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Our US midterm election model

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China's digital dollar dodge

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Can Liz Truss fix Britain?

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The spy in your sewage

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SEPTEMBER 10TH–16TH 2022

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# THE MAN WHO WOULD BE TRUMP

Bolsonaro prepares his Big Lie in Brazil





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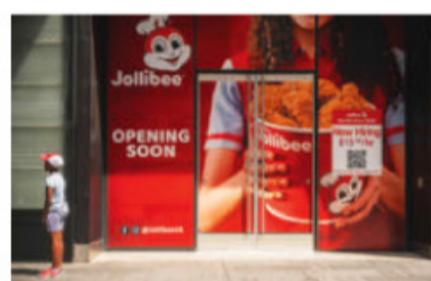
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 to take part in "a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."

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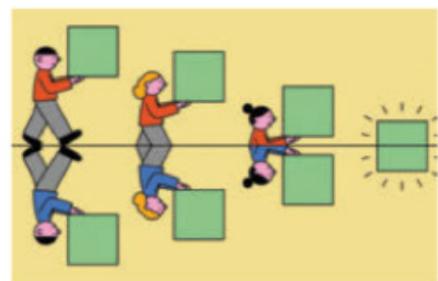
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P L E A S E   E N J O Y   R E S P O N S I B L Y



**Liz Truss** won the leadership contest of Britain's Conservative Party, thus becoming prime minister. Ms Truss appointed loyalists to the top jobs in her cabinet. Kwasi Kwarteng was appointed chancellor of the exchequer, James Cleverly foreign secretary and Suella Braverman home secretary. There was no place at the table for Rishi Sunak, her opponent in the Tory race. Ms Truss's most pressing task is helping Britons through the cost-of-living crisis. She unveiled plans to cap energy prices in order to protect households and firms from surging bills.

#### Feeling the heat

Ursula von der Leyen, the European Commission's president, proposed a set of measures to cushion the impact of rising **energy prices** on Europe's economy. They include mandatory consumption cuts, taxing the windfall profits of energy firms to provide rebates to consumers and capping the price of Russian gas. European energy ministers will meet on September 9th to discuss the proposals. Russia has slashed gas deliveries to Europe to exert pressure on it to stop supporting Ukraine.

The International Atomic Energy Agency published its assessment of the situation at the **Zaporizhia** nuclear plant in Ukraine, following a visit by its inspectors. The report said that continued shelling in the area was causing damage, including to the building that houses "fresh nuclear fuel". The IAEA suggests it is urgent to establish a protection zone around the facility.

Vladimir Putin approved a foreign-policy doctrine based on protecting the "**Russian world**", which in essence means allowing the Kremlin to interfere in other countries with Russian-speaking populations. Meanwhile, a court in Moscow sentenced **Ivan Safronov**, a widely respected former journalist, to 22 years in prison after a closed-doors trial. Mr Safronov was arrested in 2020 on charges of treason, which he denies. He had written about Russia's defence industry.

Russia is reportedly buying millions of rockets from **North Korea** to deploy in Ukraine. A Pentagon official said turning to North Korea for weapons was a sign the Russians were facing "challenges on the sustainment front".

**Kenya's** Supreme Court dismissed an appeal by Raila Odinga against his narrow loss in a recent presidential election to William Ruto. Mr Ruto will be sworn in to office on September 13th.

The ruling People's Movement for the Liberation of Angola, better known as the **MPLA**, was officially deemed to have won an election on August 24th, defeating the National Union for the Total Independence of Angola (**UNITA**) by 51% to 44%, the closest result since the **MPLA** came to power in 1975. **Angola's** president, João Lourenço, will remain in office. But civil-society groups said the true result was a tie or a narrow victory for **UNITA**.

Jihadists were suspected of planting a bomb that killed at least 35 civilians travelling on a road in northern **Burkina Faso**. The country's military ruler had recently met his counterparts from Mali and Ivory Coast to discuss ways of tackling the jihadist threat in the region.

**Israel's** army admitted that there was a "high probability" that one of its soldiers had killed a prominent Palestinian journalist, Shireen Abu Aqleh,

in May by mistake. It said the soldier had not identified her as a journalist.



Almost 62% of voters in **Chile** rejected a new constitution. The referendum came after a year's deliberation by a constitutional convention that was plagued by scandal and heavily influenced by the hard left. At 388 articles, the proposed charter would have been one of the world's longest. Gabriel Boric, the new left-wing president, had backed the process. His disapproval rating has risen from 20% to 56%.

#### Bolsonaro emboldened

**Brazil's** right-wing populist president, Jair Bolsonaro, whipped up big crowds at independence-day parades in Brasília and Rio de Janeiro. He said that an election on October 2nd would be a struggle of "good versus evil", and that polls showing that Luiz Inácio Lula da Silva, a former left-wing president, is ahead in the race were "lying".

Ten people were fatally stabbed in Saskatchewan, a rural province of **Canada**. It was one of the country's deadliest mass killings. One of the two suspects was later found dead with knife wounds. The other died after being captured by police, reportedly from self-inflicted injuries.

A judge agreed that an independent lawyer, or "special master", should be appointed to review the papers that were taken from **Donald Trump's** home in Florida by the FBI. The decision will delay the Justice Department's evaluation of the classified files that Mr Trump removed from the White

House. Documents on the nuclear capabilities of an unnamed country were reportedly among the stash of papers confiscated by the FBI.

NASA's **Artemis** unmanned mission to the Moon may not be launched now until mid-October, after a second attempt was called off, this time because of a fuel leak.

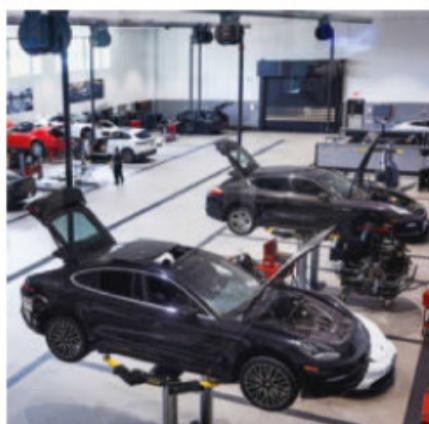
**Californians** were told to conserve power in order to avoid blackouts, as the state sweltered under record-breaking temperatures. Some cities reached the mid-40s Celsius (110°F).

A bomber attacked the Russian embassy in Kabul, killing six people, including two members of the diplomatic mission. Russia is one of the few countries to keep a diplomatic presence in **Afghanistan** after the Taliban's return to power. Scores of bombs this year have killed hundreds of people.

Faced with a labour shortage, **Australia** raised the annual cap on permanent immigration to the country by a fifth, to 195,000 people. It was the first increase in a decade.

The government of **Kiribati** suspended three appeals-court judges. The three had ruled against a decision to deport a high-court judge who is also the husband of the opposition leader. The country of 32 Pacific atolls now has no judges in the high court or appeals court. Observers worry that Kiribati could slide into authoritarianism, just as China gains influence.

**China** extended a lockdown in Chengdu, home to 21m people. It is the biggest city to close since Shanghai locked down earlier this year. Dozens of Chinese cities have imposed restrictions to stem outbreaks. New cases have topped 1,000 per day for the past month. A 6.8 magnitude earthquake, felt in Chengdu, added to the suffering, killing scores of people.



Volkswagen said it would list **Porsche** in an IPO on the Frankfurt Stock Exchange that will take place in either late September or early October. The German carmaker is offloading only a portion of the stock, some of which will go to the Porsche-Piëch families, VW's biggest shareholders. The rest will be sold to individual investors. VW will retain the remaining shares. The flotation could raise as much as €10.6bn (\$10.5bn), which would make it the biggest stockmarket listing in Europe since Glencore in 2011.

**OPEC+** decided to cut output by 100,000 barrels of oil a day, a slap in the face for Western governments that have urged the cartel to increase production in order to keep prices down. The cut is small (global demand is about 100m barrels a day), taking output back to where it was in August, and reverses a small increase in production that was agreed after Joe Biden visited Saudi Arabia to plead for more oil on the market. Amid talk of a recession in the West, the price of oil has in fact dropped, from almost \$125 in early June for a barrel of Brent crude to under \$90 this week for the first time since February. OPEC is signalling that it does not want the price to fall much further.

**South Africa's** economy shrank by 0.7% in the second quarter (over the previous quarter), when the country had to contend with flooding that disrupted production at car factories and washed away infrastructure, and power cuts. Unions have been calling for a general strike to protest against high living costs, poverty and unemployment.

Fresh covid lockdowns in China's cities last month lay behind a drastic slowdown in the country's exports, which rose by 7.1%, year on year, compared with 18% in July.

### The mighty greenback

China's central bank moved to shore up the limp **yuan** by reducing the amount of foreign currency that banks need to hold. Meanwhile the **yen** fell to ¥144 against the dollar, its weakest level since 1998. Officials hinted that they were ready to intervene to head off a further decline. The **euro** sank to a new 20-year low amid the turmoil in European energy. And the **pound** plunged to \$1.14, its lowest level since 1985, amid dire forecasts about the British economy.

The Biden administration gave more details about its plans for subsidising the production of **semiconductors** in America. Around \$28bn will be provided for cutting-edge logic and memory chips, \$10bn for current-generation chips, and \$11bn for a new technology centre and other institutes. The government wants to boost domestic expertise in semiconductors, and reduce the reliance on chips from South Korea and Taiwan.

In a deal that further diversifies its health-care business, **cvs Health** agreed to buy **Signify Health**, which provides virtual and at-home help to patients, for \$8bn. Amazon was one of several companies said to have bid for Signify. CVS was known mostly for its retail pharmacy chain until 2007, when it expanded into the administration of prescription-drug programmes and then, in 2018, health insurance.

**Juul** reached a settlement with 33 American states to resolve claims that it targeted its vaping products at under-age users. Under the agreement it will pay out \$438.5m and will be banned from portraying users under the age of 35 in its marketing materials. The company, which denies wrongdoing, is appealing against a ruling from the Food and Drug Administration that would stop it from selling its e-cigarette merchandise in the United States.

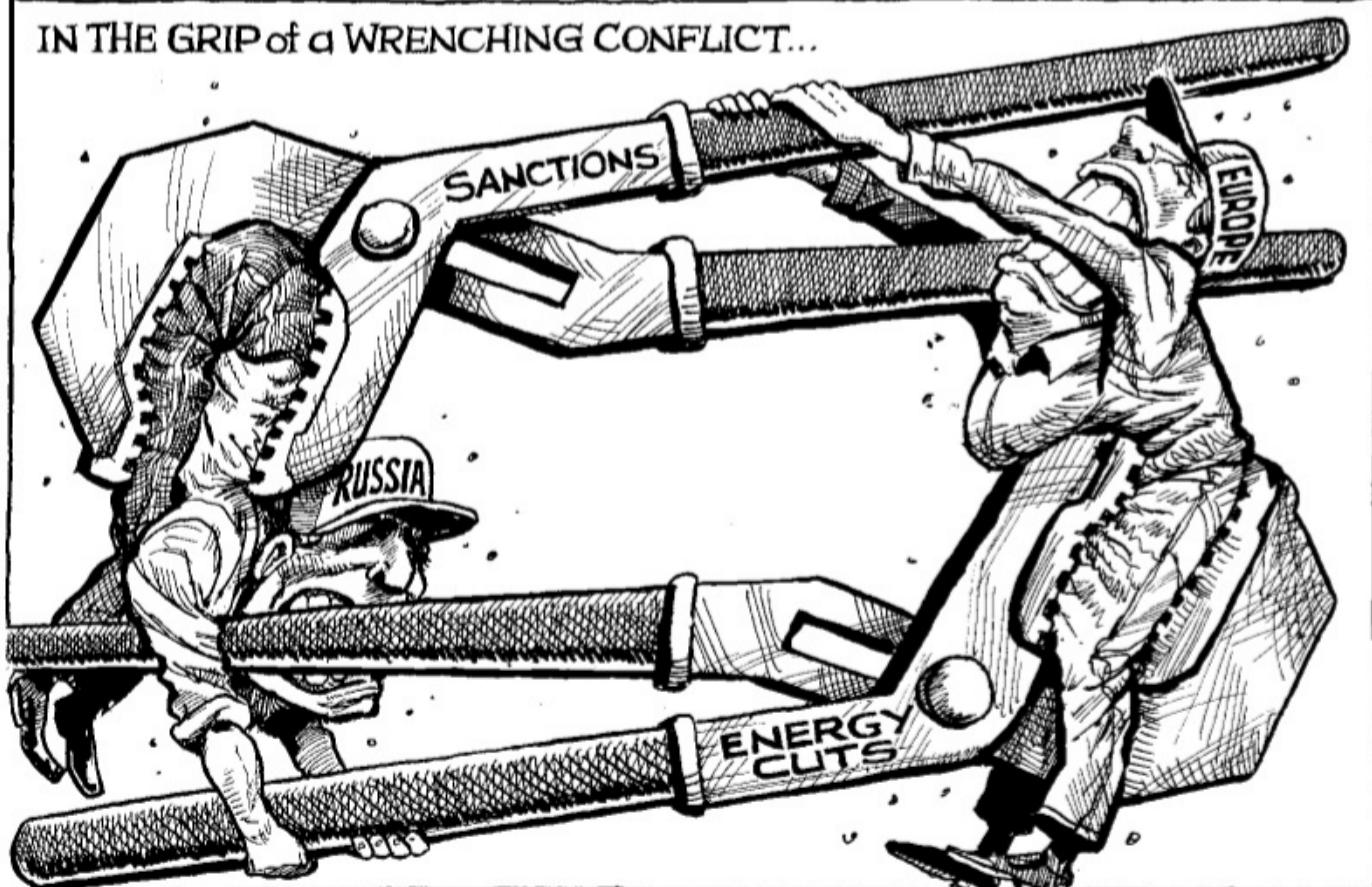
Apple launched the **iPhone 14** at its annual product event. Like previous models, the latest iPhone includes pricier Pro versions, which have helped increase revenue for Apple. Smartphone sales have declined considerably this year, but the one "bright spot",

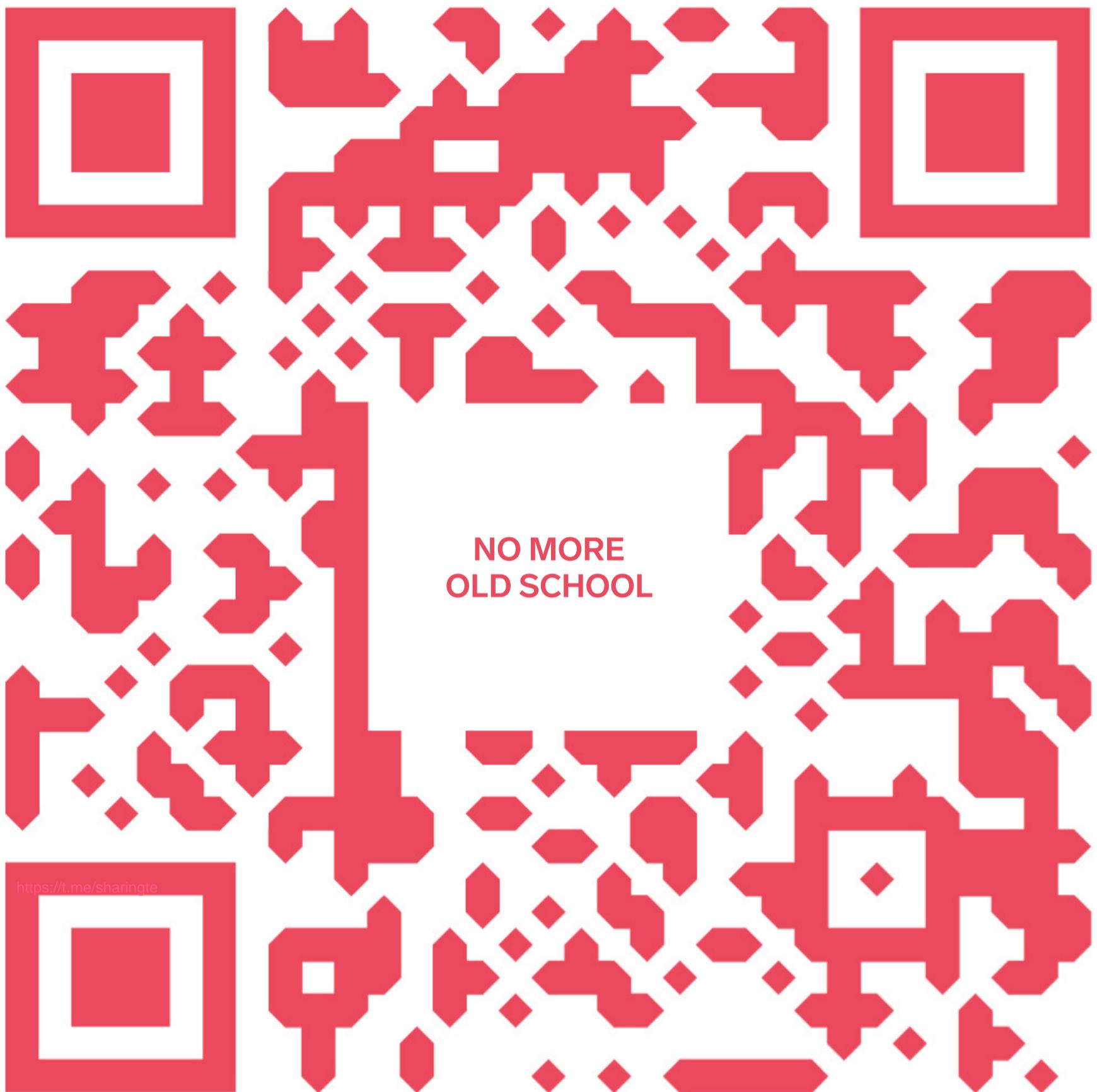
according to Counterpoint Research, is the market for phones priced above \$900.

### Force majeure

The judge overseeing the forthcoming trial between **Elon Musk** and **Twitter** ruled that evidence will be allowed from a whistleblower that Mr Musk says backs his claim that Twitter misled him about fake user accounts, the reason why he wants to back out of his \$44bn takeover. A text was revealed at the hearing in which Mr Musk said he wanted to "slow down" the deal just two weeks after it was announced, in case world war three breaks out in Ukraine.

The chairman of Lukoil reportedly died after falling out of a hospital window in Moscow. The Russian oil giant said he had passed away following a severe illness. A number of senior **Russian businessmen**, mostly connected to energy, have died in mysterious circumstances this year. In May Russian media reported the death of another senior executive at Lukoil, who was found in a room used for voodoo rituals at the house of a shaman. Reports at the time said he had been given venomous toad poison to cure a hangover.





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# The man who would be Trump

Jair Bolsonaro threatens democracy in Latin America's biggest country

JOE BIDEN was talking about the United States when he warned, on September 1st, that "Democracy cannot survive when one side believes there are only two outcomes to an election: either they win or they were cheated." He might as well have been talking about Brazil.

Next month its president, Jair Bolsonaro, faces an election that every poll says he will probably lose. He says he will accept the result if it is "clean and transparent", which it will be. Brazil's electronic voting system is well-run and hard to tamper with. But here's the catch: Mr Bolsonaro keeps saying the polls are wrong and he is on course to win. He keeps insinuating, too, that the election could somehow be rigged against him. He offers no credible evidence, but many of his supporters believe him. He seems to be laying the rhetorical groundwork to cry ballot fraud and deny the voters' verdict. Brazilians fear he could then incite an insurrection, perhaps like the one America suffered when a mob of Donald Trump's supporters invaded the Capitol on January 6th 2021—or perhaps even worse.

One reason for worrying that Mr Bolsonaro might borrow a page from Mr Trump's unprincipled playbook is that he has often done so before (see Briefing). He sows division: the other side are not merely wrong but evil. He dismisses criticism as "fake news". His instincts are as authoritarian as Mr Trump's: he waxes nostalgic about the days of military rule in Brazil. One of his sons, who is also one of his closest advisers, openly applauded the Capitol rioters. Mr Bolsonaro was one of the last world leaders to accept that Mr Biden had won.

Mr Bolsonaro, previously a foul-mouthed congressional gadfly, was elected president in 2018 on a wave of anti-establishment fury. To pull off this unlikely feat, he had learned tricks from another foul-mouthed, widely underestimated outsider. The most important of these was the skilful and mendacious misuse of social media. He remains Brazil's uncontested master of this, and has thus convinced his supporters of two things. First, that if he loses, it is evidence that the vote was unfair. Second, that a win for his main opponent, Luiz Inácio Lula da Silva, would hand Brazil to the devil. In the parallel reality that Mr Bolsonaro has constructed, a President Lula would shut down Brazilian churches, turn the country into a narco-state and encourage boys to wear dresses.

This is nonsense. Lula is a pragmatic leftist and was a fairly successful president between 2003 and 2010. Buoyed by a commodities boom, he presided over rising incomes and a big expansion of the welfare state. The boom collapsed after he left office, and his successor and protégée, Dilma Rousseff, was impeached amid a vast corruption scandal dating back years. Lula himself was found guilty of taking bribes, though his convictions were later thrown out and he denies wrongdoing. In short, he is far from the ideal candidate, but he is squarely within the realm of the normal—and he is a supporter of democracy.

Mr Bolsonaro, by instinct, is not. He may operate within a democratic system, but he is constantly looking for ways to evade its strictures. And the worry is that the system constrain-

ing him is less robust than the one that constrained Mr Trump. It is inconceivable that the American military would abet a coup, but Brazil's last military regime only ended in 1985. The army is deeply entrenched in government and has asked questions about the voting system. The country is buzzing with talk of a possible putsch.

It probably won't happen, but some kind of insurrection might. Mr Bolsonaro routinely incites violence. (It is hard to know how else to interpret phrases like "Let's machinegun... Workers' Party supporters.") More than 45 politicians were murdered in the first six months of 2022. Mr Bolsonaro's followers are better armed than ever before: since he took office and widened loopholes in gun controls, the number of guns in private hands has doubled to 2m. If Brazil's electoral tribunal announces that Lula has won, armed Bolsonaristas might attack the tribunal. The question then is which side military police forces, nearly 400,000-strong in all, who are supposed to keep order, would take. They are trigger-happy and fond of Mr Bolsonaro, who has proposed a shield law for officers who kill suspects. Some might prove more loyal to him than to the Brazilian constitution. If there is chaos in the streets, Mr Bolsonaro might invoke emergency powers to postpone the handover of power.

He thus poses as great a threat to Latin America's largest democracy as he does to the world's largest rainforest. (On his watch, the slashing and burning of the Amazon has proceeded 70% faster than before, because he does almost nothing to stop it.) And whatever happens, he and his movement are not going away. He has learned from Mr Trump how to snatch influence and power from the jaws of defeat.

When normal candidates lose elections, their parties tend to dump them for someone fresh. When Mr Trump lost, by contrast, he told his core supporters that they had been robbed, and turned this Big Lie into a rallying cry. It unites his movement and gives him a chokehold over the Republican Party: hardly anyone who denies it can win a Republican primary. The same Big Lie could make Mr Bolsonaro the most influential opposition politician in Brazil. His base—evangelical Christians, gun-owners and rural folk who feel over-regulated and vulnerable to land invasions—may stick with him, convinced that he is Brazil's rightful president. His supporters in the legislature and in the states may hobble Lula's ability to govern. Brazil may grow ever more divided.

## Nothing to lose but your chainsaws

The best outcome would be for Mr Bolsonaro to lose by such a wide margin that he cannot plausibly claim to have won, either in the first round on October 2nd, or (more likely) in a run-off on October 30th. It will be a tense, dangerous few weeks. Other countries should publicly support Brazilian democracy, and quietly make clear to the Brazilian military that anything resembling a coup would make Brazil a pariah. Brazilian voters should resist the pull of a shameless populist. They, and their country, deserve better. ■



## Energy in Europe

# Crunch time

### How to tackle Europe's energy crisis without destroying public finances and power markets

**F**OR A YEAR Europe has lived under the shadow of an energy blockade as Vladimir Putin threatened to turn off the gas taps to the continent. Now the threat has become reality and the prospect of a cold, dark winter is hitting home. On September 5th Russia said it will shut down its Nord Stream pipeline for as long as Western sanctions are in place, sending benchmark gas prices surging by another 30%; they currently stand at the equivalent of around \$400 for a barrel of oil. At today's futures prices, annual spending on electricity and gas by consumers and firms across the European Union could rise to a staggering €1.4trn, up from €200bn in recent years, reckons Morgan Stanley, a bank.

The energy shock is now a full-blown political and economic crisis (see Europe section). Already 14% of families in Britain are behind on their utility bills. ArcelorMittal, a steelmaker, will shut down a plant in Bremen. As consumers and businesses reel and a recession looms, behind the scenes there is chaos in energy markets. Because Europe's power prices are set by the costs of the marginal producer, which is often gas-fired, the gas surge has become an electricity shock, too. With prices haywire some generators are facing a cash crunch as counterparties demand more collateral: utilities from Düsseldorf to Vienna are seeking bail-outs (see Business section). Meanwhile renewable and nuclear firms with low marginal costs are eyeing hundreds of billions of euros of windfall profits.

Just as when the pandemic struck, governments are reacting with a mad scramble of handouts and interventions. The economics textbooks are being ripped up and the sums are vast. Germany is spending a further €65bn (\$65bn, or 1.8% of GDP) on measures including a price cap for a basic amount of electricity for households and firms. As we went to press Liz Truss, Britain's new prime minister, unveiled a plan to freeze prices for two years, which could cost more than £100bn (\$115bn, or 4.3% of GDP), and will be financed through borrowing. The EU is considering capping power generators' revenues.

The scale and intensity of the crisis warrants broad and generous support. But in their haste to act, governments must not throw economic logic and prudence out of the window. The most popular tactic—retail energy-price freezes, like those in France and on Ms Truss's agenda—are superficially tempting. They are easy to understand and bring down measured inflation, which might ease some of the pressure on central banks to raise interest rates. But they have huge drawbacks, too.

If prices are capped, demand for energy will remain too high, delaying the crucial adjustment that needs to take place to a world where gas is no longer as cheap as it was before Mr Putin launched a war. You can already see the evidence for this: higher prices meant that Germans consumed nearly 10% less natural gas in the first half of this year compared with a year earlier. And it may prove politically impossible to end price freezes once they are in place. Already Ms Truss is capping prices not just for one winter, but two.

Instead of fixing prices there is a better approach. Governments should offer households relief through lump-sum cash

rebates on bills, possibly disbursed via utilities firms. This would protect living standards while leaving markets to set the incentive to curb energy use. For the poorest, for whom energy bills eat up as much as a sixth of total spending, rebates will need to be supplemented with other benefit payments.

Firms will also need help. In order to avoid a domino effect of collapsing power companies, some may need temporary state credit lines, as banks did during the financial crisis: the cost can be recouped by levies later on. Swathes of other businesses, meanwhile, may find themselves in danger of closing down rather as they were when lockdowns were imposed in 2020. Some may no longer be viable—think of German chemical firms with business models built on abundant Russian gas. That is why government-backed loans can only provide a temporary lifeline. Such support must be time-limited.

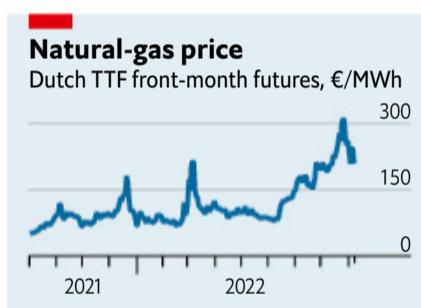
Rebates and temporary loans are the way to help the economy, then. But how on earth should governments pay for them? The cost will be enormous and come after huge pandemic bail-outs. Europe, including Britain, is spending at least €450bn fighting the energy shock, even before winter has struck. Italy and Germany have spent 2-3% of GDP; Ms Truss's plan could push Britain's total bill to twice that. The temptation is to finance the spending through even more borrowing. But wider deficits in a time of inflation will force central banks to raise interest rates even higher, making it more expensive for governments to service their debts.

That is why windfall levies on some generators must be considered. Under the intricacies of Europe's electricity markets they are paid today's exorbitant spot prices even if their costs are far lower and unrelated to gas. Retroactive

levies on risk-taking firms that compete in free markets are to be avoided because they undermine the very basis of capitalism. This is not one of those cases: the firms are operating in highly regulated markets and may make windfall profits that are multiples of the capital they have deployed. Our estimates based on research by University College London suggest that generators' excess profits may be around £30bn (\$41bn) in Britain. Much of the spending on top must come from wider tax increases.

### Current affairs

It would be madness to make long-term decisions about redesigning power systems in the midst of chaos. Some principles are already obvious, though. Keeping the market mechanism is essential in order to incentivise investment in new capacity and innovation in energy storage such as batteries (see Free exchange). But it makes sense to shift more of the energy system away from spot prices to long-term contracts, especially as cheap wind power is a growing share of production. Finding new sources of energy—from gas in Qatar to renewables—is also imperative. With the right response Europe's citizens can be protected and the transition to a cleaner energy system kept on track. The wrong response could bankrupt governments and trap Europe's power industry in the past. ■





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## Elections in America

# Meet our midterm model

**The Republican Party is set to do worse in November than it should. Donald Trump's influence is to blame**

**I**N PENNSYLVANIA, a celebrity cardiologist who rages against the inflated price of crudité faces a tattooed lieutenant governor with heart trouble. In Georgia, the choice is between a pastor on one side and a former star of “Celebrity Apprentice” and “Celebrity Cook-Off” on the other. In November the results of these contests, and a few others like them, will determine control of the US Senate for the next two years. On this hinges the ability of the White House to staff its administration, to confirm judicial nominations and to pursue legislation.

Because so much is riding on this election, *The Economist* has built a statistical model to try to predict what will happen (see United States section). Our past forecasts—of France’s presidential elections in 2017 and 2022, America’s midterms of 2018 and its presidential election of 2020—all favoured the eventual victor months in advance. Of course, a probabilistic forecast that correctly puts a 70% chance on something happening will look wrong 30% of the time.

Our 2022 midterm model has two main findings. First, though Republicans are favoured to win the House, it won’t be a blowout. We currently think the likeliest outcome is that they win 224 seats. Second, we think Democrats are favoured to hold on to the Senate. The likeliest outcome there is that they end up with 51 seats.

