devices that aren't worth any money, to keep them out of the landfill.

### Pick your timing

When it comes to buyback offers from carriers, you will often get the best deal as the new model is launching. When Samsung's Galaxy S22 hit the market last month, AT&T, T-Mobile and Verizon kicked off aggressive promotional offers. They had similar promotions for Apple's iPhone 13 launch in September.

Those deals don't follow a set time frame.

For instance, AT&T's trade-in offers during the iPhone 12 and 12 Pro launch lasted three weeks, but you could trade in an old phone for a good discount on an iPhone 12 Mini and 12 Pro Max for over 10 months. The trade-in deal at the iPhone 13 launch was available for a month. With no crazy promotion from the three carriers, trading in a fully loaded iPhone 12 Pro Max, which cost \$1,399 in 2020, will get you at most \$550.

While used-phone prices decline over time, there's still "seasonality to the marketplace," Swappa CEO Ben Edwards said. There are typically more new listings around Apple events, he said, particularly when people have the new devices in hand and seek to unload their older phones. Instead of waiting to sell

your phone until after the launch, you could make more money by listing it before.

### Read the fine print

Many recent carrier promotions are good deals if your device qualifies as a trade-in, and if you're on the right service plan. Many are only available for customers on higher-end, unlimited plans. If you're not on one of those plans, you will have to change your service to take advantage of the trade-in deal. Carriers now give more for trade-ins on an expanded list of devices, but check that fine print too.

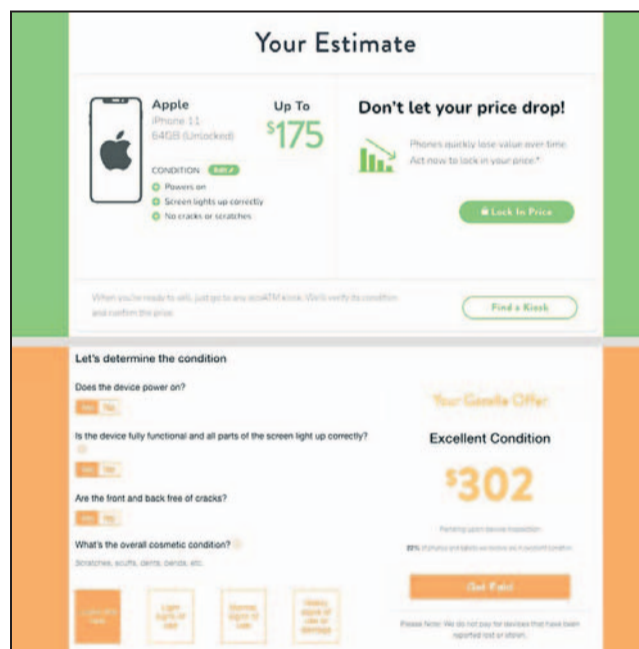
And if you do score that

of them to get a sense of your phone's going rate. (Be honest about its condition, or else you'll get burned later.)

If you wait, your phone's value could decline. When researching this article, prices for Apple's iPhone 11 dropped in value on some sites—including Best Buy, Swappa and Decluttr—after Apple updated its nearest competitor, the new iPhone SE.

Prices also can fluctuate from one day to the next.

On a given day in March, an unlocked decent-condition iPhone 11 with 64 gigabytes of storage could fetch anywhere from \$140 (for a



EcoATM (above green) and Gazelle (orange) buy old devices. Back Market, below, links gadget owners to refurbishers.



SHARA TIBKEN/THE WALL STREET JOURNAL (2)

\$1,000 carrier trade-in offer, you'll likely find it's doled out over time, in sync with your phone's payment plan—over 24 or 36 months—to keep you hooked to the service. If you leave the carrier before your plan ends, you will have to pay off the phone's remaining cost.

### Shop around

Trade-in companies let you see approximate prices for your device, without you sharing identifying information. You should check a few

Samsung trade-in) to \$383 (on Swappa). We didn't try to sell it on eBay, where it could bring in more.

"You have to look for the deals," said Maribel Lopez, principal analyst at tech-industry analyst firm Lopez Research. "It's not like they're just ubiquitous and they're all easy. But they can be found, and some of them can be very lucrative."

If you find a trade-in offer you're happy with, jump on it. Whatever you do, don't put your phone back in the drawer.

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## ARTS IN REVIEW



## ART REVIEW

# A Bedrock of Artistic Ingenuity

Slate, marble, pietra paesina and more form the foundation of the exhibition's paintings

By JUDITH H. DOBRZYNSKI

*St. Louis*  
**'PAINTINGS ON STONE:** Science and the Sacred 1530-1800," on display at the Saint Louis Art Museum, starts out strong, with "The Minions of Henry III" (c. 1570), a stunning image by an unknown artist in the Fontainebleau School, possibly Lucas de Heere. A close-cropped view of three effeminate men in profile, dressed in pearls, curls and sumptuous striped garments, it depicts the French king's male lovers, crisply portrayed in oil on slate. It's a seductive introduction to an exhibition whose thesis may seem esoteric to a public more attuned to image than materials.

**At the Saint Louis Art Museum, stunning images created atop an unusual material: stone.**

The practice of using stone as a support for paint, instead of wooden panel or canvas, dates to antiquity, but it lost favor until late in the Italian Renaissance, when Sebastiano del Piombo developed methods that improved the adherence of paint to stone. At first, as "The Minions" and Sebastiano's own straightforward, oil-on-slate "Portrait of Ippolito de' Medici" (1530s) illustrate, artists painted over the entire stone, making no use of potential visual effects. Stone was valued for its enduring quality, which assigned a kind of power and permanence to the artists' subjects.

Very soon, though, the artworks got more interesting and the exhibition, curated by Judith W. Mann, gets even better. By the

1590s, artists were looking at slate, marble, lapis lazuli, agate, amethyst, alabaster, obsidian, onyx, jasper, limestone and porphyry to envision a new kind of painting. In these works, they left portions of the stone bare and used the colors, striations, glints, contours and other natural features of stone as compositional elements.

Lapis lazuli provided a perfect stand-in for sky and water. Artists like Giuseppe Cesari (known as Cavaliere d'Arpino) took advantage of the stone's intense blue hues in "Perseus Rescuing Andromeda" (1593-94). More creatively, Jacques Stella turned his slab for "Rest on the Flight Into Egypt" (1629-30) into a brilliant night scene: His lapis sky is bisected by a white streak—formed by the stone's calcite—resembling a meteor shower. A larger patch of calcite suggests the bright glow of the moon behind a tree. And Mary and Jesus are given natural (if irregular) halos of glimmering gold pyrite specks in the lapis.

Other stones presented different opportunities. When Orazio Gentileschi chose golden alabaster for his "Annunciation" (1602-05), he placed the Angel Gabriel on the left in a whorled, light-filled space, kneeling on a billowing cumulus cloud suggested by the natural pattern. Above Gabriel, Gentileschi painted an infant Jesus in an egg-shaped "cloud" and the Holy Spirit in a smaller cloud puff. On the stone's right, which has fewer, smaller whorls, he painted Mary kneeling at a prie-dieu amid columns, both "marbled" by the stone's markings.

Sigismundo Leyrer selected a piece of agate with a prominent, light, ringed oval for his two-sided "Annunciation" and "Resurrection of Christ" (1594). On the recto, the Angel Gabriel seems to float down to Mary in the cloud-



Jacques Stella's 'Rest on the Flight Into Egypt' (1629-30) painted on lapis lazuli, above, and jasper, above left

like oval and, on the verso, the risen Christ ascends from the same spot toward heaven. The agate's translucence bestows celestial on both images.

And Bartolomé Esteban Murillo, one of the great Spanish painters of the 17th century, used obsidian to dramatize "The Nativity" (c. 1665-70). With paint, he shines the brightest light in his night scene on Jesus, then, to lesser degrees, on Mary, angels and St. Joseph. He calls on the subtle vertical veins of the stone to link his scene to the heavens. The label, typical of the many informative object descriptions in this intelligent exhibition, suggests a link to the Aztecs, who imparted spiritual power to the reflective nature of obsidian. Murillo may have selected this slab—which might be a pre-Columbian polished stone mirror, according to the exhibition catalog—for that reason.

Two little-known artists shine very bright here, with multiple

gems. Stella is one. He painted "Rest on the Flight Into Egypt" many times on different stones, to different effect. Beyond his lapis piece, two other versions (1629-30) are here. One is on jasper, an opaque aggregate stone often speckled with many colors, and the other is on pietra paesina, a form of limestone. In both, Stella used the stone's colors and striations to form landscape features—rocks, wheat fields, a spring of water.

Antonio Tempesta also stands out, especially for "The Crossing of the Red Sea" (c. 1610), a scene he painted more than a dozen times—on alabaster, brecciated limestone (an aggregate of colored fragments) and red "marble" (also a kind of limestone). The one here, on brecciated limestone, brilliantly exploits a streaked swath of rust color cutting diagonally across the stone to represent the sea. Moses and his followers stand on two patches of dry land, one a muddy color with

brown rocks and the other a vibrant green. Fighting the roiling sea—now filling its seabed—is the Pharaoh's half-submerged army.

During the 15 years Ms. Mann worked on this exhibition, she learned of some 1,500 paintings on stone made by artists in Italy, France, Spain, the Low Countries and Germany. Many are fragile, heavy and risky to transport; some owners were reluctant to lend. But the 70 pieces (plus some artworks on other backings) gathered here make one wonder why "Paintings on Stone" is the first museum exhibition to delve into this fascinating partnership between artist and nature.

**Paintings on Stone: Science and the Sacred 1530-1800,** Saint Louis Art Museum, through May 15

*Ms. Dobrzynski writes about art for the Journal and other publications.*

## ART REVIEW

# Honoring Cinematic Experiments

By RICHARD B. WOODWARD

*New York*  
**'JONAS MEKAS:** The Camera Was Always Running" at the Jewish Museum is probably best savored in morsels rather than swallowed in one gulp of time. A selective retrospective instead of an exhaustive one, it deftly reintroduces—on the centenary of his birth—a singular figure who for more than 60 years was a guiding spirit of avant-garde cinema in New York and the world.

The supportive institutions that Mekas helped to build for his fellow experimental filmmakers during his long and extraordinary life (1922-2019)—Film Culture magazine in 1954, Film-Makers' Cooperative in 1962, Anthology Film Archives in 1970—have tended to overshadow his own cinematic achievements. This exhibition aims to correct that, and succeeds. (It is accompanied by a fine catalog.)

Guest curator Kelly Taxter, assisted by Kristina Parsons, has chosen 11 exemplary films and videos (from the 93 in his oeuvre) and, in a bold departure from a typical museum installation, projects them across 11 screens arranged in a series of arcs around a large room on the first floor.

If you find a seat on one of the benches, you may want to sit

through the entire three hour and eight minute presentation. Don't feel obliged, though, as all 11 films and videos have been radically shortened, some by more than three-quarters of their original lengths. What's more, although shown one at a time, each has been broken into chapters that unfold across multiple screens simultaneously.

Ms. Taxter calls the fragmentation apropos for a filmmaker whose approach was, in her words, "nonlinear and nonhierarchical." After a few minutes, I found myself reluctantly agreeing. Mekas was not an artist who demanded the undivided attention of his audience. Like John Cage, he did not criminalize accident but welcomed it. What's more, multiscreen immersion can provide relief from staring at one rectangle for hours.

Shown in chronological order, the program begins with "Guns of the Trees" (1962), an absurdist drama on which he collaborated with his brother, Adolfas Mekas, and the Polish-French director Edouard de Lacroix. The largely incoherent plot concerns two miserable couples in an insane world. The diverting soundtrack features Allen Ginsberg reciting his own poems.

"Requiem" (2019), which ends the program, is Mekas's testament of faith in God and the rejuvenating powers of the natural world over death, including his own imminent

touching films: "Reminiscences of a Journey to Lithuania" (1972) and "Lost, Lost, Lost" (1976). With their blend of travelogue, shifting time frames, lines of poetry, and his personal, sometimes anguished reflections about his home country and exile status, the films may be the fullest expression of the lyrical style of autobiographical documentary that he pioneered.

Mekas was 16 when World War II began, a trauma that he says shattered his belief in the goodness of man. In 1944, the Nazis sent him and Adolfas to a labor camp in Germany. (Had they been Jewish, the destination would likely have been a different kind of camp.) Even after arriving in Displaced Persons camps they had no desire to return home. The Soviets had reoccupied Lithuania. Europe was in ruins. Only America offered hope and the promise of jobs as bakers in Chicago.

When they landed in New York in 1949, however, they were so energized by the city's many arts scenes that they never went farther west. After buying a Bolex movie camera to record their impressions, they soon met and befriended like-minded artists, writers and filmmakers. Both

brothers spoke some English, but cinema became the language they wanted to master. (Artifacts from these years, including Jonas's poetry notebooks, I.D. cards and family photos, can be seen in a vitrine at the exhibition entrance.)

Two films here focus on Andy Warhol, for whom Mekas served as a mentor as he began his film career. One can't help suspecting, however, that "Scenes From the Life of Andy Warhol" (1990) and "This Side of Paradise: Fragments of an Unfinished Biography" (1999) were selected among the elect 11 because of the sequences where Mekas filmed Jacqueline Kennedy and her teenagers, Caroline and John, on their visits in the early '70s to Warhol's cottage in Montauk.

One doesn't turn to Mekas for celebrities or for plot but for luminous moments: his attention to the ritual of making and eating breakfast; the sly movements of cats; swaying branches; flashes of sun through a windshield on a road trip. And for his reedy, plaintive voice full of hope about what he and his camera will find.

"Keep looking for things in places where there is nothing," reads one of the title cards in "As I Was Moving Ahead Occasionally I Saw Brief Glimpses of Beauty" (2000). When it came to performing this salutary ritual, few did it better than Jonas Mekas.

**Jonas Mekas: The Camera Was Always Running** Jewish Museum, through June 5

*Mr. Woodward is an arts critic in New York.*



Installation view of 'Jonas Mekas: The Camera Was Always Running'

one, and the casualties of war and famine. Over a recording of Verdi's choral masterpiece, his video camera roams through cemeteries and finds solace that flowers, trees and grasses of the commonest varieties are in bloom.

Between these bookends are two of Mekas's most ambitious and

# SPORTS

## Gonzaga Tops 68-Team NCAA Field

The Bulldogs are joined by Arizona, Kansas and Baylor as No. 1 seeds in the tournament

By LAINE HIGGINS

For the first time in three seasons, the NCAA men's basketball tournament is back to its pre-pandemic glory. But a few things have changed.

Star players are allowed to receive free cars and other goodies—legally!—thanks to the NCAA's new rules allowing college athletes to cash in on their names. At least one tournament player, Iowa's Jordan Bohannon, is playing his sixth college basketball season because of extended eligibility created by the pandemic.

And dozens more are back in the tournament playing in different jerseys, switching schools after the NCAA loosened its tough transfer rules and touched off a wild nationwide game of musical chairs.

The basics, however, are back to normal. After a year without a tournament in 2020, followed by a Big Dance played in an Indianapolis bubble in 2021, college basketball will barnstorm once again with 67 games in 14 cities over the next three weeks.

The No. 1 seeds are all pretty familiar, too. Gonzaga earned the No. 1 overall seed for the men's tournament for the second season in a row and will play from the top line of the West Region. The Zags are joined as No. 1 seeds by Arizona in the South, Kansas in the Midwest and Baylor, the 2021 champions, in the East.

Lurking a notch below them in the bracket are some teams who are peaking at the right time as they look to snap decades-long Final Four droughts. No. 1 Arizona, a power in the late '90s and early 2000s, hasn't been to a Final Four since 2001. The Wildcats, who were enmeshed in the FBI probe into college basketball bribery and fired their coach last year, have had a surprising rise to the top of the sport this winter under first-year coach Tommy Lloyd, a former assistant at Gonzaga.

### Can Gonzaga Win It All?

It's been a steady climb to the top tier of college basketball for coach Mark Few and Gonzaga. But the climb has not reached the summit.

Despite two trips to the Final Four over the past six seasons, the Zags have never walked away with the championship. Gonzaga came tantalizingly close in 2021, riding a historically productive offense to the title game before losing to a veteran Baylor team.

The difference-maker for the Zags could very well be Chet Holmgren, the 7-foot, 195-pound forward who is a menace at both ends of the floor. He nearly averaged a double-double this season, putting up 14.2 points and 9.6 rebounds per game. He's probably headed to the NBA next year, so the 2022



Above, Chet Holmgren, a 7-foot, 195-pound forward who is a menace at both ends of the floor, could be the difference maker for Gonzaga. Below, Duke's Mike Krzyzewski, the winningest coach in the game, is retiring after this season.



tournament may be his only opportunity to make some March magic.

The Zags open the tournament against No. 16 Georgia State and share a region with No. 2 Duke, an upstart Arkansas team and defensive heavyweight Texas Tech.

### SEC Dominance

Long a football powerhouse, the Southeastern Conference might need to start thinking of itself as a two-sport league. Kentucky is the conference's traditional crown jewel, but this year they've got

company at the top. Auburn earned its first No. 1 ranking in program history in January and is pegged as a No. 2 seed in the Midwest region. No. 9 Tennessee earned a No. 3 seed after defeating Kentucky en route to winning the SEC tournament. Of course, the Wildcats are there, too, having earned a No. 2 seed in the East Region. Unlike many of Kentucky's previous freshman-filled squads, the 2022 Wildcats are loaded with veterans. There's also sneaky depth in the SEC, with six teams making the 68-team field.

### Coach K's Swan Song

In case you hadn't heard—which is very unlikely—Duke's Mike Krzyzewski, the winningest coach in the game, is retiring after this season. He's won five national titles but the Blue Devils are coming off a loss to Virginia Tech in the ACC tournament final.

That loss raises a developing problem for the Blue Devils. The fairy tale calls for a trip to New Orleans for the Final Four and a chance to add another banner at Cameron Indoor Stadium. But Krzyzewski's home stretch has been having trouble with the "happily ever after" part.

Witness the awkwardness that spoiled Coach K's epic home court sendoff party earlier this month -- a night on which Duke blew a lead to lose to unranked North Carolina in front of a cavalcade of former Blue Devil stars and celebrities. Krzyzewski spent part of the post-game ceremony ranting about his team's shortcomings.

## Tom Brady Unretires, Will Return To Tampa

By ANDREW BEATON

Tom Brady's so-called retirement barely lasted a month.

The legendary quarterback, who on Feb. 1 said he was stepping away from the game he dominated for nearly two decades, wrote on Twitter Sunday evening that he will return to the Tampa Bay Buccaneers and play again.

"These past two months I've realized my place is still on the field and not in the stands. That time will come. But it's not now," his tweet said. "I love my teammates, and I love my supportive family. They make it all possible. I'm coming back for my 23rd season in Tampa."

His unretirement instantly became the biggest bombshell of the NFL off-season. It's also not terribly surprising. Ever since he signaled that he was finally calling it quits, he had hedged against his own words and left the door more than ajar to come back. Just a week after his announcement, he said on his "Let's Go" podcast that he would "never say never." At a Manchester United game on Saturday, soccer great Cristiano Ronaldo asked Brady: "You're finished, right?"

Brady shrugged the question off. He posted a video of the encounter to his Instagram account. The next day he fired off his tweet that he was coming back.

News of Brady's impending retirement first emerged in late January and co-opted the NFL playoffs. Then a few days later, on Feb. 1, he confirmed the news on Instagram.

"I have always believed the sport of football is an 'all in' proposition—if a 100% competitive commitment isn't there, you won't succeed," he wrote in the post. "This is difficult for me to write, but here it goes: I am not going to make that competitive commitment anymore."

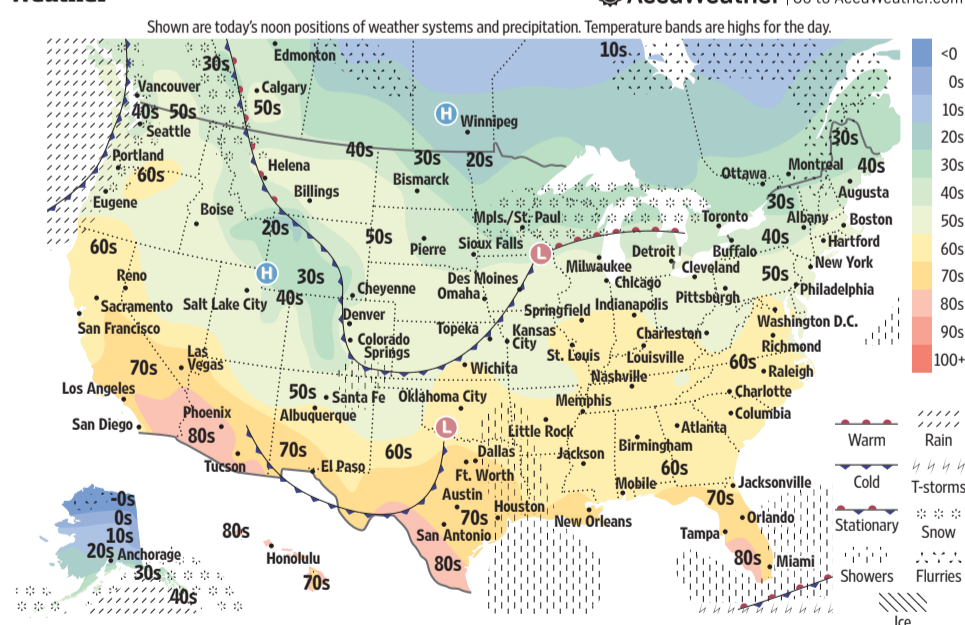
The 41 days since apparently convinced Brady that he is going to make that competitive commitment once again.

Brady, 44 years old, had long spoken of his desire to play until he turned 45—the age he will turn in August. But as the last season went on, he appeared increasingly non-committal about his professional future.



Tom Brady says he is coming back.

### Weather



### U.S. Forecasts

Table with columns for City, Today (Hi, Lo, W, P), and Tomorrow (Hi, Lo, W, P). Lists major cities and their weather forecasts.

### International

Table with columns for City, Today (Hi, Lo, W, P), and Tomorrow (Hi, Lo, W, P). Lists international cities and their weather forecasts.

### Today Tomorrow

Summary table for U.S. and International forecasts, showing Today and Tomorrow conditions for various cities.

### The WSJ Daily Crossword | Edited by Mike Shenk

A crossword puzzle grid with numbered squares and blacked-out areas. The grid is 12 columns wide and 12 rows high.

- Down
1 Oohs and \_\_\_
2 Michaels of rock's Poison
3 Dangerous rattlesnake
4 Not a single woman?
5 Day division
6 Possess
7 Show featuring star pitchers?
8 Followed as a result
9 Mowgli's adopted brothers
10 Milky gemstone
11 "I don't believe \_\_\_ met"
12 Voldemort's attack left one on Harry Potter's forehead
14 Tommie of the "Miracle Mets"
18 Mournful poem
22 Faux \_\_\_ (some winter wear)
24 Colgate cost
25 Purposefully lose
26 \_\_\_ Loa
28 Mojito ingredient
29 Mined matter
30 Silently went through the motions?
31 Slender-stemmed mushroom
32 Start taking effect
37 Snarl
39 Many an "ly" wd.
40 Director Spike
43 Titular James Bond villain
45 Font akin to Helvetica
48 Puzzler
49 Leave stranded
53 "Up and \_\_\_!"
54 Russian denial
55 Place to hang holiday lights, perhaps
56 "I got this, boss!"
57 Stimulate, as the appetite
58 Circular dance
59 Catcher's place
60 A really long time
63 1914-18 conflict, for short

### PIGTAILS | By Jill Denny & Jeff Chen

- Across
1 "Washboard" muscles
4 Question of feigned innocence
9 Really impresses
13 Opera highlight
15 Sioux City
16 Crude grp.
17 Investment vehicles that may engage in short selling
19 The floor in a kids' agility game, supposedly
20 Terry Bradshaw or Mean Joe Greene, e.g.
21 Car part called a silencer in Britain
23 Little, in Scotland
24 Get ready for a golf drive
25 "Eww, please stop talking!"
27 Guidelines settled on at the start of arbitration
33 Leia's husband
34 Cosmonaut Gagarin
35 Backbone
36 Apt rhyme for "lewd"
38 Cobalt or copper
41 Sticky situation
42 How unruly hair may stand
44 Notion
46 Enjoy Stowe
47 Cream used on a skin growth
50 Darker force of a Chinese duality
51 2001 Peace Prize winner Kofi
52 Author McEwan
54 Dark film genre
57 "\_\_\_ Gonna Do?" (1977 Pablo Cruise hit)
61 Lighter force of a Chinese duality
62 Pull out all the stops, and how to find the animals at the starts of 17-, 27- and 47-Across
64 Villainous
65 Lawn-Boy product
66 Off-retweeted photo, often
67 Head, in France
68 Baker with eight Grammys
69 \_\_\_ Moines

Previous Puzzle's Solution
A grid showing the solutions for a previous crossword puzzle, with words like CRANE, HAIR, EPEE, and CHEFS.