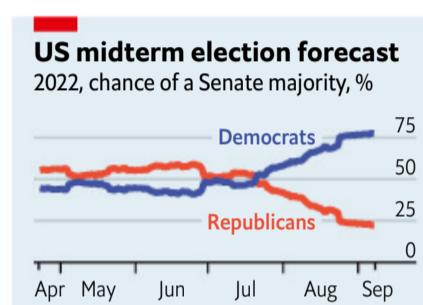
These predictions are surprising because 2022 ought to be a bumper year for Republicans. The party that holds the White House normally gets thwacked in the midterms—a pattern that stretches back 80 years. The only recent exceptions are the midterms after Republicans started impeachment proceedings against Bill Clinton and those following September 11th 2001. Furthermore, President Joe Biden is about as popular as an egg-white omelette at a barbecue contest. His approval rating matches Donald Trump’s at this point in his presidency. Inflation is

high, and near the top of Americans’ concerns. Voters perceive the Democratic Party to be just as extreme as the Republican Party (and some Democrats are determined to prove them right).

Against this backdrop, narrowly winning the House and remaining the minority in the Senate would be a rotten result for Republicans. Pinpointing the cause of this likely underperformance is not a science: inflation has fallen a little, petrol prices are coming down and Democrats, having given up fantasies of another New Deal, have passed some smaller but meaningful pieces of legislation. But two things stand out.

The first is that Republican states have pursued extreme positions on abortion that alarm many voters. A majority of Americans think abortion should be legal in the first trimester and restricted thereafter. Several Republican states have banned abortion entirely since the Supreme Court overturned *Roe v Wade* this year. Previously, anti-abortion purists had little grip on public policy. Now, in some states, they control it. As a result, a ten-year-old rape victim had to travel out of Ohio for an abortion, and there has been a surge of women registering to vote. Back in June, before the Supreme Court’s bombshell, our model favoured Republicans to win a majority in the Senate. Their chances of doing so have declined by 30 points.

The second is Mr Trump’s enduring hold over the Republican Party. Trumpty candidates triumphed in the primaries. As a result, the former president has saddled the party with some odd people who hold even odder views in winnable Senate races in Arizona, Georgia, Ohio and Pennsylvania. Mr Trump, in addition to his other flaws, is a proven vote-loser—as the 2018 midterms and the 2020 presidential election demonstrated. The sooner the Republican Party recognises this the better, both for its own electoral prospects and for America’s democracy. ■



## The global financial system

# The mighty dollar

**Why the dollar is strong—and what might threaten its supremacy in the long run**

**T**HE MOST important currency in the world is on a roll. The dollar has climbed by around 20% over the past year against a basket of global currencies, and is at its highest level in 20 years. One euro is worth less than a dollar, and other pretenders to the dollar’s throne as the world’s reserve currency, such as the yen, yuan or even crypto, have slumped. Even as America has used its financial clout to squeeze Russia, others have rushed to the dollar-based financial system as a safe haven. This cyclical strength of the dollar dominates the global financial landscape. But look closer and technological shifts that could eventually challenge it are gathering momentum.

The dollar’s run reflects several forces. Even as Europe and China face a downturn, America’s economy is proving remark-

ably resilient, with job growth and profits still strong. Inflation is high and the Federal Reserve is raising rates faster and higher than other big central banks. Energy crises are terms-of-trade shocks that favour energy exporters and punish the currencies of importers. Thanks to the shale revolution America became a net energy exporter in 2019 for the first time since 1952. None of these dynamics looks likely to abate soon.

For America a strong dollar has some advantages. It will help bring down inflation, even if it might pose some longer-term competitiveness problems. For much of the world, though, it is bad news. The greenback remains pre-eminent in trade invoicing and cross-border debt. As a result, as the Fed raises rates and capital shifts to America, the finances of emerging markets get ►

jenni kayne home

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► squeezed. So far big economies such as India have held up well, but smaller places with heavy debts, such as Sri Lanka and Pakistan, are in big trouble.

The endurance of this global dollar-based system, in spite of the resentments it arouses, is testament to America's staying power. It has been through difficult times in the past 15 years, with a financial crisis, a badly handled pandemic, a widening fiscal deficit and a constitutional crisis in 2021. Nonetheless, even as the greenback soars, two technological developments bear close attention (see Finance & economics section).

First, new state-run digital currency and payments systems are, at last, gaining traction. China's e-yuan now has 260m users and the technology involved might eventually allow China to run its own global payments network while maintaining capital controls, which it regards as necessary to maintain stability. That could make it all but immune to American sanctions. Elsewhere, state payments systems are exhibiting powerful network effects. India's UPI system is vast and Brazil's payments system, Pix, has been used by 126m people. Today these payments networks are domestic; tomorrow they could facilitate cross-border

transactions as alternatives to the dollar-based system.

Second, if you look beyond the scams and bubbles in cryptocurrencies, decentralised finance technologies continue to improve. Developers are pushing through an upgrade to the Ethereum blockchain, on which most DeFi applications are based. On September 15th it will switch to a new mechanism for making collective decisions known as proof-of-stake that is far less energy intensive: the drop in power consumption will be equivalent to Chile being switched off. It could pave the way for Ethereum to become more efficient at handling high transaction volumes—and a more credible global rival to traditional finance.

In the 20th century the dollar eclipsed sterling as the world's reserve currency, to become widely used as a unit of account, store of value and means of payment. The next change in currency regimes may not be so clear-cut, as new technologies make it possible to separate out some reserve-currency functions—allowing countries to establish autonomy in payments, for example—without contesting the dollar's role in other areas. The dollar's reserve-currency status is not changing yet. But technology will change what it means to be a reserve currency. ■

#### Public health

## Spying on sewage could save lives

### Wastewater surveillance is a cheap tool to spot health problems, but it is open to abuse

**I**F AS THE saying goes, you are what you eat, then it stands to reason you also excrete what you are. Vladimir Putin apparently appreciates this fact. When he relieves himself on trips abroad, it is reported that a modern-day "groom of the stool" discreetly retrieves the dictator's waste for subsequent disposal, lest it fall into the hands of hostile intelligence agencies, whose analysis might reveal compromising signs of ill-health.

Mr Putin is right to pay attention to poo. The analysis of a city's wastewater—the product, as some put it, of the "collective gut"—can provide all sorts of insights into the health and behaviour of its residents. Such surveillance is inclusive enough to sample all toilet users. It is also anonymous; billions of dollars cheaper than alternative sampling techniques; and flexible enough to monitor everything from drug use to diet and even mental health.

Its main use at the moment is to track the spread of disease. This is not a new idea—wastewater surveillance was used in some places to track polio during the 20th century—but it has come into its own in the era of covid-19 (see International section). Ad hoc programmes have been set up by volunteer academics in over 70 countries. They have managed to spot infection waves and the arrival of new variants weeks ahead of clinical sampling.

As the pandemic recedes the danger is that interest in wastewater surveillance does likewise. Britain's effort was being wound down when this summer's discovery of poliovirus in London sewage reignited interest. Dismantling such systems would be a mistake. As other sorts of covid-19 testing slow down, and as people become less likely to report symptoms, wastewater will become a more effective early-warning system for dangerous mutations. This is especially true in poor countries, where alternative means of testing are onerously expensive.

There is no reason to limit the system to looking for covid. It could be applied to many other diseases, including monkeypox, typhoid and shigella. But for wastewater surveillance to fulfil its potential, today's improvised systems need to be transformed into something more stable and organised. That will require standardisation, and rules governing the collection and sharing of data. And the job should no longer be left to civic-minded academics—public-health authorities need to shoulder the load.

It would also be wise to think about how exactly the resulting data will be used. As the dust settles, law-enforcement agencies may find that public-health authorities have installed and legitimised a tool that could help spot criminal behaviour. Anything from the consumption of illicit drugs to the handling of bomb

ingredients could potentially be detected in sewage. Though present-day sampling is done on watersheds containing hundreds of thousands of people, well-placed samplers could help authorities surveil anything from a small neighbourhood to a single block of flats. Some universities already use such techniques for covid surveillance on campus.

But popular support will be harder to secure if people worry that their data might be widely shared. Testing bodies should therefore be open about the extent of their capabilities, and exactly how data will be used. They should also consult with the people being monitored, so that something approaching informed consent can be obtained.

For years, epidemiologists have been calling for worldwide surveillance systems to help them track emerging diseases. Covid-19 has made a powerful case for such investments. Cheap, ubiquitous wastewater monitoring could be just such a system. It would be a shame if privacy worries caused support for it to vanish down the toilet. ■



## British politics

# Can Liz Truss fix Britain?

**The new prime minister must eschew pantomime radicalism if she is to succeed**

DURING LIZ TRUSS's campaign to become leader of the Conservative Party, her team tweeted a promise to "hit the ground from day one". The post was widely derided and swiftly modified, but it inadvertently captured the scale of the problems facing Britain's new prime minister. Ms Truss, now ensconced in Downing Street, has an enormous job in front of her.

The energy crisis tops the pile of priorities, as it does for governments across Europe. Britain's predicament is worse than in many other places, in large part because it is more dependent on gas. Inflation is already in double digits; some have predicted that it might exceed 20% in 2023. Shortly before Ms Truss won, the Resolution Foundation, a think-tank, forecast that falls in real incomes would wipe out all pay growth since 2003.

Industrial action afflicts the transport network and the criminal-justice system. Parts of the National Health Service (NHS) are in disarray: almost 1,000 patients a day wait more than 12 hours in accident-and-emergency departments. Underlying everything is the challenge of reinvigorating British growth and productivity, which have been stuck in a 15-year rut, denting living standards and weakening the quality of public services. No one could solve all these problems in the time that remains before the next general election, currently due in January 2025. But can Ms Truss at least start to turn things around?

The sceptics have many reasons to be dubious. Her own record in government is thin. She has the lowest level of support among her own MPs of any Tory leader elected under the current system. She has spent an interminable summer making promises she cannot keep to a tiny electorate of party members. Like the rest of her party, she maintains the fiction that Brexit is an unalloyed good. And the sheer exhaustion of 12 consecutive years of Tory government shows up in her cabinet of loyalists. Jacob Rees-Mogg, the business secretary, should be put in a museum, not in charge of anything.

And yet underestimating Ms Truss is a mistake her opponents have already made to their cost. This newspaper shares her view that boosting economic growth should be the government's overriding objective. Prime ministers can set the weather by articulating simple messages well. Boris Johnson, Ms Truss's shambolic and unlamented predecessor, managed to make "levelling up", his goal of reducing gaping regional inequalities, part of the political vernacular. Ms Truss can do the same in the service of growth.

She has a streak of radicalism that matches the seriousness of the problems Britain faces. She is impatient with the orthodoxies of the Treasury, the powerful finance ministry, and will be in lockstep with Kwasi Kwarteng, the new chancellor (see Bagehot). She is prepared to question the way things are done, from utilities regulation to the remit of the central bank. She is also canny enough to have survived in the cabinet since the days of David Cameron. And Ms Truss has a useful habit of surprising on the upside: during the course of the leadership campaign, she improved markedly as a public performer.

The immediate test Ms Truss faces is the cost-of-living crisis.

Her plan for dealing with soaring energy bills was unveiled on September 8th. Ms Truss has swiftly ditched her campaign stance of opposing "handouts" and is guaranteeing that average annual household energy bills will not exceed £2,500 (\$2,870) over the next two years. Businesses will get help, too. That is one of the most generous handouts in Europe, a stunning reversal.

The fact that the lady is for turning on energy bills makes sense. The price shock for households and firms requires bold action. But pragmatism need not mean reckless abandonment of free-market principles and fiscal responsibility. It would be better to offer consumers a big rebate rather than mute price signals altogether through a cap. The plan will initially be funded through borrowing, a splurge that will force the Bank of England to raise interest rates even higher.

Her desire to ignite growth—to create, in her words, an "aspiration nation"—is still to be sketched out. The risk is that her formula will depend too much on a cartoonish mixture of tax cuts, deregulation and Brussels-bashing. Ms Truss seems to be betting that headline tax cuts will lead to higher growth, when the evidence for that is ambiguous at best. The targeted investment incentives and R&D tax breaks proposed by Rishi Sunak, her erstwhile rival for the leadership, make more sense.

Her blunt commitment to scrap any remaining EU laws by the

end of the 2023 would keep the Brexit head-bangers happy but do little to help British businesses. There are opportunities profitably to diverge from the EU in areas such as competition policy, but seizing them requires time and effort, not an arbitrary deadline and a bonfire. Stoking confrontation with Europe over the status of Northern Ireland would be a similar sort of pantomime radicalism. Rather than shows of bravado abroad, a true radical would show courage at home by letting the bulldozers roam, making it much easier to build houses, labs and wind farms where they are needed.

## Small state or big talk

It's the same story with the welfare state, about which she has said very little beyond that she does not want new taxes and would not cut public services. A true radical would initiate a candid conversation about the NHS, which is fraying badly, not repeat canards about it having too many managers. A true radical would be taking on her own base when it comes to funding the state, raising inheritance taxes and ending the triple-lock rule that buoys state pensions.

Boldness of this sort would make it hard for Ms Truss to pretend that she is still cleaving to the manifesto that won the Tories the election in 2019. But calls for another general election should be ignored for now: Britain cannot afford yet more weeks of political limbo. If Ms Truss can genuinely focus her government and ministers on the goal of growth, and deliver fine-grained policies to encourage investment and unlock capital, she can surpass expectations. If she opts for a pastiche of 1980s-style policies, slashing taxes and red tape and not much else, then she will be remembered as a reactionary, not a radical. ■



**Children in war zones**

Modern urban warfare ("Mean streets", August 20th) is forcing humanitarian organisations to assess how they can best support and protect civilians, who make up 90% of the casualties when explosive devices are used in populated areas. The latest data from the Peace Research Institute Oslo show that the number of children living in high-intensity conflicts has increased to 193m, up from 162m in 2019, a jump of 19%.

In Ukraine the prevalence of basements and bomb shelters has led to local organisations distributing bunker kits to help children in the harshest of circumstances. The world's first "Paediatric Blast Injury Field Manual" has been translated into Ukrainian and is used by medics dealing with the unique challenge of children who have been hurt by the weapons that dominate city fighting.

There is hope on the horizon. In June, after three years of negotiation, consultations concluded on the final text of a political declaration on strengthening the protection of civilians from the use of explosive weapons. The declaration has the support of big military powers, including America, Britain and France. Turning these commitments into operational and tactical changes that will protect civilians is essential for armies learning how to fight in cities in the future.

JAMES DENSELOW  
Head of conflict and humanitarian policy and advocacy  
Save the Children  
London

**Labor squeaked through**

To say that Labor "swept" to power at Australia's general election in May is stretching the meaning of words one would associate with a strong victory ("Voice recognition", August 13th). In fact, Labor's share of the vote actually fell by 0.8% from the previous election in 2019. The incumbent Liberal coalition secured

450,000 more first-preference votes than Labor and had a higher vote share in more seats. Labor won through the preference system, not in its own right. Winning 32.6% of the overall vote, fewer than one in three voters endorsed Labor directly.

NEIL SUTCLIFFE  
Melbourne

**Credit-card fees**

"Pay back" (August 20th) argued that the Visa-Mastercard duopoly is bad for American consumers and retailers. Interchange fees are collected by financial institutions and credit-card companies from merchants, who offer electronic-payment options within their establishments. For smaller financial institutions, like the ones I work with every day, costs such as interchange fees impact their very livelihood. Legislation that limits these fees has proved to benefit only large retailers, who have pocketed the profits rather than helped consumers as they promised.

Congress recently introduced the Credit Card Competition Act, attempting to sever the link between card networks and financial institutions in order for retailers to have more options and cut costs. Instead of fees being charged by a card network that the bank chooses, banks and credit unions will be forced to offer retailers additional network options. This will directly limit much-needed revenue that smaller banks and credit unions rely on to survive.

This legislation is modelled after the Durbin Amendment, which put an artificial price cap on interchange fees in the hopes of allowing retailers to drop their prices. Yet that hasn't been the case. Only about 1% of retailers have actually reduced prices for consumers since the legislation was put in place. And the amendment ranks as one of the most harmful laws and regulations for its negative impact on fundamental banking services.

Why would Congress even consider repeating such harmful legislation? Are we voting to protect small financial institutions and consumers, or only large retailers?

CHARLES "CHUCK" FAGAN  
President and CEO  
Payment Systems for  
Credit Unions  
St Petersburg, Florida

**Run as an independent**

It will be interesting to see if Liz Cheney, Ron DeSantis and Adam Kinzinger, all compelling Republicans, decide to contest the presidential election in 2024 as independent candidates if Donald Trump emerges as the candidate of a much smaller far-right Republican Party ("Leashed", August 20th). Similarly, it appears that some Democratic presidential aspirants might split from their party, just as Andrew Yang has, and run against a smaller Democratic Party represented by Joe Biden or Kamala Harris.

A multi-candidate split of Republican and Democratic votes based along regional or micro-ideological lines could break the 50-50 political gridlock that has plagued American democracy for decades. With some luck, it might give rise to a newer, stronger and better represented America.

LISA VERMA  
Boonsboro, Maryland

**Funding gene therapies**

The problem of funding rapid innovation in the manufacturing of gene therapies ("Realising the revolution", August 27th) could be solved by a retroactive funding pool, combined with a market for impact certificates for specific contributions to solving that problem. Impact certificates would represent specific research projects. They would have tradable shares and the option to issue new shares for future capital raises, similar to publicly traded companies.

Governments, foundations and donors could pool their resources and lock them into a digital safe that would be

opened when the problem has been solved, with rewards retroactively flowing to the owners of the most highly ranked impact certificates. Such a mechanism could leverage the funds from non-profits with funds from speculative entities, bringing both more money and more allocative efficiency to the table.

The idea of an impact market for science is broadly applicable and could potentially spur new scientific breakthroughs. These approaches are being developed right now and they will be available in the near future, at least as prototypes.

PHILIPP KOELLINGER  
Professor in economics  
Vrije Universiteit Amsterdam

**Horrible Latin**

Charlemagne spoke of a *decennium horribilis* that the European Union went through (August 20th). That is bad Latin. *Decennium* being a neuter noun the adjective should be *horrible*.

JOHAN LOOGMAN  
Luxembourg

Charlemagne used the scaffolding that has been wrapped around the Palais de Justice in Brussels over the past decade as an analogy for the additional roles that the EU has accumulated in that time. Should these roles be removed, just as the scaffolding should be removed from the Palais de Justice? Institutions rarely give up powers once they have been assumed.

Maybe UNESCO should amend its description of the Palais de Justice as "unique" to include the permanent scaffolding. As with the EU's accumulation of powers, it would probably be easier than trying to fix the underlying problem.

STUART SMITH  
Maastricht, Netherlands

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## Trump's tropical disciple

RIO DE JANEIRO

**Jair Bolsonaro is poised to lose the Brazilian election. He will not go quietly**

THE POLLS are clear. Jair Bolsonaro, Brazil's rainforest-ravaging president, is likely to lose an election in October. His leftist rival, Luiz Inácio Lula da Silva, is 13 points ahead. But many of Mr Bolsonaro's supporters do not believe the polls.

Most polling firms are "in the hands of the left", says Eduardo Oliveira, a former military man, at an independence-day rally for Mr Bolsonaro in Rio de Janeiro on September 7th. "If you do a poll on the streets, you'll see that 80-90% support Bolsonaro." Mr Oliveira fears that the voting machines are rigged in Lula's favour, and this scares him. For Lula plans to end private property, get rid of churches and turn Brazil into a "communist dictatorship", he believes. If Lula is declared the winner, there will be an uprising, warns Mr Oliveira. "Liberty is settled with bullets...If necessary, we'll go to war."

Donald Trump once called Mr Bolsonaro his "number-one ally". "Star pupil" would be more apt. Mr Bolsonaro is doing to Brazil something uncannily similar to what Mr Trump has done to the United States, using many of the same methods.

He has poisoned its politics with an intravenous drip of demagoguery, aggravating divisions. His opponents are wicked, not merely misguided. "We face a struggle between good and evil," he said this week. His supporters are the only true patriots. Criticism of his actions is "fake news". He constantly stokes fear, warning his followers that their way of life is under attack.

Today, he appears to be preparing his supporters to swallow a Big Lie. He signals that the election in October could be rigged. Brazil's digital voting system is well-designed and secure, but stories of skullduggery have spread like Amazonian fires on social media. Only 25% of Bolsonaro supporters say they trust the electoral system "a lot", compared with 60% of Lula supporters. A hefty 31% of Bolsonaristas do not trust it "at all", a share that will surely rise if their man loses and cries foul.

Many Brazilians worry that he will do exactly this, borrowing yet another page from Mr Trump's playbook. If he insists that he won and urges his supporters into the streets, Brazil could see a haphazard insurrection like the assault on Congress by a

Trumpist mob on January 6th, 2021, or worse. Whatever happens, neither Mr Bolsonaro nor his movement is likely to go away. They threaten democracy; and Brazil's safeguards are weaker than America's. It only shrugged off military rule in 1985.

Mr Bolsonaro says he will accept the election result if it is "clean and transparent". But he keeps suggesting it will be neither. In July he summoned startled foreign ambassadors to complain about his own country's voting system. "He's 100% not going to accept the result if he loses," says Guilherme Casarões, a political scientist at the Getulio Vargas Foundation.

With a slick disinformation campaign, Mr Bolsonaro has convinced his core followers that Brazil will go to hell if his opponent takes over: that Lula plans to shut down churches, forge alliances with drug gangs and set Brazil on a path to Venezuelan-style dictatorial socialism. Lula did none of these things when he was president between 2003 and 2010.

### Two flavours of nostalgia

That said, Lula is no paragon. His party was mired in corruption last time it was in power. He himself was convicted of accepting bribes (in the form of a flat and renovations of a country house) and spent a year and a half in prison. His convictions were annulled on a technicality and he maintains his innocence.

Lula's pitch to voters is that life was better when he was in charge. Though radical in his youth, he governed as a fiscally pru-

dent social democrat who poured many of the fruits of a commodities boom into helping the hard-up. Income per head rose 47% on his watch, though it fell back somewhat when the boom turned to bust under his successor, Dilma Rousseff.

Mr Bolsonaro's record is worse on several counts. Some 815,000 people died in the pandemic, which he never took seriously. Inflation is high (though falling), and 33m of 215m Brazilians struggle for food. ("The whole world can't have *filet mignon*," said the president in August.)

Many people will vote for Lula because the alternative scares them. "Yes, the corruption allegations against Lula bother me. But he's the only hope to stop Bolsonaro," says Maria Julia Lima, an art student in São Paulo. As the election's first round on October 2nd nears, many Brazilians worry that Mr Bolsonaro is planning something Trumpian, in the sense of treasonous.

The worst outcome would be a coup. Unlike in America, where the army's professionalism is beyond question, in Brazil a putsch is not unthinkable. The country is awash with coup chatter. In private, some senior politicians do not rule out the possibility. In August police raided the homes of several Bolsonarista businessmen who had allegedly been discussing the merits of a putsch on WhatsApp. The businessmen say they were just grumbling and the police had no business raiding their homes. Brazil last had a coup in 1964, and Mr Bolsonaro often praises the old military regime. He scrupulously protects the military's perks, and has included 6,000 officers in his government.

Yet still, a coup is unlikely, says Vinícius de Carvalho of King's College London. The armed forces have evolved since 1964. They still meddle more in politics than they should, and have aired doubts about the security of the voting system, but "they know that if Bolsonaro loses there will be another government and they will have to work with it," he says. The Biden administration has made clear that a putsch would make Brazil a pariah.

A more likely scenario is that Mr Bolsonaro could cry electoral fraud and stir up street protests. He paid rapt attention to the storming of America's Capitol in 2021. His son Eduardo, a close adviser, celebrated it. A similar insurrection in Brazil could be "much worse", says Cláudio Couto, a political scientist. Brazil is a more violent country than America, Mr Bolsonaro's supporters are heavily armed, and it is unclear whether the military police—386,000 gun-slingers whose job is to keep order—are more loyal to the constitution or the president. "They never made the transition to democracy, and they are very keen on Bolsonaro," frets Mr Couto.

If an insurrection erupts, the electoral tribunal could be the mob's first target. Its

### Doppelganger demagogues

	Jair Bolsonaro	Donald Trump
Casts doubt on integrity of election	✓	✓
Peddles extravagant lies about opponents	✓	✓
Stokes fear; tells supporters they are victims	✓	✓
Offensive, in a way supporters mistake for sincerity	✓	✓
Incites violence	✓	✓
Boasts about attractiveness of latest wife	✓	✓
Served in military	✓	✗
Vaccinated against covid-19	✗	✓

Source: *The Economist*

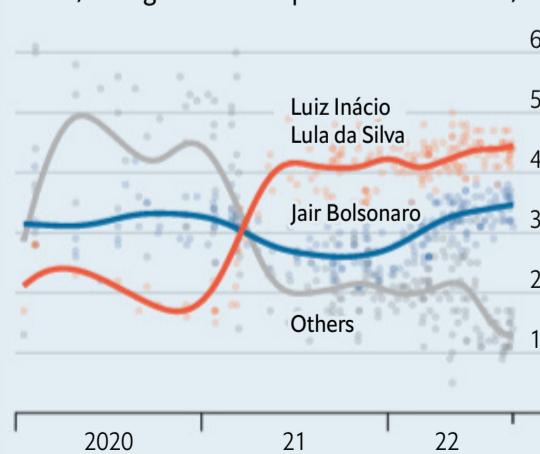
chief, Alexandre de Moraes, who is also a Supreme Court judge, is hated by Bolsonaristas. Last year he ordered the jailing of a congressman who appeared to advocate violence against judges. Mr Bolsonaro immediately pardoned the lawmaker.

Another possibility is that Mr Bolsonaro might cite public disorder as an excuse to invoke extra emergency powers and postpone Lula's inauguration. The campaign is already violent. In July an official of Lula's Workers' Party (PT) was shot dead at his birthday party by a policeman shouting that Lula was a crook and all PT supporters should die. In the first half of this year, 45 Brazilian politicians were murdered. Political threats, assaults, kidnappings and homicides have risen 335% in the past three years, according to the Federal University of Rio de Janeiro. Bolsonaristas have also pelted Lula rallies with human waste, on one occasion from a drone.

The main reason why Brazil's election matters to the rest of the world is because one candidate wants to save the Amazon and the other does not. When Lula was president, he cracked down on illegal log-

### Still trailing

Brazil, voting intention in presidential election, %



Sources: National polls; *The Economist*

ging, mining and cattle-ranching. Mr Bolsonaro has slow-walked enforcement and let the chainsaws whirr. The pace of deforestation has risen by about 70%, and Brazil's federal environmental agency has failed to take action after 98% of deforestation alerts. If there were a prize for accelerating climate change, Mr Bolsonaro would be a contender.

To a typical Brazilian voter, however, the Amazon is distant (Amazonian states are 60% of Brazil's land mass but home to only 13% of the population). The campaign is being fought over livelihoods and identities. Mr Bolsonaro's record in these areas is, respectively, mixed and divisive.

The economy took a beating during the pandemic, but is recovering. Growth is expected to be 2.3% in 2022 and 0.5% in 2023. Mr Bolsonaro's market-friendly finance minister, Paulo Guedes, persuaded him to slow the alarming growth of public pensions and formalise the independence of the central bank, both useful reforms. Unemployment has fallen from 12.2% to 9.1% on his watch. Tarcísio de Freitas, a former minister, says that "economic liberty and less red tape" are making Brazil more prosperous. In the run-up to the election, the president is lavishing extra handouts on the poor, which is helping him catch up in the polls (see chart).

Plenty of well-off Brazilians still back Mr Bolsonaro for fear that Lula will raise taxes or make it harder to fire workers. But others think the economy would be doing better if the president's toxic global image did not scare off investors. Many executives signed a letter in July warning that Brazil's democracy was in "grave danger".

Like other populists, Mr Bolsonaro has forged a direct personal connection with a large group of voters. His supporters call him "Mito" (literally "myth", but more akin to "legend"). He rarely gives press briefings, preferring to communicate with fans on right-wing podcasts, YouTube and Facebook Live. The 44% of Brazilians who get their political news from television back Lula by 52% to 25%; the 25% whose main source is social media prefer Mr Bolsonaro by 47% to 37%. His online fans are more engaged than Lula's, according to Quaest, a pollster. And he has built for them a paranoid world untethered from reality.

Lula, he suggests, will imitate Latin America's worst far-left despots. A recent tweet from his account warns that Lula's "ally" in Nicaragua persecutes Christians, the one in Venezuela closes newspapers and the one in Cuba arrests dissidents. There is no real evidence that Lula plans to do any of these things. But imaginary evidence abounds. Luiz Antonio Ayres, a prosecutor in Rio, cites a popular trope. After Lula was released from prison in 2019, he said he was "mais maduro" (more mature). This is "a clear reference to Venezuela", a

► failing state run by a tyrant called "Maduro", says Mr Ayres. "There is a power plot. [Lula is coming back] to impose a socialist dictatorship on Brazil."

The president's most ardent support comes from three overlapping groups: people in Brazil's agricultural heartland who dislike being bossed around by urban snobs; social conservatives who fear an erosion of traditional values; and Brazilians who are scared of crime and want guns to defend themselves. Mr Bolsonaro panders deftly to all three.

For Brazilians in the hinterland, he has built roads, subsidised fuel and given extra handouts to truck drivers. This year alone, he has awarded more than 340,000 title deeds to irregularly occupied farmland. He has made it easier for farmers, who sometimes clash with indigenous folk and landless activists, to arm themselves. He backs ranchers and miners who chop down trees. He has suggested that environmentalists who complain about the destruction of the Amazon are part of a foreign plot to steal it. "The Amazon is Brazil's, not yours," he told foreign critics in 2019.

Farmers did well under Lula, too, thanks to Chinese demand for beef and soybeans. But Mr Bolsonaro speaks the language of the frontier more fluently. Donning a cowboy hat at a recent rodeo, he rode a horse and thanked the audience for farming: "Without you, the world starves." He brags about offering more credit to farmers than any president in history, and slashing environmental fines by 80%.

He has brought God into government, forgiving church debts and siding with believers in Congress. His message is amplified in evangelical churches, which for nearly a third of Brazilians are a source of guidance and friendship. Mr Bolsonaro leads Lula by 16 percentage points among evangelicals. Many see him as a defender of family values, and forgive his crudeness. (This week he led fans in a chant implying that he never fails to get it up.)

Many religious conservatives see the graft that thrived under the Workers' Party as un-Christian. Lula "should be in prison", says Ricardo Gomes, a devout hotel worker in Rio. Raimundo Costa, who sells internet services in a slum outside Manaus in the Amazon, says when Lula was president, officials built smaller-than-planned subsidised homes and pocketed the difference. He plans to vote for Mr Bolsonaro.

Gun lovers support the president because he has made it much easier for them to pack heat legally, especially if they register as hunters, sharpshooters or collectors. A hunter may own 30 guns; a collector, an unlimited arsenal. Under Mr Bolsonaro, the number of guns in private hands has doubled to nearly 2m, according to Instituto Sou da Paz, a think-tank.

Many Brazilians want guns because

they are scared of violent crime, against which Mr Bolsonaro touts a shoot-first approach. He has proposed legal shields for cops who kill criminals and hoped that the latter would "die...like cockroaches". Brazil's murder rate has plunged since he took office, from 28 per 100,000 people in 2018 to 22 in 2021. The reason is that "more good people have guns" to deter the bad guys, says Debora Carvalho, an instructor at the Gunner Shooting Club in Barra da Tijuca, a posh suburb of Rio.

Criminologists cite other factors. A big gang war broke out in 2017 but later subsided. Reforms that predated Mr Bolsonaro's presidency, such as beefing up detective teams and separating gang bosses from other inmates in prisons, may have started to bear fruit after he took office. Still, better public safety helps Mr Bolsonaro, even if Brazil's murder rate is three times higher than America's.

### Brazil in black and white

Whether voters back him depends partly on whether they are more terrified of criminals or the police and, as in the United States, views on this topic have a racial tinge. In Alemão, a hillside favela in Rio, your correspondent saw young gangsters sitting by the street openly cradling sub-machine guns that some armies would envy. Yet residents complain more about the cops. In July a police raid ended in 18 deaths. Camila Santos, a resident, tells her son never to run when police are near, because "as a black boy he could be taken for a trafficker and killed." Her son is six.

Talking anonymously, two military policemen standing outside Alemão offer a different perspective. Cops are tied up with red tape, they grumble. Before launching a raid, they must ask permission from the state prosecutor's office. Both say they back Mr Bolsonaro because he backs them,



Not just for the oldies

whereas Lula makes excuses for criminals.

Plenty of voters in fancier neighbourhoods agree. For some, the fear that slum-dwellers will come and rob them outweighs any squeamishness about police brutality. A white woman sunbathing on a beach in Barra da Tijuca complains that she doesn't feel safe and can't wear jewellery in public. Lula wants to give human rights to criminals, she gripes, but "I don't think someone who rapes and steals is human."

Mr Bolsonaro urges his supporters to carry guns not just to defend themselves against criminals, but also against shadowy forces that might seek to oppress them. "Everybody has to buy a rifle, damn it! Armed people will never be enslaved," he told a crowd last year. He wants his supporters to be frightened that someone might take away both their guns and their freedom. Ms Carvalho shudders that Lula has promised, if elected, to close shooting clubs and turn them into libraries.

"It's like we live in two different Brazils," says Mr Casarões. In Bolsonaro-world, ordinary folk are threatened by a godless, gun-banning elite that wants to put boys in dresses and run the country like a socialist narco-state. Only Mr Bolsonaro (whose middle name means "Messiah") can save them.

Lula's supporters include some cranks and extremists, too. At a recent rally in São Paulo some wore t-shirts accusing Mr Bolsonaro of genocide (for his negligent response to covid-19), and amiable ladies insisted that Lula's corruption conviction was a frame-up by the CIA.

But there are two big differences between the leaders. Lula, for all his flaws, does not live in a fantasy world, and he does not incite violence. In May Mr Bolsonaro said it was a good thing if many of his opponents bunched together, because then "one little grenade kills everyone". He often mimes shooting people.

If Mr Bolsonaro loses the election but persuades his supporters they were robbed, he could remain Brazil's most influential opposition politician, leading a mass movement of the aggrieved, fired up by a shared sense of victimhood. In America today, nearly any Republican who seeks high office must pretend to believe that an election was stolen. This myth could one day propel Mr Trump back into the White House. It could work for "Mito", too.

Mr Bolsonaro's followers in Brazil's Congress, in the states and on the streets could make it harder for a President Lula to govern. If Lula were to fail, thanks to Bolsonarista obstruction, perhaps combined with another commodity crash or scandal, the man whose middle name is "Messiah" might return. "How do democracies die?" asks Oliver Stuenkel, author of "The Post-Western World". "When the would-be autocrat is re-elected." ■



### The midterms

## Split decision

**Our statistical forecast favours Republicans to take the House, and Democrats to keep the Senate**

**I**N THE 40 midterm elections to have taken place since 1862, the president's party has lost seats in the House of Representatives 36 times. America's midterm elections, which take place on November 8th, are almost always a referendum on the occupant of the White House and his party. (All seats in the House are contested, as are 35 of the Senate's 100 seats.) But unusually, a former president looms large in these elections. And Donald Trump appears to be a drag on Republicans' prospects.

For Democrats, the historical pattern looks likely to hold in 2022, according to *The Economist's* new statistical forecast of the contest to control Congress. In early September, our model expects Republicans to win 224 House seats, a gain of 11 seats from 2020. They achieve a majority of at least 218 seats in 74% of simulations. If Democrats lose control of Congress, Joe Biden will no longer be able to pass laws along party lines. Gridlock will mark the rest of his presidential term.

But Republicans' strong chance of flipping the House is the only good news that

our forecast offers them. The model assigns a 78% probability to the Democrats' retaining control of the Senate. Only a few months ago, any Democrat would have been thrilled with a one-in-four chance of holding the House.

The political environment has markedly improved for the Democrats. Inflation and petrol prices are coming down. In August congressional Democrats passed a big spending bill, a cornerstone of Mr Biden's agenda. The justice department's investigation into Mr Trump's mishandling of state documents has focused attention on the alleged wrongdoing of a predecessor.

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In an unpopular decision in June, the Supreme Court rescinded a constitutional right to abortion. Since then Mr Biden's net approval rating has risen by nine percentage points. The Democrats' margin has improved by two points in polls asking which party should control Congress.

Sceptics might note that in 2020 such surveys overestimated Democrats' popular-vote margin in the House. But in recent elections to fill vacant seats, their candidates have fared much better than Democratic nominees did in the same districts in 2020. Such swings in special-election vote margins have accurately predicted the national popular vote. After accounting for uncontested races, our model expects the Democrats to win 49.8% of votes cast for major-party candidates in the House.

If the map of House districts were politically neutral, winning half of the vote would give Democrats a 50-50 chance at control. In fact, we find that the new maps (redrawn following the last decennial census in 2020, when adjustments are allowed for population changes) give the opposition a slight edge. Only in simulations in which the Democrats secure at least 50.7% of the major-party vote are they favoured to win a majority.

In theory this year's Senate races should be daunting for Mr Biden's party. Democrats need to defend vulnerable seats in Arizona, Georgia and Nevada, three states in which Mr Trump fared better in the 2020 election than the national average. More- ➤

## See our interactive forecast

To explore all the findings of our election model, go to [economist.com/midterms](https://economist.com/midterms)

► over, all of the potentially competitive Republican-held seats—in Florida, North Carolina, Ohio, Pennsylvania and Wisconsin—sit on redder-than-average turf.

Democrats are compensating with an edge of their own: candidate quality. All of the party's incumbents in possibly vulnerable seats are seeking re-election. But Republican senators in North Carolina, Ohio and Pennsylvania are retiring.

Mr Trump's endorsements appear to have hurt his party. In four of six competitive states, Republican primary voters opted for political novices backed by Mr Trump: J.D. Vance, an author and venture capitalist, in Ohio; Mehmet Oz, a doctor and television star, in Pennsylvania; Herschel Walker, a former American football player, in Georgia; and Blake Masters, an investor, in Arizona. All are doing worse in polls than would be expected for a Republican in their states. Mr Oz trails behind John Fetterman, Pennsylvania's lieutenant-governor, by eight points, as does Mr Masters behind Mark Kelly, the incumbent.

These Republicans have time to catch up. What is more, surveys of Senate races mostly overestimated Democrats' vote shares in 2020. Because of the risk of such polling errors, our model also incorporates predictions based on "fundamental" factors like a state's electoral record. At this stage of the campaign, it assigns about the same weight to such variables as to polls.

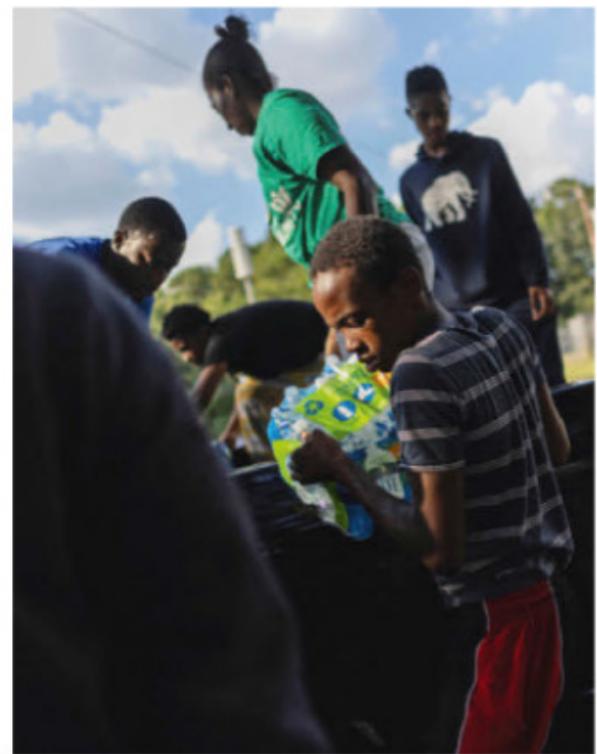
One predictor reinforces the findings from polls, however: fundraising. Historically, candidates who receive lots of contributions from individual donors living in their states have tended to outperform electoral expectations. The most likely explanation for this pattern is not that advertisements persuade many voters, but rather that strong candidates tend to raise more money than weak ones do.

In almost every close Senate race this year, Democrats are receiving more in-state donations than their opponents. Mr Vance has yet to hit \$500,000 in contributions, even when including those from outside Ohio. His Democratic competitor, Tim Ryan, is nearing \$20m, a third of which is from Ohio. Looking at in-state donors for which records are available, Mr Kelly has collected \$5.2m to Mr Masters's \$500,000 in Arizona, and Mr Oz has \$700,000 against Mr Fetterman's \$4.8m in Pennsylvania. With polls and fundamental factors favouring Mr Kelly and Mr Fetterman, the model puts their chances of victory at 88%. If both were to win, Republicans would probably need to sweep Nevada and Georgia to control the Senate.

Our model is bullish on Democrats' odds in the Senate for a further reason. Colorado and Washington look solidly blue. But not all Republican favourites have locked in their races. Ron Johnson, the incumbent in Wisconsin, lags behind Mandela Barnes, the lieutenant-governor, by four points. In Florida, Marco Rubio, once a leading presidential contender, holds just a four-point lead over Val Demings, a congresswoman. In North Carolina, Cheri Beasley, a Democratic former chief justice of the state Supreme Court, is almost level with Ted Budd, her Republican opponent.

Winning any of these races would be a coup for Democrats. Our model gives them a 22% chance in Florida, 31% in Wisconsin, 32% in North Carolina and 36% in Ohio. But the Democrats do not necessarily need a blue wave to win such races, in which the party's incumbents would all hold on, too. Local factors can be decisive in Senate races: two years ago, no one would have expected Democrats to flip two Senate seats in Georgia yet lose by nine points in Maine.

In nearly half of simulations in which Democrats hold on to the Senate with the bare minimum of 50 seats, those 50 include one from Ohio, Florida, North Carolina or Wisconsin. If Democrats' prospects in these states fade, the chances of retaining their majority will, too. ■



## Water shortages

# High and dry

JACKSON

The water crisis in Mississippi's largest city is a harbinger of worse

A LINE OF cars snakes around the Metrocenter, an abandoned mall in Jackson, Mississippi's capital and its largest city. The car park has weeds a foot high and potholes twice as wide. But it has recently come to life again, as one of seven temporary distribution sites handing out cases of bottled water to Jackson's 150,000 residents. Clean tap water stopped flowing into their homes over a week ago.

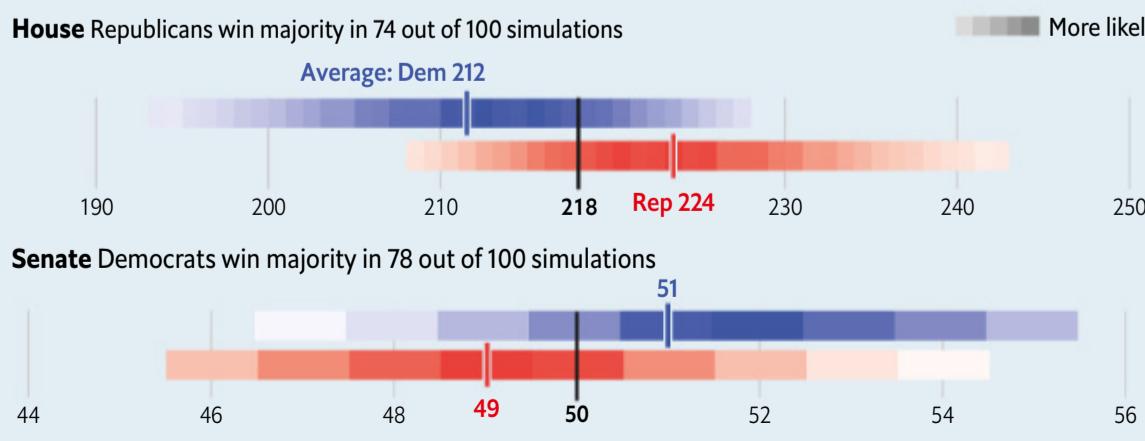
On August 29th excessive rainfall caused the Pearl River, which runs through Jackson, to overflow. The storm took out the city's main water-treatment plant, where pumps had already been failing. Because the floods reduced water pressure throughout the system, a back-up plant was not able to keep up with demand.

Local officials warned that Jackson would be without "reliable running water at scale" indefinitely. Mississippi declared a state of emergency the following day. It was swiftly approved by President Joe Biden, allowing the federal government to send funds to Jackson as well as hundreds of National Guard troops to support relief efforts. The stoppage has left many in the city unable to bathe, wash clothes or flush their toilets. (Non-potable water is also being distributed for such activities.)

Jackson's system has been failing for years. Last year ice storms cut off water supplies for several weeks. And even when water flows, residents have been periodically advised to let it run for at least a minute to flush away lead; then to boil it be-

## A House and Senate divided

United States, forecast number of seats in midterm elections, at September 7th 2022



fore drinking in order to kill bacteria. Lead is not its only metal pollutant: since 2018 the city's water has failed to meet treatment standards for copper, too.

The scale of this problem extends well beyond Jackson. Nearly 21m Americans drank water from communal systems (including schools, hospitals and other public places) that did not meet safety standards in 2015, the latest year for which data are available. From 2014 to 2016 tens of thousands in Flint, Michigan, were exposed to lead poisoning and possibly Legionnaires' disease (a nasty kind of pneumonia) through their tap water. In August high levels of arsenic were found in the water system of a public-housing complex in Manhattan that serves some 4,000 people.

Mami Hara of the US Water Alliance, a non-profit group, says Jackson's crisis stems in part from a broad failure to ensure equal access to water. Four in five of its residents are black, and many are poor. For others across the country, even a shower remains out of reach. Over 1m Americans do not have complete indoor plumbing (defined as having hot and cold water with an indoor bath or shower). Nearly half of those without indoor plumbing live in cities, and they are more likely to be non-white, poor and renters.

Since the Clean Water Act of 1972, which regulated quality standards for America's waterways, federal investment in water infrastructure has decreased as a proportion of total infrastructure funding. Most water pipes were installed in the 1970s and 1980s, and few upgrades have been made to them since. As much as 18% of treated potable water is lost to leaks each day, estimates McKinsey, a consulting firm. Last year the governor of New Jersey signed a bill to remove all lead pipes in the state within a decade, at an estimated cost of \$2.7bn. In August congressional representatives complained to the Environmental Protection Agency (EPA) of an "absurd disparity" in its allocation of federal funds to New Jersey.

Without adequate funding, access to clean water will worsen. Extreme weather is pushing old systems to their limits. Last year a legislative delegation from Jackson failed to obtain \$42m from Mississippi to cover water-infrastructure improvements. Jackson's mayor, Chokwe Lumumba, says the city's water crisis is "dehumanising" for its people. He reckons \$1bn is needed to fix its water system.

Some federal help is on the way. In December the EPA allocated \$75m to improve Mississippi's water and sewer systems. The Bipartisan Infrastructure Law, signed by Mr Biden in November, will shower \$55bn on water-infrastructure projects and upgrades across the country (of which \$429m will go to Mississippi over the next five years). Millions of Americans are thirsting for them. ■

## Hospital food

# The best medicine

CHICAGO

## More American hospitals are beginning to take nutrition seriously

**F**EW SICK people consider the quality of the food when choosing a hospital. That is perhaps just as well. Even in America, a country where private hospitals have long provided individual rooms with such comforts as personal cable television, patients are often still fed institutional food. "Mystery meat" and processed-cheese slices are common; everything gets cooked in a microwave. Many of the country's biggest hospitals get their food from the likes of Aramark, a giant global caterer that also provides meals to schools and prisons.

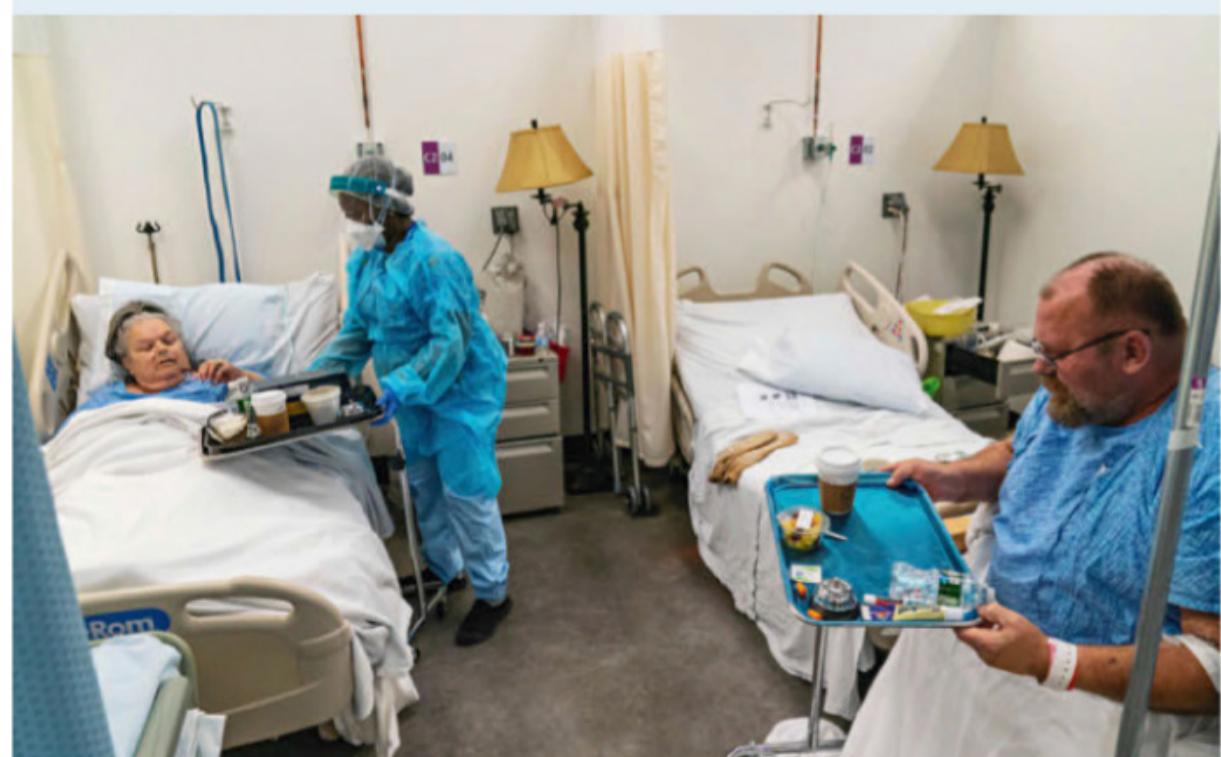
More hospitals are starting to feed their patients better food. Intermountain, a non-profit group based in Utah that runs 32 hospitals across the Mountain West, has since 2019 served freshly made meals to patients. Chefs in proper kitchens now source local ingredients to serve in cafeterias. Doctors are consulted to meet patients' dietary needs. Christopher Delissio, the head chef at Intermountain, describes creating a meal for a Mexican child who was being treated for cancer. "He would not eat," Mr Delissio recalls, and that was making it harder for him to recover from chemotherapy. "I was able to go up on the floor and speak to this boy's parents and him and kind of figure out what he wanted," he says.

The link between eating well and good health has long been clear, says David Eisenberg, a nutrition specialist at the Harvard School of Public Health. Heart disease, which has a direct connec-

tion to diet, is America's biggest killer. Roughly two-fifths of American adults are clinically obese, and over 14% suffer from diabetes. The right food can help patients avoid going back to hospital. Yet doctors themselves have often been slow to recognise the need to encourage healthy eating, says Dr Eisenberg. Most health care remains curative, rather than preventive. Medical schools still rarely teach much about nutrition. Long working hours mean that hospital employees eat poorly and are often "even more overweight and diabetic than the general public", says Dr Eisenberg.

A decade ago Henry Ford Hospital in West Bloomfield, outside Detroit, opened a teaching kitchen where staff could help patients plan affordable, healthy meals and learn how to cook them. The idea is now spreading widely. In October a conference for health and food professionals in Los Angeles will encourage the adoption of such kitchens. Participants will tour a new one that has just opened at UCLA's hospital. In May the House of Representatives passed a resolution urging medical schools "to provide meaningful physician and health-professional education on nutrition and diet".

Challenges remain. Doctors do not get paid more if, owing to healthier eating, patients no longer need treatment. But at least, says Dr Eisenberg, insurers are starting to balk at the expense associated with chronically sick patients. Some healthy food for thought.



More than an apple a day



### Abortion and the midterms

## Roeing forward

DETROIT

### The demise of *Roe v Wade* is firing up the Democrats in the final stretch before the general elections

**B**ACKLASH IS THE prevailing force in midterm years. Members of the president's party hunker down, and the opposition charges forward. Visit Michigan, however, and you will see the reverse. Democrats there are raging against a decision taken by the Supreme Court in June to overturn *Roe v Wade*, the ruling that declared abortion a constitutional right, which has left decisions on abortion to individual states. A dozen have already instituted near-total bans on the procedure.

In this final stretch before the midterm elections on November 8th, Republicans should be preparing to seize power amid deep discontent with President Joe Biden. Michigan, which went for Donald Trump in 2016, should be the least of their worries. Instead they are fretting that they could lose all three of the major statewide elections, as well as control of at least one state legislative chamber and some competitive congressional seats.

Democrats up and down the country have been energised by the demise of *Roe*. But the issue could do more to decide the course of elections in Michigan than in any other state. One reason is that Michigan's abortion policy rests on a knife-edge. Upon the court's ruling, an obsolete law passed in 1931 was due to come into effect, which would have completely banned the procedure unless the life of the mother was at risk. Courts have temporarily suspended it, following months of legal wrangling. Hundreds of thousands in Michigan have

signed on to a ballot initiative to protect abortion rights through an amendment to the state constitution.

Gretchen Whitmer, the Democratic governor, cannot pass a law to supersede that of 1931 without support from Republicans who control the state legislature—which they will not give. Tudor Dixon, her Republican challenger in the midterms, opposes abortion even in cases of rape and incest. “Today’s Republican Party in Michigan is incredibly extreme,” says Ms Whitmer, after a campaign event at a school’s sports ground in suburban Detroit. “They want to roll us back to 1931, making abortion a felony with no exceptions for rape and incest, putting doctors and nurses in jail. That is absolutely not even reflective of who the Republicans are in the state. But that’s what the leadership is.”

That force is jeopardising Republican chances across the country. Most Americans want neither a complete ban, nor a very permissive regime; *Roe v Wade* had guaranteed a right to abortion before fetal viability (about 24 weeks). But in the marginal seats that Republicans need to win, many of their candidates have not been playing for the middle.

Adam Laxalt, the party’s nominee for senator in Nevada, has praised the court’s decision—in a state where access to abortion is under no immediate risk—and been pummelled for doing so. The Republican candidate for senator in Arizona, Blake Masters, recently attracted national atten-

tion for removing some anti-abortion rhetoric from his campaign website, where he no longer refers to himself as “100% pro-life”. Doug Mastriano, the Republican nominee for governor of Pennsylvania, another swing state, is similarly struggling to explain his view that abortion should be banned from conception.

Abortion is an issue that Democrats are championing even in Trumpy terrain. “I don’t doubt the emotion and the sincerity of people who are pro-life. But this is also not a place that likes the government telling you what to do,” says Elissa Slotkin, a Democratic congresswoman, after a campaign event in Lansing, the capital of Michigan. Ms Slotkin is running for re-election in a district that went for Mr Trump in 2016 and 2020. Yet she is the one turning the issue of abortion to her advantage (even if through libertarian appeals to personal liberty and privacy), while her Republican opponent tones down his website.

Attacking extreme stances on abortion is a favoured Democratic strategy. “My opponent has doubted whether women can get pregnant as a result of rape,” says Abigail Spanberger, a Democratic congresswoman from Virginia who is running in one of the most hotly contested districts in the country. Mary Peltola, who recently won a special election for the Democrats to fill the lone seat for Alaska in the House of Representatives, devoted her first general-election campaign ad to arguing that “the federal government has no business taking away our freedoms”. In conservative Kansas, a referendum to scrap the right to abortion in the state’s constitution was resoundingly rejected in August.

More referendums are coming. Four other states have already decided to put abortion on the ballot in November. But unlike electorates in California, Kentucky, Montana and Vermont, that in Michigan is more evenly split. Minimal polling suggests for now that two-thirds of voters would support enshrining the right in Michigan’s constitution. So opponents are instead campaigning to stop the initiative from reaching voters. Republicans on the Board of Canvassers, an official state body, have blocked it based on a typographical objection over the spacing between words. The state Supreme Court, which is expected to consider the dispute, will probably allow the initiative.

Other opposition is more substantive. Some Republicans argue that the content of Michigan’s amendment—which would allow abortions after viability if they protected “life or physical or mental health”—is more extreme than voters realise. “They will allow abortions even in the third trimester and up to birth,” says Christen Pollo of Citizens to Support MI [Michigan] Women and Children, an organisation campaigning against the amendment. If the ➤

► amendment passes, Ms Pollo says Michigan “will have put the most extreme abortion policy into our state constitution, forever repealing health and safety standards that protect women”.

If the Michigan referendum fails, and Republicans win the state’s race for governor in November while keeping control of the House and Senate, legal disputes will not end. Some county prosecutors have already pledged not to charge anyone with violating the 1931 law. Among them is Eli Savit, the elected prosecutor in Washtenaw County, which includes the college town of Ann Arbor. Mr Savit refers to “the horrific story of that ten-year-old girl in Ohio”, who was raped and had to travel out-of-state for an abortion. “I have no desire to prosecute that girl, her parents, or doctors. That just strikes me as tremendously unjust. I want to prosecute that rapist,” says Mr Savit. Other forms of resistance would crop up, as they might in other states with bans. The most common medication for early-term abortions is easily smuggled across state lines. Policing this would require state surveillance that would make even most Republicans balk.

### Swinging back

Only months ago, Republicans were expected to secure a thumping victory in the midterms. They seem to have squandered much of that advantage. Most statistical forecasts, including *The Economist*’s, do not favour them to retake control of the Senate, as of early September. Even Mitch McConnell, the Republican Senate leader, has griped about the “candidate quality” of the party’s nominees, most of whom were handpicked by Mr Trump. They have staked out unusually extreme positions on two issues: abortion, and Mr Trump’s Big Lie that the presidential election in 2020 was stolen. In Michigan the Republican nominees for governor, attorney-general and secretary of state all hold this view. So do the party’s nominees in Arizona and Wisconsin, both swing states.

All this has handed Democrats a second line of attack in the run-up to the general elections. “I’m not using hyperbole when I say the consequences will be deadly [if the 1931 law goes into effect]”, says Dana Nessel, the Democratic state attorney-general, who is running for another term. Her Republican opponent, Matt DePerno, is perhaps the most ardent “Stop the Steal” enthusiast running to be a state’s top law-enforcement officer anywhere in the country. “If you don’t have someone in this office that is incredibly aggressive about defending the will of the people,” says Ms Nessel, “you simply will not have a democracy in the state of Michigan anymore.” Come November 8th, that closing argument may prove to have been effective—and not just in the state of Michigan. ■

### Remote learning in prisons

## Reading between the bars

### Prisons are using technology to improve inmates’ education

PEDRO, A GANG leader at a prison in Massachusetts, is a physically imposing man, with several teardrop tattoos. Yet for most of his life he did not know how to read or write. More than 70% of inmates in America have the literacy skills of a fourth-grade (nine-year-old) pupil, or below. Joining a prison’s basic adult-education classes can ruin a gang leader’s reputation. But Pedro’s prison was piloting a programme that gives tablets to inmates and lets them study privately. One day, the warden recalls, Pedro whispered to her: “I can read!”

Education in prison is widely known to reduce recidivism. In America over 75% of prisoners are re-arrested within five years of release. A big reason is their inability to find work. This pattern is costly. A report from RAND, a think-tank, found that \$1 invested in prison education yielded \$4-5 in taxpayer savings from reduced incarceration costs in the three years after release.

Another study by RAND suggests participation in some form of education reduces the rate of re-arrest by over 40%. Post-secondary education has the greatest impact, data from the Bureau of Justice Statistics show. Prisoners who get an associate’s degree (ie, one granted by a technical or community college) have a recidivism rate of 14%. A bachelor’s degree lowers it to 5.6%.

Most inmates have long been barred from using internet-enabled devices, on security grounds. But the covid-19 pandemic, which led to extended jail lock-

downs that kept prisoners stuck in their cells, forced a rethink. A “technology revolution” is coming to prison education, says Shannon Swain, a superintendent at California’s Department of Corrections and Rehabilitation that is rolling out laptop-based education at prisons across the state.

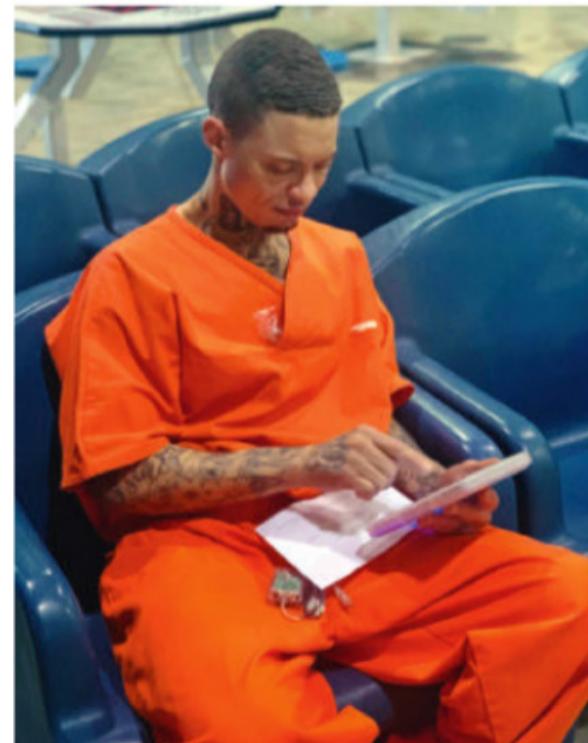
California is among at least 25 states to have deployed tablets in prisons since 2016. In many states inmates can use them to obtain the equivalent of a secondary-school diploma, to study for professional-licensing tests or, for a few, to take college courses. In a few states prisoners may also use them to watch films, listen to music and contact pre-approved family members. Most of those incarcerated will one day re-enter society, at which point digital-literacy skills will matter even more.