## OPINION

## Biden Eyes Venezuelan Oil



AMERICAS  
By Mary  
Anastasia  
O'Grady

War profiteering is the world's second-oldest profession, and it's silly to feign shock over efforts by petroleum companies and financiers to use the bloodshed in Ukraine to make money in Venezuela.

It's harder to understand why the Biden administration would rush to help the oil industry and its bankers at the expense of the long-suffering Venezuelan people and U.S. national security. But that seems to be where we're headed.

On March 5 representatives from the White House and the State Department visited Caracas to negotiate with dictator Nicolás Maduro. The meeting wasn't public. But judging from press reports, citing people familiar with the matter, it's pretty clear that the administration is thinking about lifting the U.S. sanctions on Venezuelan oil imports and that it wanted to see what it could get in return.

The White House plays down that speculation. The meeting just happened to take place amid surging gasoline prices and ahead of Mr. Biden's Tuesday announcement that the U.S. will forbid Russian oil imports.

Oil investors, like Chevron, aren't so coy. Its four joint-venture operations in Venezuela are hurt by the sanctions, as are several U.S. oil-service companies.

On Feb. 7, even before Russia attacked its neighbor, Reuters reported that Chevron was asking the White House to ease the sanctions in the hope it could begin to recoup “the hundreds of millions of dollars” that the regime owes it. Owners of distressed Venezuelan debt, restricted by the sanctions, also have been lobbying for relief.

You'd think that woke American corporations and Wall Street would be embarrassed to be seen doing business with gangsters propped up by Russia, China, Cuba and Iran.

Venezuela's state-owned oil company, PdVSA, is an environmental wrecking ball. Satellite images of Lake Maracaibo show the complete devastation the company has caused. Similar degradation has occurred in the Amazonas and Orinoco regions, where the Maduro regime collaborates with criminal groups engaged in mining that trashes the environment.

On human rights, Caracas's record of imprisonment, torture and extrajudicial killings is chilling. Some five million Venezuelans have fled the country. Those who remain suffer unimaginable privation, often without running water or adequate nutrition for their children.

But now Kremlin bankruptcy and isolation have pushed the Venezuelan strongman into deep water. His reliance on Russian banking—to launder cash from drug-trafficking, illicit precious-metals trading and looting PdVSA—makes him vulnerable. The U.S. has a \$15

million bounty on his head for drug trafficking, and his Colombian-born front man, Alex Saab, has been extradited to the U.S. on money-laundering charges.

This would be a good time to make life more difficult for Mr. Maduro. Instead the Biden delegation's visit to Caracas bestowed upon him much-craved legitimacy, which he used as propaganda in a triumphant nationally televised

### The administration seeks engagement with Maduro's criminal regime.

speech after the Americans left. The White House emissaries brought home two American hostages. At least seven more remain Maduro bargaining chips.

It's an open secret that the administration seeks engagement with rogue nations, including Cuba and Iran. To that end, it may believe that it can use the Ukrainian crisis as a pretext to lift sanctions on Venezuela. But importing from Venezuela is unlikely to damp U.S. gasoline prices.

In 2021, according to OPEC's secondary source reports—the most accurate available snapshot of crude production—Venezuela pumped 558,000 barrels a day. The week of March 7 daily output was 643,000 barrels.

Of this, some 50,000 barrels a day go to Cuba. Around 200,000 barrels daily stay in

Venezuela; much of the rest goes to Asia.

The only production that can be ramped up in the next 18 months will come from existing inactive wells and some development drilling. That's likely to add only about 120,000 to 200,000 barrels a day, according to Luis Pacheco, a nonresident fellow at Rice University and a former PdVSA executive. Even then, the regime would first need to resolve outstanding debts with joint-venture partners, remove existing legal and fiscal obstacles, and improve security.

On paper, the restart of foreign-owned joint ventures looks promising. But reality kicks in fast. After years of neglect and lawlessness, electricity is in short supply and rampant crime plagues the oil fields. Production and transport infrastructure has broken down.

New investment requires a fresh hydrocarbon legal framework to rebuild confidence in the rule of law, a highly unlikely outcome without regime change. The lifting of U.S. sanctions would take things in the opposite direction.

Venezuela might come up with more oil to sell to the U.S. if Mr. Maduro's Asian buyers begin drawing their oil from the discounted Russian pool. In that case Venezuela will happily sell its excess inventory to the U.S. But what wisdom is there in refusing Russian crude and replacing it with oil from one of the most dangerous Russian proxies in the Western Hemisphere?

Write to O'Grady@wsj.com.

BOOKSHELF | By Sally Satel

# More Help, Please

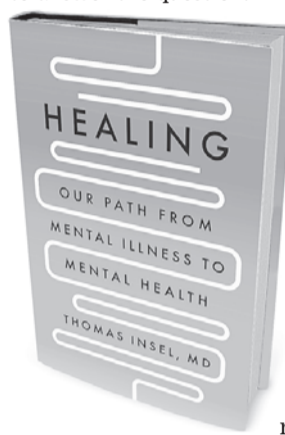
## Healing: Our Path From Mental Illness to Mental Health

By Thomas Insel

(Penguin Press, 306 pages, \$28)

It may be surprising to learn that serious mental illness—such as schizophrenia, bipolar disease and severe depression—afflicts about one in 20 Americans. Some of us have encountered these conditions in the experience of family members. Others see it routinely on display on city streets. By now, as Thomas Insel notes in “Healing: Our Path From Mental Illness to Mental Health,” we know much about the brain and about the ways in which it can malfunction. Yet the outcomes for people treated for serious mental illness are often poor, he says. Why?

A psychiatrist and neuroscientist who headed the National Institute of Mental Health in 2002-15 and has since returned to the private sector, Dr. Insel is well-positioned to answer the question. In “Healing,” he outlines the



treatments that currently exist, describes the obstacles that many people face, and shows how care programs might be designed to work better. The core of his argument is quickly grasped: “We’re not taking advantage of the science we have.”

Dr. Insel starts his analysis with two contrasting scenarios. Young Roger was once a neighbor of his: During Roger's last year of high school he began hearing “alien voices.”

A doctor prescribed crucial medication, but Roger stopped taking it. He became so agitated that his father had to call 911, and the police were dispatched. Hospital beds were scarce, and state law made it impossible to commit Roger to involuntary care. Psychotic and unable to care for himself, Roger ended up homeless.

Dr. Insel met Brandon at a mental-health fundraiser several years ago and learned about his history. In his late teens, Brandon had become increasingly irrational. Unlike Roger, though, he was able to embark upon a continuous and coordinated long-term plan that addressed every area of vulnerability. There was medication for his delusions and coaching for his social skills. He received employment support. Brandon, Dr. Insel says, shows what can go right. Roger's story, a far more common one, reflects the “crisis of care.”

The statistics are depressing. Only about 16% of people with severe mental illness are receiving even “minimally acceptable” treatment. Many of the others land in jail cells or squalid street encampments, or languish in back bedrooms. Psychiatrists are heavily concentrated in high-income urban areas, with half of all U.S. counties having no psychiatrists at all. Paying for treatment can be a challenge, too: Almost 60% of psychiatrists don't accept Medicaid, and 45% don't accept private insurance. There are only 12.6 public hospital beds for mentally ill patients per 100,000, a quarter of what analysts estimate we need.

These stark deficiencies move Dr. Insel to investigate programs that, in their creativity and effectiveness, are worth imitating. Roger's father, as we remember, had become so frightened of his troubled son that, like other parents in such circumstances, he ended up turning to the police. In Maricopa County, Ariz., by contrast, parents (or any concerned person) can call a special toll-free number. A dispatcher deploys a van with a mobile crisis team, including a psychiatric nurse.

### Our care for the mentally ill focuses on the relief of symptoms, and few patients receive the treatment they need. There is a better way.

The University of Washington in Seattle has perfected so-called collaborative care. A staff member is assigned to focus on “the people who may not be asking for help or might be falling through the cracks,” as the program's director puts it. “This person's job is to integrate medications and psychotherapy with programs aimed at meeting social needs.” In Britain, the Improving Access to Psychological Therapies program has trained more than 7,000 therapists; they provide help for anxiety and depression to nearly 600,000 patients each year, as Dr. Insel reports.

Dr. Insel emphasizes that well-designed programs for recovery should aim at “finding connection, sanctuary, and meaning not defined or delimited by mental illness.” Ideal long-term care, after initial contact, would include the sustained attention of a team, including a social worker and an occupational therapist. One goal would be to help the patient navigate a return to school or work, thus avoiding isolation and self-destructive rumination.

Because Dr. Insel is such an understated writer, it is easy to miss the audacity to be found in “Healing.” He confesses to having long “misunderstood the problem” of treating mental illness—as did most of the profession he helped to lead for two decades. “While we studied the risk factors for suicide, the death rate had climbed 33%,” he writes. “While we identified the neuroanatomy of addiction, overdose deaths had increased threefold. While we mapped the genes for schizophrenia, people with the disease were still chronically unemployed and dying 20 years early.”

The reality of this failure dawned on him a few years ago during a public lecture in Portland, Ore. He was clicking through a PowerPoint presentation highlighting the achievements of his scientists at the National Institute of Mental Health: high-resolution scans showing brain changes in people with depression and abnormal branching in the neuronal cells of children with schizophrenia.

The first question came from an exasperated father in the audience. He said that his schizophrenic son had been in and out of hospitals, had attempted suicide several times, and was now homeless. What, the man wanted to know, were all those great lab discoveries doing for his child? “My mouth suddenly felt dry,” Dr. Insel writes. “But in that moment, I knew he was right.” Nothing in the lab per se was addressing the “urgency or magnitude of the suffering.”

Dr. Insel has made the most of the revelation, traveling widely to identify the crisis of care and look for solutions. “Healing” is the product of this odyssey—and a compelling summary of all that he learned along the way.

Dr. Satel is a senior fellow at the American Enterprise Institute and a visiting professor at the Columbia University's Vagelos College of Physicians and Surgeons.



INSIDE  
VIEW  
By Andy  
Kessler

The U.S. is sitting on top of a horizontal empire, capitalism's self-organizing, incentive-based structure with its layers of value. It's not the Marxist mush of “to each according to his needs.” You gotta earn your spot. Think of the U.S. dollar as the thread or even the duct tape that binds the layers together. Nearly 60% of the \$12.8 trillion in world-wide currency reserves are dollars. Is America's “exorbitant privilege”—the almighty dollar as the world's leading reserve currency—under threat? Should you even care?

Sanctions have bitten Russia. A huge chunk of its \$630 billion in foreign reserves are frozen. Oligarchs' yachts have been seized. Visa, Mastercard and American Express suspended service in Russia. Apple and Google Pay stoppage stranded cashless travelers on Moscow's metro. From Netflix to Nike, voluntary sanctions are in force.

Was cutting Russia out of the global financial system the right move? Naysayers think this is the beginning of the end of the dollar as the reserve currency because Russia will cozy up to China and adopt the yuan or pivot to cryptocurrencies. China may start dumping dollars. In fact, since 2014 China and Russia have severely reduced their dependence on the dol-

lar for bilateral trade.

The dollar has been the world's reserve currency since the Bretton Woods Agreement in July 1944, with the dollar pegged to gold and other allied currencies pegged to the dollar. This wasn't some bureaucratic pronouncement. The U.S. was in a position of strength after funding the allied effort in World War II. America almost lost this privileged status in 1971 when deficits from war and welfare led President Richard Nixon to drop the gold standard.

Today countries still keep America's virtual Benjamins in their virtual bank vaults—modern banking's gold. China has more than \$1 trillion in Treasuries. Russia has about \$100 billion in dollars of about \$500 billion in their increasingly frozen foreign exchange.

But why do these countries keep dollars? What backs the currency? The conventional answer is the “full faith and credit” of the U.S. government. Ha, that and \$3.65 will get you a Starbucks grande latte, though not in Moscow anymore. What really backs the dollar is the future tax-generating ability of America's growing productive economy and a defense structure to defend that economy's strength. Without that, there's no horizontal-binding duct tape.

South Korea, Thailand, Indonesia and especially Russia learned this the hard way during currency crisis of the late 1990s. They didn't keep enough foreign reserves to protect their own currencies

after overextending credit and bank loans denominated in dollars came due. Argentina, Venezuela and Zimbabwe learned this too.

China, like Russia, has per capita gross domestic product slightly above Mexico—about one-sixth of the U.S. China's yuan value is based on its economic growth continuing, now forecast at only 5.5% for 2022. While China needs to keep assembling more iPhones, toys, shoes and grills for global customers, it is struggling to move up to higher horizontal layers.

### China and Russia may be working to take away America's 'exorbitant privilege.'

Whatever China holds in Russian rubles has lost more than 40% of its value in mere weeks. Ouch. If Russia or other countries hold yuan, they risk a similar devaluation if, say, China gets squeezed by sanctions for invading Taiwan. China and Russia should be wary of the mutual delusion of backing only by the ruble and the yuan. And I hope Russia does load up on crypto, the decline of which may make the '90s currency crisis seem like a picnic.

As Ben Franklin might tell today's U.S. leaders, “You have the reserve currency status, if you can keep it.” What to do? The Federal Reserve should solidify the dollar by raising

interest rates pronto. Treasury Secretary Janet Yellen needs to shout “a strong dollar is in our national interest” from the mountain tops. Ending fiscal deficits would also help by creating a bidding war for outstanding Treasuries. U.S. companies need to update complacent supply chains. If products like medications and iPhones come only from China, that's a problem. Because of this, the Biden administration should quit the union-loving “Buy American” pitch we heard in his State of the Union address, which echoes Donald Trump's “America first.” Apple can't assemble iPhones in union-heavy Michigan. America's strength comes from buying goods and services from our allies in lower horizontal layers like Vietnam, South Africa and countries in Eastern Europe. Don't mess with that.

It's time for the U.S. to figure out where China or Russia might have even a tiny edge—pharma, genetics, artificial intelligence, cyberwarfare—and create Operation Warp Speed-like programs to stimulate these industries through orders and prepayments, not handouts.

Sanctions on Russia won't endanger the dollar right away, but wars are when transitions occur. America shouldn't risk its reserve-currency status. Inflation really will run rampant if other countries start dumping dollars. America's privilege is worth maintaining—easier said than done.

Write to kessler@wsj.com.

## We Are All Ukrainians Now

By Bert Stratton

Russia, Poland, Ukraine, Lithuania. They're all the same to many American Jews. I've never heard an American Jew boast about his Ukrainian heritage. (One of my grandfathers was from Ukraine, and I'm not bragging.)

Regina Brett, a Cleveland Jewish News columnist, wrote last month, “We stand with Ukraine as its people huddle in subway stations. . . . We stand with the old man standing outside his shattered home. . . . We stand with the Ukrainian soldiers trying to defend David against Goliath.”

We are all Ukrainians now. I was ambivalent about that until last week.

The pogroms, Nazi collaborators, Bohdan Khmelnytsky—a 17th-century Ukrainian hero, who was also responsible for

killing thousands of Jews. That's history.

This might be the first time Jews and Ukrainians are on the same page. In the 1980s, I became interested in John Demjanjuk, a retired auto worker in suburban Cleveland who was accused of killing Jews at a Nazi extermination

### American Jews find the present changes our view of the past.

camp. When I wrote to Demjanjuk's daughter for her side of the story, she sent me a pamphlet, which said her father, the alleged Ukrainian SS man, had been framed by the editor of a small pro-Soviet, anti-Ukrainian newspaper in New York in 1975.

I went to Demjanjuk's trial

in Cleveland. I wanted to see a Nazi collaborator. I had seen many Holocaust survivors but never a Nazi accomplice. Demjanjuk's citizenship was revoked, and he was eventually shipped off to Israel for a second trial. I happened to be at a Cleveland police station that day. (I was a police reporter.) One police officer had a TV under his desk, which he watched all day. He said, “There's that guy—what-you-call-him—getting off the plane in Israel.”

“I'm surprised he didn't take a suicide pill,” I said.

“For what? He didn't do it.”

“There are five witnesses,” I said.

“So what? It's the past. Let it die. But the Jews keep bringing it up. He didn't do it. He was told he, or else.”

A lieutenant said, “What would you do if somebody put a gun to your head and

said, ‘Do it or else?’”

“He didn't have to do it,” I said.

“The present changes the past.” My rabbi, Joshua Skoff, said that at Shabbat services. Two of Rabbi Skoff's grandparents were from Ukraine. In his sermon he said, “My grandparents wouldn't believe it—a Jewish president in Ukraine!”

Rabbi Skoff pointed out that before Jews read the Torah portion, we chant a prayer that begins, “Blessed are you, Lord, our God, King of the universe.” Rabbi Skoff said, “It doesn't say ‘King of the Jews.’ It says ‘King of the universe.’”

This is a major “kumbaya” moment in Jewish-Ukrainian relations. Add that to the strangeness of this month.

Mr. Stratton is author of the blog *Klezmer Guy: Real Music & Real Estate*.

## OPINION

## REVIEW &amp; OUTLOOK

## Russia's War Gets Closer to NATO

Vladimir Putin continues to escalate his bloody war in Ukraine, and he's testing NATO more every day. The Russian is exploiting President Biden's publicly stated declarations of what the U.S. won't do to help Ukraine, and in the process he is bringing the war closer to NATO's borders.

### Putin is exploiting Biden's red lines against U.S. involvement.

That's the significance of Sunday's bombing of a Ukrainian military training site a mere 10 miles from the Polish border. The strike killed 35 and injured more than 130. Until last month, U.S. National Guard soldiers had trained Ukrainians at the site.

The strike by eight missiles was far from the war's front lines and the cities Russia is besieging in Ukraine's north and east. It follows a warning a day earlier by Russia's deputy foreign minister that Russia considers NATO military and other aid to Ukraine to be "legitimate targets." Russia surely knew that it ran the risk of killing NATO soldiers if any were still at the training site.

The strikes show Mr. Putin is willing to take even greater risks to achieve his war aims as his plans for a lightning capture of Kyiv have failed. Russia's recent claims that Ukrainians are using chemical and biological weapons is a typical Kremlin accusation before Russia does the same thing.

Russian forces have also increased their bombing of Ukrainian cities, including residential neighborhoods, public squares and hospitals. Mariupol on the Sea of Azov is being reduced to rubble and its people are short of food, water and warmth. The savagery may look medieval to shocked Western eyes, but it is meant to demoralize Ukrainians in the service of Mr. Putin's political goal of persuading President Volodymyr Zelensky that he must accept a settlement on Russian terms.

Biden Administration officials keep saying that economic sanctions and Ukrainian resistance mean that Mr. Putin can't achieve a stra-

tegic victory. But that depends on how you define victory. A Ukraine divided in two, with Russia in control of the east, and a rump, Western Ukraine cut off from the coast might look like a victory to Mr. Putin—especially if sanctions are removed in some cease-fire agreement.

The point is that Mr. Putin is taking every advantage of President Biden's desire to avoid "escalation" at all costs. He hears Mr. Biden say his overriding goal is avoiding "World War III," not stopping Mr. Putin in Ukraine. The Russian sees that his threats caused Mr. Biden to back away from a plan to send Polish fighter jets to Ukraine, even if flown by Ukrainian pilots.

His threats and Sunday's military strike are intended to stop NATO from continuing to send military aid to Ukraine. He is betting the U.S. will do nothing if he starts blowing up trucks coming across the Polish border.

\* \* \*

Mr. Biden has drawn his red line at defending "every inch" of NATO territory. On CBS's "Face the Nation" on Sunday, White House national security adviser Jake Sullivan said, "if there is a military attack on NATO territory, it would cause the invocation of Article Five, and we would bring the full force of the NATO alliance to bear in responding to it."

But what about a chemical attack inside Ukraine? Mr. Sullivan was much less definitive about that. How about a siege of cities that kills thousands? Like it or not, the Russian brutality that the West is tolerating in Ukraine is rewriting the rules of what countries can get away with in the 21st century. Mr. Putin can do what he likes as long as he keeps within the outlines of Ukrainian territory.

No one wants a broader war. But as Russia escalates, Mr. Biden and NATO had better be prepared to fight one. A reckless or desperate Mr. Putin may give them no choice.

## Iran Sends Its Missile Regards

The Biden Administration's hell-bent pursuit of a new nuclear deal with Iran grows harder to understand with each provocation from Tehran. The latest came Sunday in a missile attack near a U.S. consulate under construction in northern Iraq.

Iran typically commits mayhem through proxy militias, but this time Tehran took credit. The Islamic Revolutionary Guard Corps, the regime's paramilitary group, said it carried out a missile attack on what it claimed were Israeli targets inside Iraq. The group said it was in response to an Israeli airstrike in Syria last week that killed two IRGC commanders.

Notably, however, the missiles landed in Kurdish territory in northern Iraq. The Kurds are America's best allies in that country. No one was killed but at least two individuals were injured. It's likely the IRGC wants to send a message about the vulnerability of U.S. interests and allies in the region as the two sides close in on a renewed nuclear deal.

The deal would hand Iran tens of billions of dollars in money and investment. Iran also wants the U.S. to remove the IRGC from its list of terrorist groups as part of the deal. Iran knows the U.S. is preoccupied at the moment with Ukraine and Russian aggression.

Iran's missile attack shows the incongruity of the looming nuclear deal. Like the 2015 original agreement, the new one would do nothing to restrict Iran's support for regional terror groups. It includes no restrictions on Iran's missile program that is growing more sophisticated and dangerous.

Iran also continues to support the Houthis

## The State Flat-Tax Movement Grows

The state tax cuts keep coming amid record budget surpluses, and the next to arrive may be in Georgia, which wants to keep up with fast-growing Sunbelt neighbors.

The state House approved a plan recently to reduce income taxes by more than \$1 billion. The bill collapses six brackets into a single 5.25% rate beginning in 2024, scrapping the current top rate of 5.75%. That will make Georgia the 13th state to adopt a flat tax, following Iowa's 3.9% rate this month.

The plan eases filing by nixing most deductions, but a healthy increase in the standard exemption will compensate. Single filers can exclude \$12,000 of income, up from the current \$2,700, while the exemption for joint filers rises to \$24,000 from \$7,400. House Speaker David Ralston says 95% of Georgians will pay less under the new plan.

One deduction exception is that filers 65 and up will still be able to deduct \$65,000 of retirement income, such as earnings from 401(k) distributions. One puzzling downside is that the tax cut wouldn't take place until 2024, which means taxpayers wouldn't benefit for two more years.

Legislators last week also reached a deal on the midyear budget, which includes a separate taxpayer dividend. Georgians will get refunds of \$250 a person on their 2020 and 2021 filings at a total cost of \$1.1 billion. The one-time relief

in Yemen who use missiles and drones to target civilian and commercial targets in Saudi Arabia and the United Arab Emirates. And Iran is helping Hezbollah make its missiles targeted at Israel more accurate.

The U.S., France and others condemned the Sunday missile strike, yet they are eager to give Iran countless billions that it can use to fund more such attacks. It's bizarre.

Jake Sullivan, President Biden's national security adviser, seems undeterred despite the missile attack. "One thing I will say," he said on CBS's "Face the Nation" on Sunday, "is that the only thing more dangerous than Iran armed with ballistic missiles and advanced military capabilities is an Iran that has all of those things and a nuclear weapon, and President Biden is still determined to stop Iran from getting a nuclear weapon."

But the deal won't stop Iran from pursuing, or getting, a nuclear weapon. Iran could continue to make progress at secret sites that are excluded from international inspectors as it waits for the deal to expire. Meanwhile, it will be able to sell oil and cut deals with Russia and Europe to finance its imperialism.

The nuclear talks paused last week after Russia—which is among the countries brokering the talks—demanded that sanctions related to Ukraine not interfere with its deals with Iran. A U.S. official told the Journal that it won't make that concession to Russia, but unless a new nuclear deal bars Iran-Russia transactions it will open up new sanctions-evading opportunities. The world will see it as one more sign of American weakness.

is a political gimmick that won't do much for economic growth and the money would have been better devoted to lowering tax rates. The tax proposal also doesn't touch the current corporate tax rate of 5.7%, which is a missed opportunity.

Like most states, Georgia has fiscal room for tax cuts as a revenue surge is producing a budget surplus. Revenue in 2022 is on pace to exceed scheduled spending by \$3.2 billion. Georgia's economy has bounced back better than most since the pandemic shutdown. The state beat the national average for job growth, adding more than 210,000 in the past year. In January Georgia surpassed its pre-pandemic job level, joining a small club including Texas, Arizona, Idaho and Utah.

Republican Gov. Brian Kemp has a strong record as he runs for re-election. But he has a political incentive to support tax cuts. He faces a primary challenge from former Sen. David Perdue, who wants to eliminate the income tax. Republicans in the Legislature also need a policy win as they face a strong Democratic challenger for Governor in Stacey Abrams, who nearly won in 2018.

Georgia's tax rate is still higher than it should be to compete with Florida, which was among the 10 fastest-growing states last year. Tax competition among the states is accelerating, and smart political leaders will have to consider pro-growth reforms to keep up.

## LETTERS TO THE EDITOR

## Dusting Off the Cuba Playbook for Venezuela

Your editorial "Hostages for Oil from Venezuela" (March 10) rightly points out the folly of believing that country's ruined oil patch can quickly increase exports to the United States. Cuba has first call on Venezuelan oil production, in exchange for the intelligence agents it stations in Caracas to protect Nicolás Maduro and keep his regime in power. Second comes China, to which the Maduro regime sends oil to pay off its billions of dollars in debt.

The Biden administration's outreach to Mr. Maduro has undermined Venezuela's democratic forces. This is a repeat of President Barack Obama's Cuba playbook, and today's administration strategists are many of the same people who drafted it a decade ago. Now as then, the theory is that if we start lifting economic sanctions, a vicious tyranny will allow a democratic opening.

This approach failed totally in Cuba and will fail again with Mr. Maduro, as the Venezuelans struggling against the regime know. The right

U.S. policy is to maintain support for Venezuelan democrats, not go behind their backs to search for deals with their oppressors.

ELLIOTT ABRAMS  
Council on Foreign Relations  
Washington

Mr. Abrams was U.S. special representative for Venezuela (2019-20) and chairs the Vandenberg Coalition.

"We don't pay ransom for hostages" is U.S. policy. But habitual coincidences call it into question. Plane-loads of greenbacks happened to land in Tehran contemporaneously with the release of Americans. Bowe Bergdahl's release as five went free from Guantanamo was another case of diplomatic serendipity. If more chance occurrences result from discussions with Venezuela, Americans may wonder whether the occasional application of our no-ransom policy is also serendipitous. Rival nations will harbor the same doubts—and take advantage.

STEVEN SARFATTI  
Cabin John, Md.

## The Obstacles to Transferring Those MiG-29s

The Pentagon says the plan to transfer MiGs was not "tenable." In response, your editorial asks, "Untenable how?" ("NATO'S Polish MiG Fiasco," March 10). Here's how:

The 35-year-old Soviet aircraft will need a staging area, a quality fuel supply, Ukrainian-compatible communications, compatible ordinance hard mounts and supporting electronics, spares for battle damage and routine mechanical failures, forward air controllers, IFF (identify friend or foe) interrogation, electronic warfare to combat surface-to-air missiles, and a secure radar and GPS to get around and defeat jamming efforts. The Ukrainian pilots already qualified on the NATO Fulcrum MiG-29 will also need differences training, and then there's the issue of friendly fire. A Ukrainian soldier, under intense stress, will shoot at any MiG-29 he sees.

The Polish Air Force has said it can deliver up to 28 MiG-29s. What does "up to" mean? It has to do with how many aircraft are cannibalized, airworthy and otherwise combat capable. It could be four or 24. And the Pentagon will "back fill" those aircraft with F-16s? If I were Poland, I would joyfully give up as much of my antique Mikoyan scrap metal for F-16s in an instant!

I would predict that the plan was indeed not tenable. The MiG-29s would not save thousands of Ukrainian lives but certainly would consume the last measure of bravery of 28 Ukrainian pilots in their one and only sortie into combat. That would be a "fiasco." The hard truth is that combat systems are complicated.

CAPT. ERIC HANSEN, USAF (RET.)  
Cleveland

## Rethinking the Old History of Preservationism

It was a pity to read zero acknowledgment of the indigenous caretakers of our land in "Democracy Helped Seed National Parks" (Review, March 5). National parks are a treasure, yet I remember how wrong it felt driving through the Redwood national forest and seeing hikes and landmarks with plaques commemorating white men with names like "John," "Stephen" and "Newton" who helped save the last 5% of the Redwoods from logging.

The "Americans" the article references who "regarded their country's natural wonders" are European colo-

nizers and their descendants who created national parks. Yet had the land never been settled (read: stolen), there would never have been a need to protect it, either for us or from us, as the author distinguishes. Rather than praising democracy for cordoning off the last bits of land that capitalism is bent on destroying, let's revere and look to the native people who stewarded the land for millennia.

KATIE MILLER  
Minneapolis

## An Awfully Fine Distinction

In "Ukraine Changes Everything" (Wonder Land, March 3), Dan Henninger writes that President Biden's State of the Union address "had no memorable lines." The president did, however, give voice to a memorable oxymoron as he challenged business to "Lower your costs, not your wages."

The speechwriter who penned that line must have cut class on a day when an important lecture in Economics 101 was given.

MIMS MOBLEY  
Greenwood, S.C.

## Pepper ... And Salt

THE WALL STREET JOURNAL



"Wait. Have you adjusted for daylight savings time?"

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RYAN YOUNG  
Competitive Enterprise Institute  
Washington

## OPINION

## Biden's War On Oil Hits Consumers

By Harold Hamm

Gasoline prices are higher than we have ever seen. The government reported a year-over-year inflation rate of 7.9% for February, the highest since 1982. Americans need relief, and one thing stands in the way: President Biden's unwillingness to reverse course on his administration's commitment to put the American oil-and-gas industry out of business at the consumer's expense.

In the year since the administration froze new drilling leases on 26% of federal land and more than a third of the nation's resources in productivity, the U.S. has been falling further from energy independence, putting national security at risk. There is no good reason for America to become more reliant on energy imports. It constrains our policy choices, forces us to cede our national security to foreign players and enriches those who would do us harm. This administration is working with the Saudis, Venezuela and even Iran to come to the rescue. Why?

### The American energy industry is ready to help if Washington stops trying to put us out of business.

The U.S. needs domestically produced oil and natural gas. In 2019 the U.S. became energy-independent, a net exporter. Gas and electricity prices were low, and the U.S. was the largest producer of energy on the planet. Thanks to abundant and affordable clean-burning natural gas, brought to us by horizontal drilling, the reduction in greenhouse-gas emissions was the most successful in the industrialized world.

Modern life is predicated on cheap, abundant and reliable energy. This administration has manufactured scarcity and mandated insecurity around the globe. Energy prices are rising everywhere, and releasing a couple of days' supply from our strategic reserves is a temporary patch. The largest strategic reserve in the world is under our feet.

The solution lies in three simple actions: First, make it official U.S. policy to restore energy-independence by using all sources of available energy. Announce the intent to bring on more supply of oil and gas in the U.S. This provides certainty for producers to bring new capital and supplies to the market, meeting current world demand.

Second, open federal lands for energy development. The 9,000 permits the White House keeps touting is misleading at best. Thousands of those sites can't be developed as they are held up in litigation. Others require new permits and leases to make a full unit. Thousands more await approval. Conservatively, our data tells us the number of available permits ready for production today stands closer to 1,500, and many of those are already drilling. No leases have been issued for federal land since 2020.

Third, support energy infrastructure, including pipelines to transport natural gas, oil and CO2 safely. Projects such as the Mountain Valley Pipeline would increase energy availability and enhance our ability to export to our allies.

Last week we heard for the first time that Energy Secretary Jennifer Granholm is ready to work with "everyone and anyone who is willing to take a lead into the future by diversifying your energy portfolios to add clean fuels and technologies." The American oil-and-gas industry has done just that. My message to the administration is this: The people of American oil and gas stand ready to work with you on U.S. energy development.

*Mr. Hamm is chairman of the Hamm Institute for American Energy, the Domestic Energy Producers Alliance and the Council for a Secure America. He is founder and chairman of Continental Resources.*

# Send NATO Troops to Western Ukraine

By Ludovic Hood

The West's response to Russia's unprovoked invasion of Ukraine has been resolute, unified and consequential. But it is inadequate to the task of deterring and containing Vladimir Putin's designs on Ukraine and the North Atlantic Treaty Organization's frontline states. Sanctions alone are insufficient to deter Mr. Putin, who, like countless European tyrants before him, recognizes only strength. If Western leaders want Mr. Putin to sue for peace, they need to increase troop levels on NATO's eastern flank and introduce a robust defensive military presence in western Ukraine and the Black Sea.

At present the West is allowing Mr. Putin's illegal invasion and saber-rattling to define the battlespace. This is wrong: Western militaries can and should operate inside western Ukraine, far from Russia's ground operations in the east of the country. A decisive show of force inside Ukraine would signal to Mr. Putin that the West won't tolerate Russian attempts to redraw borders by force. It will also stanch the worst bloodletting in Europe since 1945 and forestall future Russian aggression in Europe.

Western politicians recognize that we are at a pivotal moment in history. Mr. Putin seeks to upend the European order forged by American-led victories in World War II and the Cold War. Whether he is nursing old grievances or trying to rebuild a czarist empire is beside the point. If his scorched-earth tactics yield victory in Ukraine, he will stir up trouble in Moldova, the Baltic states or Poland. It is ahistorical and unwise to assume otherwise. Hitler's 1938 annexation of the Sudetenland is an imperfect but instructive analogy.

Article 5 of the NATO charter obliges the whole bloc to come to the defense of member nations that are under attack. Western resolve in



PHIL FOSTER

the current crisis will shape Mr. Putin's willingness to gamble on such a response in any future showdown. His successes in Crimea in 2014 and Syria in 2015-16 were key factors in his decision to invade Ukraine.

The U.S. and Europe have risen

### A show of force inside the country would save lives and deprive Putin of the ability to dictate events.

to the occasion. They have imposed crushing financial penalties on Russian firms and rushed materiel to Ukraine. But bloody history shows that strategic patience pays off for Russia. Mr. Putin will likely gain sway over much of Ukraine, remain ensconced in the Kremlin, and plot his next moves westward. Western politicians, understandably wary of military commitments after long campaigns in Iraq and Afghanistan, have ruled out sending troops. But

forgoing a defensive humanitarian deployment in western Ukraine brings significant risks, including months of horrific bloodshed and, down the road, an emboldened Russia.

There are no international treaties or laws preventing a military deployment now that Mr. Putin has invaded Ukraine. The democratically elected government of Volodymyr Zelensky would welcome such a troop presence. Mr. Putin believes he is dictating events, and so far Western nations are going along. That dynamic should be reversed.

Western powers have dispatched thousands of troops to frontline NATO states for humanitarian purposes. But these forces' impact would be far more consequential inside Ukraine. Western powers should insert heavily armored forces into pockets of western Ukraine, making clear that such deployments are at the invitation of the sovereign government, are designed to safeguard humanitarian operations, and won't engage offensively with Russian forces.

## Sweden's New Debate Over Joining NATO

By Benjamin R. Teitelbaum

To the disappointment of many international observers, Swedish Prime Minister Magdalena Andersson last week dismissed the idea that Russia's invasion of Ukraine would drive Sweden into the North Atlantic Treaty Organization. Applying for membership would "further destabilize the situation," she said curtly during a press conference Wednesday. But domestic politics may yet take the country closer to NATO, either by forcing Ms. Andersson's hand or shifting power to her opponents.

The prime minister's comments look craven next to the bold stances other European powers have taken against Vladimir Putin. Before his invasion of Ukraine, Europe seemed largely divided on the question of Russia. But since Mr. Putin's troops marched across the Ukraine border, European leaders have shown a largely unified front against him.

This included Sweden, which sent weapons, body armor and rations to Ukraine's military at the outset of the invasion, and later announced it would increase its domestic military spending to 2% of gross domestic product. Meanwhile, Finland, Sweden's closest defense partner, accelerated discussion and preparation for joining NATO. And for the first time, opinion polls in Sweden show pluralities or even a majority also favor joining the alliance. It looked as though Moscow's invasion—launched in part to try to stop Ukraine from joining NATO—might end up expanding the alliance's footprint in Europe.

But Ms. Andersson's turn away from NATO shouldn't surprise anyone familiar with her political party, the Social Democrats, which has long opposed Sweden's formal involvement in any military alliance. Having dominated Swedish politics for more than a century, the party's foreign-policy stance bolstered the country's national identity as a humanitarian superpower committed to peace, diplomacy and neutrality. Sweden's political parties have long

been differentiated by economic rather than defense policy. From the late 20th century through the early 21st, there was a left-wing bloc led by the Social Democrats that advocated robust social services and a right-wing coalition that pursued free-market reforms and economic deregulation. Both sides pursued dramatic reductions in defense spending. They preferred to put resources toward other problems, such as Sweden's high youth unemployment, faltering welfare state, and influx of refugees. Add to this the Social Democrats' criticism of American incursions in the Middle East and its wariness of NATO member Turkey's illiberal President Recep Tayyip Erdogan, and you can see the source of Ms. Andersson's hesitation.

These political fault lines began to shift about 10 years ago, however, with the rise of the anti-immigrant Sweden Democrats. When it entered Parliament in 2010, that nationalist party took up such a large section of the electorate that it denied both the left and the right an outright majority. United by opposition to the Sweden Democrats' cultural conservatism and push for stronger border controls, in 2019 two parties from the old center-right coalition put their economic agendas aside and threw their support to the Social Democrats. As a result, the current government is center-left, but its

survival depends on passive support from allies to the right.

The debate over joining NATO has split this centrist alliance. The left-leaning parties in the ruling government—including the Social Democrats—oppose membership, while the entire center-right is pressing for Sweden to join. And although the Sweden Democrats have previously

### The center-right may yet overcome the Social Democratic prime minister's opposition.

officially opposed NATO membership, party leader Jimmie Åkesson announced on March 11 that they were re-evaluating their position. Were the nationalists to change their stance, a majority of Sweden's Parliament—nearly 60%—would support joining NATO.

It's possible Ms. Andersson's apparent tabling of Swedish NATO membership is part of a strategy to set aside potential incentives for Mr. Putin to withdraw from Ukraine. But if the move has less-inspired motivations, if it stems from bureaucratic paralysis and the Social Democrats' noted inability to adjust to change, other figures in Swedish politics should be prepared to lead the coun-

try toward NATO membership.

This may depend on Annie Lööf, the charismatic leader of the Center Party—the larger of the two former center-right parties whose support enables the Social Democrats to govern. With national elections looming this fall, Ms. Lööf has the power to push Stockholm toward NATO by leveraging her party's support for the ruling government. Either the Social Democrats take concrete steps toward entering the alliance, or Ms. Lööf and her party could turn rightward and unite a majority favoring NATO membership.

The former option, however, is probably better for the country. The decision to end Sweden's 200-year tradition of official military non-alignment should come from a broad coalition. Yet even if the country has to be led to the alliance by a smaller majority, it would be better than the other scenario that beckons in the near term, in which political maneuvering allows an outdated minority opinion to shackle the country's defenses as Russia grows more belligerent.

*Mr. Teitelbaum is an associate professor at the University of Colorado, Boulder, and author of "Lions of the North: Sounds of the New Nordic Radical Nationalism" and "War for Eternity: The Rise of the Populist Right and the Return of Traditionalism."*

## Would a Russian Coup Solve Anything?

By John R. Deni

Some Western observers hope Vladimir Putin will be overthrown in a coup. While the likelihood of such an event is debatable, one thing is certain: If Mr. Putin were removed in a coup, whoever replaces him would face the same domestic political incentives and disincentives, which would likely lead to a continuation of Russia's confrontational approach to the West.

Political science and history tell us a lot about how authoritarian regimes start, persist and end. In highly personalized regimes like Mr. Putin's Russia, rulers often fight to the bitter end, and the regime that follows typically isn't democratic.

Further, a post-Putin Russian regime would rule the same country—the world's most vast by far, with relatively indefensible and porous borders. Sitting as Russia does at the crossroads of Eurasia, its borders have for centuries been the object of rivalry and conflict with neighbors to the west, east and south. By one estimate, since 1800 Russia has experienced an invasion from its west about once every 33 years on average.

The result has been a nearly permanent sense of weakness and in-

security within Russia. That has fueled a domestic political environment in which those who pursue confrontation and opposition in foreign policy—whether czars, Politburo chairmen or presidents—tend to realize greater political success than those who favor cooperation and integration.

### Putin's successor would face the same political and geographic conditions that led him to confrontation.

In 1993, when Russia needed outside economic assistance, President Boris Yeltsin cautioned President Clinton not to provide too much assistance, lest Yeltsin's domestic conservative political opposition claim that Russia had become subservient to the U.S. At about that same time, the Yeltsin government was compelled to move away from so-called Westernism in foreign policy and toward aggressive nationalism to undercut conservative critics at home.

Mr. Putin has cited the expansion of the North Atlantic Treaty Organization as a threat to Russian security, even though that expansion was

accompanied by an unprecedented pacification of Europe. As NATO grew, its defense spending, troop levels and military capability all declined. From the end of the Cold War until 2014, when Russia first invaded Ukraine, the U.S. troop strength in Europe fell from roughly 300,000 to 61,000. Canadian and British troops left the Continent completely, Germany ended conscription and cut the size of its military by two-thirds. Defense spending dropped steadily across Europe. This weakness caused panic in the halls of NATO when Russia annexed Crimea in 2014. Yet to build and consolidate political authority and approval in Russia, Mr. Putin demonized the West and portrayed NATO expansion as a danger.

So although a coup in Moscow could bring an end to Russia's disastrous war in Ukraine, a new ruler or regime would face the same domestic political incentives and would likely end up behaving in similar ways.

*Mr. Deni is a research professor at the U.S. Army War College's Strategic Studies Institute, a nonresident senior fellow at the Atlantic Council, and author of "NATO and Article 5: The Transatlantic Alliance and the Twenty-First-Century Challenges of Collective Defense."*

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## WORLD NEWS

# Saudis Fight to Turn the Tide in Yemen

Riyadh-led coalition struggles to keep Iran-backed Houthis from advancing in civil war

BY DION NISSENBAUM

MARIB, Yemen—Enemy bullets ripped overhead. A barefoot Yemeni soldier who calls himself Fouad the Brave grabbed a rifle and returned fire from behind a sand berm, taking aim at Iran-backed Houthi fighters a few hundred yards away.

The small desert outpost manned by Fouad and a handful of sunburned soldiers is on the front line of Yemen's civil war, which pits government forces backed by Saudi Arabia and the United Arab Emirates against Houthi rebels allied with Tehran.

Marib is one of the last major sanctuaries the Yemeni government has in the north of the country. "Either we win," Fouad said, "or we die trying."

Saudi Arabia and its allies, with their local proxies trying to hold their ground and with Washington having scaled back support for the conflict, are struggling to turn the tide here, stepping up aerial bombing and missile strikes.

The Saudi-led coalition carried out roughly 700 airstrikes in February, according to the Yemen Data Project, a nonprofit that tracks the war in Yemen. That would make it the most intense period of bombing since 2018.

In the past four months,



A Yemeni soldier calling himself Fouad the Brave fired back at Houthi fighters in Marib during fighting in mid-February.

more than 1,500 Yemeni civilians have been killed or wounded, up from 823 in the previous four months, according to the Civilian Impact Monitoring Project. Saudi-coalition airstrikes were responsible for the vast majority of the casualties, the group said.

A central aim of the airstrikes, Saudi officials say: push the Houthis back and hurt them enough that they feel compelled to negotiate an end to the war. Peace talks have been stalled as the Houthis try to capture Marib.

The U.S. and United Nations have urged Saudi Arabia to ease up on airstrikes. But officials in Riyadh and Yemen say they intend to hit the Houthis even harder.

"We have to continue the fight," said Sheikh Sultan al-Aradah, the governor of Marib. His home was destroyed in September by two Houthi ballistic missiles. "This is the right track, but it's just the beginning."

The Houthis have responded to the Saudi and U.A.E. moves by launching missile and drone

strikes targeting the Gulf nations. They have also fired more missiles at Marib, including a barrage of seven that crashed into the city on Feb. 19 while a Wall Street Journal reporter and photographer were visiting.

The intensifying violence comes seven years after Saudi Arabia and a small group of allied nations launched a bombing campaign that Riyadh said would take only a few weeks to rout Houthi fighters who had taken Yemen's capital, San'a, in a conflict that grew out of the

Arab Spring.

Instead, the war has created one of the worst humanitarian crises in the world, with the U.N. estimating that more than 377,000 people have died as a result of the war, 70% of them children.

The war in Yemen also gave Iran an opening to transform outgunned Houthi fighters into one of Tehran's most adept militant allies. The group can now fly advanced drones and fire long-range missiles capable of hitting the capitals of Saudi Arabia and the U.A.E.

While Saudi-backed fighters say they have made gains in recent weeks, the Houthis still control the country's capital and much of the nation's northern highlands. The fractured Yemeni government and its allies retain fragile control in the south and east.

If the Houthis take Marib, it would give them effective control of the entire north of Yemen, along with oil money they can use to keep financing their fight. "If they control Marib, we will lose the war and lose security and stability in the region," said one top Saudi official.

Officials in Marib said more than two million people have sought refuge here—nearly 60% of the 3.5 million Yemenis displaced by the war. Most are housed in about 150 spartan camps surrounding Marib.

The U.S. and Saudi Arabia have accused Iran of providing the Houthis with weapons, advisers and support they have used to build and launch an expanding array of drones and missiles targeting Riyadh, Abu Dhabi and ships off the Yemeni coast.

On a recent morning, a Saudi coalition jet fighter flew high overhead. A Houthi drone crashed into some Yemeni military vehicles, setting a couple of them ablaze. Yemeni fighters sought shelter from the sun anywhere they could.

As Houthi bullets zipped overhead, one barefoot fighter sat impassively with his back to the front line. "God protect us," the soldier said as Yemeni fighters along the dirt berm tried to hold the line.

## WORLD WATCH

SAUDI ARABIA

### Execution of 81 Is Most by Kingdom

Saudi Arabia put to death 81 people who had been convicted of crimes including murders, rape, arms smuggling and links to terrorist groups, in the largest known mass execution in the history of the kingdom.