A college education remains out of reach for most, notes Brian Hill, the chief executive of Edovo, a provider of educational tablets for prisons. He says that tablets give inmates “more opportunity on a daily basis” to make choices about their future, by allowing them to work on lessons that match their ability and interest. Mr Hill was approached by an inmate at a prison in Arkansas who told him that tablet-based learning had allowed him to read bedtime stories to his grandchild.

Teaching at maximum-security facilities such as California State Prison, Los Angeles County has been “an exercise in flexibility”, in the words of one professor. Before the pandemic the prison had a dozen desktop computers without internet access; teachers brought lessons in on USB drives. School closures due to covid meant lessons went back to being done by mail. Class materials could take over a month to reach inmates. So in late 2021 the prison introduced laptops with internet access. These are restricted to an ultra-secure version of Canvas, a learning management system, meaning that inmates have access only to previously vetted sites and articles.

In Maine’s prisons, inmates enrolled in educational programmes get their own laptops with internet access. Some websites are blocked, such as social-media platforms, and network access is monitored. But the state is experimenting with having fewer restrictions. Those studying for a degree may have email addresses (prison staff must be copied on exchanges) and log into Zoom classes from their laptops.

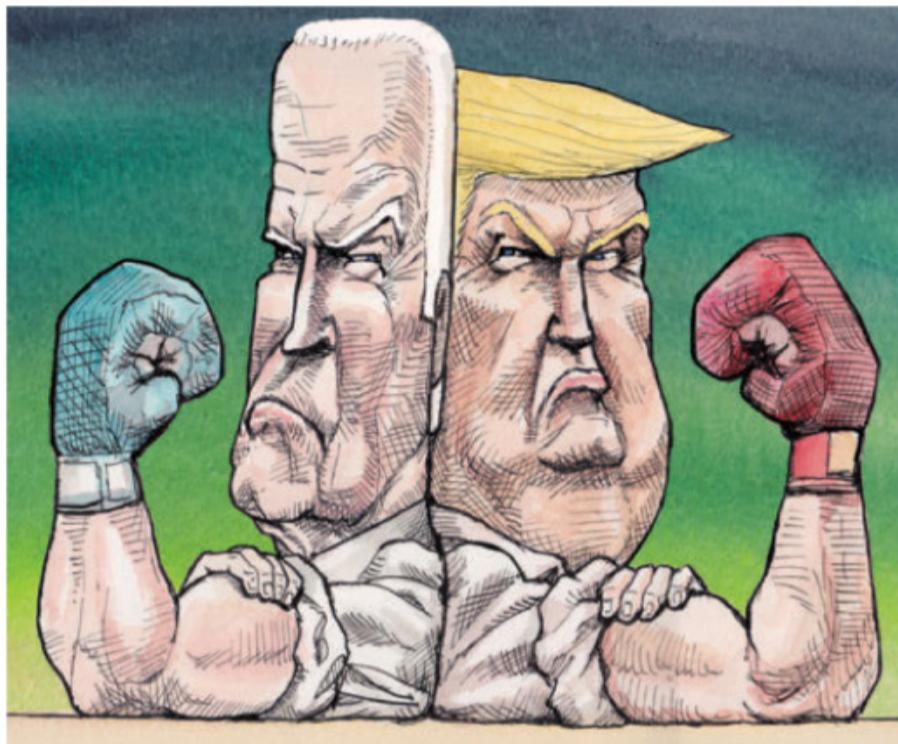
More open access to information can be a hard sell in places built to prioritise security. Prison staff worry that it could facilitate new forms of crime. Advocacy groups for victims argue that prisoners may use the internet to harass them. Tough-on-crime politicians are reluctant to spend money on improving prisoners’ lives. Yet for now the benefits of remote, tech-enabled learning have perhaps nowhere been clearer than among the incarcerated. ■



Little grey cells of another sort

## Lexington | Joe Biden's big gamble

*In taking on Donald Trump, the president may make saving democracy look partisan*



ONE THING upon which Joe Biden and Donald Trump agree is that the biggest issue confronting voters in the midterms this November is Donald Trump. The two men are locked in a dark contest, the likes of which no living American has witnessed between a sitting and former president. Mr Biden and Mr Trump are travelling to battleground states to warn of grievous threats from fellow Americans and to make the case, respectively, that Mr Trump is to blame, or that only he can save the country.

Apocalyptic warnings and divisive tactics are Mr Trump's stock in trade. They are more surprising coming from Mr Biden. That he has felt it necessary to resort to them is yet another sick triumph for Mr Trump over what was once normal in American politics.

What is also surprising is that Americans appear to agree with the two presidents—or, more precisely, to disagree with each other, in parallel to them. In the past, political campaigns that focused on the conduct of politics itself, such as on the influence of big financial contributions over legislation, have not captured the imagination of voters. But a recent poll by NBC News found that a plurality of voters (21%) cited "threats to democracy" as the most important issue facing the country, ahead of the cost of living, jobs and the economy or abortion.

Republicans seem even more persuaded of this than Democrats, maybe because many accept Mr Trump's claims that the investigations into his doings are politically motivated or that he won the 2020 election. According to a poll at the end of August by CBS News/YouGov, 45% of people who voted for Mr Biden in 2020 believe that a generation from now America will be "less of a democracy", compared with 71% of those who voted for Mr Trump.

Taking office after the attack on the Capitol on January 6th 2021, Mr Biden did not ignore the threats of domestic extremism and terrorism. But he tried to calm Americans down by appealing to their better angels for "that most elusive of things in a democracy: unity", as he put it in his inaugural address. He promised to fight as hard for those who had opposed him as for those who had supported him. For most of his term he tried to avoid even mentioning Mr Trump by name, and he succeeded in coaxing some bipartisan action from Congress. But unity did not materialise, and Mr Trump did not fade away.

Having amassed substantial legislative achievements, Mr Biden chose to go on the offensive as summer's end heralded the intense phase of the midterm campaigns. Gone is the benevolent peacemaker; in his place is a feisty partisan. With speeches in Philadelphia and Pittsburgh, Pennsylvania, and in Milwaukee, Wisconsin, he has attacked Mr Trump and "MAGA Republicans". "Name me a democracy in the world where a leader argues to engage in violence," Mr Biden challenged his audience in Milwaukee, on September 5th. "To this day, MAGA Republicans in Congress defend the mob that stormed the Capitol." Later that day, in Pittsburgh, he said: "We can choose to build a better America or we can continue down this sliding path of oblivion."

Unlike Mr Trump, Mr Biden can be a happy warrior, and he is playing optimistic notes alongside his dire warnings. He is careful to distinguish "MAGA" from "mainstream" Republicans. He is trying to woo the latter (along with independents) by embracing patriotic symbols, talking up his record of creating jobs and envisioning how the Inflation Reduction Act, which he signed into law in August, will lower prescription-drug costs. But tens of millions of Americans consider themselves part of Mr Trump's MAGA movement. In calling them a threat to "the very foundations of our republic", as Mr Biden did in Philadelphia, he is signalling, unavoidably, that he is giving up on them, and on the legislators who represent them. He is supplying them with evidence for their belief that he and other Democrats are their enemies. And even "mainstream" Republicans may conclude that he is just playing games for partisan advantage.

Mr Biden appears to be gambling that us-or-them oratory will motivate Democrats to turn out to vote, defeating candidates backed by Mr Trump in states like Pennsylvania and showing Republicans the folly of embracing his politics (a lesson they failed to absorb from Mr Trump's previous losses of the White House, House and Senate). Many Democrats and their champions in the press are delighted with the president's harder edge, and Mr Biden seems revivified by being out on the road. Talk of the need for a new Democratic standard-bearer in 2024 has subsided.

### So many enemies within

But Mr Trump is happy to match Mr Biden's bet, and raise him. When Mr Trump held a rally in Wilkes-Barre, Pennsylvania, on September 3rd, he declared Mr Biden's speech in Philadelphia "the most vicious, hateful and divisive speech ever delivered by an American president"—and then demonstrated that, when it comes to such speechifying, Mr Biden is not in his league.

Mr Biden is "an enemy of the state", Mr Trump said, and the justice department and FBI "have become vicious monsters, controlled by radical left scoundrels, lawyers and the media". The federal investigation of Mr Trump was "a desperate attempt" to keep him from returning to the White House. "Despite great outside dangers, our greatest threat remains the sick, sinister and evil people from within our own country," he said. He and his MAGA movement ("the greatest in the history of our country, and maybe in the history of the world") have no choice but "to smash the grip of this vile and vindictive political class".

Thus the perceived stakes of American politics continue to rise, and the real stakes with them. Small wonder the CBS News/YouGov poll found that identical proportions of Biden and Trump voters—70%—expect an increase in political violence in the next few years. And to think that the 2024 presidential campaign has not even begun yet. Or has it? ■



## Chile

## Second time's a charm

SANTIAGO

**Common sense triumphs as Chileans reject a new constitution**

FOR THE past three years it seemed that the people of Chile, one of Latin America's most successful economies, were lurching to the left. In October 2019 huge protests against inequality shook the image of the country as a haven of stability. A year later Chileans voted in a referendum to have an elected convention rewrite the constitution, which was first adopted under a military dictatorship in 1980 but has since been amended almost 60 times. Then last December they plumped for Gabriel Boric, a bearded and tattooed 36-year-old leftist, to be president in a ruling coalition with the Communist Party.

Now they appear to have had enough. In a referendum on September 4th, 62% of voters rejected the constitution drawn up by the convention. Turnout was high, at

86%. Not one of Chile's 16 regions approved it. Polls had for months shown that the charter would be spurned. But none predicted a 24-point margin. The sheer size of the defeat is a blow to Mr Boric, who supported the constitution-drafting process.

The result is indeed unusual. Of the 179 plebiscites on new constitutions that have taken place around the world between 1789 and 2016, 94% have been accepted, according to Zachary Elkins and Alexander Hudson, two constitutional scholars.

Much of the blame for the defeat lies with the convention itself. The elections to

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choose its 155 members were held in May last year. Many older voters abstained because of the pandemic. Turnout was only 43%. More than two-thirds of those elected were outside mainstream political parties. They included many political newbies and activists from the hard left.

They quickly alienated the average, centrist Chilean voter. One member crowed that the left was "going to make the big agreements, and everyone else will have to join us". One far-left member dropped out after it emerged he had lied about having cancer. Another voted from the shower and was asked to turn his camera off. "People thought: if the artists are like this, the work will probably also have major flaws," says Cristián Valdivieso of Criteria, a pollster. That view was reinforced when, at a recent event promoting a "yes" vote, a drag queen had the national flag pulled out of his rectum while his bandmates urged the audience to "abort Chile".

The document put before voters was polemical. At 388 articles, it would have been one of the world's longest constitutions. It enshrined over 100 rights, more than any other charter. Chileans would have enjoyed ones ranging from the odd—such as to "culturally appropriate" food and "digital disconnection"—to the ruinous, including an unfettered right for trade unions to strike. It would have weakened property laws, debilitated the upper house and created autonomous territories for indigenous people. Economists estimate that it would have increased government spending by between a third and a half—or by as much as 14% of GDP.

Now that the text has been buried, questions turn to the fate of the ruling coalition. The share of people who say they disapprove of Mr Boric has risen from 20% in March, when he took office, to 56% today. Though his government tried to distance itself from the work of the convention before the plebiscite, the two were still seen as tightly intertwined. Mr Boric's approval ratings fell in line with a rapid drop in support for the body. On September 6th the government announced a cabinet reshuffle. Out went several of the younger faces who were close to the president. They were replaced by old hands from the centre-left parties that have governed Chile for much of the past three decades.

Even so, the government will continue to be weak. Mr Boric's administration put off large reforms to Chile's pension and health-care systems while it waited to see what the constitution would permit. Polls show that most Chileans still want a new charter, and they want another convention to have a go at writing a second draft. While the details of that convention are hammered out in Congress, Mr Boric will struggle to get his agenda off the ground. ➤

A tax bill working its way through the legislature, which aims to increase the tax take by 4% of GDP by 2026 and push up mining royalties, will probably be toned down. A health-care bill the administration hoped to put forward in October will now probably be delayed. And the government will have to shift focus. Chileans are concerned about crime and inflation rather than pensions and health care, as they were when protests erupted in 2019. Such a change of strategy could lead to discontent among leftists who support the coalition, including those within Mr Boric's own party.

On the day the cabinet overhaul was announced, schoolchildren protested in Santiago against the constitution's defeat.

If a new convention starts up, it will probably be more moderate than the first. Opposition parties will try to make it harder for independent candidates to run, and to have the process last six months instead of another year. "It was the convention's impulse to refound the country that led to the failure of this process, and we need to avoid that," says Javier Macaya, the head of one of Chile's largest right-wing parties.

Meanwhile the economy will continue

to deteriorate. Amid a difficult global context, weakening copper prices and the removal of pandemic-era stimulus, BCI, a bank, predicts a recession will start this year. It says GDP is due to shrink by 1.2% in 2023. Markets rallied after the draft charter was rejected. But Jay Truesdale of Veracity Worldwide, a political risk consultancy, thinks uncertainty over a new constitution will lead investors to take "a wait and see approach". This bodes badly for Mr Boric, just six months into his administration. He will need his new centrist sidekicks to help him get out of this rut. ■

## Bello The gun that failed to fire

An attack on Argentina's vice-president raises unanswered questions

**A**Rgentina is a country of political theatre and of conspiracies, both real and imagined. Think, for example, of Eva ("Evita") Perón, the actress turned darling of the *descamisados* (shirtless ones) who died aged just 33 and whose embalmed body was stolen by army officers who abhorred her and feared her seductive influence from the grave. Or think of the political murders which remain unsolved. One was the bombing of a Jewish community centre in Buenos Aires in 1994 which killed 85 people. Two decades later Alberto Nisman, a prosecutor, filed charges against the then president, Cristina Fernández de Kirchner, for covering up an Iranian connection to the bombing (she said this was "absurd"). The night before he was due to present his case his body was discovered lying in a pool of blood at his flat. The authorities said he had committed suicide. Many believe he was murdered.

Now Argentina is again confronted with events which combine theatre and, seemingly, conspiracy of one kind or another. On September 1st a man aimed a gun at point-blank range at the face of Ms Fernández, who is now the vice-president, and pulled the trigger. She survived "because for some reason...the gun didn't fire," said the president, Alberto Fernández (no relation). He decried what he called "hate speech" spread by sections of the political, media and judicial worlds. Certainly some of her opponents have been guilty of inflammatory rhetoric, with calls for her to face the death penalty. But the incident is freighted with unanswered questions.

The assailant, Fernando Montiel, is a 35-year-old drifter who was picked up and released last year for possession of an offensive weapon. His tattoos and some social media posts suggested far-

right sympathies. Did he act alone, or was he part of a broader plot? How did Ms Fernández's 30-strong security detail let him get so close when she was greeted by sympathisers as she returned to her flat? And what does this attack presage for Argentina's polarised politics?

The incident came as a prosecutor is seeking a 12-year jail sentence against Ms Fernández for alleged involvement in steering public-works contracts padded by around \$1bn to a crony in Santa Cruz, a province in Patagonia which her late husband once governed. She denies wrongdoing and says the allegations are political. She unleashed a tirade denouncing a supposed plot against her, calling on her supporters to take to the streets.

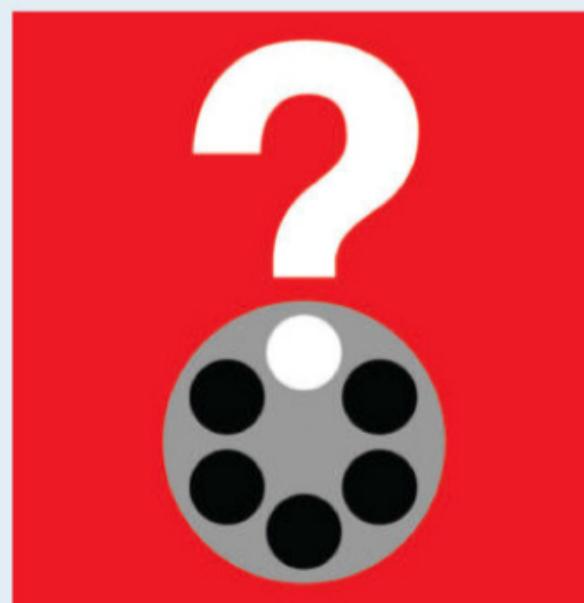
Ms Fernández leads the leftist-populist wing of Peronism, Argentina's dominant political movement, named for Eva and her husband, Juan Perón. As president from 2007 to 2015 she combined liberal measures, such as legalising gay marriage, with nationalist and statist economics and political clientelism. She ramped up taxes on farmers, prompting them to

protest, and spent the money on hand-outs to poorer Argentines. She tried and failed to control the judiciary and private media groups.

Her political fortunes had been declining in tandem with Argentina's worsening economy. She picked Mr Fernández, a former critic who had greater appeal for moderates, to head the Peronist ticket in the election of 2019 and to act as her proxy. But she fell out with him after he agreed with the IMF to enact austerity measures which she fears would hurt her political clientele in the impoverished suburbs of Buenos Aires. She has no policy answers for an economy in which inflation is running at 71% and the Central Bank is printing money and running out of foreign-exchange reserves. In July she was unable to stop Sergio Massa, another rival Peronist, from taking over a beefed-up economy ministry with a programme to cut indiscriminate subsidies.

Ms Fernández is the most cunning Argentine politician of her generation. She has exploited the legal case against her, saying it was "an attack on the whole of Peronism" which has duly united behind her. Mr Montiel's action has supercharged her claim to be a victim. Mr Fernández declared a public holiday for the day after, allowing tens of thousands to march for her in Buenos Aires. The opposition, too, denounced violence.

Mr Montiel has said little so far. His mobile phone was completely wiped while police were examining it, erasing much potentially relevant information. Many will take at face value the president's warning against the far right. Others are more sceptical. It is part of Argentina's drama that its people may never know what really happened, or why, on September 1st.





### Trains in the 'stans

## The middle rail

BISHKEK, KYRGYZSTAN

### The balance of power in Central Asia is shifting

CENTRAL ASIA's first railway was a military venture. Russia began laying track in 1880, primarily to shuttle troops around the Karakum desert, the better to crush resistance to its rule in what is now Turkmenistan. Within eight years trains ran 1,400km from the Caspian Sea to Samarkand. George Curzon, who rode the railway in 1888 as a young British lawmaker (and future Viceroy of India), wrote that it helped Russia dominate local trade, and doubled its capacity to launch attacks on India. Britain's strategy, he warned, was not "suited to a position where the Cossacks are at your gates".

Railways have underpinned Russia's clout in the region ever since. But today the balance of power is shifting. America has withdrawn from Afghanistan, leaving a vacuum. Russia is preoccupied with Ukraine. China sees an opening to expand its influence and diversify trade routes to Europe. Central Asian nations seek new connectivity too, with each other and to China. Integral to those efforts are two new railways that will be discussed at a summit of the Shanghai Co-operation Organisa-

tion, a group of regional powers including Russia and China, in Samarkand on September 15th-16th.

The first sign of progress came in May when Sadyr Japarov, Kyrgyzstan's president, announced that construction would start on a line connecting China, Kyrgyzstan and Uzbekistan (see map) in 2023. China's railways already connect to Central Asia's via Kazakhstan. The route from there through Russia to Europe has become a major conduit for trade in recent years. It carries the vast majority of China's railway trade with Europe, which grew from \$8bn of goods in 2016 to about \$75bn in 2021.

The new line would open a route from China to Europe through Turkmenistan, Iran and Turkey, shortening the journey by some 900km and eight days. More impor-

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tant, it would skirt Russia, which has become tricky to move goods across because of sanctions imposed as a result of Vladimir Putin's invasion of Ukraine. Yang Jie of the China Communications and Transportation Association says the war has caused "great uncertainty" for European customers. Some have switched to a slower, pricier rail-and-sea route, crossing the Caspian by ship to bypass Russia. The new line would provide an alternative, non-Russian, rail-only route between China and Europe.

Kyrgyzstan's transport minister, Erkinbek Osoyev, says the trans-Kyrgyz link will carry 7m-13m tonnes of cargo a year, mostly bound for other places. The jobs, taxes and transit fees generated would give Kyrgyzstan a hefty economic boost; the mountainous ex-Soviet state of 6.7m people depends heavily on remittances from Russia.

The concept is not new. Plans were drawn up first in 1997. Russia never liked the idea. China and Kyrgyzstan could not agree over the costs and the route, whether it would serve a wide swathe of Kyrgyz people or just cut straight through to Europe. There were differences over where to switch from the 1.435-metre gauge track used in China and Europe to the former Soviet Union's 1.520-metre standard. The plans were repeatedly shelved.

Mr Osoyev says China, Kyrgyzstan and Uzbekistan have finally agreed on a 280km route. It will cost \$4.1bn and be financed either through direct investment or public-private partnership. The route runs from the Torugart pass on China's border to ➤

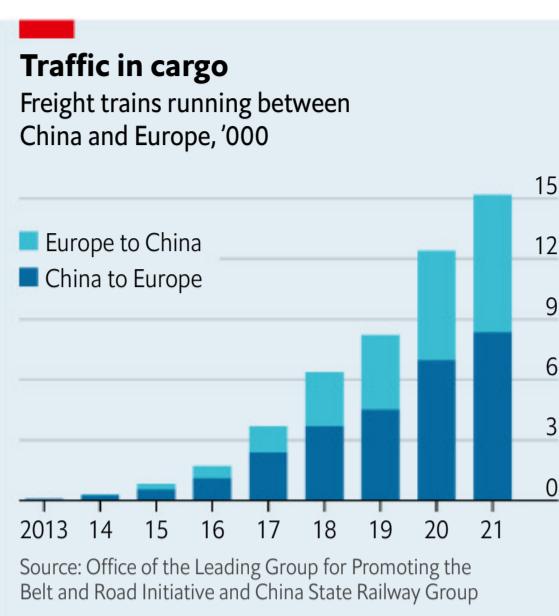
Jalalabad in western Kyrgyzstan, which is already connected to Uzbekistan by a railway built by the Russians in 1916. The gauge would change at Makmal, site of a gold mine in which Chinese investors have an interest. Geological surveys are due to start soon and a feasibility study will be finished by March, Mr Osoyev says.

China's president, Xi Jinping, has endorsed the project. He is attending the Samarkand summit after a day in Kazakhstan, his first trip abroad since the pandemic began (see China section). Chinese experts arrived in Kyrgyzstan in August. Uzbekistan's president, Shavkat Mirziyoyev, has given his blessing too, saying it will "link us to Asia-Pacific countries, paving the way for new economic opportunities". As for Russia, Mr Japarov says he has Mr Putin's personal approval. In July, the plan was backed by the Russia-endorsed Eurasian Economic Union.

Many foreign diplomats and experts are sceptical. They say there have been too many false starts and that Mr Putin's word is unreliable. They point out that Kyrgyzstan is politically unstable, laden with Chinese debt, and rife with anti-China sentiment. Detractors also note that many of China's foreign borrowers are struggling to repay loans, and that China is downsizing its belt-and-road infrastructure programme as a result. It will also need to extend its own railway by 160km.

Yet even the sceptics concede that there is momentum behind the latest railway plans. Central Asian governments are providing much of it. They want to improve connectivity with neighbours to hedge against future dominance by outsiders. Uzbekistan is the main cheerleader. Mr Mirziyoyev is in a strong position. He has earned respect from Western governments and international agencies since taking power in 2016 after the death of a Soviet-era despot. "Uzbekistan is the true driver in all of this, financially and logically," says Niva Yau of the OSCE Academy, a research centre in Bishkek, Kyrgyzstan's capital.

Mr Mirziyoyev will also be champion-



ing another railway project at the Samarkand summit: a line connecting Uzbekistan to Pakistan via Afghanistan. A short one already runs from the Uzbek border to Mazar-i-Sharif in northern Afghanistan. The new one would stretch 573km, via Kabul, to Peshawar in Pakistan, thereby linking up with existing rail infrastructure built by Britain during the late 1800s. Landlocked Uzbekistan and Afghanistan would get faster and cheaper access to the sea via Pakistan's ports. Backers estimate that it would cut the time it takes goods to travel from Uzbekistan to Pakistan from 35 days to around four. Pakistan and Afghanistan would earn transit fees. China's plans to turn Pakistan's Gwadar port into a shipping hub would get a boost. China would also gain an export route for a copper mine near Kabul in which it has an interest.

The idea of a trans-Afghan railway predates a trans-Kyrgyz one. Russia and Britain considered it in the early 20th century. So did Iran and the Soviets in the 1970s, as well as Western governments after the American-led invasion of Afghanistan in 2001. Familiar obstacles remain: treacherous terrain, security risks and dubious commercial viability. "Can you imagine building a railway through Afghanistan when you don't have total control over the political situation?" asks Temur Umarov of

the Carnegie Endowment for International Peace, a think-tank. The World Bank warned against a similar route in 2012, citing the state of Pakistan's railways.

But the Taliban are now in power, and they back the railway. The new security worry is a local branch of Islamic State. Afghan and Uzbek authorities are working together to tackle that and create new economic opportunities. China has spent billions on infrastructure in Pakistan since 2012. Many projects have stalled but the railway could reinvigorate them, especially if other countries and multilateral lenders get involved. Uzbek, Afghan and Pakistani officials say they have asked the World Bank and other lenders for support.

The fate of both railways may depend on whether they can attract funding from sources besides China. Its belt-and-road problems have made it wary of financing infrastructure projects alone. The trans-Afghan railway thus looks shakier than the trans-Kyrgyz one, as America and its allies refuse to engage with the Taliban. There is a good chance that neither project succeeds. But if either does, it will be a leap towards making the region better connected to the world, and less reliant on Russia. ■

## Propaganda in Vietnam

# A noisy noise annoys Hanoi

HANOI

**The capital's residents abhor the return of war-era loudspeakers**

THE STREETS of Hanoi are not quiet. Hordes of motorbikes race SUVs down narrow side lanes. Their horns and engines compete with the din from drills, hawkers and squawking livestock. So raucous is Vietnam's capital that entrepreneurs can do well from selling silence. Patrons in Tranquil, a café, are instructed to speak only in whispers, if they must talk at all.

The city's government now plans to add to the clamour by reincarnating *lao phuong*, a city-wide public-address system introduced during the country's war with America that was used to broadcast state messages and propaganda. The city wants working speakers in every part of the capital by 2025, the better to convey the voice of government into homes and businesses. Many Hanoians object.

The *lao phuong* have a long history. During the war they provided warning of American bombing raids, and shared optimistic updates from the front line. When the conflict ended they were put to other purposes. One Hanoi resident remembers hearing neighbours shamed for not paying their taxes. Another recalls a song encour-





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Good morning, Vietnam

▶ aging people to clean their neighbourhoods and chastising households which had not yet pitched in. One ditty urged the twice-daily brushing of teeth.

Endless announcements offended the ears as much as they did the spirit. Pham Gia Ngoc, who spent decades broadcasting statements about everything from power cuts to vaccination schedules, told state media that residents often became so incensed by the racket that they cut speakers' wires or turned them upside down and filled them with water. *Loa phuong* became slang. A Hanoian bigmouth can be accused of being "as loud as the ward loudspeaker".

The speakers were widespread until 2017. That year the city announced a plan to remove them gradually; it said it would spread its messages in other ways. Some were still working when the pandemic hit. They were used to remind citizens to wear masks and keep their distance. They blasted out a motivational song every morning with the phrase, "Citizens, let's join forces in this fight so covid disappears!"

Now that the city is preparing to reinstall speakers everywhere, its spin doctors are claiming that there was never a plan to remove them in the first place. This does not sway Hanoians. A recent poll found that 70% of people want rid of the noisemakers. One newspaper editor in Hanoi calls the plan "idiotic".

So far local officials have not wavered. Zachary Abuza of the National War College in Washington, DC, says that is because the decision was made by Hanoi's Communist Party committee. It is superior to the city government; its members are more concerned to impress party bigwigs than to avoid upsetting the little folk. "They did not care that the move was anachronistic, or derided by the public," he says. "They are playing to a higher audience." ■

## Visas

# The other travel chaos

DELHI AND SINGAPORE

### Overwhelmed Western consulates are wrecking Asians' travel plans

**I**N MAY THIS year, Mahmuda Mity, an environmental researcher in Bangladesh, was invited to attend a conference in Britain in early July. She immediately applied for a British visa. By the time her application was processed and her passport returned to her it was July 13th, nearly a week after the conference had ended. Inspecting the now-useless document, she noticed that it had been issued on July 3rd, the day before the conference started. It had been left "stacked in their office for ten days".

Sharmin Rahman, a student at a German university, asked the embassy in Dhaka for a visa appointment in June 2021. Only in August did the Germans request documents. The visa will take at least three months to be processed. He will miss the first few months of in-person classes. Lubab Munir, a Bangladeshi lawyer who trained in Britain, was meant to go to a friend's wedding in Athens in August. He made plans to travel around Europe in the preceding weeks. But the nightmarish visa process put him off. Just to apply "you need to give a hotel reservation, a flight reservation, you need to take insurance out, [all of] which is non-refundable," he says. Worse, embassies hang on to applicants' passports. Mr Munir dropped his plans.

Tales of woe like these are being swapped in living rooms, offices and *chai* stalls across the region. Citizens of most Asian countries—Japan, Singapore and South Korea are the notable exceptions—must obtain visas before they can travel to America, Britain, Canada or the Schengen area, which allows seamless travel between 26 European countries. The process is cumbersome, time-consuming, expensive and often humiliating.

That is when visa processing is working well. This year it is not. Visas for travel to Britain are taking at least seven weeks to process, a mockery of its self-imposed three-week "standard". European embassies warn of exceptionally high demand and long delays. Processing times for Canadian visas run from 93 days in Thailand to 129 days in Bangladesh. But America is the worst offender: tourist-visa appointments at the American embassy in Delhi, India's capital, now take more than 24 months to arrange. Those seeking student-visa appointments will wait nearly 15 months. Appointments for some visas, such as the H1B for skilled workers, are simply unavailable until 2024.