Most of those executed on Saturday were Saudis, according to the interior ministry. More than half were from the minority Shiite Muslim population, which has a history of militancy and protest against discrimination. Seven were Yemeni nationals and one was Syrian.

The interior ministry didn't disclose how the men were killed. Executions in the past have involved beheading by sword.

Saturday's executions are the most in the country in a single day, surpassing the 63 people killed in 1980 in connection with the takeover of Mecca's Grand Mosque by Saudi extremists.

—Stephen Kalin

LIBYA

### Boat Capsizes; 19 Migrants Missing

A boat carrying about two dozen migrants capsized in the Mediterranean Sea off the coast of Libya on Saturday, with at least 19 people missing and presumed dead, authorities said.

Libya's coast guard said that a group of 23 migrants—both Egyptians and Syrians—set off from Tobruk earlier in the day. Three migrants were rescued and taken to a hospital. Only one body was retrieved and search efforts were ongoing, the agency said.

—Associated Press

GREECE-TURKEY

### Leaders Hold Rare Bilateral Meeting

Greece's prime minister met with Turkey's president in Istanbul on Sunday in a rare meeting between the neighbors who have been at odds over maritime and energy issues, the status of Aegean islands and migration.

Prime Minister Kyriakos Mitsotakis and Turkish President Recep Tayyip Erdogan were expected to discuss bilateral and international relations as well as Russia's invasion of Ukraine, the Turkish presidency's communications directorate said.

Greece and Turkey are NATO allies but have strained relations over competing maritime exploration claims that affect energy rights in the Mediterranean. Tensions flared in 2020 over exploratory drilling rights in areas where Greece and Cyprus claim their own exclusive economic zone, leading to a naval standoff.

—Associated Press

# U.S. May Seek Tehran Deal Without Russia

BY LAURENCE NORMAN AND DION NISSENBAUM

The U.S. won't negotiate exemptions to Ukraine-related sanctions on Russia to save the 2015 Iran nuclear deal and could try to strike a separate accord excluding Moscow, a senior U.S. official said, a diplomatic effort complicated by an Iranian missile attack on Iraq.

With one of President Biden's top foreign-policy goals imperiled, the U.S. official said Washington would start exploring alternatives to the deal over the next week if Russia didn't back away from its demands for written guarantees exempting Russia from Ukraine-related sanctions that could curtail its future trade with Iran. Such guarantees could undercut the West's punishing array of sanctions leveled at Russia over the Ukraine invasion.

"I don't see the scope for going beyond what is within the confines of the JCPOA," the U.S. official said, referring to the 2015 nuclear deal for-

mally known as the Joint Comprehensive Plan of Action. "I think it's pretty safe to say that there is no room for making exemptions beyond those."

Iran's top paramilitary force took responsibility for a missile attack early Sunday on what it claimed were Israeli targets.

The Iranian attack is likely to create more regional resistance to American efforts to strike a new nuclear containment deal with Iran. The U.S. effort to resurrect the deal with Iran, which then-President Donald Trump withdrew from in 2018, has drawn criticism from Israeli and Persian Gulf leaders who worry that it will allow Tehran to continue to arm allies across the region and carry out its own missile strikes with impunity.

American, Iraqi and other world leaders condemned Sunday's missile strike as a destabilizing act, as the Israeli military stepped up its defenses and U.S. officials considered how to respond. The French foreign ministry warned that the strike could imperil talks

over the nuclear deal.

U.S. Deputy Secretary of State Wendy Sherman said U.S. officials are still seeking an agreement to curb Iran's nuclear program despite the Iranian missile strike in Iraq.

"If Iran has a nuclear weapon, its ability to project power into the Middle East and to deter us, our allies, and

### Moscow's pursuit of exemptions on its sanctions muddies nuclear talks.

partners, is enormous," Ms. Sherman said on "Fox News Sunday." "So President Biden believes very strongly, as does Secretary Blinken, as do I, that we need to make sure that Iran never obtains a nuclear weapon, and then we also need to deal with their malign behavior in the region."

Time is pressing. U.S. and European officials say that Iran's

nuclear work has expanded close to a point that the deal's main benefit to the West—keeping Iran months away from amassing enough nuclear fuel for a nuclear weapon—would be impossible. Iran is currently just a few weeks from that so-called breakout point.

The senior U.S. official said an agreement between Iran and the U.S. was "within reach," saying only a few issues were holding up a deal when talks in Vienna were broken off Friday because of Russia's demand. The official called Russia's demands "the most serious stumbling block and obstacle to reaching a deal."

There was no comment from Iran or Russia.

European officials say Russia had promised to respond with its precise demands for guarantees in the next few days. They have also started to explore among themselves options for pursuing a deal without Russia, two diplomats said.

"We would know within a week whether or not Russia is prepared to back down," the U.S. official said.

# Iran Claims Iraq Attack That Alarmed U.S. Forces

Iran's top paramilitary force claimed responsibility for a missile attack early Sunday that slammed into northern Iraq, sending U.S. troops rushing for shelter, shattering windows.

By Dion Nissenbaum, Ghassan Adnan and Aresu Egbali

The Islamic Revolutionary Guard Corps issued a statement through its official Sepha News site saying that it carried out a missile attack in response to recent Israeli actions in the region, which included an airstrike last week in Syria that killed two of the Iranian paramilitary group's commanders.

Kurdish officials said that at least 12 ballistic missiles hit the area, creating powerful blasts that damaged a local television station and a palatial compound identified as the home of a major Kurdish businessman.

The Iranian group said it carried out a missile attack on what it claimed were compounds used by Israeli spies operating in Iraq.

Israeli officials declined to comment.

The U.S., Iraq and other nations condemned the missile strike as a destabilizing act as the Israeli military stepped up its defenses and U.S. officials considered how to respond. Kurdish officials said up to a dozen ballistic missiles were



Iran's top paramilitary force said it carried out a missile attack that hit Erbil, Iraq, on Sunday.

used in the strike.

Ambassador Matthew Tueller, America's top diplomat in Iraq, condemned the strike and said Tehran should pay a price. "Iranian regime elements have claimed responsibility for this attack and must be held accountable for this flagrant violation of Iraqi sovereignty," he said.

The attack marks the first time that Iran has directly fired missiles into Iraq since January

2020, when Tehran fired a similar number of missiles at U.S. forces in Iraq in response to an American drone strike that killed Maj. Gen. Qassem Soleimani, the commander of Iran's paramilitary Quds Force. Scores of U.S. troops were affected by the 2020 strike, which left dozens dealing with traumatic brain injuries.

Some leaders in Iraq urged the U.S. and other world powers to respond to Iran's strike

decisively.

"Iran has been repeatedly targeting the Kurdistan region and the silence from the international community is of great concern," said the regional government. "This silence from the international community is motivating for more future attacks."

Last week, Israel stepped up its military defenses after Iran threatened to retaliate for the killing of two Iranian mili-

tary officials helping Syrian President Bashar al-Assad. The two were killed in an apparent Israeli airstrike in Syria, where Israel has carried out hundreds of attacks designed to blunt Iran's military influence across the region.

Sunday's missile strikes injured at least two people, blasted holes in nearby homes, and sent U.S. forces rushing for cover at the American military base in Erbil, the capital of the semi-autonomous Kurdish region in Iraq.

But U.S. officials said no American personnel were injured in the attack. At least one missile hit within about a mile of a new U.S. consulate under construction.

After assessing the aftermath, U.S. officials said they didn't think America had been the intended target, a conclusion that could lessen the chances of a quick military response from the U.S. Iran claimed that it was targeting Israelis in the strike.

Israel has strong relations with the Kurdish region.

Israel has been carrying out airstrikes against Iranian-backed militias and Iranian personnel in Syria as it seeks to prevent Iran from transferring weapons to Hezbollah, the Lebanese militia group. The campaign includes placing mines on ships carrying oil and other goods that are bound for Syria.

TECHNOLOGY: SCRUTINY OF E-CIGARETTE MAKERS EXPECTED TO GROW B3

# BUSINESS & FINANCE

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THE WALL STREET JOURNAL.

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Last Week: S&P 4204.31 ▼2.88% S&P FIN ▼2.22% S&P IT ▼3.81% DJTRANS ▼1.04% WSJ \$IDX ▲0.86% 2-YR. TREAS. yield 1.748% NIKKEI 25162.78 ▼3.17% See more at WSJ.com/Markets

## JPMorgan Leads Talks on Nickel Crisis

Some of the world's biggest banks worked over the weekend to resolve a crisis in the nickel market that leaves them on the hook for billions of dol-

By Joe Wallace, Rebecca Feng and Jing Yang

lars owed by a Chinese metals giant.

**JPMorgan Chase & Co., Standard Chartered PLC and BNP Paribas SA** were among the banks and brokers seeking to reach an agreement with **Tsingshan Holding Group**,

people familiar with the discussions said. Trades placed by the Chinese steel and nickel producer on the London Metal Exchange contributed to an uncontrollable rise in prices that led the exchange to halt trading and cancel eight hours' worth of transactions last Tuesday.

Nickel, a cog in the world economy for its use in stainless steel and electric-vehicle batteries, hasn't traded since.

The meltdown bled into the financial system, leaving Tsingshan's banks and brokers with several billion dollars in

unpaid margin, the upfront cash brokers require to make trades, some of the people familiar with the discussions said.

The talks between Tsingshan's creditors, led by JPMorgan, have focused on extending the Chinese company credit lines so that it can pay them the margin it owes, some of the people familiar with the discussions said. One plan under discussion was to secure this lending against Tsingshan's steel and nickel assets in China and Indonesia, some of the people said.

Despite Tsingshan's troubles, with nickel prices close to records, extending such credit could be highly profitable given the company's vast production capabilities, some of the people said.

Nickel prices began to rise after Russia, a major producer of the metal, invaded Ukraine, a high-profile example of how the war and punishing Western sanctions have upended the world's commodity markets, sending prices for metals and energy to their highest levels in years.

The rally morphed into a

crisis for the LME last week. Producers such as Tsingshan often sell forward contracts as a way to lock in prices on the physical nickel they mine and refine. In effect, they hold positions that benefit when prices fall, and lose money when prices rise.

Some of Tsingshan's brokers desperately tried to buy those nickel contracts back to stem losses and avoid escalating margin calls. That buying pushed prices for benchmark three-month forward contracts up 66% in a single session.

Wild trading continued early last Tuesday as brokers kept trying to cover short positions they held on behalf of Tsingshan and other producers. Hedge funds and other participants, meanwhile, aggressively bought nickel, propelling the market higher, people familiar with the trades said.

At one point, nickel prices had more than doubled to a record of more than \$100,000 a metric ton. After receiving calls from several smaller brokers saying they would default

Please turn to page B4

## Pressures on Wheat Supplies Jolt Prices

By RYAN DEZEMBER

Russia's invasion of Ukraine threatens a big portion of the world's wheat supply and has sent prices on a dizzying ride to new highs as well as the sharpest weekly drop in years.

Wheat stockpiles were already running low and prices were the highest in years thanks to two years of poor growing weather when Russia's attack jammed up Black Sea trading and endangered nearly a third of the world's exports. The invasion prompted fears of food shortages in countries fed with imported grain and pushed prices to new highs.

Milling wheat in Paris and the most-traded U.S. futures contract, for soft red winter wheat delivered to Chicago, notched record prices early last week. Then they plunged. Chicago futures ended the week 8.5% lower, the worst weekly performance since 2014 when wheat was coming down from a drought-induced increase. French markets, as well as on-the-spot trading in St. Louis and Kansas City, followed similar arcs.

Still, the benchmark U.S. price, at \$11.07 a bushel, is 72% higher than a year earlier and analysts expect the war will keep wheat high. Germany's Commerzbank AG on Friday boosted its spring-quarter price forecasts by 19% for Chicago futures and by about 14% in Paris.

Rising wheat points to further inflation of food prices and another force blunting the post-pandemic economic recovery. Global food prices hit an all-time high in February,

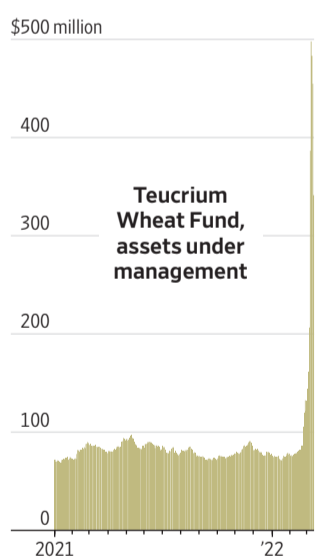
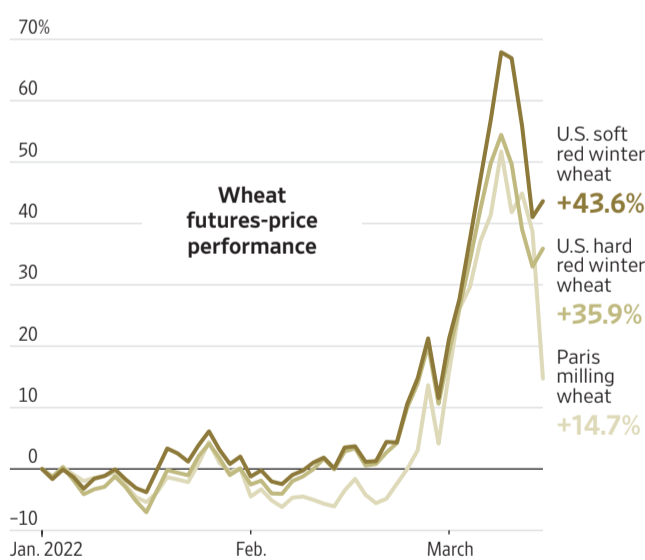


A truck full of wheat is tested for insects before being loaded onto a carrier at Port of Geelong in Victoria, Australia, on March 4.

according to the United Nations' Food and Agriculture Organization. U.S. food prices in February were up 7.9% from a year earlier, according to the Bureau of Labor Statistics, taking a big bite out of Americans' purchasing power.

Analysts and traders don't know yet the extent to which global wheat supplies will be dented by the war. What remains of last year's crop has been kept off market due to the closure of Ukrainian ports and shippers' hesitancy to enter a war zone to fetch Russian wheat. Meanwhile, it is unclear if growers in the region will be able to harvest winter wheat, which was planted in autumn, or plant spring crops

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## Funds Win With Commodity Gamble

By JULIET CHUNG AND AMRITH RAMKUMAR

Hedge funds that placed bullish bets on commodities are notching sizable returns from the biggest rally in decades following Russia's invasion of Ukraine.

**Soroban Capital Partners LP**, a \$10 billion stock-picking hedge fund in New York, is one of the biggest winners, making at least several hundred million dollars on the trade since February, a person familiar with the matter said. Other winners include New York macro fund **Castle Hook Partners** and value investor **Pilgrim Global**. The bet was that a yearslong drop in spending on new commodity supply and efforts to limit carbon emissions would push up materials prices and shares of producers, according to people familiar with the firms.

Commodities-focused funds that made similar wagers are posting outside returns—about 30% in the first two months of the year in some cases—after years of poor performance.

After a decade of distress, energy has become one of the biggest winners on Wall Street, supercharged in the last two weeks by Russia's invasion of Ukraine. The S&P 500 energy sector has recently outpaced the broad index by the largest margin on record in data going

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Ground-delivery contractors blame FedEx for a bad holiday season. **B3**



### HEARD ON THE STREET

The clock is ticking for Chinese stocks listed in the U.S. **B10**

## Chip Makers Stockpiled Neon Before Invasion

By ASA FITCH

Almost two years of chip shortages have had an unexpected upside for the semiconductor industry: It is better prepared to manage the turmoil caused by Russia's invasion of Ukraine.

Production of vital raw materials for chip making is concentrated in Russia and Ukraine. The countries are a major source of neon gas, needed to feed lasers that print minute circuitry onto silicon, and the metal palladium used in later manufacturing stages.

About a quarter to a half of the world's semiconductor-grade neon comes from Russia and Ukraine, while roughly a third of the world's palladium comes from Russia, analysts and industry consultants estimate. A potential shortage of those materials has sparked concern among some analysts that an industry already struggling to meet demand could

suffer a blow to production.

Those worries might not be realized, at least not in the near term, in part because the industry has reset how it operates after being whipsawed by pandemic-era demand and repeated shocks. Those have included fires at chip plants, a freeze in Texas, drought in Taiwan, other setbacks and supply-chain disruptions.

Companies have moved to shore up supply chains amid the upheaval, in some cases adding alternative suppliers to gain options. They stocked up on neon and other important chip-making materials and now typically have a six-week to three-month reserve, said Mark Thirsk, managing partner of Massachusetts-based Linx Consulting Inc., an electronic-materials consultant.

**Taiwan Semiconductor Manufacturing Co.**, the world's largest contract chip maker, ensured it had alternate supplies of neon after Russia amassed a force along the



Russia and Ukraine are a major source of neon gas and palladium used in chip manufacturing.

Ukrainian border, threatening a conflict, according to a person familiar with TSMC's strategy. It now doesn't anticipate supply problems, the person said.

**Infineon Technologies AG**, a large German chip maker

that supplies the auto industry—which has been hit particularly hard by the chip shortage—said it didn't expect a production impact, saying it had supply options. "Infineon has also increased its inventories of potentially affected raw

materials and noble gases," which include neon, a spokeswoman said.

The chip industry broadly says it isn't expecting much pain. "Had this happened maybe 10 years ago, we might

Please turn to page B4

BUSINESS & FINANCE

# Uber Sets Fees to Offset Gas Prices

By PREETIKA RANA

**Uber Technologies Inc.** is imposing a temporary surcharge on U.S. customers to soften the blow to drivers from mounting gas prices.

The fuel surcharge goes directly to drivers, the ride-sharing and food-delivery company said Friday. It ranges from 45 cents to 55 cents for Uber riders and 35 cents to 45 cents for Uber Eats customers. The charge will be in effect for the next two months.

Harry Campbell, founder of The RideShareGuy, a blog for ride-hailing drivers, said Uber's calculus might make sense for shorter trips—which the company says make up most of its rides—but discourages drivers from taking longer ones. “That’s where you might waste a gallon or two of gas,” Mr. Campbell said. A fixed surcharge per trip regardless of distance traveled “isn’t enough,” he said.

Uber Chief Executive Dara Khosrowshahi said last Monday that driver earnings would remain consistent if every 20% increase in the cost of gas was met with a 1% increase in passenger fares.

Drivers interviewed in recent days hoped that any fare increments would be proportional to rising gas prices so their earnings remain stable.



The fuel surcharge goes directly to drivers, the ride-sharing and food-delivery company said on Friday.

a premium. While the dollar value of rides booked on Uber and Lyft are inching closer to pre-pandemic levels on the back of higher prices, the number of trips hasn't recovered as quickly, according to Mr. Martin's research. That suggests that high prices have been a deterrent, he said.

The number of Uber and Lyft trips during the fourth quarter of 2021 declined more than 35% compared with the same period in 2019, according to Yipit. Meanwhile, the dollar value of those transactions was down 15% on the back of price increases.

Grubhub raised the per mile pay for couriers earlier this week. A company spokeswoman said the increase is in line with the average per-mile cost increase for gas in drivers' regions. Spokesmen for DoorDash Inc. and Lyft said the companies are monitoring the situation and pointed to previous partnerships that provide discounts and cashback to drivers at select fuel stations.

YipitData analyst Peter Martin said a minor surcharge for customers is unlikely to taper demand. High ride prices have affected demand over the past year, according to his research, though for the most part customers have been willing to pay

Mr. Campbell's blog surveyed more than 300 drivers in the past week and found 52% said they were driving less, or had given up driving altogether, because of rising gas prices.

Uber said Friday that it hadn't seen a decline in the number of active drivers on its platform in the past two months.

YipitData analyst Peter Martin said a minor surcharge for customers is unlikely to taper demand. High ride prices have affected demand over the past year, according to his research, though for the most part customers have been willing to pay

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Aluminum prices are at record levels. A factory in Bratsk, Russia, produces electrical cord.

## Commodity Wagers Pay Off

Continued from page B1 back three decades, according to Dow Jones Market Data. The energy sector is up 37% this year, while the broad index has slid 12%. U.S. crude recently topped \$130 a barrel, its highest level since 2008, after dipping below zero two years ago after the onset of the coronavirus pandemic.

“We are in the early innings of a generational investment opportunity,” wrote Soroban founder Eric Mandelblatt in an annual letter to investors dated Jan. 20.

Many of the assets Soroban or other hedge funds scooped up recently—such as shares of oil producers, fertilizer makers or commodity-futures contracts—have soared as the war disrupts already tight markets.

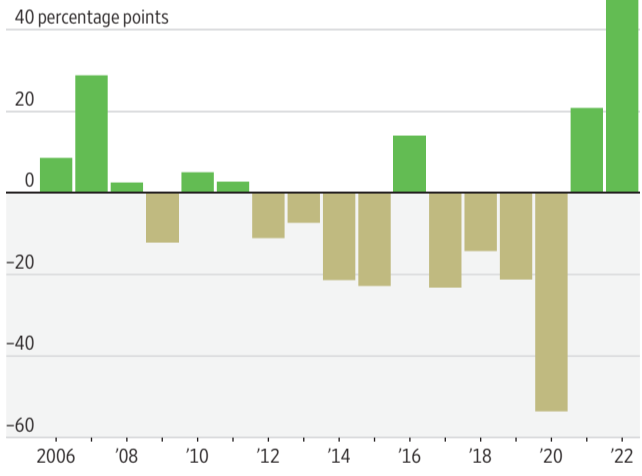
Russia accounts for more than 10% of the globe's oil, natural gas and wheat supply. It is also a major source of potash that fertilizes crops around the world. Ukraine is a key exporter of agricultural crops as well.

Traders say replacing materials that have been removed from global markets through sanctions, export bans and the war itself will be difficult. Reserves are low after years of dwindling capital expenditures, and it can take years to permit and develop new, large-scale projects.

Commodity prices have gone haywire amid the disruption. Prices of the industrial metal nickel doubled in just a few hours Tuesday to records, spurred by a short squeeze in which a Chinese producer was forced to unwind a bet on falling prices. Aluminum and wheat also have hit records.

Few have made as big a wager on commodities as Mr. Mandelblatt, who started his Wall Street career in the 1990s as an energy analyst for Goldman Sachs Group Inc. Soroban profited from energy and materials bets for several years af-

Annual performance spread between the energy sector and the S&P 500



Note: As of Friday Source: FactSet

ter its founding in 2010, but as excess supply depressed commodity prices, the hedge fund took a yearslong hiatus from the sector.

That changed last year, when soaring natural-gas prices in Europe drew Mr. Mandelblatt's attention. Limited capacity for renewable power forced many companies to turn back to coal, highlighting the world's dependence on fossil fuels despite green-en-

# 30%

Returns for hedge funds that wagered on commodities

ergy ambitions. Volatile commodity prices plus pressure on companies to limit emissions have made it less likely new commodity projects will move forward, Mr. Mandelblatt has told investors.

At the same time, Soroban bet that the move toward clean energy would spur demand for metals such as copper, nickel and aluminum that are building blocks for electric cars and solar projects.

Soroban went from having no exposure to commodities in its flagship hedge fund at the end of September to having more than \$3 billion in the trade early this year, people familiar with the firm said. Com-

panies Soroban backed in the fourth quarter, when it made the bulk of its commodities-tied investments, include oil producers **Canadian Natural Resources Ltd.** and **Suncor Energy Inc.**, mining company **Vale SA** and fertilizer makers **Mosaic Co.** and **Nutrien Ltd.**, according to a regulatory filing.

Gains from the trade in Soroban's \$10 billion main fund offset losses from its bets on shares of fast-growing companies for the year through February, people familiar with the firm said. A separate fund Soroban launched Feb. 1 dedicated to the wager notched a double-digit percentage return for the month.

Castle Hook, which manages \$2 billion, and the \$250 million Pilgrim Value, began putting their versions of the wager on in 2020. They were both up by double-digit percentages this year through February, said people familiar with the firms.

The commodities recovery has also been a boon to the few investment firms that still focus solely on the sector. Houston-based **Bison Interests**, a roughly \$50 million hedge fund that invests in small oil-and-gas producers, gained about 30% in the first two months of the year, according to a person familiar with the firm. A roughly \$130 million mutual fund run by **Goehring & Rozencwajg Associates LLC** that owns commodity producers is up about that much this year.

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## BUSINESS NEWS

# Scrutiny of E-Cigarette Makers to Rise

Spending bill expected to expand the FDA's oversight to synthetic nicotine products

By JENNIFER MALONEY

The Food and Drug Administration will gain authority over **Puff Bar** and other e-cigarettes made with synthetic nicotine under the government spending bill expected to be signed by President Biden.

The bill closes a loophole that allowed Puff Bar to stay on the market—and soar in popularity among teenagers—despite an order from the FDA to stop selling its fruity, disposable vaporizers.

Following the agency's order in 2020, Puff Bar reformulated its products to use nicotine that wasn't derived from tobacco.

The FDA regulates tobacco products and smoking-cessation devices such as nicotine gum, but synthetic-nicotine vaporizers haven't fallen under the agency's jurisdiction, until now.

An FDA spokeswoman declined to comment.

Lawmakers and public-health groups increased calls for an end to the loophole following a federal survey released in September showed that Puff Bar had become the most popular e-cigarette brand among middle- and high-school students.

Under the bill, the company has 60 days to submit its products for FDA review or halt sales.

Puff Bar didn't respond to a request for comment.

The company's co-Chief Executive Officer Patrick Beltran previously told The Wall Street Journal that Puff Bar

## Synthetic Tobacco Spurs Concerns

On its own, nicotine hasn't been linked to cancer, but it does hook people on cigarettes, which are associated with 480,000 deaths in the U.S. each year, according to U.S. health officials.

The health effects of synthetic nicotine haven't been widely studied. There is concern among some scientists and industry experts that con-

sumers may perceive it to be less harmful than nicotine derived from tobacco.

"Some bad actors have attempted to avoid FDA regulation by pivoting to using synthetic nicotine in their products," House Energy and Commerce Committee Chairman Frank Pallone Jr. (D, N.J.) said in a statement. "That ends with passage of this bill, which will close this loophole and clarify FDA's authority to regulate all tobacco products, including those containing synthetic nicotine."

would comply with any new regulation barring the company's products.

"We'll never break the law, or if there was a regulation that came out tomorrow saying no synthetic nicotine, no flavors on the market tomor-

row, we would comply," Mr. Beltran said in a November interview.

Because of federal restrictions on flavored e-cigarettes, reusable devices made by companies such as Juul Labs Inc. are available only in to-

bacco and menthol flavors. Puff Bar sells a wider selection of flavors, including Watermelon, Lemon Ice and Blue Razz. They are sold online and in stores for as little as \$9 apiece.

Several other e-cigarette companies switched to synthetic nicotine last year after the FDA ordered them to halt sales of their products as part of a sweeping regulatory review of the vaping industry.

The agency's mandate is to authorize vaping products only if their manufacturers can demonstrate that they are in the interest of public health.

The FDA is weighing, among other things, the potential good of adult cigarette smokers switching to a less-harmful option versus the potential harm of young people getting hooked on nicotine.

Among its decisions so far,

the FDA has ordered off the market more than 900,000 flavored products, including vaping liquids with flavors such as apple crumble, cola and cinnamon toast cereal.

One company that switched to synthetic nicotine was **Breeze Smoke LLC**, which un-

**The FDA ordered off the market more than 900,000 flavored products.**

successfully appealed to the Supreme Court for a stay of the FDA's ruling. On its website, it now sells disposable vaporizers with "tobacco-free nicotine."

Breeze Smoke declined to comment.

# FedEx Contractors Blame Forecasts For Holiday Woes

By PAUL ZIOBRO

A group of **FedEx Corp.** contractors say they were left financially hobbled after renting trucks and staffing up last holiday season to handle a flood of packages that never came.

More than 800 of FedEx's 5,000-plus U.S. contractors signed a letter to company officials in January, citing problems with shipping forecasts from FedEx.

The letter, a copy of which was viewed by The Wall Street Journal, said that the package shortfall and new payment terms for the period between Thanksgiving and Christmas yielded less pay during the peak season than year ago, while costs were significantly higher. In interviews, some say the issues with FedEx, coupled with rising costs for labor, fuel and equipment, caused them to lose money during the period when revenue is typically highest.

The letter also said the problems extend beyond what happened during the peak season, and include inaccurate forecasts from FedEx for planning daily routes and staffing, poor loading of vehicles and inadequate communication. They asked for back pay to

**Some of the businesses lost money in a normally lucrative period.**

cover some of the expenses from the peak season, improvements in operations and forecasting and other changes.

"The amount of pain is very significant," one FedEx contractor told the Journal. "It's way more than anything I've seen before. Contractors that are rock solid are wavering."

FedEx, which reports fiscal third-quarter earnings on Thursday, declined to comment on specific complaints from the contractors, which are typically small businesses that own FedEx delivery routes across the U.S. In a statement, the company said it was accelerating some technology and operational initiatives and welcomes communications from the contractors.

"As our industry undergoes new and unprecedented chal-

lenges brought on by the explosive growth of e-commerce and rapidly shifting market dynamics, we remain committed to collaborating with service providers to create opportunities for success," the company said.

FedEx's delivery contractors are part of the company's Ground business, which delivers roughly 60% of the packages that FedEx handles daily. Unlike its Express business, which is staffed by corporate employees, FedEx uses independent contractors for Ground deliveries.

By using contractors, the company shields itself from costs such as paying for vehicles and drivers' wages. Contractors with FedEx Ground typically sign contracts that run from one to two years, with agreements spelling out requirements for service levels, safety and payment. They are generally paid a set amount each week, plus a certain amount per stop and per package picked up and delivered.

Planning for the run-up to Christmas between FedEx and contractors typically starts in July and August, when the company issues forecasts. The projection helps contractors plan for the number of extra trucks they need to rent, drivers they need to hire and train and other expenses tied to the peak season.

The market for rental equipment is tight, with competitors like Amazon.com Inc., the U.S. Postal Service and United Parcel Service Inc. all vying for extra vans. FedEx contractors say they had to take on the rentals in September and keep them so they could have access to them when the anticipated shipping volume arrived.

FedEx also lays out payment terms for the peak season in an agreement. Typically, contractors that make deliveries in a single day beyond the threshold established in their contracts receive a per-stop bonus. "Everyone counts on this extra money to make their year," one contractor said.

FedEx last year changed how contractors could hit the bonus, making it harder to reach. FedEx previously combined Saturday and Sunday, which are typically slower, with Monday. In the recent peak season, Monday was split off from the two weekend days.



Over 800 of the shipper's contractors signed a letter citing problems.

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# Australian Mining Deal Is Delayed

BY DAVID WINNING

SYDNEY—A rise in nickel prices that triggered a crisis on the London Metal Exchange is jolting one company's takeover plans on the other side of the world.

IGO Ltd., an Australian base metals producer, had planned to buy nickel miner Western Areas Ltd. for around \$800 million after terms for the transaction were agreed upon in mid-December. All appeared to be progressing smoothly as Western Areas directors had recommended that its shareholders vote in favor at a coming meeting.

On Monday, however, IGO said the deal would likely be delayed as Western Areas and its advisers are assessing whether the rally by nickel prices is a blip in the market or indicates a more deep-rooted shift.

IGO, which has a market value of around \$6.8 billion, said it believed this would lead to a "relatively short delay" to the deal completing. Western Areas said the conclusions of its independent expert, KPMG, would likely be sent to its own shareholders next month.

IGO and Western Areas said they anticipate the deal to be completed in either May or June.

The companies had previously expected it to be completed in April.

IGO said it "acknowledges the recent short-term volatility in the LME nickel market and price, which is primarily attributed to the Russian invasion of Ukraine, which in turn has created the need for a large industry participant to manage a nickel short position on the LME."

That entity is Chinese nickel titan Tsingshan Holding Group, which faces billions of dollars in trading losses.



Tsingshan Holding Group's trades on the commodity helped set off a surge in prices, leaving the company unable to pay billions of dollars in margin.

# Morgan Takes Lead On Nickel

Continued from page B1  
at the 9 a.m. margin call if prices stayed at records, the LME suspended the market shortly after 8 a.m. local time, a person familiar with the exchange said.

Shortly after noon local

time, however, the LME dropped a bombshell: To save the brokers from margin calls they couldn't afford to pay, it canceled trades that took place before the suspension, wiping out \$3.9 billion in transactions.

The decision infuriated money managers who thought they had profited from the rally.

"Halting trading and giving members time to be able to find the funds that they need again is perfectly legitimate," said Jordan Brooks, co-head of the macro strategies group at AQR Capital Management. "What I think is striking for us and other participants in the market, and the financial industry as a whole, is the decision to wipe out trades that happened without coercion and happened in good faith."

The suspension and the canceled trades, however, have given the market time and space to clean up the damage and prevent a wider reverberation.

After winding back the clock

on Tuesday's trades, the exchange said brokers had paid it the margin they owed in full.

Tsingshan still owes its brokers, which included JP Morgan, Standard Chartered and BNP as well as a unit of state-owned China Construction Bank Corp., some of the people familiar with the discussions said. Bloomberg News reported earlier about the creditor talks.

"In the interests of systemic stability and market integrity, we suspended the market as soon as we could and canceled trades from the point at which the LME no longer believed that prices reflected the underlying physical market," a spokeswoman said. She said the exchange was working to open the market as soon as possible.

The company whose trades precipitated the crisis was founded by entrepreneur Xiang Guangda and his wife, He Xiuqin, as a car-window producer in 1988. Mr. Xiang remains a controlling shareholder of Tsingshan, now one

of China's biggest private companies.

When China's economy accelerated in the 2000s, the availability of nickel posed a roadblock. China's voracious appetite for the metal to shovel into steel furnaces sent

## Cancellation of the trades wiped out \$3.9 billion in transactions.

prices above \$50,000 a metric ton in 2007, a record that stood until last week.

Tsingshan, a stainless-steel producer, solved China's nickel shortfall by pioneering rotary-kiln electric furnaces to produce a low-cost material known as nickel-pig iron. The development weighed on prices and was hailed in the local media as a victory for the Chinese metal industry.

China's Belt and Road ini-

tiative, President Xi Jinping's flagship infrastructure strategy, helped fuel Tsingshan's growth. In 2013, Mr. Xi and Indonesia's then-President Susilo Bambang Yudhoyono attended the official launch of one of Tsingshan's Indonesia industrial parks.

Metal producers typically sell forward contracts on exchanges to lock in prices, known as hedging. Tsingshan, however, has both sold and bought nickel contracts over the past decade, people familiar with the company said, making the activity more akin to trading.

Early last year, the company began to accumulate a short position, the people said. It made statements on its website and panels suggesting the market was flush and prices should fall. Tsingshan's position was equivalent to having sold about 190,000 metric tons on the LME, traders, bankers and analysts estimate. That would be worth \$9.1 billion at last Monday's closing prices.

THE WALL STREET JOURNAL.

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# Chip Firms Stockpiled Neon

Continued from page B1  
have been in a lot more pain than we are today," said Jimmy Goodrich, vice president for global policy at the Semiconductor Industry Association.

For chip companies, Russia's annexation in 2014 of Crimea, a part of Ukraine, provided an early lesson in dealing with regional political uncertainty. Prices of neon rose, and chip makers moved to find sources of the gas elsewhere.

During the coronavirus pandemic, companies moved to shore up critical supplies amid global logistics disruptions. Then, in early February, as Russian President Vladimir Putin massed troops along Ukraine's border, the White House warned chip makers that export controls and other actions would follow an invasion, according to two people familiar with the matter. The Biden administration was building on the close ties established with chip companies during the semiconductor supply crisis.

U.S. sanctions on Russia landed soon after the invasion, restricting sales of chips and other technology to Russia's strategic industries. While the curbs don't require chip makers to stop all sales to Russia, many have done so, including market leaders Intel Corp., Nvidia Corp. and Advanced Micro Devices Inc. Russia isn't a major market for chip-makers, analysts say.

While company officials say they are well prepared, that isn't to say an industry already stretched isn't at risk.

There is enough neon at chip makers' facilities and within the gas supply chain to last the industry roughly six months, Mr. Thirsk of Linx Consulting estimates. After that, prices are likely to skyrocket, analysts say, much the way they did around the time Russia annexed Crimea in 2014, sending a commodity that had been trading at 25 cents a liter to \$5 a liter on the spot market. Consumers of



An employee at Infineon Technologies' factory in Villach, Austria.

## Some Technology Companies Relocate

Companies are moving their Ukraine-based technology teams to hubs in nearby Poland and Georgia, setting up more permanent operations while the war's destructiveness cuts deeper into the country.

Stuzo LLC, a Philadelphia software company, is establishing a corporate entity in Poland to allow employees to stay there if they wish, said Gunter Pfau, the company's chief executive. Some 35 Stuzo employees relocated to Poland since the onset of the war.

"We are doing it as a contingency," said Mr. Pfau. "I would hope to not have to use it ... because I know that the people want to go home."

Olga Shubovych, a project manager at Stuzo, moved to Poznan, Poland, from Zhytomyr, Ukraine, on March 6. She plans to stay there for a month while monitoring the situation in Ukraine. "It's really hard to plan something by more than one

day or one week, so I'll just be checking the situation," she said.

Lviv-based global consulting and IT services firm Intellias Ltd. said it moved 350 staff members to Krakow, Poland, where it has had an office since 2019. Its Ukrainian employees are able to stay in Poland for up to a year, and Intellias is prepared to arrange for longer-term work visas, said Viktor Haydin, vice president of growth enablement.

Intellias is looking at expanding into other European Union and Caucasus-region countries. "We plan to increase our footprint outside Ukraine both to be able to relocate our Ukrainian people when [the] situation allows and to be able to hire new engineers" in those markets, Mr. Haydin said.

Upswot Inc., a Charlotte, N.C., financial technology company, is considering opening an office in Georgia, said Dmitry Norenko, the company's chief executive. Around 40 of Upswot's Ukrainian employees relocated to Batumi, Georgia when the war broke out.

—Suman Bhattacharyya

that involve its operations in Russia, where it has about 2,000 employees.

Even if prices rose 10-fold, neon would represent a fraction of the industry's cost structure, Bernstein analyst Stacy Rasgon said in a note. The semiconductor-grade neon industry is estimated to be worth around \$100 million a year, compared with global revenue for chips of above \$500 billion.

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*/'dɔgəd/*  
adjective

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Rescued from Redding, CA.  
Photographed by Shaina Fishman  
at SDF's National Training Center.



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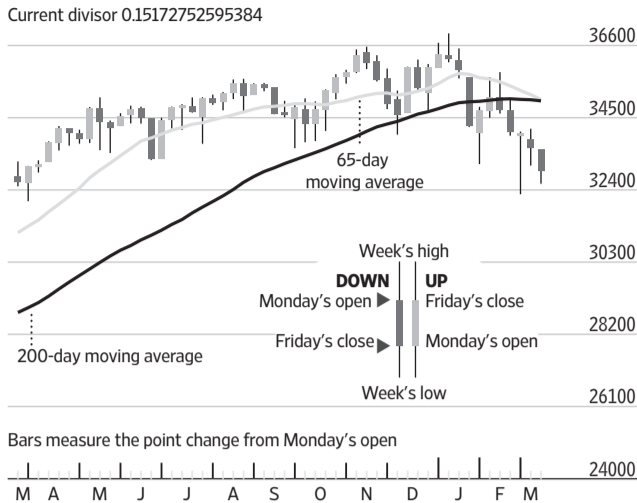
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MARKETS DIGEST

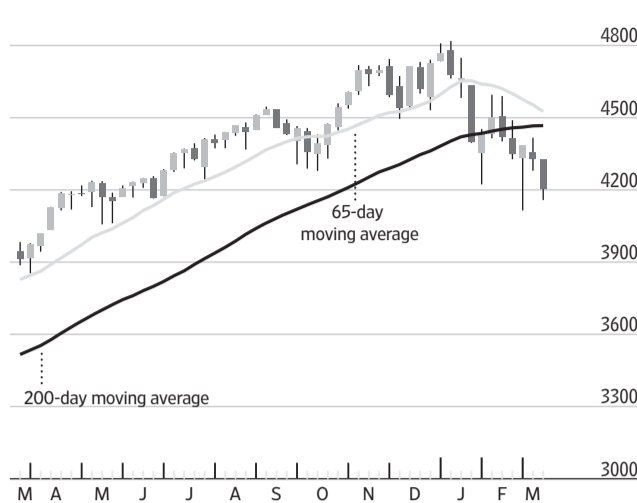
Dow Jones Industrial Average

32944.19 ▼670.61, or 1.99% last week Trailing P/E ratio 18.29 33.35
High, low, open and close for each of the past 52 weeks

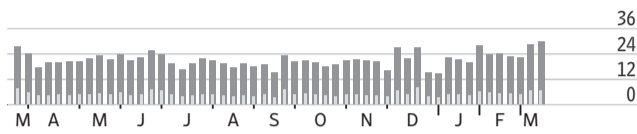


S&P 500 Index

4204.31 ▼124.56, or 2.88% last week Trailing P/E ratio \* 23.68 44.63
High, low, open and close for each of the past 52 weeks



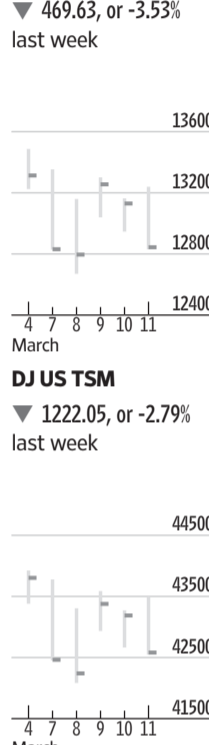
NYSE weekly volume, in billions of shares



Major U.S. Stock-Market Indexes

Table listing major U.S. stock market indexes including Dow Jones, Nasdaq Stock Market, S&P, and Other Indexes with columns for High, Low, Close, Net chg, % chg, 52-Week Range, and YTD % chg.

Nasdaq Composite



International Stock Indexes

Table listing international stock indexes by region/country with columns for Index, Close, Latest Week % chg, 52-Week Range, and YTD % chg.

Commodities and Currencies

Table listing commodities and currencies with columns for Last Week Close, Net chg, %Chg, and YTD % chg.

New to the Market

Public Offerings of Stock

IPOs in the U.S. Market

None expected this week

Lockup Expirations

Below, companies whose officers and other insiders will become eligible to sell shares in their newly public companies for the first time. Such sales can move the stock's price.

Table of lockup expirations listing company name, issue date, issuer, symbol, offer price, offer amount, through Friday, and lockup provision.

IPO Scorecard

Performance of IPOs, most-recent listed first

Table of IPO scorecard performance listing company name, symbol, IPO date/offer price, Friday's close, % chg from IPO date, and 1st-day close.

Public and Private Borrowing

Treasuries

Monday, March 14 Thursday, March 17
Auction of 13 and 26 week bills; announced on March 10; settles on March 17

A Week in the Life of the DJIA

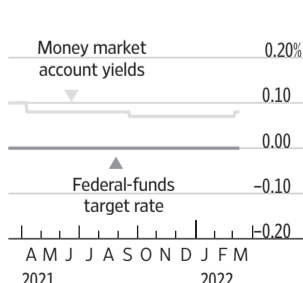
A look at how the Dow Jones Industrial Average component stocks did in the past week and how much each moved the index. The DJIA lost 670.61 points, or 1.99%, on the week.

Table showing 'The Week's Action' for various stocks with columns for Pct chg, Stock price, Point chg, Company, Symbol, Close, and \$1,000 Invested.

Consumer Rates and Returns to Investor

U.S. consumer rates

A consumer rate against its benchmark over the past year



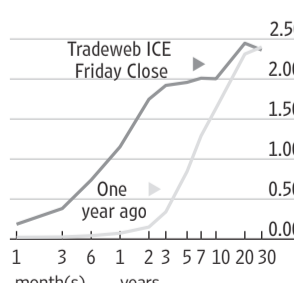
Selected rates

Table of selected rates for money market/savings accounts from Bankrate.com, listing bank name, rate, and contact info.

Benchmark Yields and Rates

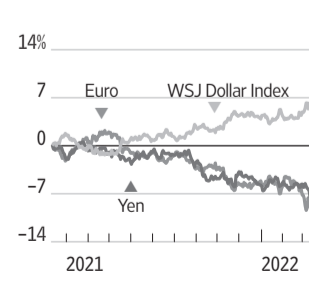
Treasury yield curve

Yield to maturity of current bills, notes and bonds



Forex Race

Yen, euro vs. dollar; dollar vs. major U.S. trading partners



Federal Funds Rate Target

Table showing federal funds rate target, prime rate, and other interest rates with columns for rate, 52-week range, and 3-year change.

Corporate Borrowing Rates and Yields

Table of corporate borrowing rates and yields for U.S. Treasury, Aggregate, Fixed-Rate MBS, and other instruments.

Currencies

U.S.-dollar foreign-exchange rates in late New York trading

Table of U.S.-dollar foreign-exchange rates for various countries and currencies, including Argentina, Brazil, Canada, etc.

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Tour revered galleries and museums and visit historic homes and design shops, including the world-famous Svenskt Tenn, Drottningholm Palace and the Indagare-adored hotel Ett Hem. It's the perfect trip to reinvigorate your sense of style.

## **South of France Art & Design** **September 15–20, 2022**

Visit the LUMA foundation and the Fondation Vincent van Gogh in Arles, dine at the Michelin three-star L'Oustau de Baumanière in Les Baux, meet artists in Saint Rémy, and enjoy a wine tasting at Château de Berne in the Luberon Valley. Plus so much more.



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CLOSED-END FUNDS

Table of closed-end funds with columns for Fund (SYM), NAV, Close, Disc, Prem, Ttl, Ret, and 52 wk. Includes sections for General Equity Funds, International Equity Funds, and Bond Funds.

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COMMERCIAL REAL ESTATE

On Wednesday, June 22, 2022 at 10:00 A.M. (New York Time), virtually via audio/video teleconference and, subject to any COVID-19 restrictions and applicable law (including, without limitation, executive orders), in person at the offices of Greenberg Traurig, LLP, located at One Vanderbilt Avenue, New York, New York 10017, James Lang Lascala, on behalf of Finch Property Holdings I, LLC, a Delaware limited liability company ("Secured Party"), will offer for sale the following partnership and limited liability company interests (collectively, the "Collateral"); (i) a 0.01% general partnership interest (being 100% of the general partnership interests), and an 89.99% limited partnership interest, in Divine Intervention Hotel, LP, a Pennsylvania limited partnership ("Divine Intervention"); (ii) 100% of the limited and general partnership interests in Divine Master Managing Member, LLC, a Pennsylvania limited liability company ("Divine Master Managing Member"); (iii) 100% of the general and limited partnership interests in Abbots Resurrection, LP, a Pennsylvania limited partnership ("Abbots Resurrection"); (iv) 100% of the limited liability company interests in 677 North Broad Associates, LLC, a Pennsylvania limited liability company ("677 North Broad"); and, together with Divine Intervention, Divine Alchemy and Abbots Resurrection, collectively, the "Borrowers"; and (v) the following partnership and limited liability company interests in the direct and indirect partners and members of the Borrowers: (a) 100% of the limited liability company membership interests in Divine Intervention Hotel I, LLC, a Pennsylvania limited liability company; (b) 100% of the limited liability company membership interests in Divine Master Managing Member, LLC, a Pennsylvania limited liability company; (c) 100% of the limited liability company managing member interest in Divine Master Tenant, LLC, a Pennsylvania limited liability company; (d) 100% of the limited liability company membership interests in Divine Alchemy GP, LLC, a Pennsylvania limited liability company; (e) 100% of the limited liability company membership interests in Abbots Resurrection GP, LLC, a Pennsylvania limited liability company; and (f) 100% of the limited liability company membership interests in 677 North Broad Manager, LLC, a Pennsylvania limited liability company.