These delays are affecting Western embassies all over the world, but they are particularly bad in Asia, which sends huge numbers of people to the West. In 2019 Chinese and Indians received nearly half of the 2.4m visitor visas granted by Britain; India alone accounted for half of the most common type of work visa. America's five consular outposts in India processed more visas (839,504) that year than did all 46 of its missions in Africa (353,975).

As the pandemic recedes and travel opens up, a wave of demand in the largest markets for Western consular services is colliding with operations that have been cut to the bone or shut down entirely. Diplomats who moved home during the pandemic have not all been replaced. America's State Department says it has doubled recruitment for consular posts this year, and is looking into hiring diplomats' family members, who are already in-country, to do administrative work. But empty positions are hard to fill, says one European diplomat. He reckons it will take a decade for operations to return to normal.

Along with the post-pandemic travel spike, other factors have aggravated the chaos. The busy summer travel period coincides with a particularly large summer bulge of student visas, as more students return to international campuses after two years of remote learning. American officials say that their Indian consulates will process more student visas between June and August this year than ever before. At many embassies, student visas are subject to greater scrutiny and take longer to process than those for tourists, since applications for them are more often fraudulent.

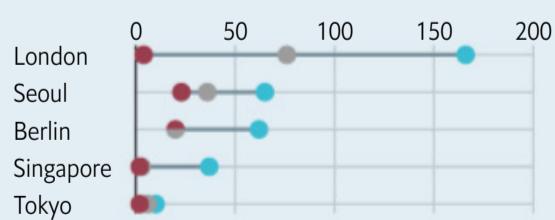
Geopolitics forms another bottleneck. When America and its allies pulled out of Afghanistan last year, many set up special

### Vis-à-vis delay

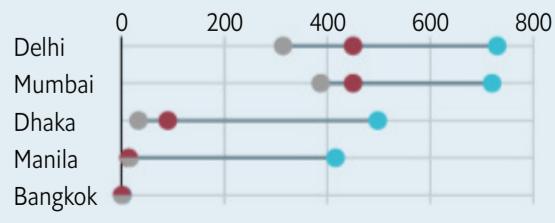
Estimated wait times for US non-immigrant visa appointments, days  
By embassy/consulate, September 7th 2022

● Visitor ● Student/exchange ● Other

### Visa-waiver locations



### Non-visa-waiver locations

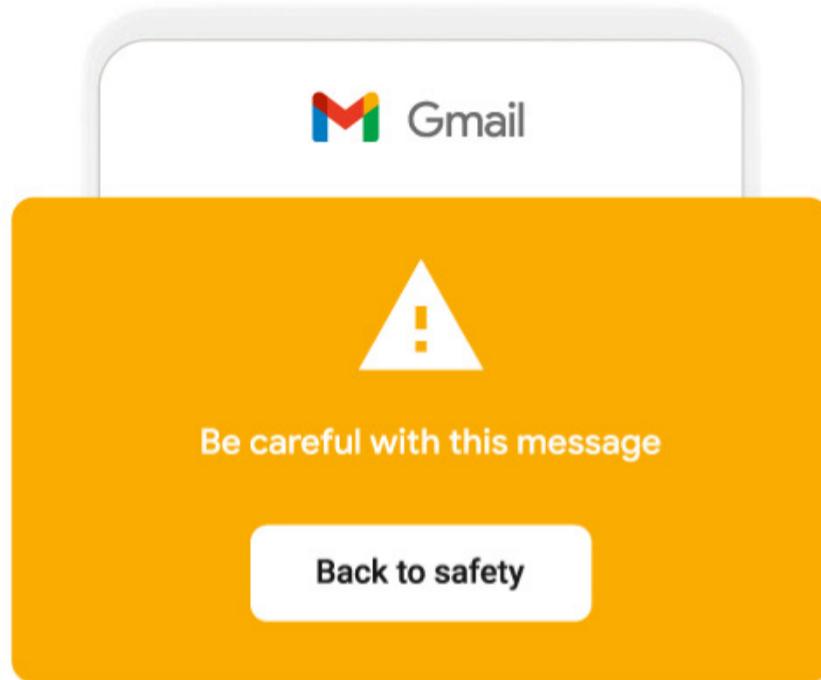


Source: US Department of State



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► programmes to help Afghans emigrate, thereby taking up some visa-processing capacity. After Russia invaded Ukraine in February, many consular officials were redirected to work on visas for refugees. "That slows down the rest of the system," admits a British diplomat. Brexit has an impact too. Ever since the end of free movement from Europe, Britain has looked to the rest of the world for labourers, each of whom now needs a visa.

Clogged up Western visa pipelines hurt people living in host countries as well as those seeking entry. Many citizens have

relatives abroad. Firms want to employ talent from wherever it hails. Businesses still prize in-person meetings. Fewer visas mean fewer travellers, empty hotel rooms, unflogged trinkets and less-packed restaurants. *Condé Nast Traveller India*, a magazine for rich tourists, advises its readers to avoid travelling to places which require visas. "It doesn't just affect one industry. It affects a lot of them," says Jon Baselice, who heads immigration policy at the US Chamber of Commerce, a lobbying group in Washington. The tourism business was America's third-largest export in 2019.

There are obvious ways to solve the problem. One would be to simplify entry requirements. Another would be to grant visas for longer durations (the Americans, to their credit, already do this). More countries could be included in the visa-waiver programmes that South Koreans, Japanese and Singaporeans enjoy. But moves like this are politically difficult as long as there remain even a few who abuse the system, and so are unlikely to happen. Asia's masses of tourists and students can look elsewhere. It is the countries failing to welcome them that will eventually lose out. ■

## Banyan Shotime

*After 150 years of baseball, Japan has a star to rival Babe Ruth*

ONLY TWO PLAYERS in the history of American baseball have hit 100 home runs and pitched 400 strikeouts. One was Babe Ruth, the American folk hero of the early 20th century. The other, as of September 3rd, is a modest young man from Iwate, a rural prefecture in northern Japan, called Ohtani Shohei.

Japan's baseball obsession is nearly as old as its relationship with America. Horace Wilson, an American schoolteacher, is credited with introducing the sport to Japan in 1872. Meiji-era education mandarins embraced the game, considering its mix of team play and individuality to be in keeping with Japanese values, notes Robert Whiting in "You Gotta Have Wa", his classic account of Japanese baseball. The yearly high-school tournament, Koshien, is now Japan's main sporting event.

Passion for bat and ball also connects Japan with America. When a group of baseball stars including Ruth toured Japan amid festering anti-Western sentiment in 1934, fans greeted him with cries of "Banzai, Babe Ruth!" When Ruth hit homers, "all the ill feeling and underground war sentiment vanished," crowed Connie Mack, the team's manager.

Love of baseball could not forestall war. When news of the attack on Pearl Harbour reached Ruth he hurled his Japanese vases from his apartment window. Japanese soldiers reportedly used "To Hell with Babe Ruth" as a battle cry. Yet even as war raged, Japan kept swinging. Ultranationalists stopped using the word *besuboru* (written in *katakana*, the alphabet for foreign words) and started saying *yakyuu* (written with the Japanese characters for "field" and "ball").

After the war, baseball helped Japan and America become allies. Both celebrated Babe Ruth Day in 1947. During

another baseball tour of Japan in 1949, the two countries' flags were raised side by side, reportedly for the first time since the war. Lefty O'Doul, the American manager, was granted an audience with Emperor Hirohito, who declared that "It is by means of sports that our countries can be brought closer together." Douglas MacArthur, the general who oversaw America's occupation of Japan, called the trip "the greatest piece of diplomacy ever".

Yet an imbalance endured in the sporting relationship, much as in the geopolitical one. Japan's leagues were considered inferior, its players a cut below their bulkier American peers. Fearful of competition, Japanese team owners structured contracts to keep players from going abroad.

Then in 1995 Nomo Hideo, a trailblazing pitcher, found a loophole and jumped to the American major leagues. Initially dubbed a traitor, Mr Nomo found favour in Japan when he began mowing down American hitters. Suzuki Ichiro followed in 2001, outlasting racist chants to become an American baseball icon.

But even those successes seemed to

come with asterisks. "Japanese players were seen as good, but just technicians," Mr Whiting says. Mr Nomo deployed an unorthodox, twisting windup to flummox batters; Mr Suzuki could hit, but not home runs. So it went in politics: Japan might be a big economy, but it would never be accepted as a "normal" country.

Enter Mr Ohtani, who plays for the Los Angeles Angels. "He beats the Americans on their own terms," Mr Whiting writes. Not only has he upended decades of convention by both pitching and hitting professionally—a feat no player since Ruth has seriously attempted—he has dominated both sides of the game with power and panache, whipping 100mph fastballs and bashing 450-foot home runs. He was named Most Valuable Player in 2021, and is a front-runner to win the award again this year. And unlike earlier Japanese stars, who were more isolated, he has "embraced American life", says Yamazaki Ema, the director of a documentary about Koshien.

In Japan, Mr Ohtani is often compared to *manga* superheroes. In a nationwide "buzzword of the year" contest in 2021, he stole the top spot, edging out trifling concerns such as the pandemic and the Olympics. "Shotime", the nickname he acquired in America, made the list, as did "*riaru nitoryu*", or "real two-sword style", a samurai term adopted to describe his two-way baseball skills.

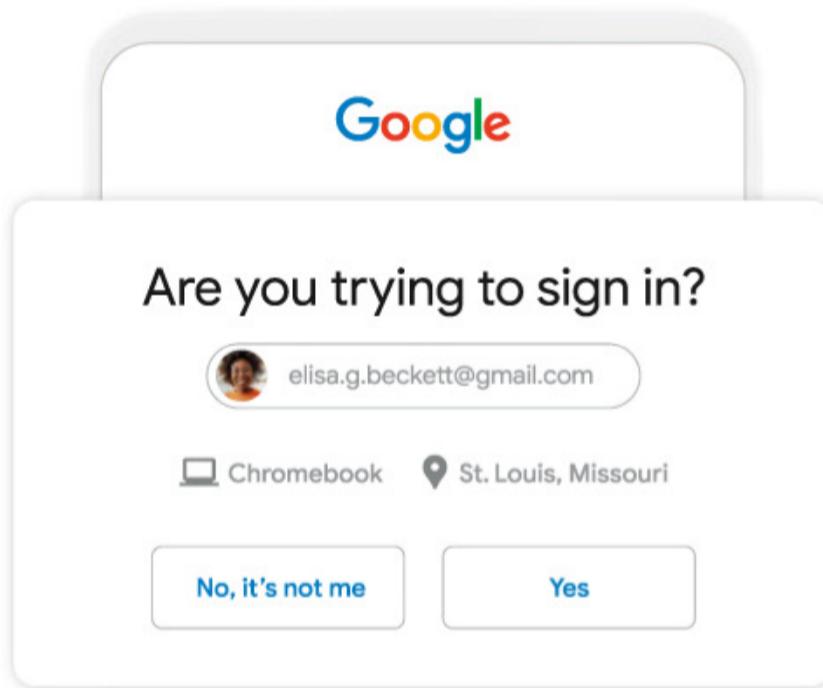
Mr Ohtani's feats have helped expand the horizons of Japanese ambitions, says Sasaki Toru, a sports writer. Baseball-mad children once aspired to play professionally at home; now they aim straight for the American major leagues. They might even dream of being the best ever. Mr Ohtani certainly has a strong claim to that title. Better, maybe, even than the Babe himself.





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### Covid-19 and social mobility

## Greasing the ladders

BEIJING

### China's covid controls are making it harder for strivers to get ahead

**I**N JANUARY, FOR the purpose of contact tracing, the authorities in Beijing released data on the movements of two people infected with covid-19. A 44-year-old migrant worker with the surname Yue had gone from one construction site to another, visiting nearly 30 over the course of 18 days. He worked odd jobs, supporting a big family. The other was a young white-collar worker, reportedly with the surname Li. She spent the early days of January skiing and browsing in posh shops, such as Dior.

By many measures inequality in China has improved over the past decade. The gap between rich and poor is still wider than in most advanced countries. But research suggests that Chinese people accept inequality—as long as they feel that working hard will lead to a better life.

The problem is that many Chinese no longer feel that it will. The data suggest that social mobility is slowing, while inequality has grown more conspicuous. The contrasting portraits of Mr Yue and Ms Li,

for example, sparked a lively debate online. Whereas a rising China offered people several routes to the middle class, covid-era China has seen some of those paths narrow. Frequent lockdowns, strict controls on movement and a tepid economy have made it harder for Chinese strivers to move up in the world.

The government's covid policies have hit two groups especially hard. The first is China's nearly 300m migrant labourers, such as Mr Yue. They leave their homes in the countryside to work in cities, where they can earn far more and send money home. But covid has disrupted this pattern.

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— Chaguan is away

Many have got stuck in their villages, either due to lockdowns or quarantine restrictions that freeze bus and train services. Cities have at times tried to keep non-residents out, lest they bring the virus in.

Life has never been easy for migrant workers in cities. Lacking a local *hukou*, or household-registration permit, they are not eligible for benefits. They are the last to receive help from the authorities during outbreaks. When Shanghai locked down this year, many migrant workers took to sleeping rough because they had lost their jobs and could not afford rent. Some food-delivery drivers avoided going home, for fear they would not be allowed out to work.

Many migrants work in service jobs, waiting tables or ironing sheets. When restaurants and hotels empty during lockdowns, their jobs vanish. Others work for small firms, many of which have closed during the pandemic. Some find temporary jobs, but the pay is worse. Ge Zhanying, from Anhui province, arrives at an informal labour market in a Beijing car park every day at 4.30am. She says that on the days she finds work, she typically makes half what she did before the pandemic. More generally, researchers have found that the wealth of China's low-income households has fallen every quarter since the pandemic began in 2020, even as that of high-income households has risen.

For bright youngsters from provincial ➤

► backwaters, higher education offered another way to a better life. If they did well on college-entry exams, they could go to university in a big city. Upon graduation, they might find a white-collar job in the city and obtain a prized local *hukou*, allowing them to settle. To be sure, students from poor backgrounds are at a disadvantage every step of the way. In recent years fewer of them have been getting into the best universities. But with hard work and a dollop of luck, they could climb the social ladder.

This year it will take more luck than usual. Many of the nearly 11m university students due to graduate will not find work. Lockdowns in cities have hobbled the economy (see next article). The urban unemployment rate for 16- to 24-year-olds rose to 19.9% in July, its highest level since the survey began in 2018 (see chart). Some are adjusting their expectations, aiming for public-sector jobs that offer lower pay than those in the private sector. Zhang Ying, who graduated last year, has been unable to find work, so she is preparing for the civil-service entrance exam. University brought her to Changsha, the capital of Hunan province. Returning to her "backward" home town is not an option, she says.

Officials fret that the despair of strivers will lead to unrest. Studies suggest that intergenerational mobility in China is falling. "If you think you're going to be worse off than your parents, that creates a really serious problem," says Ilaria Mazzocco of the Centre for Strategic and International Studies in Washington. None of this is news to President Xi Jinping, whose push for "common prosperity" aims to spread opportunities more evenly. The rich have been warned not to flaunt their wealth.

But, for now, Mr Xi is sticking to his "zero-covid" policy and the restrictions it entails. That will continue to make it harder for some people to get ahead. Ms Zhang, who has been striving since high school, once thought that life would get easier once she graduated from university. "But I'm still having to compete," she says. "I never thought it would be so hard." ■



### New lockdowns

## Testing their patience

BEIJING

### The public's frustration with the zero-covid policy is growing

THE 21M RESIDENTS of Chengdu faced a tricky decision on September 5th: adhere to the covid-19 lockdown declared by authorities days earlier, or evacuate their homes as a 6.8-magnitude earthquake shook the ground (it killed more than 70 people). In some cases local lockdown enforcers made the choice for them, barring people from leaving even high-rise buildings. Videos of such incidents have circulated online. "I would absolutely trample over anyone blocking me!" wrote one commenter, capturing the public's mood.

Dozens of Chinese cities, home to tens of millions of people, are in partial or full lockdowns. Across China, new covid cases have topped 1,000 per day for the past month. That would be a trivial number in most countries. But China fears that if the virus spreads, it could devastate its under-vaccinated elderly population. So it continues to use mass testing, lockdowns and other restrictions to contain covid. The result is an increasingly frustrated public.

The government's "zero-covid" policy asks a lot even of citizens who are not locked down. Beijing is open, but its residents must get tested every 72 hours in order to use public transport or enter buildings. Some universities bar students from leaving campus, while secondary schools have told parents and pupils not to travel outside their home cities. They enforce the policy by making parents submit data from

apps that track the user's movements.

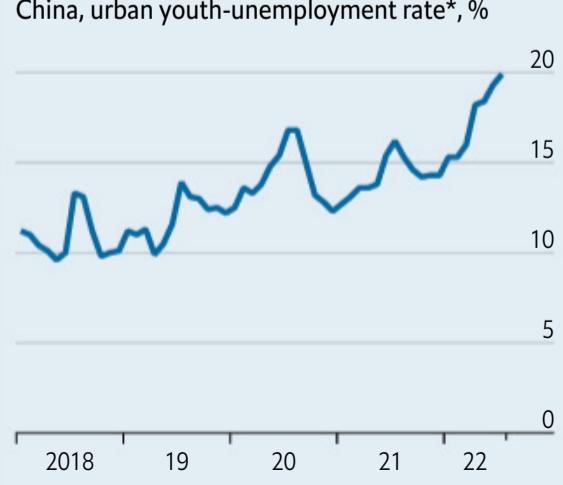
Some people bristle at the way enforcement of covid controls has fallen to relatively low-level functionaries, such as school administrators and building managers. Chinese netizens mocked a building manager in Chengdu who set a 7.0-magnitude earthquake as the threshold for allowing a breach of lockdown. The quake also led to renewed scrutiny of a common practice: officials locking, or even welding shut, fire exits to enforce lockdowns.

The struggling economy has contributed to the sour mood. It expanded by just 0.4% in the second quarter compared with a year earlier. On September 6th Nomura, a Japanese bank, said covid controls were affecting places responsible for 12% of China's GDP, up from 5.3% the week before. Recent restrictions imposed on the southern city of Shenzhen, a manufacturing and technology hub, have added to the anxiety. Nomura revised down its Chinese growth forecast for the year, to 2.7%.

China's leader, Xi Jinping, says "unimaginable consequences" would follow if he were to lift the zero-covid policy. But whose fault is that? The health system is too weak to handle a wave of cases. And the state refuses to compel old people to get vaccinated. Still, some hope that Mr Xi will loosen up after the Communist Party congress in October. With a new term in hand, perhaps he will see things differently. ■

### University, challenge

China, urban youth-unemployment rate\*, %



Xi Jinping

## Travelin' man

**The president plans his first foreign trip since the start of the pandemic**

BY THE TIME President Xi Jinping arrives in Central Asia this month, it will have been nearly a thousand days since he last left China. In the interim, much has changed—just look at his previous destination. In January 2020 Mr Xi visited Myanmar, where he signed some deals and shook hands with Aung San Suu Kyi, then Myanmar's de facto leader. Today Ms Suu Kyi sits in jail, the victim of a coup carried out by the country's generals.

Mr Xi stopped travelling abroad when China closed its borders in order to keep covid-19 out. The government still tries to contain the virus through strict controls at home. But Mr Xi has decided that diplomacy, at least, must start returning to normal. He plans to visit Kazakhstan and Uzbekistan, where he will attend a summit of the Shanghai Co-operation Organisation (SCO) on September 15th and 16th, and probably meet his friend Vladimir Putin.

There had been much speculation about where Mr Xi would go. Kazakhstan makes sense. It is where Mr Xi, in 2013, launched the Belt and Road Initiative, a global infrastructure-building scheme. China has invested tens of billions of dollars in Kazakhstan, which sends back oil and gas through pipelines co-owned by the two countries' biggest state oil companies.

Kazakhstan is important to China for another reason: it borders the Chinese region of Xinjiang, where more than a million Uyghurs, as well as ethnic Kazakhs, have been thrown into camps for "re-education". Much of the early evidence of those camps came from victims who escaped to Kazakhstan, where they were interviewed by activists—until the Kazakh government pressed the activists to stop. In public it has remained mostly quiet on the matter. China wants it to stay that way. But Chinese officials have struggled to read Kazakhstan. They were surprised by the protests, over high prices and dirty politics, that rocked the country in January, as well as by Russia's decision to send troops.

China has ambitions across Central Asia, where it has tried to build land-based trade and energy links as an alternative to sea-based routes dominated by Western powers. It long deferred to Russia on political and security matters in the region, but that is changing, says Niva Yau of the OSCE Academy, a research centre in Kyrgyzstan. "Everything that Russia does in Central Asia, China does too, just on a smaller

## Mooncakes Too rich for some

BEIJING

**The government bites down on high-priced pastries**

"THE WORST gift is a fruitcake," said Johnny Carson. "There is only one fruitcake in the entire world, and people keep sending it to each other." Most Chinese people have never heard of Carson, a beloved American television host who died in 2005. Yet many would get his joke. China has its own fruitcake equivalent: *yuebing*, or mooncakes.

Mooncakes are often dense, cloyingly sweet—and, as Carson suggested, re-gifted. They play a central role in celebrations of the mid-autumn festival, a popular Chinese holiday that falls on September 10th this year (it is timed to coincide with a full moon). But in the months leading up to the celebration, mooncakes have become the object of intense gov-

ernment scrutiny.

Something similar happened during President Xi Jinping's first term (from 2013 to 2018), when he moved to stamp out corruption. Mooncakes have long been associated with graft. Businesses seeking favours from the government often send officials fancy boxes full of the pastry—and other, more expensive goodies. It is probably no coincidence that Mr Xi's campaign was followed by a steep drop in mooncake sales.

But the market has since rebounded. This year China is expected to churn out 437,000 tonnes of mooncakes, according to iiMedia Research, a consultancy. Sales are expected to reach 24bn yuan (\$3.5bn), up by 11.8% compared with last year.

Most bakeries and restaurants offer mooncakes in their traditional form, with a heavy crust encasing fillings such as red-bean paste, egg yolks or lotus seed. But expensive delicacies, such as shark's fin and edible bird's nest, are sometimes added. Luxury hotels and designer brands have packaged these fancy mooncakes together with gold leaf, jade and expensive tea or liquor. That has led to new concerns over corruption and is out of step with Mr Xi's drive to reduce inequality and rein in ostentatious wealth.

Officials, therefore, have been inspecting mooncakes for sale in malls, supermarkets, hotels and restaurants. State media have published photos of uniformed agents on the hunt for "overpackaging and overpricing" (pictured). Anyone selling a mooncake gift set for more than 500 yuan must store the transaction data for two years, in case officials want to investigate. In Mr Xi's China, the worst gift is expensive *yuebing*.



Taking a suspect into custody

scale," she says. For example, thousands of Kyrgyz military officers train in Russia. A few hundred do so in China. Look around the region and there are other signs of its influence, such as a Chinese police base in Tajikistan and classrooms where Uzbek national guardsmen learn Chinese.

Russia's invasion of Ukraine will be the elephant in the room at the SCO summit. Kazakhstan's president, Kassym-Jomart Tokayev, has not endorsed Mr Putin's war. Mr Tokayev and other Central Asian leaders worry about Russian encroachment on their own territory, which is one reason why they seek closer ties to China. But they will probably skirt the issue at the summit and focus instead on new railways and

pipelines, as well as security. China wants regional powers to take the lead in cleaning up after America in Afghanistan.

For Mr Xi the summit is a chance to reaffirm his support for Mr Putin, and thumb his nose at the West, while avoiding the tricky optics of a state visit to Moscow. He will also have the chance to mingle with other leaders who, to varying degrees, share China's world-view. Some analysts see Mr Xi's decision to travel in the run-up to the Communist Party congress in October as a sign of confidence in his position, though there has never been much doubt that he will be handed a third term as party chief at the event. More trips abroad are expected in the coming months. ■

# The data dividend: powering the data- driven enterprise

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## LAND, OIL AND ICE

ANCHORAGE, FAIRBANKS, KOTZEBUE AND THE NATIONAL PETROLEUM RESERVE IN ALASKA  
**Glimpsing the world's past and future in the Arctic**

IT IS JUNE in the Alaskan Arctic and two grizzlies are traversing the tundra at an hour that would, at lower latitudes, be dawn. One, a blonde, ambles along a riverbank, light from the already-high sun glinting off her massive haunches. The other, chocolate-coloured, is loping to catch up with her, his heaving breath audible from your correspondent's seat at the mouth of her small tent. Though she is camping on the other side of a frigid river, its channel is narrow enough to be a moment's swim for a bear so inclined. Thankfully humans are incidental to these grizzlies' morning. The dark bear reaches the blonde. They mate and loll, briefly, then lumber up a hill, over a ridge and vanish.

The camping party was brought to this northern tundra by a bush plane, tossed around like a wiffle ball as it flew over the craggy peaks of the Brooks Range. Bulbous bush tyres bounced along a gravel riverbed; conservationists, a handful of amateur explorers and

their paraphernalia were unloaded and left alone on the North Slope.

The landscape's most obvious trait is absence. The closest human habitation, Point Lay (pop. 176) is some 130km (80 miles) west. There is no signal for a mobile phone. There are no houses, no roads, nor even trails, save for those trodden by game. Snow is smeared in bands on gentle hills. As the Arctic has warmed the brush has inched taller and the tundra grown greener. For now, though, this is still too far north for trees.

But the emptiness is alive. Northern white anemones and purple saxifrage soak up precious sun, full grown, tiny and miraculous, shimmying defiantly in the howling summer wind. Braided rivers diverge and converge around long strips of gravel. Nesting among the mud, flowers and cotton grass are the birds—here the golden plover, a ribbon of white feathers draped from brow to breast, there the willow ptarmigan, mot-►

tled brown in summer, white when the snows come.

Musk oxen leave tufts of *qiviut*, an underfur warmer than wool, caught in low thickets of silvery willow. Hundreds of thousands of caribou travel north across the tundra to the coast to calve, hoping the sea breeze will bring respite from the mosquitoes: a caribou can lose two litres of blood to them over the summer. Along the game trails are pits dug long ago by indigenous hunters from which they might wait for passing caribou then move, swiftly, to strike.

There is life across the North Slope's surface. Beneath it there is ice—or at least frozen soil. The warmth of a single summer never gets deep enough to undo the work of winter. The summed effect of many warmer summers, though, is reaching deeper; the permafrost is thinning. Below the permafrost are sedimentary rocks, some of them laid down in a basin created by the rise of the Brooks Range to the south. The seas in that basin, too, were full of life. Some of its buried, liquefied remains went on to follow their own slow migration to what today are oilfields.

A visitor sees this expanse as wilderness; indigenous people who have lived here for millennia would call it home. Climate science sees it as the retreating edge of the cryosphere, the part of the planet which is frozen. Federal law calls it the National Petroleum Reserve in Alaska (NPR-A). In Alaska land, ice and oil stack neatly one over the other. In the courts they come into conflict.

Persistent fights over who controls Alaska's land, how it should be developed and how it should be protected are ramping up in the face of uncertainty over both oil and ice. Alaska's crude-oil output is nearly 80% below the peak it reached in 1988, when the great Prudhoe Bay field was in its pomp. The state, still sorely dependent on oil revenue, is keen to slow its decline and ideally increase production.

ConocoPhillips is eager to help. In 2000 the oil major established a new site called Alpine west of Prudhoe Bay at the edge of NPR-A, some 350km across the tundra from the frisky grizzlies. The company boasts of its small environmental footprint, with horizontal wells sucking up oil miles from the main facility. If the extraction's immediate impact on the environment is lessened, so is the environment's impact on those doing the extracting. In the early days of Alaska's oil boom a reporter marvelled at oil workers' fortitude, noting that "another species has been added to the handful capable of surviving in the North Slope wilderness—the oil man." When your correspondent flew to Alpine with Conoco half a century later the oil men had made themselves at home. The maze of mint-green structures houses a gym and a cafeteria. Flat-screen televisions show Fox News and "The Office".

Since establishing Alpine, Conoco has continued its move to the west with new wells in NPR-A. America's Bureau of Land Management (BLM) is on the verge of deciding whether to allow it to exploit by far the richest of the prospects it has found there, called Willow. At 180,000 barrels a day, it would increase the state's crude-oil output by more than a third. The deadline for comments on the proposal was August 29th.

More projects may follow, both in NPR-A and elsewhere in Alaska, due to new discoveries and the new Inflation Reduction Act, which accelerates oil leasing on federal lands as well as boosting green energy. Mike Dunleavy, the state's governor, is delighted by the pros-



\*National Petroleum Reserve in Alaska †Arctic National Wildlife Refuge

pect. "People outside the state like to claim Alaska is some nirvana that needs to be saved," he says. But, as he points out, demand for oil continues to rise. He portrays new developments as a matter of urgency.

But so, too, is limiting the effects of climate change—effects Alaska feels more keenly than most. Recent research shows that the Arctic's pace of warming over the past 50 years has been nearly four times the global rate. Coastal erosion has forced some native villages to begin the arduous work of relocation. Greenhouse-gas emissions from the thawed-out soil and the retreat of summer sea-ice from the northern coast accelerate the warming driven by fossil-fuel use well beyond the state's borders.

If, from a small tent in an awesome expanse, Alaska looks like a window to the past, it is also a preview of what is to come. Fights over where and how much to drill are set to intensify around the world as demand for oil persists and concerns about energy security climb. At the same time the impacts of climate change are becoming ever more evident as the rest of the world follows Alaska into the thawed-out and fiery greenhouse future. Nowhere more clearly shows the forces that will sustain the oil economy, or the cost of failing to give it up.

## II

**A**NCHORAGE, ALASKA'S biggest city, is the 137th largest metropolitan area in the United States, and in some ways not that unlike Peoria, Illinois, the 138th. Mid-size office buildings sit in a modest grid. There are nail salons and hunting shops. Busy suburban intersections boast pharmacies of ecclesiastical scale.

But Peoria contains less than 4% of the population of Illinois, while Anchorage contains more than half the population of Alaska, a state more than ten times larger. In total just 733,000 residents—less than 10% of the population of greater Chicago—occupy a state more than twice the size of Texas and larger than France, Germany and Spain combined. It is this vastness, and the extremes and riches to be found within it, which set Alaska apart from any other state.

In Anchorage the climate is at the cool end of temperate. Utqiagvik (formerly known as Barrow), the northernmost town in America, frequently reports temperatures of -25°C (-13°F); its midwinter night lasts for two months. Many villages and some towns—even the state capital, Juneau—are not accessible by road. Huge swathes of land feel as they might have done before the settlers came. Its beauties range from the exquisite to the gobsmacking. After rain on the tundra, the leaves of a young lupine flower cradle a single sphere of water at their centre. When a clear day allows the huge bulk of the continent's highest peak to be seen from Anchorage, 160km away, locals say "Denali is out" in the way people elsewhere speak of the Sun.