The sale is being made in connection with the foreclosure under Article 9 of the Uniform Commercial Code of the State of New York of a pledge by Eric Davyl Blumenfeld, an individual, Divine Intervention Hotel I, LLC, a Pennsylvania limited liability company, Divine Master Managing Member, LLC, a Pennsylvania limited liability company, Divine Alchemy GP, LLC, a Pennsylvania limited liability company, Abbots Resurrection GP, LLC, a Pennsylvania limited liability company, and 677 North Broad Manager, LLC, a Pennsylvania limited liability company, collectively, "Debtors", to Secured Party (as the assignee of Susquehanna Structured Capital, LLC, a Delaware limited liability company (the "Original Mezzanine Lender"), pursuant to which Debtors granted a first priority lien on the Collateral as collateral for Debtors' guaranty of a mezzanine loan (the "Mezzanine Loan") to Borrowers held by Secured Party in the original maximum principal amount of \$20,600,000.00. Based upon information provided by Debtors and the Borrowers, it is the understanding of Secured Party (but without representation or warranty of any kind by Secured Party) that: (1) Divine Intervention is the owner of Units 1 and 2 of the mixed use condominium commonly known as the Divine Lorraine, located at 699 North Broad Street, Philadelphia, Pennsylvania 19123 (the "Divine Lorraine"); (2) Divine Alchemy is the owner of Unit 3 of the Divine Lorraine; (3) Abbots Resurrection is the owner of Unit 4 of the Divine Lorraine; (4) Abbots Resurrection is the owner of a multi-family residential condominium unit commonly known as "Unit A" of the condominium regime commonly known as the Head House Flats Condominium, located at 528 South 2nd Street, Philadelphia, Pennsylvania 19147 ("Head House Flats"); and (4) 677 North Broad is the owner of the

ground leasehold estate of the commercial real estate building commonly known as the Studebaker Building, located at 667-677 North Broad Street, Philadelphia, Pennsylvania 19123 (together with the Divine Lorraine and Head House Flats, collectively, the "Properties"); and (5) the Borrowers' respective fee and leasehold interests in the Properties are subject to a mortgage loan (the "Mortgage Loan") in the maximum original principal amount of \$41,000,000.00, pursuant to certain loan documents evidencing the Mortgage Loan.

The sale shall be a public auction to the highest qualified bidder. The Collateral is being offered as a single lot, "as-is, where-is", with all faults, with no express or implied warranties, representations, statements or conditions of any kind made by Secured Party or any person acting for or on behalf of Secured Party, without any recourse whatsoever to Secured Party or any other person acting for or on behalf of Secured Party, and each bidder must make its own inquiry regarding the Collateral. The winning bidder shall be responsible for the payment of the full purchase price, stamp duties and similar taxes incurred in connection with the purchase of the Collateral.

The sale of the Collateral will be subject to all applicable third party consents and regulatory approvals, if any. Without limitation to the foregoing, please take notice that there are specific requirements for any potential successful bidder in connection with obtaining information and bidding on the Collateral, including, but not limited to, that (1) each bidder must comply with all requirements and restrictions applicable to the sale of the Collateral described in the Intercreditor Agreement dated as of July 12, 2018 between the holder of the Mortgage Loan and the Secured Party, as the assignee of the Original Mezzanine Lender, (the "Intercreditor Agreement"), including that, unless otherwise consented to by the holder of the Mortgage Loan, such bidder is a Qualified Transferee within the meaning of the Intercreditor Agreement, and (2) each bidder must deliver such documents and pay such amounts as required by the Intercreditor Agreement and the applicable governing documents relating to the Collateral.

Secured Party reserves the rights, among others, to: (i) credit bid, (ii) set a minimum reserve price, (iii) reject any bid, (iv) reject any bid that does not meet the requirements of the Terms of Sale, and (v) terminate or adjourn the sale to another time, as provided for in the Terms of Sale. Secured Party further reserves the right to restrict prospective bidders to those who will represent that they are purchasing the Collateral for their own account for investment and not with a view to the distribution or resale of such Collateral, to verify that each certificate for the interests to be sold bears a legend substantially to the effect that such interests have not been registered under the securities Act of 1933, as amended (the "Securities Act"), and may not be disposed of in violation of the provisions of the Securities Act and to impose such other limitations or conditions in connection with the sale of the Collateral as Secured Party reasonably deems necessary or advisable in order to comply with the Securities Act.

All bids (other than credit bids of Secured Party) must be for cash, and the successful bidder must be prepared to deliver immediately available good funds as and when required by the Terms of Sale and otherwise comply with the bidding requirements provided for in the Terms of Sale. Further information concerning the Collateral, the requirements for obtaining information and bidding on the Collateral, and the Terms of Sale governing the sale of the Collateral can be found at http://www.phillyportfoliosale.com.

Brett Rosenberg +1 212-812-5926; brett.rosenberg@am.jll.com

BANKRUPTCY

IN THE UNITED STATES BANKRUPTCY COURT FOR THE DISTRICT OF DELAWARE Chapter 11, Case No. 20-12522 (JTD) MALLINCKRODT PLC, et al., (Jointly Administrated) Debtors. Ref. Docket No. 6378, 6510, 6660

NOTICE OF ENTRY OF ORDER CONFIRMING THE FOURTH AMENDED JOINT PLAN OF REORGANIZATION (WITH MODIFICATIONS) OF MALLINCKRODT PLC AND ITS DEBTOR AFFILIATES UNDER CHAPTER 11 OF THE BANKRUPTCY CODE

PLEASE TAKE NOTICE OF THE FOLLOWING: 1. Confirmation of the Plan. On March 2, 2022, the United States Bankruptcy Court for the District of Delaware (the "Bankruptcy Court") entered an order (the "Confirmation Order") confirming the Fourth Amended Joint Plan of Reorganization (With Technical Modifications) of Mallinckrodt Plc and its Debtor Affiliates Under Chapter 11 of the Bankruptcy Code (Docket No. 6660) (as modified or amended, the "Plan"). The Plan is subject to the terms and conditions set forth in the Plan and the Confirmation Order (collectively, the "Debtors"). Unless otherwise defined in this Notice, capitalized terms and phrases used herein have the meanings given to them in the Plan and the Confirmation Order. This Notice is intended solely to provide notice of the entry of the Confirmation Order and it does not, and shall not be construed to, limit, modify or interpret any of the provisions of the Confirmation Order. The following paragraphs identify some of the provisions of the Confirmation Order for the convenience of creditors; however, creditors should refer to the full text of the Confirmation Order and should not rely upon the summary provided below.

2. Bar Dates. All final requests for payment of Professional Fee Claims for services rendered and reimbursement of expenses incurred prior to the Effective Date must be Filed no later than 45 days after the Effective Date. The Retained Professionals shall deliver to the Debtors a reasonable and good-faith estimate of their unpaid fees and expenses incurred in rendering services to the Debtors before and as of the Effective Date projected to be outstanding as of the anticipated Effective Date, and shall deliver such estimate no later than five Business Days prior to the anticipated Effective Date. For the avoidance of doubt, no such estimate shall be considered or deemed an admission or limitation with respect to the amount of the fees and expenses that are the subject of a Retained Professional's final request for payment of Professional Fee Claims Filed with the Bankruptcy Court, and such Retained Professionals are not bound to any extent by the estimates. If a Retained Professional does not provide an estimate, the Debtors may estimate the unpaid and unbilled fees and expenses of such Retained Professional. The total aggregate amount so estimated to be outstanding as of the anticipated Effective Date shall be utilized by the Debtors to determine the amount of Cash to be deposited into the Escrow Account; provided that the Reorganized Debtors shall use Cash on hand to increase the amount of the Professional Fee Escrow Account to the extent fee applications are Filed after the Effective Date in excess of the amount held in the Professional Fee Escrow Account based on such estimates.

For the avoidance of doubt, all Restructuring Expenses and Post Effective Date Implementation Expenses shall be paid in accordance with Article IV.S of the Plan, and the terms under Article 4.2 of the Plan shall not apply to the claims entitled to receive the Restructuring Expenses. The Reorganized Debtors shall pay the Post Effective Date Implementation Expenses that they incur on or after the Effective Date in the ordinary course of business and without application or notice to, or order of, the Bankruptcy Court. b. Administrative Claims. All requests for payment of an Administrative Claim (other than any Rejection Damages Claims) submitted after the Effective Date, of Professional Fees, of Certain Post-Confirmation Professional Fee Claims, the Disinterested Managers Fees and Expenses, Restructuring Expenses, Administrative Claims held by a Debtor or Non-Debtor Affiliate against a Debtor, Indenture Trustee Fees (to the extent they would be Administrative Claims) or United States Trustee quarterly fees payable pursuant to Article II.C of the Plan) that accrued on or before the Effective Date that were not otherwise accrued in the ordinary course of business must be Filed with the Bankruptcy Court and served on the Debtor no later than the date established by the Confirmation Order. The Administrative Claims shall be paid by separate order of the Bankruptcy Court and (b) the date that is the 60th day after the Effective Date (the "Administrative Claims Bar Date").

If a holder of an Administrative Claim (excluding, for the avoidance of doubt, VI Violent Claims, Cure Costs, Professional Fee Claims, Restructuring Expenses, Indenture Trustee Fees (to the extent they would be Administrative Claims), United States Trustee quarterly fees payable pursuant to Article II.C of the Plan) is required to, but does not, File and serve a request for payment of such Administrative Claim by the Administrative Claims Bar Date, such Administrative Claim shall be considered Allowed only if and to the extent that no objection to the allowance thereof has been interposed within three months following the subsequent filing and service of such request or as otherwise set by the Bankruptcy Court such that an objection is so interposed and the Claim has been Allowed by a Final Order; provided that any Claim Filed after entry of a decree closing the Debtors' Chapter 11 Cases shall not be Allowed unless the Holder of such Claim obtains an order of the Bankruptcy Court allowing such Claim. For the avoidance of doubt, Administrative Claims that were subject to the Initial Administrative Claims Bar Date, proof of which was not timely submitted in accordance with the Initial Administrative Claims Bar Date Order, shall be disallowed.

c. Rejection Damages Claims. Unless otherwise provided by a Bankruptcy Court order, and except as otherwise provided in section V.C of the Plan or otherwise in the Plan, any Proofs of Claim asserting Claims arising from the rejection of the Executive Contracts and Unexpired Leases pursuant to the Plan or otherwise must be filed with the Notice and Claims Agent within thirty (30) days of the effective date of the rejection of the applicable Executive Contract or Unexpired Lease (which shall be the Effective Date unless otherwise provided in an order of the Bankruptcy Court providing for the rejection of an Executive Contract or Unexpired Lease). Any Proofs of Claim arising from the rejection of the Executive Contracts and Unexpired Leases that are not timely filed shall be automatically disallowed without further order of the Bankruptcy Court. All Allowed Claims arising from the rejection of the Executive Contracts and Unexpired Leases shall constitute General Unsecured Claims and shall be treated in accordance with Article III.B of the Plan; provided, however, as set forth in Article V.G. of the Plan, any Claims arising out of the rejection of an Executive Contract that are Contingent Claims shall be treated as Other Opoid Claims or No Recovery Opoid Claims, and shall be treated in accordance with the Plan, and the deadline for the filing of Proofs of Claim arising out of the rejection of an Executive Contract or Unexpired Lease set forth in Article V.C of the Plan shall not apply with respect to any Co-Defendant Claim.

3. Releases and Injunctions. Article IX of the plan contains important release, exculpation, and injunction provisions. You should review these provisions carefully. Further, specifically with respect to the Opoid Permanent Channeling Injunction, the Plan contains the following provisions: The Plan channels all Opoid Claims to various opoid trusts for payment and forever prohibits all opoid claimants from asserting any Opoid Claim against or seeking any money on account of any Opoid Claim from the Debtors, their officers and directors and certain other parties specified in the Plan as "Protected Parties" regardless of whether such claimants vote on the Plan or assert claims against an opoid trust. You should review the Plan regarding these provisions, including the Opoid Permanent Channeling Injunction under the Plan can be found https://www.restructuring.primercerk.com/Mallinckrodt.

4. Trusts. Pursuant to the terms of the Plan and the Confirmation Order, multiple "Trusts" (i.e., the Opoid MDT II, the "Private Opoid Creditor Trusts," which include the Third-Party Payor Trust, the PI Trust, the NAS Monitoring Trust, the Emergency Room Physicians Trust and the Hospital Trust, the "Public Opoid Creditor Trusts"), which include the NOT II and the TAFT II, the General Unsecured Claims Trust, and the Asbestos Trust) will be created and funded pursuant to the terms of the Plan, the Confirmation Order, and the applicable trust documents. The funds in the opoid-related trusts will be used for "Approved Uses" (as defined in the Plan) (i.e., abatement purposes) and to compensate Holders of Opoid Claims (as defined in the Plan), while the funds in the General Unsecured Claims Trust and Asbestos Trust will be used to compensate Holders of General Unsecured Claims and Asbestos Claims, respectively (and in each case, as defined in the Plan). Information about the various trusts established under the Plan can be found https://www.restructuring.primercerk.com/Mallinckrodt and/or https://cases.primercerk.com/MallinckrodtOpoidClaimsIntro/.

5. Bankruptcy Court Address. For purposes of filing requests for payment of Administrative Claims and applications for allowance of Professional Fee Claims, the address of the Bankruptcy Court is 824 North Market Street, 5th Floor, Wilmington, Delaware 19801. 6. Executory Contracts, Unexpired Leases. On the Effective Date, except as otherwise provided in the Plan, each of the Executory Contracts and Unexpired Leases not previously rejected, assumed, or assumed and assigned pursuant to an order of the Bankruptcy Court will be deemed assumed as of the Effective Date pursuant to sections 365 and 1123 of the Bankruptcy Code except any Executory Contract or Unexpired Lease (1) identified on the Rejected Executory Contract/Unexpired Lease List (which shall initially be filed with the Bankruptcy Court on the Plan Supplement Filing Date) as an Executory Contract or Unexpired Lease to be rejected, (2) that is the subject of a separate motion or notice to reject pending as of the Effective Date, or (3) that previously expired or terminated pursuant to its own terms (disregarding any terms the effect of which is invalidated by the Bankruptcy Code).

7. Copies of Confirmation Order. Copies of the Confirmation Order, the Plan, or any pleadings filed in these Chapter 11 Cases may be obtained by (a) visiting the Debtor's restructuring website at: https://www.restructuring.primercerk.com/Mallinckrodt; (b) sending an email to mallinckrodtinfo@primercerk.com or writing to Mallinckrodt plc Bailout Processing, c/o Prime Clerk, One Grand Central Place, 60 East 42nd Street, Suite 1440, New York, NY 10015; and/or (c) calling the Debtors' restructuring hotline at 877-467-1570 (Toll-Free) (US/Canada); 347-817-4093 (international). The Confirmation Order and the Plan may also be examined by any party in interest during normal business hours at the Office of the Clerk of the Court, United States Bankruptcy Court, 824 Market Street, 5th Floor, Wilmington, Delaware 19801. You may also obtain copies of the Confirmation Order or of any pleadings filed in these Chapter 11 Cases for a fee at: http://www.deb.uscourts.gov.

1. A complete list of the Debtors in these chapter 11 cases may be obtained on the website of the Debtors' claims and noticing agent at http://restructuring.primercerk.com/Mallinckrodt. The Debtors' mailing address is 675 McDonnell Blvd., Hazelwood, Missouri 63042. 2. Unless otherwise specified, capitalized terms and phrases used herein have the meanings assigned to them in the Plan or Disclosure Statement, as applicable.

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PUBLIC NOTICES

NOTICE OF CALL FOR BIDS The New York office of the Italian Trade Commission (33 East 67th Street, New York, NY 10065-5949) has launched an open call for bids, pursuant to Legislative Decree 50/2016, to award Travel Services for the activities of the Italian Trade Agency (ITA) Offices operating in the USA (New York, Chicago, Miami, Houston and Los Angeles) from 06.01.2022 to 05.31.2024.

Description: Travel Services for the activities of the Italian Trade Agency (ITA) Offices operating in the USA (New York, Chicago, Miami, Houston and Los Angeles) from 06.01.2022 to 05.31.2024 CIG (Identification code of tender): 9071628040 Total amount of the contract: US\$ 4,486,400.00, including local taxes amounting to € 4,000,000.00, including local taxes.

Bids and all the documentation required in the call for bids and its rules shall be received by the Italian Trade Commission - New York office - 33 East 67th Street, New York, NY 10065, no later than 04:00pm (EST) on 03/16/2022. Late submissions will not be accepted. This call for bids is governed by the rules sent for publication in the Official Journal of the European Union on 02/25/2022 and the regulations available on the Italian Trade Commission's website (www.ice.it), together with all the required documentation and the forms for declarations and self-certifications. Please click on the heading "Transport Administration," category "Call for bids and contracts" or at the following link: https://ice.amministrazionetrasparenze.it/bandi/attivita/WOR-YORK/. Official language for information and correspondence: Italian.

Chief Procurement Officer (CPO) - (RUP): Antonino Laspina Italian Trade Commission, New York Office

Antonino Laspina Italian Trade Commissioner

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Table of closed-end funds with columns for Fund (SYM), NAV, Close, Disc, Prem, Ttl, Ret, and 52 wk. Includes sections for World Income Funds, International Equity Funds, and Bond Funds.

Borrowing Benchmarks | wsj.com/market-data/bonds/benchmarks

Money Rates

Key interest rates paid to borrow or lend money in U.S. and international markets. Rates below are a guide to general levels but don't always represent actual transactions.

Table showing Inflation (Feb. index, Chg From (%)) and U.S. government rates (0.25, 0.25, 0.25, 0.25).

Table showing U.S. consumer price index (All items, 288.716, 0.91, 7.9, Core, 283.059, 0.72, 6.4).

Table showing International rates (Latest, High, Low) and Prime rates (U.S., 3.25, 3.25, 3.25, 3.25).

Table showing Policy Rates (Euro zone, 0.00, 0.00, 0.00, 0.00; Switzerland, 0.00, 0.00, 0.00, 0.00).

Table showing Overnight repurchase (U.S., 0.05, 0.05, 0.06, -0.04).

Notes on data: U.S. prime rate is the base rate on corporate loans posted by at least 70% of the 10 largest U.S. banks, and is effective March 16, 2020. Discount rate is effective March 16, 2020. Secured overnight financing rate is as of March 10, 2022. DTCC GCF Repo Index is Depository Trust & Clearing Corp.'s weighted average for overnight trades in applicable CUSIPs. Value traded in billions of U.S. dollars. Federal funds rates are Tullett Prebon rates as of 5:30 p.m. ET.

Sources: Federal Reserve; Bureau of Labor Statistics; DTCC; FactSet; Tullett Prebon Information Ltd.

March 11, 2022

Money Rates

Table showing Inflation (Feb. index, Chg From (%)) and U.S. government rates (0.25, 0.25, 0.25, 0.25).

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Table showing Overnight repurchase (U.S., 0.05, 0.05, 0.06, -0.04).

Notes on data:

U.S. prime rate is the base rate on corporate loans posted by at least 70% of the 10 largest U.S. banks, and is effective March 16, 2020. Discount rate is effective March 16, 2020. Secured overnight financing rate is as of March 10, 2022. DTCC GCF Repo Index is Depository Trust & Clearing Corp.'s weighted average for overnight trades in applicable CUSIPs. Value traded in billions of U.S. dollars. Federal funds rates are Tullett Prebon rates as of 5:30 p.m. ET.

Sources: Federal Reserve; Bureau of Labor Statistics; DTCC; FactSet; Tullett Prebon Information Ltd.

March 11, 2022

Table showing Money Rates (Inflation, U.S. government rates, International rates, Prime rates, Policy Rates, Overnight repurchase).

MARKETS

Supply Pressures Jolt Wheat

Continued from page B1 in the coming weeks.

“Russian ports are operating normally but no one is willing to pay extremely high insurance costs to book cargoes from there,” said Will Osato, senior research analyst with Gro Intelligence, an agricultural data firm.

Since wheat is priced in dollars, exporters in Russia, where the currency has plunged about 40% in 2022, could take cues from South American growers who in years past hedged their own currency devaluations by holding on to grains.

“This is the fog of war,” said Dave Whitcomb, head of research at Switzerland’s Peak



A Ukrainian ship loaded with wheat is parked at the port of Tripoli in Lebanon on March 8.

Trading Research. “We just don’t know.”

The uncertainty inspired a frenzy of speculation that exacerbated the price swings. Investors poured so much cash into the Teucrium Wheat Fund, which holds futures, that it ran out of shares to sell last Monday. The previous trading day, March 4, the exchange-traded fund issued

about 16 million new shares, which was more than the 13 million or so that were outstanding before the invasion. U.S. financial regulators granted the fund permission on Wednesday to create and sell additional shares.

The fund’s assets under management ballooned to nearly \$500 million, up from \$86 million before Russia’s at-

tack, but fell to about \$341 million by the end of the week as wheat futures shed price.

“In six weeks they’ll start planting in Ukraine and Russia,” said Sal Gilbertie, president of Teucrium Trading LLC, which manages the wheat fund. “If it’s disrupted that means a future reduction in supplies that the world is counting on.”

The U.S. Department of Agriculture on Wednesday lowered its expectations for Russian and Ukrainian wheat exports during the current marketing year, which began in June, by about 12%. Some of the lost supply will be replaced by exports from Australia, where a record harvest is expected, and India, which has been increasing shipments abroad amid a string of bumper crops, the Agriculture Department said in its monthly market forecast.

The department expects U.S. farmers to plant slightly more wheat than last year, when the fewest acres were sown in more than a century. Lower yields are anticipated, due to continuing drought in the West and Northern Plains.

While American consumers can expect more sticker shock at the grocery store, the loss of Black Sea exports risks leaving some countries that rely on imports unable to meet their grain needs, analysts and traders say.

Egypt, the world’s largest wheat importer, recently canceled a tender after receiving a limited number of pricey offers.

THE TICKER | MARKET EVENTS COMING THIS WEEK

Monday

Table with 2 columns: Company, Earnings expected (Estimate/Year Ago). Includes DLocal Limited, Vail Resorts Inc.

Tuesday

Table with 2 columns: Event, Fed 2-day meeting starts, Empire Manufacturing, Producer price index.

Wednesday

Table with 2 columns: Event, Fed rate-policy meeting, Business inventories, EIA status report.

Thursday

Table with 2 columns: Event, Building Permits, Capacity utilization, EIA report: natural-gas.

Friday

Table with 2 columns: Event, Existing home sales, Leading indicators.

Table with 3 columns: Event, Import price index, Mort. bankers indexes.

Table with 3 columns: Event, Retail sales, ex. autos, Retail sales.

Table with 3 columns: Event, Earnings expected, Endeavor Group Holdings Inc.

Table with 3 columns: Event, Jabil Inc., Lennar Corp.

Table with 3 columns: Event, Williams-Sonoma.

Table with 3 columns: Event, Jabil Inc., Lennar Corp.

Table with 3 columns: Event, Williams-Sonoma.

Table with 3 columns: Event, Building Permits, Capacity utilization.

Table with 3 columns: Event, EIA report: natural-gas.

Table with 3 columns: Event, Leading indicators.

Table with 3 columns: Event, Housing Starts.

Table with 3 columns: Event, Industrial production.

Table with 3 columns: Event, Initial jobless claims.

Table with 3 columns: Event, Philadelphia Fed survey.

Table with 3 columns: Event, Earnings expected.

Table with 3 columns: Event, Endeavor Group Holdings Inc.

Table with 3 columns: Event, Williams-Sonoma.

Table with 3 columns: Event, Jabil Inc., Lennar Corp.

Table with 3 columns: Event, Building Permits, Capacity utilization.

Table with 3 columns: Event, EIA report: natural-gas.

Table with 3 columns: Event, Leading indicators.

Cash Prices | wsj.com/market-data/commodities

Friday, March 11, 2022

These prices reflect buying and selling of a variety of actual or "physical" commodities in the marketplace—separate from the futures price on an exchange, which reflects what the commodity might be worth in future months.

Commodity price table with columns for Energy, Metals, Fibers and Textiles, Grains and Feeds, and Fats and Oils.

KEY TO CODES: A=ask; B=bid; BP=country elevator bids to producers; C=corrected; D=CME; E=Manfra, Tordella & Brookes; H=American Commodities Brokerage Co; K=bi-weekly; M=monthly; N=nominal; n.a.=not quoted or not available; P=Sosland Publishing; R=SNL Energy; S=Platts-TSI; T=Conlook Limited; U=USDA; V=Benchmark Mineral Intelligence; W=weekly; Y=International Coffee Organization; Z=not quoted. \*Data as of 3/10

Source: Dow Jones Market Data

\* FactSet Estimates earnings-per-share estimates don't include extraordinary items (Losses in parentheses) ♦ Adjusted for stock split Note: Forecasts are from Dow Jones weekly survey of economists



Williams-Sonoma is expected to post a per-share profit of \$4.82.

Insider-Trading Spotlight

Trading by 'insiders' of a corporation, such as a company's CEO, vice president or director, potentially conveys new information about the prospects of a company. Insiders are required to report large trades to the SEC within two business days. Here's a look at the biggest individual trades by insiders, based on data received by Refinitiv on March 11, and year-to-date stock performance of the company

KEY: B: beneficial owner of more than 10% of a security class CB: chairman CEO: chief executive officer CFO: chief financial officer CO: chief operating officer D: director DO: director and beneficial owner GC: general counsel H: officer, director and beneficial owner I: indirect transaction filed through a trust, insider spouse, minor child or other O: officer OD: officer and director P: president UT: unknown VP: vice president Excludes pure options transactions

Biggest weekly individual trades

Based on reports filed with regulators this past week

Table with columns: Date(s), Company, Symbol, Insider, Title, No. of shrs in trans (000s), Price range (\$), \$ Value (000s), Close (\$), Ytd (%)

Sellers

Table with columns: Date, Company, Symbol, Insider, Title, No. of shrs in trans (000s), Price range (\$), \$ Value (000s), Close (\$), Ytd (%)

\* Half the transactions were indirect \*\* Two day transaction p - Pink Sheets

Buying and selling by sector

Based on actual transaction dates in reports received this past week

Table with columns: Sector, Buying, Selling

Sources: Refinitiv; Dow Jones Market Data

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# HEARD ON THE STREET

FINANCIAL ANALYSIS & COMMENTARY

## China Stocks Ready for a Move

Hong Kong could be a winner if U.S. delists some Chinese shares

The clock is ticking a lot louder for Chinese stocks listed in the U.S. The big winner may be a key rival to U.S. bourses: the Hong Kong exchange.

The Securities and Exchange Commission said on Thursday it has named five companies for failing to hire an auditor that could be inspected by U.S. regulators. These companies include Chinese companies like **Yum China**, the operator of KFC and Pizza Hut in the country, and biotech company **BeiGene**. Under legislation passed in 2020, they could be delisted if U.S. regulators can't review their audits for three consecutive years—meaning 2024 at the earliest.

The announcement isn't unexpected—the SEC said in December that 273 U.S.-listed foreign companies may not meet the requirement. But U.S.-listed Chinese stocks suffered a big selloff on Thursday:

Shares of Chinese e-commerce giant **Alibaba** fell 8% in New York, while rival **Pinduoduo** lost 17%, even though these companies aren't on the list. The five companies identified on Thursday were likely flagged first because they recently filed annual reports to the SEC.

The dispute over accounting has long been simmering, but the deteriorating relationship between the U.S. and China brought it to a boil over the past year. China deemed some information too sensitive to pass over to the U.S. on national-security grounds—particularly for consumer tech companies whose bread and butter is data—and therefore refused to let auditors show their books to U.S. regulators.

China's securities regulator said Friday that it opposes politicizing securities regulations, but said discussions with U.S. regulators have made progress and it believes they

can reach mutually acceptable arrangements.

Most of the largest U.S.-listed Chinese companies prepared for this by making another listing in Hong Kong. Electric-car maker **NIO Inc.** is the latest to join the list: It made its debut in the city on Thursday.

Shares of Hong Kong Exchanges and Clearing rose 3% Friday as the city is expected to benefit from a potential exodus from the U.S. In a recent note, Goldman Sachs estimated that if all the shares of dual-listed Chinese companies are moved to Hong Kong, that could add about \$2.6 billion of average daily turnover to the city. New listings could add another \$1.4 billion. That means they could make up around a fifth of Hong Kong's turnover.

There are more than 200 Chinese companies solely listed in the U.S., though they are usually smaller and make up around 30%



A bank's electronic board showing the Hong Kong share index.

of the total market value of the U.S.-listed Chinese stocks, according to Goldman Sachs.

The selloff seems overdone given that the issue was long expected. But since the geopolitical situation has become more treacherous recently due to Russia's invasion of Ukraine, investors may prefer to stay on the sidelines.

In any case, Chinese tech stocks

have been out of favor for some time already due to China's regulatory risks. The **Kraneshares CSI China Internet** exchange-traded fund, which tracks offshore Chinese technology listings, lost three-quarters of its value since February last year. The writing has long been on the wall for U.S.-listed Chinese companies. The latest announcement just made it even clearer.

—Jacky Wong

## Biden's Digital Dollar Could Rile Banks and Crypto

The Biden administration's plan to study whether to launch a digital dollar may bring together some strange bedfellows: banks and crypto companies.

It isn't clear what the administration's statement seeking to "explore a U.S. Central Bank Digital Currency" and its potential to work "in a manner that protects Americans' interests" might mean in practical terms. A CBDC could work in a number of ways. But traditional deposit-taking lenders and some digital-currency upstarts have worries about U.S. dollars.

The Bank Policy Institute, an industry group that represents large U.S. banks, said Wednesday it was confident future research would conclude that "CBDCs would pose considerable and unavoidable costs to the financial system and economy while producing few, if

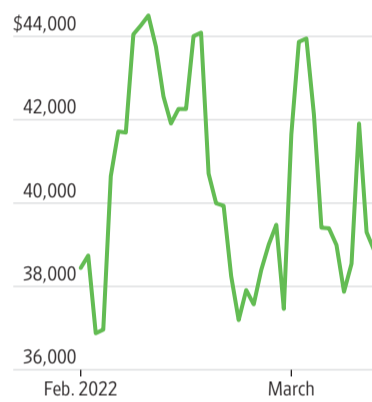
any, tangible benefits."

Meanwhile, some crypto firms are betting on digital currencies to possibly become widely used forms of money. Others created stablecoins that are pegged to the U.S. dollar and which can function as digitized equivalents within many transactions—achieving what a CBDC might aim to do.

Circle Internet Financial, which issues the USD Coin, said a purely centralized digital dollar if poorly designed "would not only pose competitiveness and other risks to the U.S. banking and payment system, it would require the government to be in the business of picking technology winners and losers."

A number of the concerns have had traction in key places in Washington. Federal Reserve Chairman Jerome Powell said a CBDC could be "a complement to, and not a replacement of, cash and current private-sector digital forms of the dollar, such as deposits at commercial banks." The Fed is studying the issue.

Price of one bitcoin



Note: As of Friday  
Source: CoinDesk

But much of this discussion was taking place before Russia's invasion of Ukraine. Recent days and weeks have been a stark reminder that money movements aren't just about efficiency and financial risk but also about geopolitics. Part of the appeal of a centralized CBDC might be that Washington could in theory, with relative ease, switch off a certain entity or nation's ability to move or use dollars. Today, this often happens indirectly via clearing banks or regulated U.S. firms that must follow sanctions laws. But some in Washington might not trust those players. There is also physical cash, and key networks that are under other jurisdictions like Swift.

More top of mind now may be whether a government-issued digital dollar would enhance or diminish its global role. Perhaps a review would find that regulated private tokens

pegged to dollars deposited in banks are ultimately the best-balanced tool. Some in crypto might welcome a version of a U.S. CBDC as a proof point of digital assets overall, and a way to ease the use of other cryptocurrencies in transactions. Bitcoin surged on news of President Biden's broad executive order about crypto.

There will be other debates, like potential benefits for financial inclusion. Many established players might be agnostic, too. For them it is the endpoints—credit cards, or digital wallet apps—that matter, not what is moving behind them. Some banks might view versions of a CBDC as a way to cut transaction costs.

Figuring out the potential winners and losers would depend on the design of a digitized dollar. Investors shouldn't place their bets yet on what is far from just a wonky policy issue.

—Telis Demos



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JOURNAL REPORT

# 5G TECHNOLOGY

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THE WALL STREET JOURNAL.

Monday, March 14, 2022 | R1

## What's Holding Back 5G

Telecom companies haven't yet seen their big investments pay off. Will they ever?

BY DREW FITZGERALD

**T**ELECOMMUNICATIONS companies around the world have pinned a lot of their hopes on 5G. So far, they're still just hoping.

These companies have spent hundreds of billions of dollars on new equipment, software and wireless licenses to clear a path for the fifth generation of cellular technology. Government policy makers have encouraged such spending, hoping that access to the most up-to-date networks will nurture high-tech industries that depend on them.

But the uneven growth of wireless-service revenue in many countries has raised fears that those expensive upgrades might not meaningfully lift network operators' profits.

To understand why, consider the two kinds of 5G technology often mentioned in the same breath. One is basically a souped-up version of 4G, making smartphone downloads and wireless hotspot connections even faster. Such coverage is quickly becoming common-

*Please turn to page R2*

## 5G and Air-Travel Safety: What We Know So Far

Test flights in the U.S. and Europe aim to deliver answers in a yearslong controversy

BY DREW FITZGERALD AND MICAH MAIDENBERG

**Does fifth-generation** wireless service endanger air travel?

Several years after air-safety watchdogs started asking the question, engineers are finally gathering data in real-world tests. Early signs

from tests outside the U.S. suggest there may not be a problem. But engineers say the scientific record is still too sparse to make a definitive judgment.

In the U.S., the Federal Aviation Administration this year started flying specially outfitted airplanes over Michigan and Southern California that measure 5G signals in the air. And a U.S. Defense Department-funded program has aircraft circling test ranges in Colorado and Utah to measure how in-flight instruments respond to those signals.

The parallel experiments address

worries that certain 5G signals could confuse flight instruments, called radar altimeters, that feed real-time altitude data to cockpit safety systems.

"We are working really hard to obtain solid engineering data so that we will either know that there is or isn't a problem rather than guessing," says Frank Sanders, a senior researcher at the Institute for Telecommunication Sciences, a federal lab running tests for the Pentagon program.

Such knowledge has been a long time coming. FAA officials flagged concerns as early as 2015 that radar

*Please turn to page R6*

## Inside

### Putting 5G to Work

5G is taking off in private networks at Chinese industrial sites like factories, coal mines and seaports. **R3**

### Next Up: 6G

The next generation promises mobile internet access for everyone. **R3**



### Diving In

In South Korea, a host of technologies linked to 5G have arrived. **R6**



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# JOURNAL REPORT | 5G TECHNOLOGY

## What Is Happening With 5G

*Continued from page R1*

place in rich countries. The number of world-wide 5G connections topped 520 million last year, according to telecom-industry researcher Omdia. But it remains to be seen whether telecom companies can reap much new revenue from these consumers.

The second version promises to change the way the business world works by creating swarms of smart devices, distributed data centers and private cellular networks. This is where the big money is, because it could create a new crop of internet-connected industries where none existed before. But there are still few businesses using or offering this advanced type of wireless service.

Industry optimists insist that the second wave is on its way; it just will take several more years for such innovations to move from the drawing board to the real world. But even if the telecom industry's optimists are proved right about the coming 5G boom, it's no guarantee that their employers will reap the rewards. Big tech companies including Google owner Alphabet Inc., Amazon.com Inc. and Microsoft Corp. are making moves to profit from these new mobile standards by developing software and services tailored for 5G networks.

How long it takes for true 5G to take hold—and how much businesses will be willing to pay for it—could have long-lasting effects on telecom companies' investors, customers and even the economies of the countries in which they operate.

So, why hasn't 5G been the game changer yet that so many in the industry predicted? Let's take a closer look at some of the reasons.

### Consumer apathy

Wireless companies looking to profit from 5G investments must first convince their existing base of cellphone users that the faster service is worth a premium.

They have seen mixed results. On the positive side, cellphone carriers like Verizon Communications Inc. and T-Mobile US Inc. have amassed hundreds of thousands of 5G home internet customers in areas where there was previously less competition. The faster internet services rely on tens of thousands of U.S. cell towers recently upgraded with new 5G equipment.

Both wireless companies have said they plan to reach a few million of those broadband users in the coming years. That would be a small slice of revenue at U.S. companies, though the extra revenue from an already-built network could help their bottom lines.

The willingness of existing smartphone customers to pay a premium for 5G is less apparent. Verizon in 2019 tested a \$10 monthly fee for certain mobile 5G links, for example, before abandoning the surcharge. The carrier now includes full 5G service with all premium wireless plans, which include other perks like subscriptions to Disney+.

In February, consumers polled by the Recon Analytics Mobile Intender Survey ranked "better 5G" fourth among the reasons they would choose or drop a carrier,

well behind more basic concerns like lower prices and network coverage.

Some of that popular indifference stems from the activity that still chews up most of a wireless network's bandwidth: video. The spread of 4G connections allowed video services like Netflix and TikTok to flourish by making high-definition videos available everywhere. The perks of a 5G connection—like seamlessly streaming even higher-quality video—are wasted on small screens that can't even display ultra-HD video.

All of this means that people are happy to upgrade to a 5G phone but won't necessarily pay a premium for a matching cellular connection. Meanwhile, there are few new apps out that show what the new wireless standard can do. "People want faster speeds, no

built 5G network only available around the factory. While the project's leaders say those high-speed links make the machines more useful, they weren't initially designed for a cellular connection.

"Where are the devices?" asks Shahid Ahmed, executive vice president of NTT. "Right now, we end up custom-building almost everything."

### Technical difficulties

It's not just a lack of devices that is causing companies problems. Some of 5G's promised benefits for business users are bumping up against the technical limits of the technology.

To enable companies to take advantage of 5G, networks need low latency, meaning data will make a quicker round trip through a network's chain of circuits and

riers have spent billions of dollars on 5G, other carriers—especially in emerging markets—have been reluctant to plow scarce financial resources into 5G technology while other priorities demand their attention. At the same time, these executives are bristling at the cost of obtaining new wireless-spectrum licenses that are suitable for the next-generation signals.

Such reluctance stems from the fact that the smartphones that connect to those networks are too expensive to buy in much of the developing world—which means it may be a better investment for them to beef up 4G services in those countries instead of building up 5G. Cellphone carriers in North America routinely offer discounts and other subsidies for smartphones that cost over \$1,000 apiece. By contrast, the average mobile device sold in some of

nies poised to take a valuable share of a still-nascent market. Wireless-industry leaders often speak enviously of how 4G led to a financial boom for the companies that took advantage of 4G's capabilities—phone and app makers, for instance—while the telecom companies themselves struggled to increase revenue.

Telecom companies failed to capitalize on the boom. Some companies, for instance, invested in growing sectors like streaming video and data-center management only to abandon those bets after nimble rivals took market share from them.

"Incredible value is there to be made, but too often in the past, as a sector, we have left too much of that value on the table," Andrew Penn, CEO of Australian network operator Telstra Corp., said during a recent appearance at an industry event. "The telecommunications sector has provided the platform for growth but others have realized the majority of it, and we can't let that happen again."

Some telecom and technology executives have privately expressed doubts that domestic phone and broadband companies would be in as strong a position as big tech to profit from clients looking to run complex 5G applications in the cloud. If big cloud-services providers are the companies billing clients for 5G software, data storage and private networks that take the place of Wi-Fi or wired connections, telecom companies could be reduced to a secondary role that earns them less profit.

Despite the apathy and delays, high costs and low return so far, many telecom companies remain optimistic. Verizon said during a recent investor update that the new high-speed wireless technology would dramatically boost its growth over the coming years. The company cited opportunities in selling cellphone users pricier plans, new business from wireless home broadband service and long-term opportunity from selling new services for businesses—which promise to make things like manufacturing much more efficient.

Verizon plans to offer those mobile edge compute services in two ways. A private-network model lets the cellphone carrier control its relationship with the client. But Verizon has also struck agreements to build public varieties of mobile edge compute systems that draw on resources from Amazon Web Services, Microsoft's Azure and Google Cloud Platform. Clients may choose either option.

Verizon CEO Hans Vestberg says it makes "no difference when it comes to our potential to make revenue and profit" whether a business customer interacts with Verizon or a big cloud-computing company to run a private 5G network.

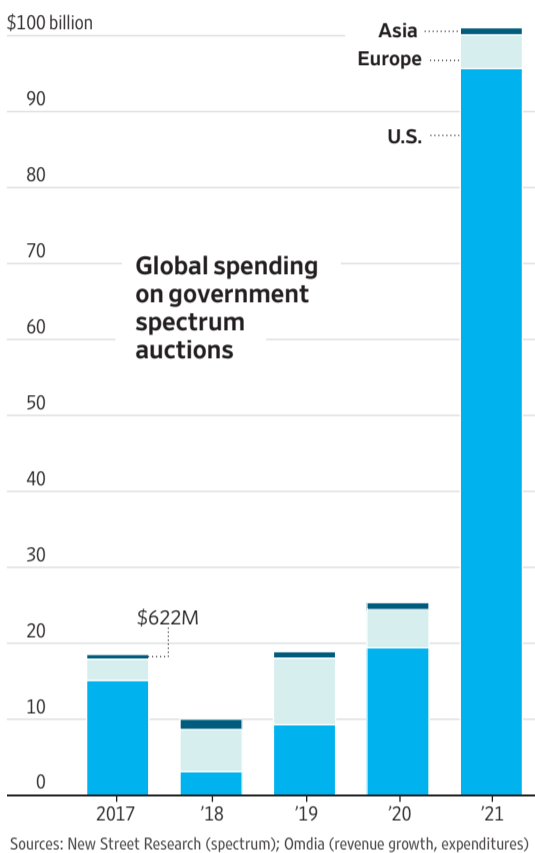
At Ford Motor Co.'s Dearborn, Mich., production line for electric trucks, AT&T and Azure have partnered to provide 5G services. AT&T business chief Anne Chow says both providers generate revenue by running parts of the auto maker's factory-area 5G network, which helps workers send software updates to vehicles over the air, scan components for imperfections and keep phones and tablets connected to the internet.

"It's very much a relationship of equals in support of a shared client," she says.

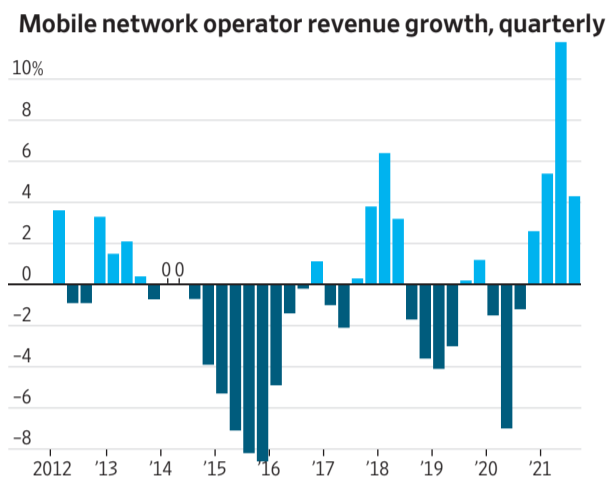
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## Big Bets

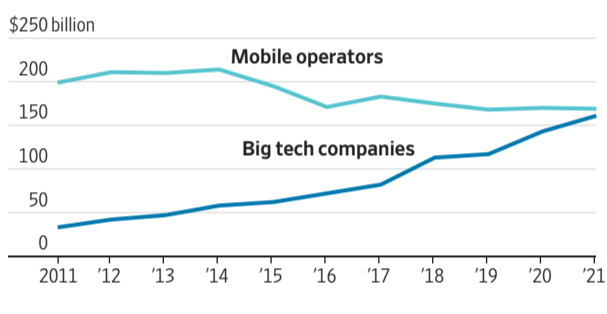
Telecom companies have spent billions of dollars on equipment and licenses to prepare for 5G after a decade of uneven results from 4G service. Big tech companies are meanwhile ramping up infrastructure investments.



Sources: New Street Research (spectrum); Omdia (revenue growth, expenditures)



### Annual capital expenditures



doubt about it—but they don't care that it's 5G because there's no killer app for that," says Recon Analytics chief Roger Entner.

### Death of devices

Many telecom-industry experts predict that 5G's killer app won't be one thing, but instead its ability to transform industrial settings, where an "internet of things" like sensors, vehicles and other equipment is already serving farms, factories and transportation networks. Manufacturers have yet to mass-produce many 5G-enabled things—a chicken-and-egg problem that bedevils the telecom world.

Schneider Electric SE was retrofitting its 64-year-old electrical-equipment factory in Lexington, Ky., to boost productivity with Wi-Fi-connected digital sensors and other tools. But when the French industrial giant built a new private wireless network to improve efficiency, the off-the-shelf sensors and robots it used needed to be adjusted to become 5G-ready.

Schneider hired NTT Ltd., a subsidiary of Japanese telecom giant Nippon Telegraph & Telephone Corp., to manage its network and wire up new machines to make them 5G capable. The machines connect to a custom-

microprocessors than it would through a comparable 4G connection. Trimming latency could allow a range of sensitive applications to take off. But these lightning-quick reflexes are hard—and expensive—to build into a network.

"We're battling it milliseconds at a time just like everyone else," says Dave Mayo, executive vice president for network development at Dish Network Corp. He says his wireless company has succeeded in getting various parts of a complex new network working seamlessly.

The responsiveness of a 5G network also depends on the distance a piece of information has to travel before it is processed. Low-latency applications like videogames could end up confined to urban areas where companies have made the necessary investments. Miniature data centers at the base of every cell tower would be "utopia" for 5G software developers, Mr. Mayo says, but tech and telecom companies will probably make more targeted investments that could make 5G technology more powerful in some areas.

### Breaking the bank

Although large U.S. cellphone car-

Latin American operator Millicom International Cellular SA's markets costs about \$30. "The rush into 5G only forces capital away from where it's needed," says Millicom CEO Mauricio Ramos. "Let's finish the job on 4G."

Mr. Ramos says that many developing-nation cellphone carriers are devoting scarce resources toward fiber-optic infrastructure and more 4G equipment to cover millions of users who still lack reliable mobile-phone service.

GSMA Intelligence, the wireless trade association's in-house research group, estimates that 5G investments will make up 97% of North American carriers' capital spending between 2021 and 2025. That share drops to 63% in Latin America, the Middle East and North Africa and 34% for sub-Saharan Africa.

### Who profits?

The 5G future that telecom companies have promised—high-speed internet connections, low-latency links to nearby data centers and swarms of smart devices ready to tap into those networks—might be inevitable. But even then, the telecom companies that have invested in those systems risk losing the money game to big tech compa-

## 5G Expands to More-Affordable Phones

Phones around \$200 are possible, thanks to falling chip prices

By SUMAN BHATTACHARYYA

5G is increasingly available in cheaper phones, making faster mobile service affordable to more lower-income consumers around the world, market researchers say.