The machismo of the adventurer remains. Bush pilots court passengers with the slogan, "Trust us with your life, not your daughter or wife." Scientists offered your correspondent both clear-headed analysis and way-out-there advice: how to mend your lip if you accidentally slash it with your ice axe (Krazy-Glue); how to deal with the wolves surrounding you and your recently killed caribou when you are hunting on skis in the Brooks Range at -20°C (leave the carcass, lest you become one). For scientists and others, including many of the native Alaskans who comprise a fifth of the population, hunting and fishing are the stuff not of sport, but everyday provisioning. The extremities of the land are to be managed, revered, enjoyed, endured or cursed—but they cannot be ignored.

#### THE FRESHNESS, THE FREEDOM, THE FARNESS

This vast land has also been a setting in which America's national impulse to bend nature to its use has clashed relentlessly with its urge to protect it. In 1954, 87 years after Alaska was bought from Russia and five years before it became a state, America's Army Corps of Engineers proposed a 1.5km-long dam across the Yukon river. This Rampart dam would have created a reservoir ten times the volume of that which the Aswan Dam, begun the same year, would impound in Lake Nasser. It would have had a surface area the size of Lake Erie, or nearly as large as Belgium.

Not to be outdone by the drawers of water, the highpriests of fire had designs on the land as well. In 1958 the scientists and functionaries of the Atomic Energy Commission's "Project Plowshare" suggested detonating a series of nuclear bombs on the shore of the Chukchi Sea in order to create a new harbour.

These schemes were seen at the time as ambitious but practical ways to generate growth in a huge state with a tiny economy. That today they come across as the fever dreams of a despot (or perhaps a billionaire tech bro) shows how much thinking about the environment has changed in two generations. And the opposition to those affronts mounted by conservationists, native Alaskans, scientists, hunters and others was one of the things which set that change in motion.

Even early on, the protection the environmentalists achieved was suitably Alaskan in scale. In 1960 activists including Olaus and Mardy Murie and Celia Hunter succeeded, by means of a federal order, in having 36,000 square kilometres (8.9m acres) in the north-east of the state designated as the Arctic National Wildlife Range. It was an area the size of the Death Valley, Yellowstone, Everglades and Grand Canyon national parks combined.

The protection of Alaska was far from the begin-

ning of America's love for wilderness. But it helped provide the ideas of Henry David Thoreau, John Muir and other forebears with a new theatre, and new impetus. In 1964 Lyndon Johnson signed the Wilderness Act, codifying the notion of wilderness as a portal in time linking Americans now and in future to the past. Mardy Murie was one of those present to hear the president talk of wilderness as providing "a glimpse of the world as it was in the beginning."

Then, in December 1967, six months after the Department of the Interior killed off the Rampart dam for good, a flare of natural gas suddenly lit up the winter darkness on Alaska's coastal plain; an exploratory drilling rig had made contact with the hydrocarbons of Prudhoe Bay.

Geologists had long thought there might be crude in the North Slope rocks; President Warren Harding had established Alaska's Naval Petroleum Reserve, the predecessor to NPR-A, in 1923, as an emergency supply of oil for the navy, despite the area's actual supplies being unknown. But decades of exploration and wildcatting had seen little success and by 1967 oil companies' appetite for investment in the state was all but exhausted. Prudhoe Bay changed that. In 1968 its recoverable reserves were estimated at up to 10bn barrels. It was, the *New York Times* reported, "the richest treasure trove in American history."

Hardly, though, the most accessible. Sea ice made it impossible to get the oil to market by tanker. Transporting it to the ice-free port of Valdez on the southern coast would require a 1,300km pipeline over harsh landscape. It would also require bridging a range of legal obstacles. The Trans Alaska Pipeline System (TAPS) was the first big oil project forced to balance the interests of oil and the perceived interests of the nation with those of native people and the environment.

The need to address the claims of native Alaskans led to the Alaska Native Claims Settlement Act, of 1971. It ordered the BLM to transfer more than 180,000 square kilometres to Alaska natives, about 11% of the state's total land, and paid them nearly \$1bn for lands not given. Title to native lands went to regional and village corporations charged with advancing the prosperity of their native shareholders. Along the North Slope, in particular, the interests of the most powerful native organisations were now aligned with those of the oil sector.

Environmentalists stood at right angles to that alignment. In 1970 the initial environmental-impact report filed for TAPS—just eight pages long—had immediately been challenged in the courts and the challenges had kept coming. But the Arab oil embargo in the autumn of 1973 sealed their fate. By November Richard Nixon had signed an act exempting the pipeline from further environmental review. America's most ambitious engineering project since the Moon landings was completed four years later at a cost of \$7.8bn (about \$38bn today).

The oil boom filled Alaska's coffers to bursting; to this day it has no income tax or sales tax. Prudently, in 1976 the state legislature had created a sovereign wealth fund, the "permanent fund". It both pays every Alaskan an annual dividend and makes investments to assure the state an income after the oil runs out.

The first premonition that the oil might run out sooner rather than later was when a vastly expensive exploration well off the coast came up dry. Hopes of ➤

*The Rampart dam would have created a reservoir ten times the volume of Lake Nasser...with an area nearly as large as Belgium*

► another field to rival Prudhoe Bay founded. By 1988, with TAPS handling 2.1m barrels of oil a day, production had peaked. Many Alaskans, and Republicans in Washington, DC, sought to improve the outlook by opening new land to exploration—specifically, some of the land in the Arctic National Wildlife Refuge, created as the successor to the Arctic National Wildlife Range when, in 1980, sweeping federal legislation saw 28% of Alaska's lands protected.

In 1989 a Senate committee took the first steps to authorising such exploration. A week later the *Exxon Valdez*, a tanker, ran aground not far from the port for which it was named, pouring more than 250,000 barrels of crude into waters home to seals, otters and orca. The ensuing outrage pushed drilling in the refuge back off the table. But its enthusiasts never lost the faith. They saw the flow through TAPS dwindle year by year—in 2021 the average was 477,798 barrels a day, with the oil heated lest its cold, slowed flow see solidifying wax cling to the pipeline's inner walls—and fulminated.

The refuge was a symbol of all sorts of environmental rules seen as constraining America's economic and geopolitical clout. Those who opposed drilling there were ill-informed meddlers, rain clouds searching for a parade. Though she did not originate it, it was no accident that the imperative "Drill, baby, drill" became indelibly associated with Sarah Palin, former governor of Alaska, former Republican vice-presidential nominee and, as of a special election on August 30th, defeated candidate for Alaska's single House seat.

And drill Ms Palin's babies have, much to environmentalist chagrin. But they have done so in the lower 48, where fracking and associated technologies have made it possible to draw far more oil from the ground

than seemed possible in the 1970s. When, in 2017, a Republican-led Congress at last authorised oil leasing in the refuge, Kara Moriarty, the boss of the Alaska Oil and Gas Association, framed the relevant pages of the bill, signed by Lisa Murkowski, the state's senior senator, and hung them in her office. But when the BLM subsequently auctioned leases in the refuge in 2021, no big oil companies bid. In the 1970s, Alaska's importance was that the oilfields in the lower 48 were all past their peak; only Alaska could offer new supply. Now fracking, which makes adding production quick and cheap, has provided the energy security that hard-to-work Alaska never in the end delivered.

#### IT BECKONS AND BECKONS

In August the last oil firm with an interest in the refuge, a tiny company called Knik Arm Services, gave up its lease. BP, a supermajor, has sold its holdings in Prudhoe Bay to Hilcorp, a private company that an analysis of greenhouse emissions by the Clean Air Task Force and Ceres, two non-profits, ranks as America's dirtiest. Deadhorse, Prudhoe Bay's main air hub, is strewn with pipe and rigs. Some will be transported to drill sites in winter, when ice roads can bear their weight. But it is hard to escape the impression that a giant toddler has lost interest in its playthings.

Nevertheless, Alaskan oil still has its hopes. Hilcorp is boosting production from BP's old wells. Ms Moriarty has guarded against increases in oil taxes, educating legislators on the importance of attracting investment. "A lobbyist ain't nothin' but a good teacher," she says, quoting the advice of an early mentor. And there are Conoco's new discoveries in NPR-A.

Oil prospecting has changed a lot since the first ►



► gushers of Prudhoe Bay. Truck-bound plates send seismic waves deep below the tundra, sensors gather their echoes, powerful computers interpret their data. Drill bits zig and zag as they sniff around beneath the surface, guided by sensors detecting fault lines. New technology which lowers the work's environmental footprint also lowers production costs. Last year Conoco told investors that it could make a profit at Willow with oil in the mid \$30s per barrel. In addition to the 600m barrels which it has found at Willow itself, the company pointed with optimism to some 3bn additional barrels of oil and gas nearby, equivalent to about one-sixth of the proved reserves of the Permian basin in west Texas and New Mexico.

To the oil industry and the many Alaskans who depend on its revenue, developing Willow is sensible and necessary, a rational strategy to deliver a product the world wants. Through another lens, it is an exercise in elaborate denial.

### III

**A**BOUT 50KM north of the Arctic Circle, on the edge of the Chukchi Sea, sits Kotzebue (pop. 3,283). It has an airport, a hotel owned by NANA, a native regional corporation, a grocery store and a hospital. It has a playground and beside it a cemetery. In summer it buzzes with the dull roar of all-terrain vehicles as residents enjoy the midnight sun; there is often a child perched between driver and wheel. A bulletin board features notices for Miss Teen Arctic Circle and a food bank funded by ConocoPhillips.

As in many Arctic towns the cadence of life depends on ice. In English ice is qualified by adjectives; thick, thin, blue and so on. In Iñupiat its many instantiations have distinct nouns, each an entity unto itself—*sarri* (ice pack), *sikuliak* (ice thick enough to walk on), *tuvak* (landlocked ice), *aunnik* (rotten ice), *pikaluyik* (glacial ice). In June men such as Bobby Schaeffer, an Iñupiat elder, spend much of their time on boats, their prey the bearded seals sunning themselves on ice floes in Kotzebue Sound. Hunters look for *kunguk*, the brightness on the horizon that suggests the presence of sea ice beyond reflecting light to the clouds.

The patterns of *kunguk* are changing. "You see it each year," says Mr Schaeffer, who tracks sea-ice extent not just as a hunter, but as part of a project run by the University of Alaska Fairbanks to record conditions around Kotzebue. According to John Walsh of the International Arctic Research Centre summer sea-ice in the Arctic has shrunk by about 12% a decade since 1979.

The shrinking sea-ice is one of the reasons that the Arctic is warming faster than the rest of the world, a phenomenon called Arctic amplification. Less sea-ice means the amount of sunlight reflected back out into space is lower and the amount absorbed and turned into warmth higher. This and other amplifying mechanisms have long been understood, and Arctic amplification is seen clearly in climate models. But the rate at which it is happening is still a surprise. In a study of observational data sets published in August by *Communications Earth and Environment*, a peer-reviewed journal, Mika Rantanen and colleagues at the

Finnish Meteorological Institute argued that Arctic temperatures had risen at roughly four times the global average from 1979 to 2021.

And it feeds on itself. The cranking up of temperatures speeds the further melting of sea-ice, which speeds further warming. Other feedbacks come into play, too. As temperatures rise trees will creep further north; snow hidden beneath forest canopies reflects less sun than snow spread over empty tundra, so more warmth will follow.

Perhaps the most pernicious is the thawing of permafrost. Some 85% of Alaska has permafrost beneath the surface, be it hundreds of metres in depth or a slim slice of frozen soil. In the short term, thawing permafrost transforms common landscapes into surrealist ones. So-called drunken forests have trees tilting wildly this way and that, tipped by slumping soil. Behind Mr Walsh's office in Fairbanks a once-orderly car park has become an undulating funhouse floor.

But permafrost poses broader challenges, too. There are about 1.6trn metric tonnes of carbon stored in Arctic permafrost; that is twice the amount currently found in the atmosphere. As temperatures rise, the carbon in soil that had been frozen becomes food on which microbes feast. Carbon dioxide and methane, a more powerful greenhouse gas, escape into the air.

"The permafrost in the Arctic that has been a carbon sink for tens of thousands of years may slowly be shifting to a carbon source," explains Sue Natali of the Woodwell Climate Research Centre, an independent institute. The trouble is, scientists have only a nebulous understanding of how quickly the shift is happening. Ms Natali is leading an effort to measure and model the thaw. Its measurements of the gases released from the soil are breathalyser tests for a planet under the influence.

#### I'VE BADE 'EM GOODBYE—BUT I CAN'T

If the pace of permafrost thaw is uncertain, the way to limit its ultimate extent is clear: slash emissions. "What's happening here is America's wake-up call," Barack Obama told a crowd packed into Kotzebue's gym when he visited in 2015. It was the first time a sitting president had come north of the Arctic Circle. "Part of the reason why I wanted to take this trip", he told *Rolling Stone*, "was to start making it a little more visceral and to highlight for people that this is not a distant problem that we can keep putting off." He spoke of the urgency of both investing in clean energy and adapting to the impacts of climate change.

Seven years later, the country is only just starting to act with the urgency he called for. The Inflation Reduction Act, signed by President Joe Biden in August, includes America's most significant investments in clean energy to date and will have a substantial impact, in the best case reducing America's emissions by 2030 to about 40% below the levels of 2005. But the law does nothing to curb the use of oil—no carbon tax, no cap and trade. And such are the time lags inherent in climate change that even grand cuts today will not appreciably change outcomes for decades. Green energy will ramp up, oil demand will persist and the world will continue to warm.

Already, climate change has begun to scramble the Arctic's natural clock. Plants are reaching full growth earlier in the season; that poses challenges to the birds and caribou who migrate over hundreds of miles, only ►

*This is the new reality of Arctic environmentalism: it can no longer be about keeping the wilderness as it was*

► to reach plants and insects past their nutritional peak. But the threat is not just to some magnificent wildernesses, or some abstract idea of the planet. It is to the people who live there.

So far this year some 12,600 square kilometres of Alaska have been enveloped in flames. Early snowmelt made the ground drier and more susceptible to flames. Warming temperatures have made shrubs taller, providing fires with more tinder. As wildfires burn soil, permafrost is exposed to warmer temperatures, which speeds up its thaw, releasing more greenhouse gases.

The once-timeless wilderness still needs protection against the oil industry; but now that industry also needs to protect itself against the downstream impacts its products are having on the weather. Consider Willow. The BLM's newest, court-ordered Draft Supplemental Environmental Impact Statement on Willow, published last month, spans 2,402 pages. It considers five alternatives, including one with no drilling at all. Conoco's preferred option includes five drill sites, an air strip, a facility to process crude, 506km of pipeline, 60km of gravel roads, a mine to supply that gravel and seven bridges. To stimulate the flow of oil the company would frack the sediments, blasting sand, water and chemicals into each well at 12-20 access points.

These elements, Conoco says, are designed to minimise the project's impact. Extra-long drills allow the company to reach more oil from a single wellhead. Infrared cameras will note the location of polar-bear dens so as to avoid crushing them during construction of each winter's ice roads. Some assurances drift toward the absurd, the chain of cause and effect a Gordian knot. The company would use thermosiphons, standard practice in Alaska, to keep the ground cool "in areas where permafrost degradation would be likely due to local conditions or project facilities." The gravel roads will be bulked up so as to protect the un-

derlying permafrost from the pressure and heat provided by heavy trucks, and thus to protect the road from the effects of thawed permafrost.

As for the project's own contribution to climate change, the statement notes that the government "has not set specific thresholds for GHG [greenhouse gas] emissions and while a single project of this size cannot significantly impact global GHG emissions, all projects may cumulatively have a significant impact on global climate change"—the global tragedy of collective action, distilled in the prose of the bureaucrat.

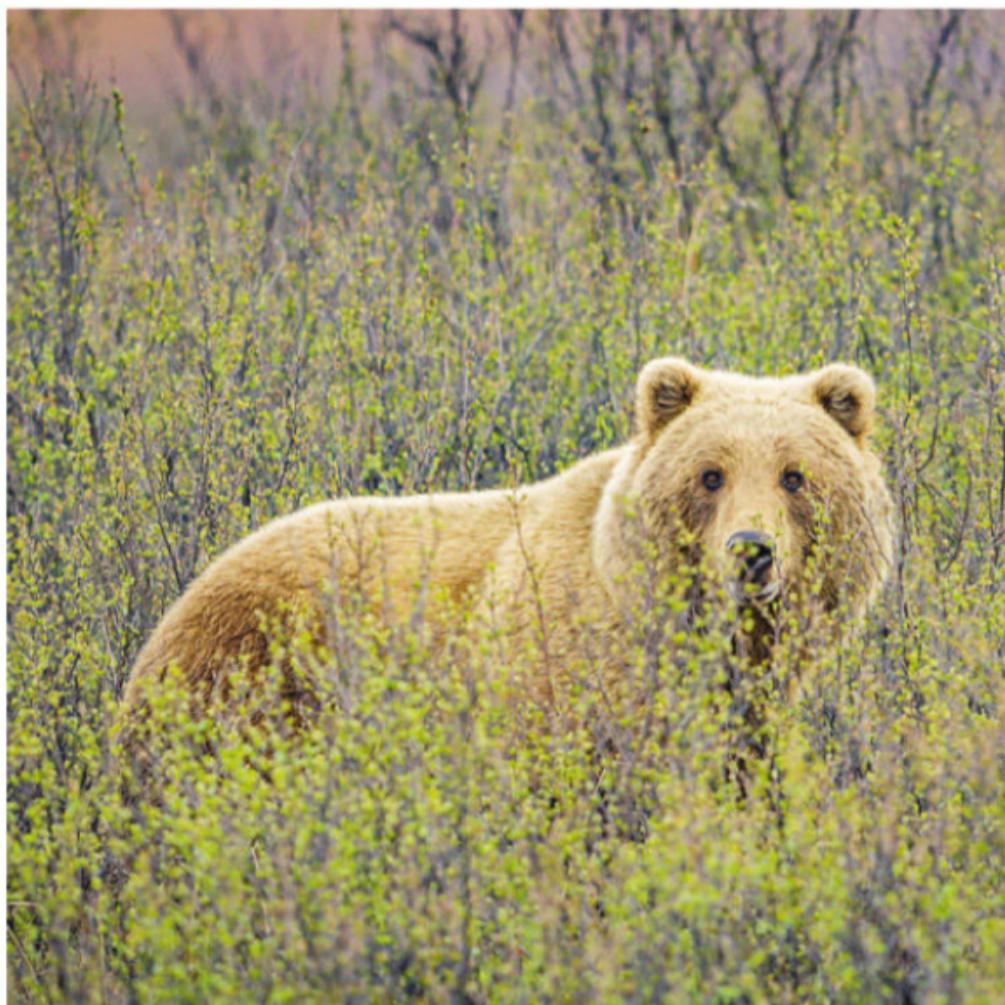
Willow, like every new project in Alaska, has its critics. "Our life, health and safety should not be the cost of oil and gas development and national energy needs," says Rosemary Ahtuangaruak, former mayor of Nuiqsut (pop. 433), a village close to Alpine. She fears the development will change the migration patterns of the caribou on which her community depends. Peter Winsor of the Alaska Wilderness League, who guided your correspondent on her visit to the wilds of NPR-A, argues that drilling's risks are not confined to climate change; there was a gas leak at Alpine this year. "These ecosystems and the people who live there are already under such pressure," he protests.

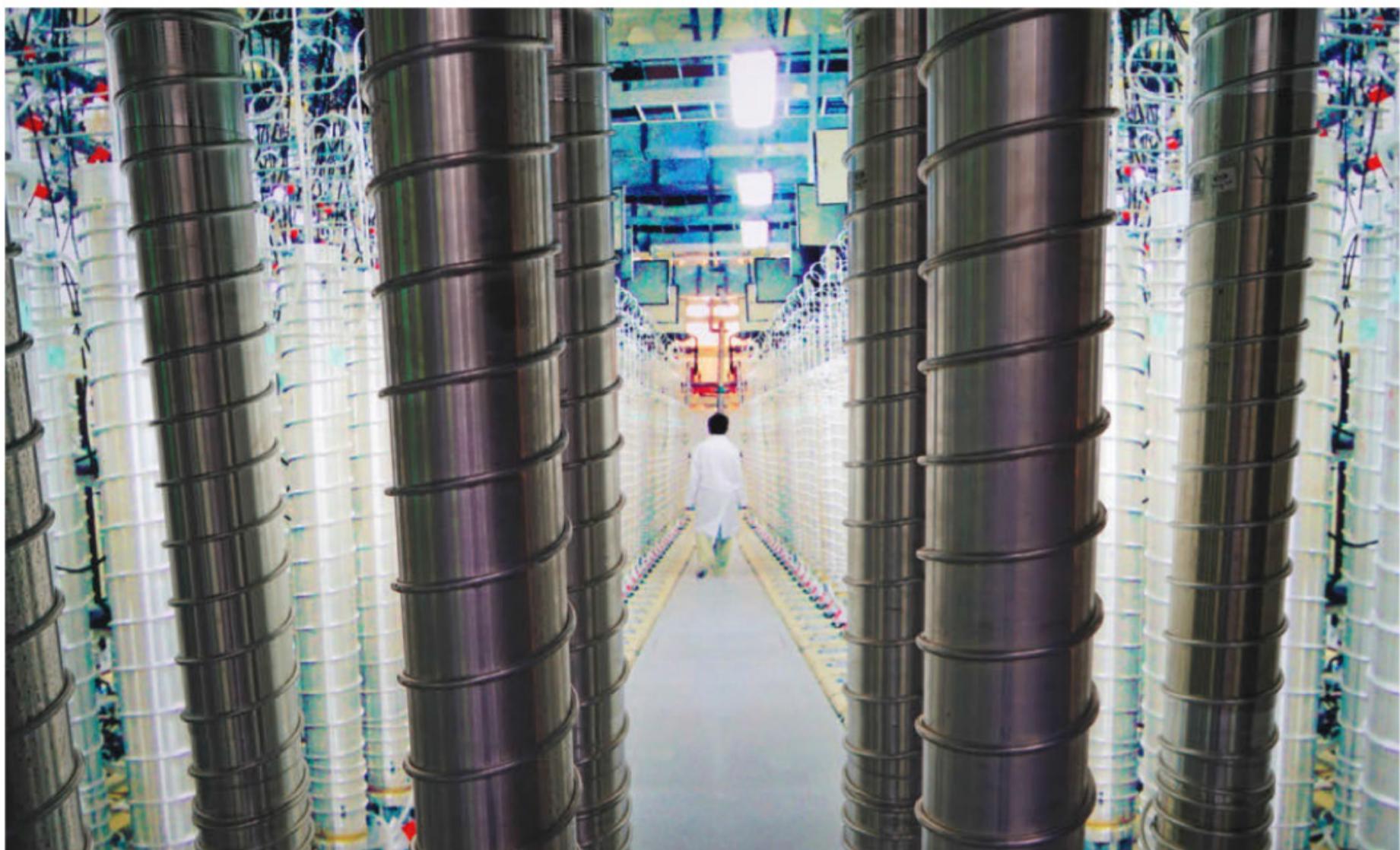
That points to the new reality of Arctic environmentalism: it can no longer be about keeping the wilderness as it was. The caribou are already changing their paths in response to changing seasons; the permafrost is already melting. The environmentalists know all this; they know the past will go whatever they do in the present. But Mr Winsor argues that this makes conservation ever more crucial. Minimising all new assaults gives the fragile Arctic its best chance of adjusting to the change it cannot avoid.

But the drive for development is strong. Conoco-Phillips spent \$5.9m on lobbying in the first half of the year, more than in any 12-month period since 2011. The Arctic Slope Regional Corporation, a native conglomerate with \$3.9bn in revenue, is firmly in favour of Willow; its boss, Rex Rock, calls the project "critical to the economic well-being of our region's eight Iñupiat villages". Ms Murkowski points to \$10bn in tax revenue, 2,000 jobs in construction and another 300 over Willow's lifetime. A final BLM decision is expected by the end of the year.

Those who want to preserve additional swathes of Alaskan nature are elitist hypocrites, Mr Dunleavy maintains. Oil not drilled in Alaska will be drilled elsewhere—perhaps in a country with fewer environmental protections and a more despotic government. "You have to decide where that energy is going to come from and in what form," he says. "And there's nothing free."

Mr Dunleavy is favoured to win his race for re-election this November. Ms Murkowski is hoping her moderate politics and oil-friendly policies will once again secure her place in the Senate, despite her vote to impeach Donald Trump in 2020. Ms Palin will again run against Mary Peltola, who by beating her in August became the state's first native Alaskan representative. On the coast Kotzebue is bracing for autumn storms— harsher now that the sea ice stands farther from the shore. The caribou have already travelled back across the tundra to winter in the south, a thundering procession along rivers and ridges. Grizzlies are guzzling fish and berries. By late autumn they will hibernate, waiting out the winter as they have always done. Every time they wake, their world is less what it was. ■





### Iran's nuclear programme

## An unenriching debate

DUBAI AND JERUSALEM

### Endless nuclear talks with Iran are bordering on the absurd

MUCH HAS changed in the nearly 18 months since Iran and world powers started trying to salvage their nuclear deal of 2015. Three of the seven parties to the accord have new leaders. A fourth invaded its neighbour. What was meant as a brief run of negotiations became a marathon. Yet negotiators flock back every few months for more meetings at the home of the UN's watchdog, the International Atomic Energy Agency (IAEA) in Vienna.

Last month they seemed optimistic. America, which left the deal in 2018, had resolved some of its outstanding issues with Iran. The European Union (EU) prepared what it said was a "final text" of an agreement. There was talk of foreign ministers flying to Vienna to sign it.

But Iran, not for the first time, pushed for more. On September 1st it sent a formal reply to the EU's draft. America called it "not constructive". European diplomats were displeased. Talks seem headed for a two-month intermission, until after the American midterm elections in November.

Even Western diplomats who support the deal are starting to question whether Iran really wants it, or merely wants to play for time—and when they should call its bluff.

Known as the Joint Comprehensive Plan of Action (JCPOA), the deal eased sanctions on Iran in exchange for limits on its nuclear programme. It was meant to enforce a break-out time—the period Iran needed to produce a bomb's-worth of weapons-grade uranium—of roughly a year. Donald Trump withdrew from the agreement and restored American sanctions in a fruitless quest for a "better deal".

Iran stayed compliant for another year. Since then, it has made irreversible pro-

gress towards mastering the uranium fuel cycle. It has installed thousands of advanced centrifuges, which would be mothballed but not destroyed under the revised deal. The IAEA says Iran has 56kg of uranium enriched to 60% purity, enough to make a bomb if refined to weapons grade.

Even with a revived agreement, Iran's break-out time would probably be closer to six months. Parts of the deal would begin to lapse as early as next year; many restrictions on centrifuges would "sunset" in 2024 and 2025. For the West, it thus offers fewer benefits than in 2015. Still, it would improve on the status quo.

Whenever a deal has seemed close, though, it has been derailed by Iranian demands. Some have been reasonable, such as wanting guarantees America will not pull out again under a Republican president. Others, such as its insistence that America remove its designation of the Islamic Revolutionary Guard Corps as a terrorist group, are outside the agreement's scope. Iran has retreated from both demands: the former is impossible under America's political system, and President Joe Biden balks at the second.

The latest obstacle relates to an IAEA probe into Iran's nuclear past. The agency found traces of enriched uranium at three sites, none of which had been disclosed as nuclear facilities, and rightly wants Iran to explain what it was doing. But Iran wants the probe dropped as a condition for re-►

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▶ turning to the JCPOA. Neither America nor the Europeans will agree to that course.

If the impasse cannot be broken, talks will probably pause. By law, Congress has 30 days to review any nuclear deal with Iran and could pass a resolution of disapproval, barring Mr Biden from lifting some sanctions. Such a measure would probably clear the House—34 Democratic members of Congress recently sent the president a letter expressing “deep concern” about a deal—but Mr Biden could veto it. Still, Democrats would like to avoid such a row before the midterms on November 8th.

Prolonged uncertainty has widened divisions in Israel, which officially opposes the nuclear deal. Mossad, its foreign spy agency, endorses that view. It thinks Iran would receive billions of dollars to fund its proxies but be freed to build a bomb once the sunset clauses kick in. Israel’s army, by contrast, sees the deal as flawed but beneficial. Its intelligence officers argue that even a temporary limit on Iran’s nuclear work would let Israel focus on other threats, and that the financial gains are overstated, as it will take years for Western firms to resume business with Iran. Israelis also disagree on whether a military strike could meaningfully slow Iran’s nuclear work. The air force thinks it could delay the programme by two or three years—but many other Israelis disagree.

Both Yair Lapid, the prime minister, and Binyamin Netanyahu, who hopes to displace him after an election in November, are convinced by Mossad. But Mr Lapid recognises that Israel has little influence over Mr Biden’s decision-making. Mr Netanyahu, for his part, is looking for ways to boost his electoral fortunes; he says Israel should badger the Biden administration into dropping the JCPOA for good.

Neither Mr Biden nor European powers want to walk away. That would force hard decisions about how to handle a nuclear-threshold Iran. Yet the endless talks have begun to seem farcical. In January Antony Blinken, the secretary of state, said there were only “a few weeks left” to save the deal. A few weeks passed, then a few more; 34 weeks on, the JCPOA looks like Schrödinger’s cat, not quite alive or dead.

Observers of Iran, inside the country and out, are unsure if it truly wants a deal. One view is that it does and is simply holding out for more concessions from a solicitous Biden administration. The status quo, after all, is not ideal. Iran is forgoing tens of millions of dollars a day in oil revenue at a time when its currency has collapsed and inflation is around 50%.

Even if a Republican kills the deal again in 2025, Iran could still enjoy two years of relief from sanctions. Bijan Khajehpour, an Iranian economist, estimates a deal would add six points to Iran’s GDP growth in 2024 and shave two points off the unemploy-

## HoneyZoom Long-distance marriages

Lebanese seeking civil ceremonies are getting wed online

**R**ANA FAYAD and Wassim Abou Zeid had a traditional wedding. She wore a white dress; he wore a tuxedo. They recited their vows outdoors in front of the mountains that rise up behind Beirut, the Lebanese capital. Friends and family gathered beside them. So far, so normal. Except that their officiant joined by video call from the American state of Utah. “Can you both see and hear me?” boomed the voice of Christopher Scuderi, a non-denominational clergyman, from a tablet.

Ms Fayad and Mr Abou Zeid are of different religions, so they wanted a secular wedding. In Lebanon that is hard to arrange. The country has no civil marriage. Residents must marry under the laws of their religious sect (18 are officially recognised). This poses spiritual as well as practical problems. One half of the couple may have to convert. Religious laws and the courts that uphold them make divorce difficult and discriminate against women when it comes to the custody of children and the division of money and property.



ment rate. Yet some of the advisers around Ebrahim Raisi, the president, see economic pain as a trial to be endured.

In any case, the stalemate may on balance have suited Iran quite well. It has spent three years enriching its uranium without incurring more European sanctions or triggering the JCPOA’s mechanism known as a “snapback”, which would reactivate UN Security Council restrictions on

But Lebanon does recognise civil marriages performed elsewhere. Those who can afford it fly to nearby Cyprus, then register their marriage back home. Should a couple who marry abroad divorce, Lebanese courts follow the laws—usually more egalitarian—under which the marriage took place. Travel companies offer packages to Cyprus that cover flights, hotels and marriage fees. Ms Fayad and Mr Abou Zeid were set to go down this route, until her visa failed to come through in time. Lebanon’s dire economy means that fewer would-be married couples can afford the expense.

So the couple turned to Zoom. Three years ago Utah changed its rules to allow the entire marriage process—from licence application to ceremony—to be conducted online. Only the officiant needs to be present in that state.

Khalil Rizkallah and Nada Nehme, who met online, may have become the first couple in Lebanon to marry under Utah’s law when they tied the knot in November 2021. They were going to fly to somewhere such as Paris for a secular wedding but decided to be wed via Zoom instead, so that their family could celebrate with them at a fancy restaurant in Lebanon. Mr Scuderi officiated from a big screen. Mr Rizkallah, who sells cloud services, and Ms Nehme, a chemist, now run a business on the side helping others marry in the same way.

Mr Scuderi has now officiated at two dozen Lebanese weddings. His starting rate of \$75 pays for a three-minute ceremony; he throws in a closing “*Mabrouk!*” (Arabic for congratulations). The Fayad-Abou Zeid ceremony lasted a bit longer. Their tablet overheated in the middle of it. After the couple reconnected, Mr Scuderi hastily pronounced them married: “Many blessings to you both for a long and very happy life together.” The screen froze again, this time because of the 3G connection. “And it looks like we’ve lost them again.”

Iranian arms deals and missile research.

Even Josep Borrell, a font of optimism throughout the negotiations, now sounds deflated. The indefatigable EU foreign-policy chief said on September 5th that America and Iran were moving farther apart in their positions. “The whole process is in danger,” he concluded glumly. No one is ready to admit failure—but it seems a growing possibility. ■

## Saudi Arabia

# Bulldozing history

JEDDAH

### Make way for modernity

**N**O WONDER SAUDIS call Muhammad bin Salman, their crown prince and de facto ruler, the Bulldozer. Fly into Jeddah, Saudi Arabia's second and most charming city, and vast empty patches scar the landscape. Most of its southern districts and much of its centre have gone. Herds of mechanical diggers paw at the remnants of mosques, schools, factories and blocks of flats. Bustling neighbourhoods are turning into ghost towns as the authorities, without warning, scrawl "*Ikhla*", Arabic for evacuate, in red paint on the walls, then switch off the electricity and water. "It looks like a war zone," says a Saudi writer.

Like Prince Muhammad himself, many of Jeddah's 4.7m people initially welcomed the bulldozers. They flattened the slums reputedly home to criminal gangs, drug mafias and prostitution rings, as well as the poor quarters housing foreigners doing menial work. Bereft of proper drainage, the city is prone to flooding and needed a facelift. But joy turned to consternation as the bulldozers moved north, levelling old Saudi houses, mosques and handsome villas, and reaching perilously close to the old city, a UNESCO heritage site.

Arab dictators tend to like megaprojects. Abdel-Fattah al-Sisi, Egypt's leader, has ambitious plans for Cairo, too. But at least he compensates and rehouses the displaced before dispatching the diggers, with the developers fast behind. Prince Muhammad focuses on clearance, leaving his subjects to fend for themselves. As Jeddah's housing stock shrinks, rents have soared and traffic is gridlocked. Those with means often head for Riyadh, the capital, or go abroad. Descendants of stateless pilgrims with no identity cards have nowhere to go. Some are said to camp in the desert. "The collateral damage of authoritarianism," explains a Jeddah official.

No one dares protest. It is brave merely to mutter. Some grumble that the House of Saud, the dynasty of Bedouin originally from the parched hinterland, like to punish the port's cosmopolitans for never truly embracing Saudi rule. Before the founding king, Abdel Aziz bin Saud, conquered the whole country only a century ago, Jeddah was the grand seaside capital of the rival kingdom of Hijaz, while Riyadh, home-base of the Al Saud, was a mud hamlet.

Over past decades, embassies and most recently businesses have had to relocate to Riyadh. King Salman, Riyadh's governor

for five decades before taking the throne in 2015, turned the new capital into a metropolis of 7m people, almost twice Jeddah's size. As crown prince, Muhammad has continued his father's work. To drive his point home, he arrested and fleeced some of Jeddah's top businessmen. He suspended work on what would have been the world's tallest skyscraper, leaving it an unfinished stump. The fabled "Bride of the Sea", says a local author, referring to ancient Jeddah, is being defiled.

Officials say a better city will rise up. They liken Prince Muhammad to Emperor Napoleon III, who replaced Paris's slums with leafy boulevards and parks in the 1850s and 1860s. One speaks of turning southern Jeddah into a gateway to the nearby holy city of Mecca. Jeddah recently hosted a film festival, a Korean pop show and a grand prix, a foretaste of excitements to come. It will be a second Venice, says another, replete with lagoons and canals.

Locals have heard it before. A project costing \$45bn to overhaul Jeddah was unveiled 13 years ago, but never materialised. This time befuddled residents have seen plans only for the waterfront and for converting an obsolete desalination plant into an opera house. For homeless Saudis, the prince's masterplan, Vision 2030, augurs destruction more than reconstruction. ■

### African video games

## Local heroes

KAMPALA

### African creators reach for the sky

**E**YRAM TAWIA always wanted to be a superhero. As a boy he was Wuzu, "the Great One", sketching comic-book stories from his lair in the living room. It was the 1990s and the first video games were reaching Ghana: "beat 'em ups" such as "Mortal Kombat" and "Street Fighter", which he played on a fake Nintendo console. He recalls waiting eight months to run a demo of "Tomb Raider", rigging up a computer with parts sent from an uncle in Australia.

Today Mr Tawia creates games and comics himself at his studio, Leti Arts, in Accra, Ghana's capital. His African characters inhabit their own world, which he compares to the Marvel universe. An assassin from Niger might face off against a witch doctor from Kenya, or the spider god Ananse against Shaka, the mighty Zulu king. His studio's next game, "Karmzah Run", follows an archaeologist with cerebral palsy who has superhuman powers.

Dozens of games studios have sprung up in Africa in the past decade. Insiders



Karmzah really does run

think African video games are poised to soar, and reel off statistics to support their case. The continent has a billion people under the age of 35 and more smartphones than North America. Mobile internet use is rising by 9% a year. Drawing on local folklore, developers hope to do for gaming what Afrobeats has done for music and Nollywood for film. Games can give new life to "the stories that our grandfathers used to tell us", says Douglas Ogeto of Ludiq Works, a games publisher in Kenya.

Developers let their imaginations run riot. A Cameroonian studio, Kiro'o Games, takes players to a mythical planet, Auriona, where a royal couple fight for their throne. Masseka Game Studio, founded by a Central African entrepreneur, weaves a traditional board game into a story of two kingdoms battling for riches. In "Kukulu", designed by Qene Games, an Ethiopian outfit, a fugitive chicken leaps over coffee pots to escape a farmer. A Kenyan studio, Mekan Games, has topped the casual gaming charts in America with its app "The President", inspired by Donald Trump.

Programmers are often self-taught. "The universities weren't catering to game developers," says Hugo Obi of Maliyo Games in Nigeria. "Why would they?" In 2020 his studio launched a skills curriculum. It is working with Google to train more than a thousand people this year. "We're democratising knowledge for gaming," he says.

African video games are not yet very lucrative. Most are designed for casual players to download for nothing on mobile phones. Revenue from adverts or selling in-game goodies is modest. "It's been a struggle, frankly, in Africa to find a business model for a lot of games," says Jay Shapiro, a Canadian entrepreneur who runs Usiku Games, a studio in Kenya. He thinks one answer is for developers to build econ-

omies of scale through initiatives such as the Pan-African Gaming Group, a network of nine studios that he chairs.

Venture capitalists are starting to take notice. In January investors put \$20m into Carryist, a South African publisher which helps studios worldwide launch their content in Africa. Its platform offers punters more than a hundred ways to pay (many African gamers lack credit cards or live in economies hamstrung by foreign-exchange restrictions). Cordel Robbin-Coker, its co-founder, agrees that studios have found it difficult to make money from video games in Africa but argues that “payments access is the biggest reason, not disposable income”.

For the moment the industry gets much of its revenue from charities and foreign donors, who like to fund worthy games about peaceful elections or sexual health. “Once you are making a game from Africa, people are asking you: ‘Is it for malaria? What is it teaching?’” says Mr Tawia. “Why can’t we make a game and just have fun?”

He does not mind do-gooders, as long as he can explore his fictional worlds. At school, when his head teacher threatened to ban his “demonic” creations, he introduced a character called Faith the Conqueror and briefly rebranded them as “Christian Comics”. A superhero finds a way. ■

#### Angola's election

## The winner loses

### The ruling regime has been weakened by its own habitual cheating

**A**S SADLY EXPECTED BY Angolans thirsting for real change, the People’s Movement for the Liberation of Angola (MPLA), which has ruled the country since 1975, made sure by hook or by crook that the elections on August 24th would give the party and its incumbent president, João Lourenço, another five years in power. Even so, the official result—51% for the MPLA against 44% for its eternal opposition, the National Union for the Total Independence of Angola (UNITA)—was closer than ever before.

Indeed, civil-society groups, using an unofficial parallel tallying system, say the true result was a tie—or even a victory for UNITA, which duly published a score of 49.5% to 48.2% in its favour. Sure enough, the MPLA-packed constitutional court dismissed UNITA’s claims of rigging. But even the official result, however doctored, was a slap in the MPLA’s face.

The electoral commission, generally viewed as an MPLA cipher, could not deny

that voters in the province of Luanda, which includes the capital and is by far the country’s most populous, had plumped massively for UNITA. Even the city’s fanciest quarters, home to the MPLA elite, are said to have voted for UNITA. Other reports suggested—worryingly for the ruling party—that UNITA received large votes where the army and police, recently put on “high alert”, were major constituents.

Even though the true vote is impossible to verify, there are good reasons both to query the official results and to lend some credence to the tallies issued by civil-society groups, whose calculations come closer to those of UNITA. The main technique used by these unofficial counters (and increasingly by the cannier election monitors around the world) is to record, photograph, collect and transmit tallies from every polling station, agreed upon by agents from all sides on the spot. By contrast, Angola’s central electoral commission gathers results at provincial centres without detailing the precise breakdown of polling-station figures.

However, although UNITA deployed cohorts of party agents as widely as possible, it will have lacked the resources and the security to cover the entire country, especially in rural areas, where the ruling party has extensive powers of bribery and intimidation. The MPLA, after all, has held all the levers of state at every level for nearly half a century. Still, UNITA’s assertions of victory are indicative rather than definitive.

In any event Mr Lourenço, though officially the winner, has been sorely weakened. The MPLA has been divided, especially since July, when its long-serving and notoriously crooked leader, José Eduardo dos Santos, died in Spain, prompting bitter disputes over his legacy—and even over his funeral arrangements. When Mr Lourenço assumed the presidency in 2017, he set out to curb the influence and wealth of his predecessor and his family, which earned the new man some credit among ordinary Angolans. Few were sorry when the former boss’s daughter Isabel, said to be one of Africa’s richest women, who used to head the state oil giant, fled into exile.

But such house-cleaning shook the foundations of the party, many of whose bigwigs were tainted with oil-fuelled corruption. Moreover, since Mr Lourenço’s early fulminations against graft, the system of patronage and perks has persisted almost as brazenly as ever. Above all, development of the economy apart from oil has failed. Even MPLA old-timers admit that the party has become hugely unpopular. The young—most Angolans are under 25—are particularly angry.

Against such a backdrop the rise of UNITA has been palpable. It has shed its reputation as a violent ex-guerrilla movement with an ethnic base in the central heart-

lands. In its earlier days under its longtime leader Jonas Savimbi, who was killed in 2002, it disparaged the MPLA for its “unAfrican” metropolitan leadership and Marxist ideology, often espoused—as UNITA sneeringly saw it—by mixed-race intellectuals based in Luanda and Lisbon.

Since then UNITA has “detoxified” its image, says Ricardo Soares de Oliveira of Oxford University. Its leader for the past three years, Adalberto Costa Júnior, a persuasive 60-year-old engineer, himself of mixed race, has reached out from UNITA’s tribal strongholds to embrace a wider, more urbanised national constituency, more inclined to speak Portuguese, which has abandoned the MPLA in droves.

For the time being Mr Costa Júnior is sounding cautious, perhaps unsure whether to boycott legislative proceedings or to build on his parliamentary status of near-parity, presenting his party as a government in waiting while the MPLA tears itself apart. He is surely determined to avoid the violence that followed a disputed election in 1992, when at least a thousand UNITA activists, including many of its leaders, were slaughtered in Luanda.

Meanwhile, Mr Lourenço will seek to shrug off suggestions that he has lost his legitimacy. Regional and international election monitors, led by the African Union and the Southern African Development Community, declared the election more or less adequate, as they invariably do, while the European Union was almost as undemanding. Portugal, the former colonial power, is evidently happy to deal with the devil it knows—and from which it profits. While Angola implicitly supports Russia over Ukraine for historic reasons, Western governments are in no mood to badger a major African oil-producer over human rights or democracy. But they may be wise to take Mr Costa Júnior more seriously. ■



Costa Júnior bids to be senior



## Europe's energy crisis

# Preventing the big chill

BERLIN, PARIS AND ROME

### The EU tries to counter Russia's energy weapon

**W**HAT WE HAVE to do is flatten the curve," Ursula von der Leyen, president of the European Commission, announced on September 7th. She was talking not about the pandemic, but about Europe's newest crisis: a surge in energy prices caused by Russia curtailing fossil-fuel exports to press the EU to stop supporting Ukraine. Ms von der Leyen proposed five EU-wide measures to frustrate Russian manipulation, including flattening peaks in electricity demand which help drive up prices. European energy ministers will discuss her proposals when they meet in Brussels on September 9th.

Ms von der Leyen's measures would coordinate efforts to blunt rising energy prices at the European level. Besides smoothing of electricity use, they include windfall-profit charges both on non-fossil-fuel power generators, such as renewables and nuclear, and on fossil-fuel companies. The proceeds would be returned to consumers. Other measures would offer liquidity to energy companies hit with high demands for collateral, and cap the price of Russian

gas. Vladimir Putin responded with a threat to end energy exports to Europe.

That threat may be moot. Europe already has plans to embargo Russian oil from December 5th, notes Simone Tagliapietra of Bruegel, a think-tank, and gas deliveries have shrunk by two-thirds from pre-war levels. After the G7, a club of big economies, imposed a cap on the price of Russian oil on September 2nd, Russia said that Nord Stream 1, its main gas pipeline to Germany, would stay shut indefinitely—supposedly for technical reasons.

Gas prices are now about ten times their average over the past decade. Europe's gov-

ernments are struggling to balance relief for citizens and firms with letting energy prices rise in order to discourage use. They must also avoid bidding wars with each other. The EU's proposed measures attempt to tackle collectively a challenge that its member countries are struggling to meet individually. If they fail, European voters may demand their governments drop sanctions on Russia in the (forlorn) hope of getting cheaper energy—or make way for new leaders who will.

So far, measures have come from national governments. On September 4th the leaders of Germany's coalition government emerged after 22 hours of negotiations, looking as exhausted as Berlin disco-goers, to announce a package that will cost at least €65bn (\$65bn), equivalent to 1.8% of the country's GDP. It is supposed to preserve social peace this winter when consumers are clobbered with sky-high energy prices. "You'll never walk alone," promised Olaf Scholz, the German chancellor, who has become fond of quoting the song by Gerry & The Pacemakers in recent months.

The package, Germany's third, brings the country's total spending on energy relief to some €95bn. It includes tax breaks for energy-intensive industries, one-off payments for students and pensioners, subsidised public transport and higher child benefits. An electricity-price brake will cap the price of a basic amount of electricity for households and small businesses. The subsidies will be welcome but cost-►

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ly. Mr Scholz plans to finance them in part by bringing forward a planned 15% minimum corporate tax. He will pay for the electricity-price brake with a cap on profits of power firms that do not use fossil fuels, as in Ms von der Leyen's proposal.

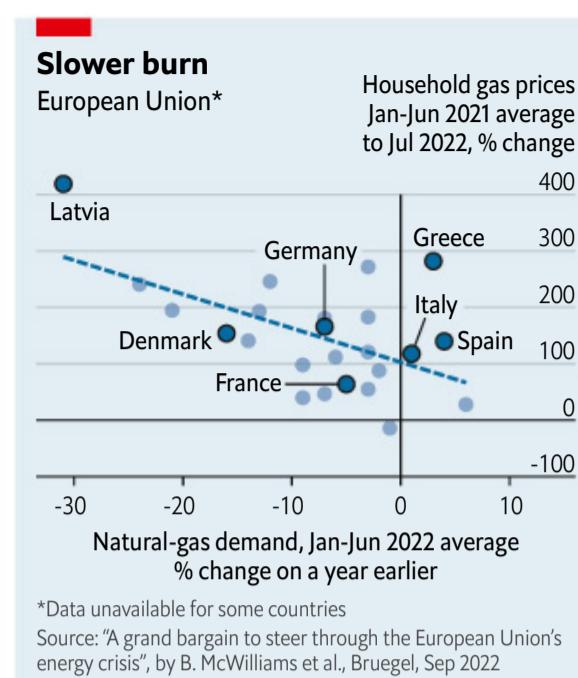
France's parliament passed a relief package worth €64bn in August. President Emmanuel Macron is offering generalised rather than targeted subsidies, and capping price increases rather than compensating those squeezed by them. Gas prices are frozen until at least the end of 2022, and the rise in electricity prices is capped at 4%. From September 1st France raised its petrol-price subsidy to €0.30 per litre; government signs on gas pumps remind consumers of this generosity.

These measures are largely deficit-financed. The government is nationalising EDF, the national energy giant in which it already holds an 84% stake, to make it easier to dump costs on the company. France usually exports electricity, but with over half of its 56 nuclear reactors down for repairs it is contributing to Europe's shortage—and paying high prices as a result.

In Italy, efforts to offset the crisis helped bring down Mario Draghi, the departing prime minister. In June Mr Draghi's government drew up an energy-cost relief bill which included provisions for a waste-to-energy plant that one of his coalition partners, the anti-establishment Five Star Movement (M5S), considered unecological. That led to Mr Draghi's resignation and the calling of an early election to be held on September 25th.

The government has already shelled out €52bn, according to Daniele Franco, the finance minister. Helping the poor has been the priority, with energy-intensive businesses next. Inflation and strong economic growth have bumped up tax revenue, so the treasury has not yet been forced to borrow more. Yet Italy remains a weak point in Europe's alliance against Russia. On September 4th Matteo Salvini, leader of the hard-right Northern League, called for reconsidering sanctions. The right is favoured in the election, and the League is likely to join the next coalition.

Even in central and eastern Europe, where support for Ukraine is strongest, high energy prices threaten to undermine sanctions. In Prague on September 3rd, 70,000 people joined a rally organised by far-right and far-left groups to denounce aid to Ukraine and demand more help paying their bills. The previous day the Czech government had withheld a no-confidence vote over its energy-relief package of \$7.2bn, about 3% of GDP. In Bulgaria, the EU's firm line against Russia may already have snapped. A liberal coalition government fell in June, and the caretaker government has suggested it will negotiate with Gazprom, the Russian state gas firm, to re-



sume supplies, which were cut off in April.

If Ms von der Leyen's proposals are adopted, countries will implement them differently. How they do so will be crucial. Spain, for example, has set limits on air-conditioning in shops and the like in order to reduce energy use. But its main policies subsidise fossil-fuel use by lowering VAT on gas, capping gas prices for electricity generators and subsidising petrol. In Spain and some other countries that subsidised energy, consumption rose in the first half of 2022 (see chart).

The discussions in Brussels will be as contentious as those within countries have been. In France, Mr Macron has faced criticism because measures such as the petrol-price rebates can benefit the rich more than the poor. In Germany, industrialists grumble that the government is helping private households more than businesses. Siegfried Russwurm, the head of the BDI, Germany's main industry lobby, called the latest package "disappointing and not specific". ■

### Irish energy

## Western wind

DUBLIN

### Dreams of exporting green power

THEY SAY it is an ill wind that blows no one any good. But rising temperatures—and the need to slash Europe's dependence on Russian energy—are a boon for Ireland's ambitions to become a big exporter of electricity. The country produces no nuclear energy, oil or coal, and only enough gas to meet some 30% of its needs. But it has one of the windiest coasts on the planet. "Wind is Ireland's oil," said Micheal Martin, Ireland's prime minister, at Davos

this year. "Certainly, by the mid-2030s we want to be exporting energy."

Last year 31% of Ireland's electricity came from wind turbines, according to Wind Europe, an industry group. The share was higher only in Denmark, which managed 44%. Already this year Ireland's figure has risen to 36%. The Irish government wants to push its renewables share up to 80% by 2030; it beat this target briefly during one especially stormy weekend in February this year. The hope is that improvements in energy storage, and a new electricity interconnector with France which is due to come online in 2026, will allow Ireland to sell surplus wind power to European countries that are struggling to decarbonise their own energy supplies.

Yet there are still many miles to go. Ireland has built about 300 wind farms on dry land already, and is running out of places to put new ones. For health and environmental reasons, turbines must be at least 500 metres from existing houses. Haphazard rural planning, which has allowed homes to sprout more or less randomly throughout the countryside, has not left many spaces large enough for big new projects, says Ian Lumley of An Taisce, an environmental lobby group.

There was consternation earlier this year when the national planning authority, citing the need to boost green power, approved a new wind farm that would show above the valley wall at Gougane Barra, a beauty spot and place of religious pilgrimage in County Cork. "There are already lots of wind farms in Ireland, and that's good, but there's only one Gougane Barra," says Neil Lucey, a local hotelier leading a campaign to overturn the decision.

The obvious solution is to move production out to sea. Ireland's only offshore wind farm, off County Wicklow on the east coast, was the largest in the world when it began spinning in 2004, but has since been dwarfed by newer ones elsewhere in Europe. Noel Cunniffe of Wind Energy Ireland, another industry group, says that in theory Ireland could install offshore turbines with a capacity totalling 80 gigawatts, more than triple Britain's total current wind capacity, and that this figure will probably increase as turbine technology continues to improve.

Ireland will have to hustle if it is to catch up with Britain. That country has already developed the ports, special ships, planning laws and talent needed to push ahead with large-scale offshore wind farming, says Wind Energy Ireland. Ireland's creaking transmission network also needs updating. And because Ireland has deeper waters and stormier coasts, its prospects hang on the development of new types of turbine that float on the water rather than having to be fixed to the sea bed. It will need the wind at its back. ■

## War in Ukraine

# A breakthrough

### Ukraine's army pierces Russian lines

**W**E HAVE NOT lost anything and will not lose anything," Vladimir Putin told an economic forum in Vladivostok on September 7th. Even as he spoke, his troops were falling back. On September 6th Ukraine announced a surprise offensive in north-eastern Kharkiv province, throwing Mr Putin's creaking army into turmoil.

All eyes had been on a long-awaited Ukrainian offensive in southern Kherson province, which began on August 29th. Russia had thinned out its forces in the east to reinforce the south. On September 6th Ukraine's army took advantage, slicing through a weak point in the front lines east of Kharkiv city. It rapidly encircled Balakliya and was reported to have advanced 20km to Volokhiv Yar. By September 7th Ukrainian forces were advancing towards Shevchenkove, a similar distance away.

The breakthrough is a significant moment after months of grinding advances by Russia in the eastern Donbas region. Russia's army now faces "multiple concurrent threats spread across 500km", noted British defence intelligence. There is fierce fighting not only in Kherson and Kharkiv provinces but in Donbas itself, where Russia has been attacking towards Bakhmut, largely without success. It now faces the trilemma of whether to send scarce reserves to Kherson, Kharkiv or Bakhmut.

The decision will depend on how the Ukrainian offensives unfold. The attacks around Kharkiv appear to have routed Russian defenders in places. Ukraine might now threaten Kupyansk, a key rail junction which supplies Russian forces in Izyum to the south. Ukrainian artillery is probably within range of the town.

In Kherson, Ukraine appears to have made more modest progress. Some experts say the offensive may have stalled. But to judge it solely in territorial terms would be a mistake. Ukraine's strategy is probably not to storm the city but to wear down its Russian defenders and compel them to withdraw—though it must be careful not to wear itself out in the process.

Ukraine's offensives are clearly spoiling Mr Putin's plans. He was hoping to demonstrate results from his "special military operation" by the end of the summer, and made plans to annex Kherson and neighbouring Zaporizhia provinces this autumn. Sergei Kirienko, deputy chief of Mr Putin's staff, was dispatched to Kherson to make preparations and Ria Novosti, Rus-

sia's state news agency, advertised upcoming "referendums". These sham spectacles were supposed to coincide with Russia's local elections on September 11th.

But on September 5th a Russian-appointed official in Kherson said the referendum was postponed. On September 7th Russia's ruling party, United Russia, suggested holding referendums in Russian-occupied territories on November 4th. Mr Putin has said nothing about the offensives and is still convinced that he is winning, Western officials said. He hopes Western leaders facing an energy crisis will press Volodymyr Zelensky, Ukraine's president, to negotiate. And he is compensating for failure in Ukraine with terror at home.

On September 5th Ivan Safronov, a respected military journalist who was arrested in 2020 and accused of divulging state secrets, was sentenced to 22 years in prison. The fact that he had no access to secret information and used only open sources made no difference to the court. Observers say the case is a vendetta by the Russian army and security services: in 2019 Mr Safronov wrote about the secret sale of Russian Su-35 fighter jets to Egypt. He rejected an offer to reduce his sentence in exchange for accepting the baseless charges. The draconian sentence, says Kirill Rogov, a political analyst, is meant to distract Russia's public from the incompetence of the Kremlin's security services, who failed to conceal the invasion plan for Ukraine from American intelligence agencies.

Mr Safronov's sentence is intended to deter others from talking about Russia's military failures. *Kommersant*, a Russian business daily where Mr Safronov worked, defiantly responded with a front-page letter to him: "You are a real journalist... In other times, in other circumstances, you would have been acquitted."

On the day Mr Safronov was sentenced



the Kremlin banned *Novaya Gazeta*, Russia's most critical independent newspaper. It was edited by Dmitry Muratov, who won the Nobel Peace Prize in 2021, and sponsored by Mikhail Gorbachev, the former Soviet leader who died on August 30th.

The Kremlin also inflicted more pain on Alexei Navalny, the jailed opposition leader, placing him—for the third time in the past month—in an unheated punishment cell in one of its harshest colonies. "I hate this war, and my colleagues and I are doing whatever we can to bring it to an end," Mr Navalny said earlier in a public message through his lawyers. He has devoted all of his political and media resources to opposing the war. He is currently urging citizens to vote in local elections for any candidate who does not support it. ■

## Italy's election

# Big Brothers

ASCOLI PICENO

### The nativists likely to govern Italy

MARCO FIORAVANTI's father died when he was a teenager, and he went to work in a factory to help support his family. But Mr Fioravanti never gave up on his dream of university, eventually winning a degree in political science. By the age of 26 he was a city councillor in his hometown of Ascoli Piceno, a picturesque place where Renaissance palaces nestle by a river winding out of the Apennine mountains. Three years ago he was elected mayor. Every month he makes himself available to voters in a local café. "Locked away in the town hall, you risk losing touch with the problems of the city," he says.

Between 80 and 100 people turn up to air grievances and suggestions. With their input, Mr Fioravanti has drawn up projects that have earned Ascoli Piceno a handsome allocation from the EU's covid recovery fund—the fourth-largest share per head, he says, among Italy's 7,904 municipalities. Under his stewardship, he continues, local government property has been turned over to public housing; municipal welfare benefits have been increased; an "ethical hotel", run by the disabled, has been opened; and the city has acquired a new park and a cycle path down to the sea. In a poll in July by *Il Sole-24 Ore*, a financial daily, Mr Fioravanti was rated the second-most popular mayor of a provincial capital.

It is a record of which any left-winger would be proud. Mr Fioravanti, however, is a member of the radical nationalist Brothers of Italy (FdI) party, which is leading the polls and looks set to dominate Italy's next

▶ government. At 39, Mr Fioravanti is too young to have been a member of the neo-fascist Italian Social Movement to which many of the FdI's older members belonged. But in 2019 he allegedly attended a dinner commemorating the seizure of power by Benito Mussolini, Italy's fascist dictator. Mr Fioravanti says he merely dropped by to greet fellow party members: "I absolutely did not take part in the dinner, nor would I ever do so," he says.

Ascoli Piceno is in the region of Le Marche, on the northern Adriatic coast. Once a stronghold of the centre-left Democratic Party, Le Marche swung to the maverick Five Star Movement in the previous two general elections. But a vote in 2020 handed the regional administration to a coalition identical to the one expected to govern Italy after the next parliamentary election on September 25th. It is led by the Brothers, along with the hard-right Northern League and Silvio Berlusconi's more moderate but dwindling Forza Italia party. Le Marche thus became a test bed for alt-right government *all'italiana*. It was in the regional capital, Ancona, that the Brothers' leader, Giorgia Meloni, launched her election campaign on August 23rd.

Stealing the left's clothes is one element of the "Marche model", as it is known in the FdI. Other ingredients are more controversial. In Italy, regional governments' most important job is running public health services. The Brothers' new governor in Le Marche, Francesco Acquaroli, has improved some policies that proved disastrous during the pandemic. But his government has refused to follow national guidelines that allow family-planning clinics to dispense Mifepristone, an abortion pill.

The Brothers oppose abortion both on religious grounds and because their flagship policy, at the top of their election manifesto, is to reverse Italy's falling birth rate. Ms Meloni lauds what she calls "the natural family" and deplores "the LGBT lobby". Mr Acquaroli has refused to sponsor the region's annual Gay Pride event. The FdI hopes encouraging Italians to have more children will obviate the need for immigration. Ms Meloni endorses the notion that the EU and the Hungarian-American philanthropist George Soros are behind a plan for "ethnic substitution", echoing the far-right theory of a "Great Replacement".