The key to this broader access to 5G service is the falling price of the specialized semiconductors needed for 5G phones, a trend that analysts expect to continue over the next two years. The lower price makes it economically feasible to put the chips in a wider range of phones.

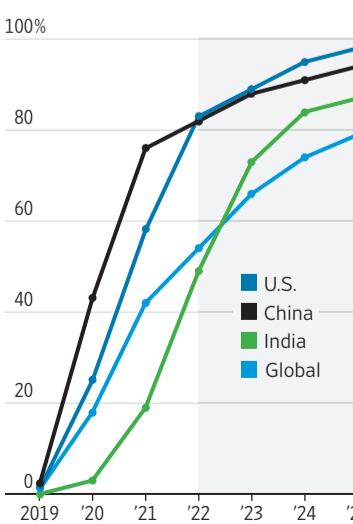
Already, 5G technology has moved beyond the premium smartphone market, in which devices sell for \$550 or more, to the midtier market where devices sell for \$250 to \$550, and even

cheaper 5G phones are available in some places, says Jeff Fieldhack, research director at Counterpoint Research.

5G technology is "moving very quickly downwards in terms of affordability, faster than any previous generation," says Frank Boulben, chief revenue officer of Verizon Communications Inc.'s Consumer Group. In Asia, prioritization of 5G chips by chip manufacturers in China and Taiwan is pushing chip prices lower and driving the production of budget 5G-capable devices, says Neil Shah, vice president of research at Counterpoint.

The average price of a so-called 5G system-on-a-chip that performs multiple functions is now \$40 to \$45, according to Counterpoint. That price could reach \$20

### 5G capable phones as a share of all smartphone shipments



Note: 2022 to 2025 are forecasts. Source: Counterpoint Research

late this year or early next year, at which point it would make economic sense for more mobile-phone makers to put 5G chips in devices with a retail price of around \$150, says Mr. Fieldhack.

U.S. carrier Consumer Cellular Inc. expects to offer a 5G phone priced at \$199 by June, and one priced at around \$150 by early next year, according to Greg Hughes, the company's vice president of portfolio strategy. Currently the company offers 5G-capable phones priced at \$349 and higher. Mr. Hughes says he expects consumer adoption of 5G to increase when the technology is available in lower-priced smartphones.

Globally, 5G capability will spread to at least 80% of phones priced under \$200 over the next

two to three years, from less than 5% now, says Runar Bjørhovde, research analyst at market-research firm Canalis.

In all, 42% of smartphones shipped to retailers around the world in 2021 were 5G-capable, according to Counterpoint. That percentage is expected to increase to 54% this year and 66% next year, Counterpoint says. In the U.S., 58% of smartphones shipped to retailers were 5G-capable last year, and that percentage is expected to increase to 83% by the end of this year and to 89% by the end of 2023, Counterpoint says.

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# JOURNAL REPORT | 5G TECHNOLOGY



Huawei Technologies 5G equipment at the Xinyuan Coal Mine in China's Shanxi province

## 5G Takes Off in China

The country is out in front in deploying private networks in industrial sites

By DAN STRUMPF

**C**hina is racing ahead in building the infrastructure of 5G networks, but it is inside factories, coal mines, shipyards and warehouses where the technology is really taking off.

The country is widely seen as being out front in the deployment of localized, high-powered 5G networks in sprawling industrial sites, which aim to use the technology to help automate labor-intensive or dangerous industrial processes, and hopefully boost productivity.

These sites include 5G coal mines with remote-operated drilling machinery, so-called smart factories that automate production and quality control, and seaports with internet-connected cameras that process and tally freight containers.

These 5G private networks are different from the consumer-oriented networks that blanket towns and cities, in that they are dedicated to specific enterprise sites with tailor-made hardware and software. Isolated from public networks, they can be adjusted to specific requirements and handle more complex jobs and processes.

### Big plans

Many such projects are under construction in the U.S., Europe and other parts of the world. But analysts say the construction and deployment of private networks is further along in China, where the government has set aggressive targets for building high-tech work sites powered by next-generation networks.

"China is quite ambitious in terms of developing their 5G—basically putting 5G as a national priority and targeting the digital transformation and connectivity of the economy," says Sihan Bo Chen, head of Greater China for the telecom industry group GSMA.

Last year, companies involved in their deployment generated \$1.2 billion of revenue from 5G private networks serving businesses and governments in China, accounting for about a third of the global total and

more than the revenue generated in Europe and North America combined, according to ABI Research, a technology research firm. The figure is a proxy for the scale of the deployments of such networks in China, says Leo Gergs, an analyst with ABI who studies the use of 5G networks by businesses.

The research firm expects China's lead to widen in the coming years, given aggressive government targets. This year, it expects private-network revenue generated in China to rise about 60%. By 2025, it will top \$5 billion, ABI forecasts.

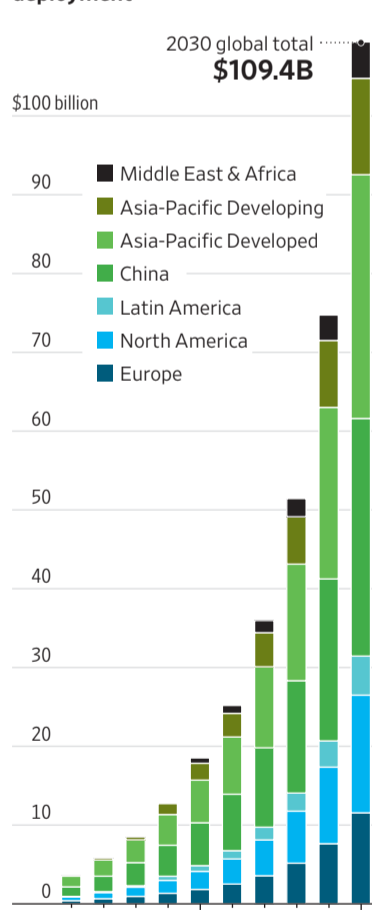
China leads the world in 5G deployment in general. As of the end

of last year, the country had installed more than 1.4 million 5G base stations, accounting for 60% of the world's total, according to the Ministry of Industry and Information Technology, the government agency that oversees China's tech sector.

In April last year, Beijing set out a series of goals for the country to meet in 5G by 2023. In a plan called "Set Sail," it aims for more than 560 million individual 5G users across the country, with the 5G subscriber rate exceeding 40% of the population. For major industries, the government wants the penetration rate for 5G to exceed 35%. It also has a goal to build more than 3,000 private 5G networks by that year.

"This shows how deeply involved the government is" in China's 5G deployment, Mr. Gergs says.

### Revenue from 5G private network deployment



### Going underground

Several such projects in China are already up and running. One example: the Xinyuan Coal Mine in China's coal-rich Shanxi province. Last year, telecom vendor Huawei Technologies Co. and state-owned operator China Mobile developed an underground 5G network to allow remote inspections of mines and the automation of mining activity, with tunneling equipment operated by remote control deep underground.

Similar technology is at work at the Xiangtan Iron & Steel plant in the southern Chinese city of Xiangtan. In 2019, Huawei and China Mobile built 5G coverage for the plant, which now runs 5G-connected cranes and video surveillance cameras to help operate and monitor the plant, according to a report on the project by GSMA. At the port city of Ningbo, the companies built a similar 5G network to help automate the tallying of freight containers and power unmanned container trucks, GSMA says.

"Private network deployments are really just starting and China is already a bit of an outlier," Mr. Gergs says.

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## Forget 5G. Let's Talk About 6G.

The next generation promises to make mobile internet truly ubiquitous

By CHRIS KORNELIS

As wireless carriers jostle to see who can win the race to deliver 5G services to customers, planning is already well under way for what comes next.

Yes, we're talking about 6G.

That might seem premature, since 5G has a long way to go before most consumers and businesses have it—let alone take advantage of it. But computer scientists and engineers say that 6G has the ability to take cloud computing and the mobile internet to true global ubiquity.

"High-speed services available anywhere, anytime," says Thyaga Nandagopal, senior adviser for technology, innovation and partnerships at the National Science Foundation.

Adds National Science Foundation Director Sethuraman Panchanathan: "This next generation will make societies more equitable by opening up opportunities to anyone, regardless of geography, class, race, gender, ethnicity or disability, and

crosoft Research, Redmond, expects a jump in performance from 5G to 6G. Download speeds could jump to 100 gigabits per second from 10, he says. Network capacity will increase exponentially.

Andre Fuetsch, executive vice president and chief technology officer of network services at AT&T, says he is expecting a revolution in consumer devices in a 6G world.

"The smartphone of the future is really going to be more around glasses," says Mr. Fuetsch. With processing and storage offloaded to the cloud and running at 6G speeds, he says, immersive experiences using lightweight smartglasses will be the new normal, rather than staring at the screen of a phone.

Significant changes could be ahead for education as well, both in terms of equality of access to the latest teaching methods across the country, and as a way of revolutionizing how lessons are taught. The NSF's Dr. Panchanathan describes how technology using 6G is being developed that uses virtual-reality headsets to create immersive simulations of environments and places that for many students would be unreachable.

To Mr. Chandra, the most important change coming will be the breakthrough in being able to provide internet access to people who still lack it, whether for economic reasons or because service hasn't reached their



augment human lives in unimaginably positive ways."

Around the world, governmental, scientific and commercial entities are working together to invest in and eventually standardize technologies that will accomplish the lofty goals of 6G.

Once truly global, high-speed connectivity is achieved, 6G is expected to provide the structure necessary for "things that right now seem like science fiction," says Theodore Rappaport, founding director of NYU Wireless, a New York University research center whose work encompasses wireless and electrical engineering, computer science and medicine. "Totally immersive, 3-D virtual reality on phone calls and on meetings over wireless, true remote surgery and remote monitoring, the idea of the metaverse—these kinds of things will start to emerge in 6G."

Ranveer Chandra, head of networking research at Mi-

part of the world yet. A report from the International Telecommunication Union last year noted that 37% of the world's population didn't have access to the internet.

In agriculture, Mr. Fuetsch says, greater positioning accuracy will help farmers seed their crops more efficiently, with more density and increased yields.

Experts say that predictions made today just scratch the surface of what's possible with 6G. Once the underlying technology is made available, they say, inventors and entrepreneurs will use it to develop new products and services.

"This will light up scenarios which none of us had thought about," says Mr. Chandra. "We can't always predict what these would be, but they will change our lives, mostly for the better."

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## A Lifeline for Huawei

As its 5G business suffers, its software business is booming

By DAN STRUMPF

China's Huawei Technologies Co. has seen its 5G business suffer because of restrictions imposed by the U.S. and other countries. But its booming software business is throwing the telecom giant a lifeline.

Huawei's enterprise business group has emerged as its fastest-growing division recently, as the company's handset sales plunge and it faces setbacks in its business with telecom opera-

tors. Several countries, led by the U.S., have banned the use of Huawei equipment in 5G networks, and the U.S. has also imposed broad controls on the use of American technology by the company, blocking its acquisition of many advanced chips.

Huawei's wide-ranging business division sells cloud services, software and infrastructure to businesses, governments and other institutions—and doesn't depend as heavily on foreign chips and other compo-

nents. The division grew 23% in 2020—the most recent year for which the company has released financial results—bolstered by booming growth in its cloud-computing revenue.

Huawei has emerged as a major competitor in cloud computing in China, with 17% of the market in the third quarter of last year, making it the second-largest provider of cloud services in the country, according to market tracker Canalys. It was behind Alibaba Group Holding Ltd., whose share stood at 38.3%.

In addition, Huawei has said it has seen strong demand for technology used in smart cities and other digital infrastructure services

for businesses and governments.

Huawei executives have said the company is reorienting toward software, autos and other business areas that don't require as many foreign chips.

"Our overall strategy and specific initiatives are all developed to ensure that we could survive and develop while remaining on the entity list for a long time," Eric Xu, a senior Huawei executive, said during a press conference last year, referring to the U.S. export restrictions.

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## JOURNAL REPORT | 5G TECHNOLOGY

A helicopter takes part in a Pentagon-funded study of 5G signals' potential effects on aviation safety.



## 5G and Flight Safety

*Continued from page R1*

altimeters could pick up unwanted wireless signals, but the scientific record was limited.

Radar altimeters are all designed to operate between 4.2 gigahertz and 4.4 GHz on the wireless spectrum, but some of them don't effectively filter out signals they receive outside of that band—an artifact of devices designed several decades before the invention of the smartphone. U.S. cellphone carriers eventually will use frequencies spanning the 3.7-3.98 GHz range.

"Bad front-end receivers, in some of the altimeters—those need to be fixed," says Ted Rapaport, director of the wireless research center at New York University's Tandon School of Engineering. "5G stays in its lane."

In 2019, lab tests at the Aerospace Vehicle Systems Institute, a research cooperative of aerospace companies and government organizations, based at Texas A&M University, found that altimeters might detect signals in the 3.7 to 4.2 GHz band under certain circumstances. RTCA Inc., an industry-government group that advises the FAA, followed that with a paper in late 2020 that raised similar concerns.

Telecom-industry executives said at the time that lab tests couldn't re-create conditions in

the air. Wireless companies around the world moved forward with their 5G expansions subject to various signal-power limits. Then, in early 2020, the Federal Communications Commission authorized companies to start using new 5G frequencies as soon as December 2021. The U.S. regulator said that the wavelengths it auctioned would be far enough away from aviation frequencies to avoid harmful interference.

But U.S. air-safety regulators were unconvinced, and this winter issued restrictions on certain airports and aircraft models that caused some airlines to cancel some flights. AT&T Inc. and Verizon Communications Inc. agreed to postpone the launch of their high-speed wireless services using the new frequencies until late January. Later, they temporarily scaled back the signals around airports while regulators worked to sort out the issue.

### Closer cooperation

Experts from the aviation and telecom industries could have started holding deeper "engineer to engineer" discussions of the available research two years ago, but pertinent information didn't start flowing between the two until recently, according to AVSI Director Dave Redman.

"That's been one of the disappointments here," Dr. Redman says. "Somehow it got politicized or commercialized, and it became more arm's-length. Between industry, the level of technical discussion that we needed really

started in January."

At the same time, telecom companies have started working closely with the FAA, with AT&T and Verizon engineers riding on FAA planes collecting signal data near active 5G cell towers.

"It's really unprecedented for us to be working with an industry that we don't regulate," says FAA Administrator Steve Dickson. "We were hitting a wall before," because of a lack of real-world data on how 5G signals might impact airplanes, Mr. Dickson says. "Now we have it."

### European, Canadian tests

Engineers outside the U.S. have run some limited experiments to flesh out the findings from the lab tests in 2019 and 2020. In France, regulators ran field tests last June and December involving helicopters to determine whether 5G signals could interfere with their radar altimeters, says Eric Fournier, director of spectrum planning and international affairs at France's frequency regulator.

The airborne experiments tested three models of helicopters and two types of altimeters. Mr. Fournier says the tests didn't reveal any effect on the devices.

"We were able to have some reasonable confidence that at least for helicopters, for the general aviation and emergency services, there will be no problem," he says, adding that the agency has considered tests for planes.

Field tests in Norway also found no effect on several types of radar altimeters tested at an

airport in the country's southwest, according to John-Eivind Velure, director of the spectrum department at Nkom, Norway's telecom agency.

The Norwegian tests were carried out in April 2021 at Bergen Airport using a cellular base station mounted on a terminal building. The radar altimeters tested were installed on eight types of aircraft, including helicopters and Boeing 737 and Airbus A320 planes, Mr. Velure confirms.

"The main conclusion is that we didn't find anything," he says. More recently, Nkom said it didn't find any operational effects

## 'Engineer to engineer' research talks spur progress

on radar altimeters in three types of helicopters during tests it and other agencies conducted at an airport to the east of Oslo.

In Canada, an agency called Innovation, Science and Economic Development Canada has tested how 5G signals and radar altimeters interact in a lab and is now working on plans for field tests that could be conducted over the next few months. Wireless companies recommended that the agency work to gather more data, including by potentially con-

ducting field tests, according to a description of comments they submitted to the regulator about restrictions on 5G in a certain spectrum band.

Canadian authorities in November issued restrictions related to that spectrum that include 5G-frequency exclusion zones near runways at certain airports and a national requirement that antennas for ground stations used to beam wireless connections be tilted down. ISED Canada said in a filing that it "considers a cautious approach to possible interference is warranted by imposing the proposed mitigation measures until further studies are completed."

FCC Chairwoman Jessica Rosenworcel said in a January press conference that 5G service and aviation can coexist. She added that telecom companies that bid for spectrum need confidence in the rules before they spend billions of dollars on licenses to expand their service.

"As we use more of our airwaves for commercial wireless activity, we are going to have to engage in more cooperation—early and often," she said.

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## What Can You Do With 5G? South Korea Offers a Glimpse.

The technology is more widely available and faster than anywhere else

By JIYOUNG SOHN

In South Korea, long renowned for its ultrafast internet speeds, consumers and businesses alike are diving into a 5G-enabled future.

In a country where 5G networks are more widely available and speedier than anywhere in the world, a host of 5G-linked technologies—including self-driving cars and digital factories—have already arrived, while new metaverse platforms are quickly gaining ground among a tech-savvy population.

In Sangam-dong, a neighborhood in northwestern Seoul, a small number of autonomous cars shuttling passengers to select locations have begun commercial operations. Customers can use a mobile app to fetch the self-driving vehicles along a set route. Each ride costs 2,000 won (\$1.63), though the first ride is free. For now, there are four vehicles in operation. More cars are planned for later this year, along with some autonomous buses.

The self-driving cars, developed by Seoul-based autonomous-driving startups 42dot and SWM, have a "safety driver" on board who mans the wheel when the cars pull over to pick up and drop off passengers, and in designated children's safety zones, where cars must be hand-steered by law. The safety driver also can take over in case of emergencies, like a passenger getting sick and needing to get to a hospital. Passengers sit in the back seat.

The self-driving cars currently operate like a shuttle service, traveling on two preset routes, 5.3 kilometers and 4 kilometers long (3.3 miles and 2.5 miles). For now, the vehicles go to only designated stops on the route, but the eventual goal is for them to operate like a cab, able to pick up riders at any desired location, according to the city government.

The city government plans to roll out 5G-supported autonomous buses next month and said



A safety driver in an autonomous shuttle car on its route in Seoul

it is working with Hyundai Motor Co. to introduce an autonomous "robo taxi" service in Seoul this year. Kakao Mobility, the transportation business unit of local technology company Kakao Corp., is testing an independent service in the city of Pangyo in which riders can fetch autonomous cars to a location of their choice.

South Korea's Ministry of Science and ICT is collaborating with Samsung Electronics Co.'s network business and the nation's three telecom providers to deploy a 5G Wi-Fi network in Seoul's subways for riders. It's the first large-scale attempt globally to

deploy 5G on high-speed mass-transit vehicles and is expected to provide subway passengers network speeds that are roughly 10 times faster than the current average, Samsung says. The 5G Wi-Fi network is expected to become operational across Seoul's subway lines by the end of this year, the ICT ministry says.

5G also has made significant progress in the business sector as a technology helping to digitize and upgrade various industries. Enterprise 5G networks, which prioritize low-latency connections, are helping companies and institutions make the technological leap in ev-

erything from smarter factories to remote surgeries at hospitals.

For example, South Korean telecom provider KT Corp. has deployed private 5G networks at Hyundai Heavy Industries Co. to support autonomous robots sent to dangerous construction sites. The telecom provider also has worked with Seoul-based Severance Hospital to install a 5G system and 360-degree cameras inside ambulances to enable live communication and patient data exchanges between hospital staff and first responders. KT's rivals are pursuing similar projects, further incorporating 5G into the local corporate landscape.

Looking ahead, 5G networks are expected to play a key supporting role in ushering the world into another up-and-coming tech space—the metaverse.

In 5G-ready South Korea, a lot is already happening in the metaverse space, which largely targets young users. SK Telecom Co.'s "If-land" as well as internet giant Naver Corp.'s metaverse platform Zepeto have hosted everything from K-pop fan meetings and big brands' gadget launches to film viewings and university commencement ceremonies.

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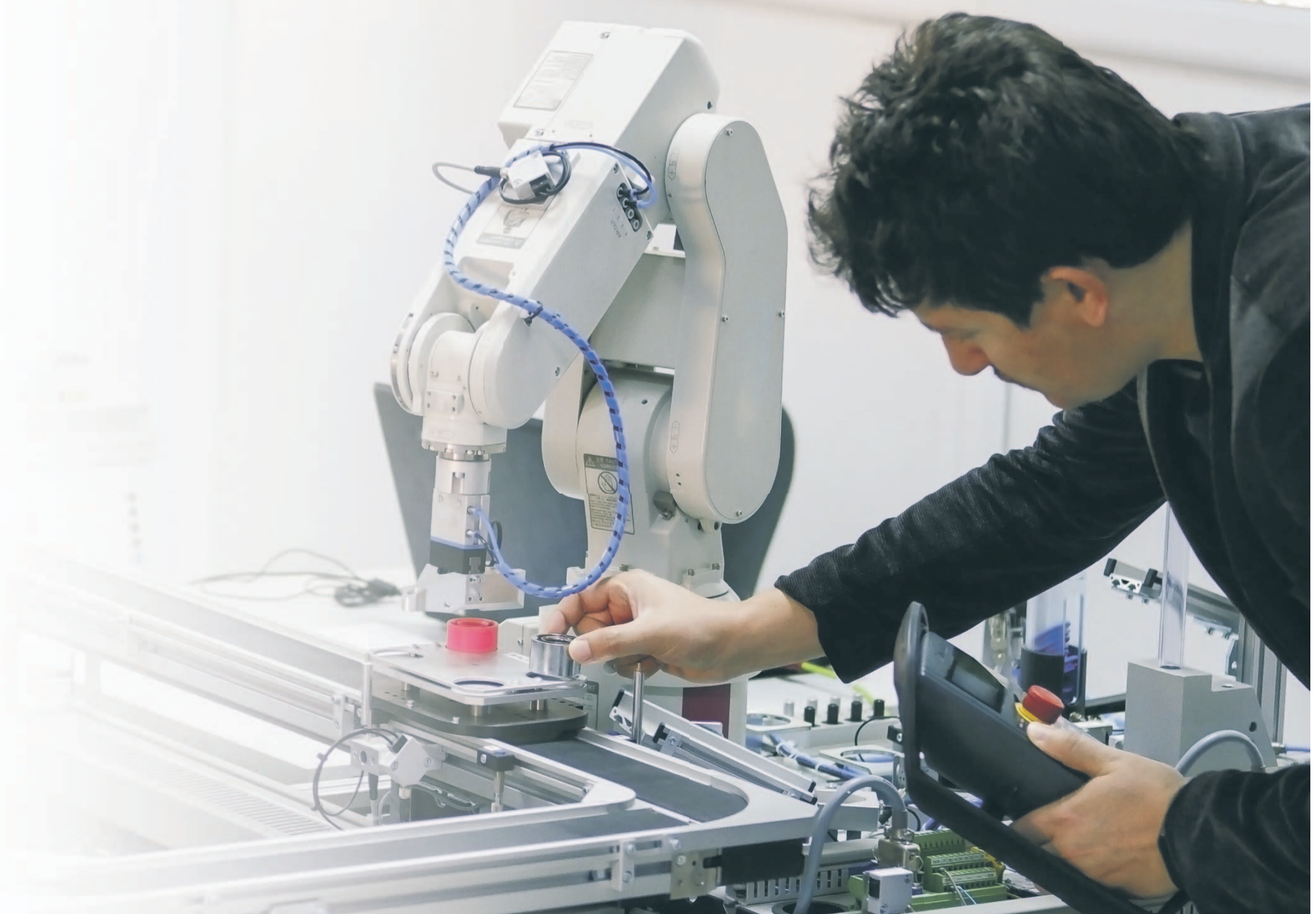
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