Few in Italy think the Brothers are properly authoritarian. Neither they nor their neo-fascist predecessors have ever presented a threat to democracy. But while Ms Meloni has denied wanting to scrap Italy's abortion law, the evidence from Le Marche suggests the Brothers will want to make abortion more difficult to obtain. Then again, with all the economic and geopolitical troubles Italy faces, an FdI government may have other things than culture wars on its mind. ■

## Ukrainian surrogate mothers

# Thursday's children

### The war has thrown Ukraine's surrogacy industry into crisis

**W**HEN MISSILES began falling on Ukraine in February one woman from the centre of the country faced an especially perilous evacuation. She was 30 weeks pregnant—with someone else's baby. The 31-year-old, who goes by the name Tamara for fear of abuse, was put on a bus to Poland by Delivering Dreams, the surrogacy agency she was working through. Her legs swelled up during the long journey. But Tamara made it to safety and in April gave birth to a healthy baby, who is now with its intended parents in America.

Before the war about 2,500 surrogate mothers gave birth in Ukraine every year, according to Sam Everingham, who runs Growing Families, a non-profit. The babies' intended parents are generally foreign couples, mostly from Europe and China. They appreciate Ukraine's clear laws about surrogacy, which ensure that they are recognised as their baby's legal parents from the moment of conception. They also like the cost. Mr Everingham reckons that having a baby by a Ukrainian surrogate costs between \$35,000 and \$55,000—about one-third of the price in America.

The Russian invasion, unsurprisingly, has thrown the industry into disarray. Surrogates have had to deliver in hospital basements. All pregnant women have had to put up with more limited health care, particularly in the east of the country where conflict is fiercest. Foreign parents,



Worth the wait

many of whom have been through lengthy fertility treatments and lost pregnancies before, fret from afar.

Ukraine's surrogacy agencies have responded to the catastrophe in very different ways. At the start of the war a handful of agencies initially stopped responding to emails and phone calls—leaving pregnant women with no way of contacting the parents of the babies they are carrying. Online groups sprung up to connect parents and surrogates who have found themselves in this situation. Tamara used Facebook and her own detective skills to track down about 20 foreign couples on behalf of other surrogates.

But as the conflict continues agencies have found ways to keep delivering on their promises. Sensible Surrogacy, an agency with partners on the ground in Ukraine, paid to evacuate Ukrainian surrogates to Poland and the Czech Republic. There, the agency hired local staff to check in on the women and continue doing weekly blood tests for alcohol and other drugs. The catch is that surrogates have to return to Ukraine near their due date. If they give birth in Poland, where surrogacy is illegal, the intended parents do not automatically have any rights over the child.

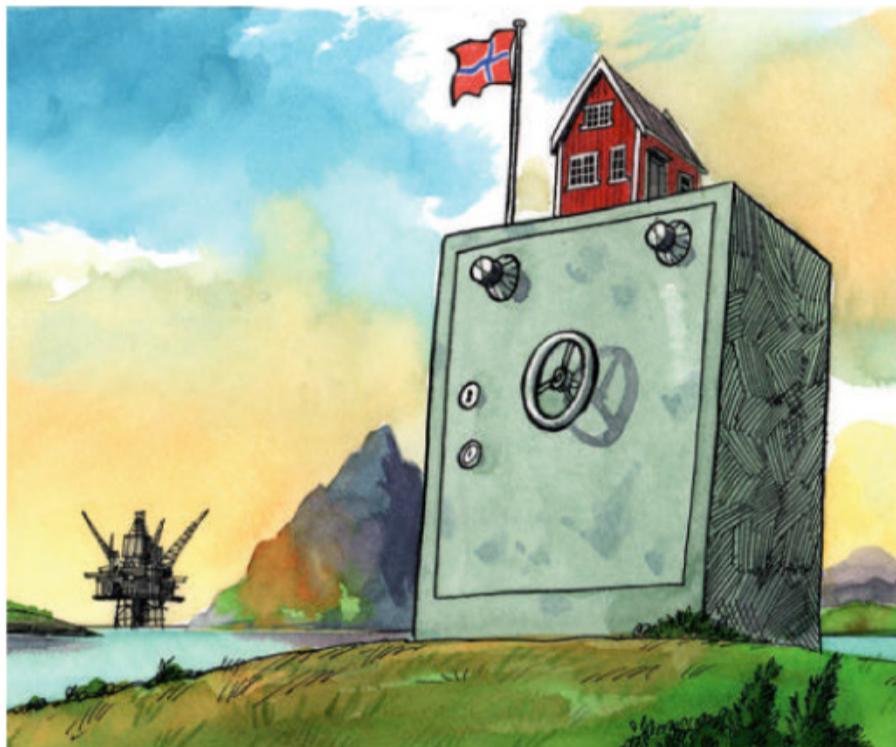
For a while foreign couples who would normally have travelled to Ukraine for the births of their children had to pay local nannies to hand over newborns at border crossings. Britain began issuing visas to Ukrainian surrogates who were carrying babies for British couples. But now that fighting is predominantly in the south and east of the country, foreign couples are once again travelling to cities such as Kyiv and Lviv to collect their children.

Indeed, international surrogacy agencies say that interest in Ukrainian surrogacy crashed at the start of the war but is now rising once more. Global demand for surrogacy is increasing, in part because people are starting families later in life, which increases the risk that they will no longer be fertile. But in recent years Cambodia, India, Nepal and Thailand have banned surrogacy for non-residents for fear that women might be exploited. In Britain, only "altruistic surrogacy", where the surrogate receives cash only to cover expenses, is allowed. That reduces the number of women willing to provide it.

Ukrainian women who have lost everything in the war could be exploited if dodgy types enter the industry. But Olha, a Ukrainian surrogate who is carrying her third baby for a foreign couple, says she doesn't regret her decision. She is being paid \$450 per month during her pregnancy. She will earn another \$18,000 when she gives birth. That is a life-changing sum in a country where GDP per person before the war was about \$4,800. "Surrogates are grown-ups," she says. "We know what we are doing." ■

# Charlemagne | Our rich friends in the north

Norway is profiting embarrassingly from war in Europe



TROUBLES IN Europe have an unexpected way of drifting up to Norway, its northern frontier. The most literal example came in 1870, when two French soldiers sought to elude a months-long Prussian siege of Paris by using a hot-air balloon to deliver battle plans to troops outside the city. It did not go well. What was meant as a brief hop to the countryside became a 19-hour windswept odyssey over land and sea. The duo ultimately crashed into an icy mountain west of modern-day Oslo, some 1,400km from their intended destination. Locals dazzled by the flying contraption rushed the frozen Frenchmen to the capital. Parties were thrown in their honour, poems written, much champagne consumed and a passion for France proclaimed. The thawed soldiers left a week later with 23,800 francs in public donations, a sizeable sum. The incident, according to Paal Frisvold, a political analyst, showed that Norway's people had "a keen desire to show sympathy and support to resolve conflicts in Europe".

Does this passion still stir in Norwegian hearts? For months, as Ukrainians have fought and Europeans shuddered at the prospect of opening their energy bills, the continent's richest country (bar Luxembourg) has been getting conspicuously richer. Supplying energy to Europe was always lucrative for Norway, the world's fourth-largest exporter of natural gas. It has become indecently so since Russia, once its rival in keeping Europe warm, turned pipelines into weapons. As the war and ensuing power crunch drag on, the sums flowing north are proving embarrassing. A place keen on its image as a force for good in the world is having to fend off charges of war profiteering.

Norway would be prosperous even had it not stumbled upon offshore oil five decades ago. The vast quantities of energy it exports nowadays are merely a balloon-sized cherry on the cake. In a normal year sales of oil, gas and electricity bring in over \$50bn, or \$10,000 per Norwegian. That is enough to turbocharge a Scandinavian welfare state and lots of summer cabins on picturesque fjords. Now, thanks to the war, Norway's energy-export revenues have shot up to a run rate of over \$200bn a year. If not for the fact that it sensibly squirrels away such cash in a sovereign wealth fund, at these prices each Norwegian could get an annual cheque worth around \$40,000—roughly the GDP per capita of the EU. In-

stead, its 5.5m citizens have to make do with a nest egg worth \$1.2trn, despite a recent fall in the value of its investments.

Until recently Europeans, Norway's main customers, did not quibble. Any non-Russian energy source was welcome, and the alternatives were mainly in the Middle East and north Africa. For Western politicians, pleading for hydrocarbons from a Norwegian minister is less awkward than doing so from an authoritarian petro-potentate. Norway merely demanded that the EU tone down its lectures about the country's need to move away from fossil fuels faster. It boosted gas output as much as was possible, even suppressing trade-union strikes to keep the energy flowing. Norway sent money to support Ukraine and joined sanctions on Russia imposed by the EU, a club to which it does not belong. (It sits within the broader European Economic Area, a form of stand-offishness it can afford thanks to its oil wealth.)

Yet the mood has soured as the energy crisis has deepened. Facing bail-outs of utilities and consumers, Europe is no longer keen to feather the Norwegian nest. Poland grumbled first: in May its prime minister denounced the "sick" prices of gas from up north. Others protest more discreetly, suggesting that an enlightened supplier might choose to cap gas prices, at least while the war rages. Norway has long insisted that market pricing works, and that large profits now are needed to fund its green transition.

Politicians in Oslo have their own power problems to contend with. Because of abundant hydroelectricity, Norwegians feel entitled to cheap juice: many consider turning off the lights upon leaving a room a quaint habit. But a drought has depleted reservoirs, sending electricity prices spiking in parts of the country. Even in a rich country, this hurts. Some industries, such as the production of fertiliser or the smelting of metal, only exist by dint of low-cost power. Most Norwegians heat their homes with electricity and buy electric cars—Oslo traffic jams can feel like slow-moving Tesla showrooms. A Facebook group griping about power prices has over 600,000 members, many of whom blame transfers of electricity to Europe for their woes. The government has responded with generous subsidies, but also with hints that it could throttle exports of electricity, ostensibly to protect its depleted reservoirs. That has irked its EU neighbours, who want power markets to stay open so that what little energy there is can be allocated efficiently.

## My way or Norway

The longer gas prices stay higher than an out-of-control hot-air balloon, the greater the pressure will be on Norway to donate some of its windfall. Solidarity with Europe is a form of self-interest, argues Georg Riekeles of the European Policy Centre, a think-tank. Good relations with its neighbours matter more to Norway than squeezing out the last drop of profit. Beyond oil and gas, Norway's wealth depends on being part of a Europe that works.

Granting a discount on gas to European customers may be too sensitive for Norwegian politicians. But the prime minister, Jonas Gahr Store, this week suggested its energy firms (the biggest of which, Equinor, is mostly state-owned) might agree to long-term contracts that underprice gas today in exchange for stable profits later. That would be a start. Better yet, Norway should offer to pitch in to whatever relief schemes the EU comes up with, perhaps of the sort that helped alleviate the effects of covid-19. As Ukraine has discovered, Europe is willing to help its neighbours when disaster befalls them. For it to continue to do so, countries that happen upon an unexpected bonanza may need to toss some of it back into the common pot. ■

**Liz Truss**

## New leader, familiar problems

**Britain's prime minister is a small-state conservative in a big-state era**

**D**ECLINISM, THAT dull fear of Britain's sunset, has shaped the country's post-war politics. It propelled Britain into the European Economic Community, the EU's precursor, and fuelled Margaret Thatcher's economic revolution. Now it has helped Liz Truss into Downing Street. On September 5th Ms Truss was declared the winner of the ballot of 172,000 Conservative members to replace Boris Johnson as the Tory leader. The next day, at Balmoral Castle in Scotland, the queen invited her to form a new government.

Ms Truss won partly because she is cheerful. On the campaign trail, she would dismiss the warnings of hard choices from Rishi Sunak, her rival. "I don't agree with this declinist talk," she'd say. "I believe our country's best days are ahead of us." Such optimism struck a chord among party activists. Her colleagues think it might appeal to the wider electorate, too. "It's boosterism without Boris," says a cabinet minister. "It's a gamble, but it might be a very powerful cocktail."

Whereas Mr Johnson's government often seemed to run on optimism alone, Ms Truss promises substance as well as sunshine. She is a self-styled radical, and perhaps the keenest disciple of the Thatcherite tradition to hold the office since Thatcher's own exit from Downing Street 31 years ago. She has grand ambitions to transform Britain's sluggish economy so it does not end up as a low-growth, high-tax social democracy. For her, this is a moral choice as much as an economic one: who wants to live in a society where the state takes half your income?

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"Action this day!" she declared in Downing Street on September 6th. Yet she faces almighty countervailing pressures. Her free-market instincts are at odds with the need to intervene to navigate an immediate cost-of-living crisis. On September 8th she guaranteed that average annual household energy bills will not exceed £2,500 (\$2,870) over the next two years. Businesses will get help, too. The scheme will be funded by government borrowing.

She must contest a general election in January 2025 or earlier, in which she will face the judgment of a deeply dissatisfied public. She inherits a country in dismal spirits: 69% of Britons, including 60% of Conservative voters, agree that the country is "in decline", according to polling by Ipsos for *The Economist*. And the party she now leads has grown insurrectionary: it has deposed her two immediate predecessors and is unenthused by her.

**Story of a Tory**

Ms Truss was born in Oxford in 1975 to John, a mathematics professor, and Priscilla, a nurse. They were part of a left-wing, anti-war movement that flourished in opposition to Thatcher. Her childhood was spent on peace marches, clutching an old carpet roll fashioned to look like a nuclear missile, chanting "Maggie, out!"

Her journey rightward began at her state secondary school in Leeds, where she claims she encountered an inverse snob-►

▶ bery against good universities and making money. "Too often, there's a bit in Britain which is kind of squashing people," she told an interviewer in 2018. She saw too the restricted lives of her parents' acquaintances in communist Poland, and concluded there was something to be said for Thatcher's freedoms. Her father now consoles himself with the hope she is a sleeper agent, she says, undermining the regime from the inside.

Elected to Parliament in 2010, Ms Truss came to public prominence soon after as the co-author, with four other new MPs (among them Kwasi Kwarteng, her chancellor; see Bagehot), of "Britannia Unchained". This pamphlet warned of Britain's drift into being a low-productivity, unambitious country, unable to compete with fast-growing Asian economies. The authors credited Thatcher with rescuing Britain from an age when "Blue Peter [a TV show] taught children how to line blankets with newspaper to keep elderly relatives warm without heating". More than any economic reform, her triumph, they wrote, was making Britain believe in itself again.

Ms Truss's remedy for Britain's economic ills is a Reaganite mixture of deficit-financed tax cuts and regulatory reform. She proposes low-tax zones with relaxed planning laws and wants the headline corporation-tax rate kept at 19% (Mr Sunak had planned to increase it to 25% in April). She intends to reverse an increase to payroll taxes, introduced by Mr Sunak in April, and is mulling tax relief for carers. She plans to lift defence spending to 3% of GDP by 2030. Setting aside her energy-crisis package, these measures alone would push up the deficit by around 1.8% of GDP.

Ms Truss is convinced that Britain has room to borrow more and that over the longer term, her policies will reap rewards in the form of higher growth. Her government's central goal will be raising Britain's trend growth rate to 2.5%; the Office for Budget Responsibility currently expects a growth rate of 1.7% at the end of its forecast horizon, in 2026. She brushes off the fact that payroll-tax cuts will benefit wealthier people: a preoccupation with redistribution has been part of the problem, she says.

She regards the job of tackling inflation as primarily a task of monetary policy, one where the Bank of England has manifestly failed to meet its target of 2%. She plans a wide-ranging review of the bank's mandate, which could embrace everything from setting a higher inflation target to targeting nominal GDP or looking at the money supply. As for regulation, Ms Truss argues that, although Thatcher blazed a trail by privatising utilities, rulebooks drawn up in the 1980s look obsolete now. Her camp muses about placing a series of weak network regulators under a single agency.

She wants to free up flows of capital;

## Cabinet fever

Britain, selected ministers in the new government, September 2022

Kwasi Kwarteng	The <b>chancellor of the exchequer</b> has a PhD in economic history. Very clever, and not just by comparison with other MPs
James Cleverly	Serial loyalist who has risen to <b>foreign secretary</b> after being elected in 2015
Suella Braverman	The <b>home secretary</b> will make Priti Patel, her predecessor, look like a bleeding-heart liberal
Thérèse Coffey	A cigar-chomping, karaoke-loving, hard-partying <b>health secretary</b> . Took a PhD in chemistry before working at Mars, the confectioner
Kemi Badenoch	An ambitious and internally popular politician takes on the trade brief. But enough about Liz Truss in 2019—Kemi Badenoch is now the <b>trade secretary</b>
Michelle Donelan	Having impressed during her two-day stint as education secretary this summer, Ms Donelan has been appointed <b>culture secretary</b> . Previously worked at World Wrestling Entertainment
Jacob Rees-Mogg	<b>Business secretary</b> is the first major job for the politician who works without a computer on his desk
Ben Wallace	A straight-talking former soldier turned into a straight-talking <b>defence secretary</b>

Source: *The Economist*

she has improbably high hopes for the potential of reforming an EU insurance regime known as Solvency 2 and is happier to talk up the potential of Britain's financial-services industry than her predecessor. She is also far keener on labour mobility than Mr Johnson, who thought the job of government was to create jobs where people are born. On the contrary, Britain's productivity is poor precisely because people stay put, Ms Truss reasons.

She will be a more effective administrator than Mr Johnson, although that is a low bar. She is proud of having signed a clutch of deals as trade secretary and of having helped negotiate the release of British hostages in Iran as foreign secretary. (In truth both revealed a knack for selling difficult concessions as triumphs.) Yet for all her talk of "delivery", her record of achieving big structural reforms is thin. "She's travelled around lots of departments and nary made a mark," says a colleague.

The civil service, bashed during Mr Johnson's tenure, can expect little respite from a Truss premiership. Her career has been studded by a disdain for institutions she holds responsible for British underperformance. She claims that a Treasury orthodoxy of "abacus economics" is partly to blame for the country's sluggish growth. Judges were horrified when, as lord chancellor under Theresa May, she failed to defend them from tabloid attack. Mr Johnson sent her to the Foreign Office, where she chastised diplomats who seemed to her almost embarrassed of their country. She has recast British foreign policy as a civilisational battle between autocracies and what she terms "the free world," with Britain at the centre of a "network of liberty".

Yet under her, a prickly Britain may become pricklier still. She goaded Mr Sunak for his trade overtures to China, which she regards only as a threat. For all her admiration of Ronald Reagan, she says there is no need for Britain to fret about the "special relationship" with America "like some

teenage girl at a party", and wants to find a wider pool of allies.

Ties with the EU will remain, at best, in deep freeze; she is threatening to override parts of the Brexit divorce deal struck by Mr Johnson. Relations with France, Britain's closest geographic neighbour, are unlikely to improve. Asked during the leadership campaign whether she regarded President Emmanuel Macron to be a friend or foe, she declared that the jury was out. Optimists thought that was mere electioneering; in reality, it reflects a genuine clash over Mr Macron's approach towards Vladimir Putin on Ukraine.

Ms Truss regards herself as more of a social liberal, and less of a traditionalist, than Thatcher ever was. Like much of the Tory party, she is a critic of the new politics of gender identity but says that it isn't the job of the state to tell shops how to organise their changing rooms. She has dismissed calls for a new law to guarantee political neutrality in schools; better to win arguments than legislate, she says. A sprawling bill to regulate "harmful" content online has been put on ice.

## Britannia, chained

Most new leaders are granted at least a few weeks to bathe in the afterglow of their campaign, before the hard reality of government intrudes. For Ms Truss, the spike in energy prices means the collision has been instant. "Her fate will be determined not in the first 100 days, but the first ten," says a cabinet minister.

On the campaign trail Ms Truss declared herself averse to a "Gordon Brown economics" of taxing with one hand and awarding "handouts" with the other. She was much keener to talk about increasing energy supply. She wants to encourage more extraction of North Sea oil and gas, end a moratorium on fracking and add nuclear power. She has ruled out extra windfall taxes on the energy industry and insisted that rationing will not be necessary. ➤

► But new supply will take months or years to come online. Cornwall Insight, a consultancy, has predicted that without intervention, average annualised energy bills would soar to above £6,000 by next summer, which would prove ruinous for many households and businesses. Hence the need for dramatic action. Her response is a very blunt instrument: a guarantee that average annual household energy bills will not exceed £2,500 for two years, as well as help for companies.

The cost of the scheme, which will be paid for by government borrowing, could amount to more than £100bn, exceeding the scale of the furlough scheme introduced in the pandemic. Spending countless billions was popular with the public then, and it is likely to be so again. But it was also an experience much of the Conservative Party genuinely loathed. It was as if all their opponents' ideas of the state, whether paying for furlough schemes or imposing lockdowns, were being vindicated and theirs discarded.

And the demands on the public purse are not confined to energy. The strain on the National Health Service (NHS), where the waiting list for people to receive care now stands at 6.7m, scarcely intruded into the Tory leadership contest, but its woes will be a major battleground in the next general election. Ms Truss's instinct is that the NHS requires better management and cannot simply consume an ever-growing slice of output. She has given Thérèse Coffey, her closest political ally, the task of reducing the backlogs.

But the pressure to spend more will be unrelenting: the Resolution Foundation, a think-tank, reckons that demography will help drive government spending from 40% of GDP before the pandemic to about 45% by 2030, shifting Britain from being a Canada-sized state to a Germany-sized one. Ms Truss has offered little detail on how public spending might be shrunk.

It is this condition of political dysmorphia—a small-state party trapped in an increasingly big-state country—that is at the heart of the Tories' restiveness. Ms Truss is the Tories' fourth leader during their 12 years in office; rebellion has become a means of doing business.

Mr Johnson, despite his outsized brand and electoral victory of 2019, could not tame them. And Ms Truss starts her time in office from a weak position. She finished behind Mr Sunak among MPs in the first stage of the contest, with just 32% of the vote. That is the lowest of the five leaders elected since the current two-stage system of choosing Conservative leaders was first used in 2001. Her winning margin against Mr Sunak in the membership vote, with 57% of the vote to his 43%, is also the lowest on record.

The party faces a choice of "unify or

die", says one Truss supporter. "MPs are just going to have to suck it up." Yet the scars left by a bitter summer campaign will not disappear quickly. Mr Sunak's supporters have been slung from the cabinet, which is dominated by those loyal to her (see table on previous page).

Mr Johnson, still mythologised as an electoral Midas, will loom over her premiership. By a margin of 63% to 22%, Tory members would prefer him to Ms Truss, according to a poll conducted in August. Her support within the parliamentary party rests on the Eurosceptic right, which is notoriously transactional.

That corner of the party, in particular, is in a declinist mood. Some wonder what the past decade of Conservative government has been for. They see in Britain a country seemingly less conservative than ever: a tax burden at its highest in decades, a growing taste for state intervention and an untamed "woke" culture. Ms Truss is the fourth roll of the dice for a party squinting hard, searching for a simulacrum of the woman who turned Britain around before. The country she now leads may well be looking for something else entirely. ■

## Financial markets

# Crisis? What crisis?

## Britain's currency has weakened. It is not veering towards disaster

FRETTING ABOUT sound money is unfashionable in today's Conservative Party. But for those who still do, the nightmare scenario is clear. A profligate government spends more than it taxes, borrowing from the bond market to cover the difference. Gradually, the national debt builds up. As interest payments rise and the government gets no thriftier, investors worry about getting their money back. Then, sud-

denly, they no longer want to lend enough to cover the deficit. The currency crashes, and Britain is forced to ask the IMF for a bail-out, just as in 1976.

Some fear a repeat is about to unfold. Liz Truss, Britain's new prime minister, spent the summer making expensive promises. Tot them up, from higher defence spending to lower payroll and corporation taxes, and they would increase yearly government borrowing by 1.8% of GDP. Much more borrowing is on the way: on September 8th Ms Truss unveiled a two-year price-guarantee scheme that could cost over £100bn (\$115bn, or 4.3% of GDP) to help households and businesses cope with soaring energy bills.

Both the pound and Britain's government bonds, or "gilts", have been bludgeoned. Sterling has dropped by 15% against the dollar since the start of the year. An index compiled by Bloomberg, a data provider, that tracks the performance of gilts has fallen by 21%. A year ago Britain's government could borrow for ten years at 0.7% interest; now it must pay 3%. That the pound has fallen even as interest rates have risen is alarming for investors, says Theo Chapsalis of Morgan Stanley, a bank. Westminster bubble-dwellers talk of a "Black Wednesday moment", recalling the government's doomed attempt to buttress a collapsing pound in September 1992.

But such parallels are drastically overdone. Black Wednesday took place when Britain was in Europe's exchange-rate mechanism. That obliged it to set interest rates and sell foreign-exchange reserves to keep the pound's value within a narrow range. Today it has no such obligations. A weaker pound makes imports dearer and the Bank of England's job of controlling inflation harder. It does not precipitate a crisis. Moreover, sterling's fall against the dollar has been in line with the rest of the "G5", a group of heavily traded currencies (see chart), and did not worsen on reports of the size of Ms Truss's energy package.

The sharp rise in gilt yields is also less alarming than it seems. Mr Chapsalis points out that despite the rise, the spread between the government's five-year borrowing costs and the market's expectation of the Bank of England's base rate has stayed stable. Gilt yields are up because the market judges the era of ultra-low interest rates to be ending, not because it thinks Britain's fiscal policy is courting disaster.

As public-spending demands pile up, that judgment may yet be tested. But for now, argues Kamakshya Trivedi of Goldman Sachs, another bank, investors may be reassured by having more clarity on what comes next. A government that raises spending and cuts taxes has been on the cards all summer; many details have not. It may be a case, says Mr Trivedi, of "sell the uncertainty, buy the plan". ■



# Bagehot | The curious case of Kwasi Kwarteng

*The new chancellor is probably the brainiest person in cabinet. He is also the oddest*



A MAIDEN SPEECH in the House of Commons is a moment for platitudes about predecessors and idle trivia about the local constituency. In the summer of 2010, Kwasi Kwarteng, a young Conservative MP, used his as a chance to attack.

Addressing Labour MPs across the chamber, Mr Kwarteng blamed them for the state of Britain's finances, which had been blown apart by the financial crisis of 2007-09. "They have not once accepted any blame for what happened and they seem to think that we can just sail on as before," said Mr Kwarteng, who was 35 at the time. Skip forward 12 years and Mr Kwarteng is Britain's chancellor, overseeing finances again scarred by crises. The first job for this one-time fiscal hawk will be to spend tens of billions of pounds guaranteeing energy prices for households and firms.

Such peculiarities abound when it comes to Mr Kwarteng. The new chancellor is a small-state Conservative who is keen on business intervention, an unorthodox figure who comes from the most Tory background possible. He is a man who was tipped for a quick rise but spent his first decade in politics on the sidelines; he is deeply intelligent yet even friends admit he can be air-headed. Mr Kwarteng may be the most intellectually gifted chancellor since Gordon Brown. He is certainly the oddest.

The first half of his life was textbook Tory. Educated at Eton and Cambridge, he landed a job as a columnist at the *Daily Telegraph*, writing on subjects such as the Russian revolution and the number of nipples in *FHM*, a lads' mag. ("When taste and vulgarity clash, vulgarity will always win," wrote Mr Kwarteng.) After a PhD in financial history at Cambridge, he went to work in the City before winning a safe seat just outside London. The fact his parents hailed from Ghana is the only unusual part of an otherwise orthodox Tory background. Even that now feels unexceptional. Mr Kwarteng is the first black chancellor, but he is the fourth ethnic-minority chancellor in a row. When it comes to race and the Tories, the glass ceiling has been smashed. The class ceiling still remains.

Mr Kwarteng stands out in other ways. Partly that is physical: he is six feet and five inches (1.96 metres) tall and incapable of speaking at any volume other than boozing. In a parliament of philistines, Mr Kwarteng is well-read and well-rounded. Rather than hang out in Westminster's tea rooms, he used to sneak off to

the National Archives to research well-received books on traffic, Margaret Thatcher and imperialism. "Ghosts of Empire", Mr Kwarteng's history of the British Empire, professes to stay above the moral fray on whether the empire was good or bad. But he damns it anyway by chronicling the sadistic, sociopathic and often surreal actions of those who built it. A faction of Conservative MPs are noisily uncomfortable with such histories. Yet a man who wrote one now sits in 11 Downing Street.

Most MPs are careerist to the point of cravenness. Mr Kwarteng's path was more meandering. It took seven years for him to go from backbench MP to parliamentary private secretary, the lowest possible rung on the ministerial ladder, in 2017. Even then he did not take that job particularly seriously. Mr Kwarteng spent his first few years as an MP calling for faster cuts to the budget and slagging off the government's flagship scheme for first-time homebuyers. For comparison, in seven years Rishi Sunak was elected, became a junior minister, joined the cabinet, became chancellor, brought down a prime minister, almost replaced him and now mulls the prospect of political retirement at the age of 42.

Few doubt Mr Kwarteng's intellect but friends, colleagues and officials paint a peculiar picture of him. He seems to enjoy a debilitating form of braininess, swinging between genius and idiocy. "He's usually got an attention span of four seconds," says one former cabinet minister. "He has a very unusual intelligence," says another. "You can come away from a conversation thinking he has not understood; at other times he is incredibly incisive." He is the real-life incarnation of the Far Side cartoon by Gary Larson, in which a child pushes on a door marked "pull" in front of a sign reading "Midvale School For The Gifted".

When Mr Kwarteng did eventually become a secretary of state at the business department in 2021, colleagues were surprised at his enthusiasm for economic intervention. Some put that down to cynicism. Boris Johnson, the prime minister, was a big-state Conservative who required a big-state business secretary. Yet Mr Kwarteng is less of a free-marketeer than his reputation suggests, arguing that free trade is a myth that exists "only in the sense that a perfect circle, or a perfect line, exists".

Whereas fellow Tory MPs like to cite David Ricardo and Adam Smith (if not actually read them), Mr Kwarteng is happy to give them both a kicking. He hails Japan for kicking out American car manufacturers, arguing that protectionism is a fact of life. Unless the British government supports innovative industries—whether gigafactories or research into nuclear fusion—the country is stuffed. "This is economic reality, as opposed to the stuff you learn in the textbooks," he wrote in a 2009 piece for ConservativeHome, a website for Tory keenos. Relentless pragmatism, in his favourite phrase, is his preferred strategy.

## Can I shock you? I love deficits

And so the fiscal hawk has become a big spender. Just before he was appointed chancellor, Mr Kwarteng wrote a piece in the *Financial Times*, assuring markets that the government would, eventually, focus on reducing the country's debt burden. But not just yet. Despite the claims of a young Mr Kwarteng, Britain was not driven into penury because Labour let the debt-to-GDP ratio rise to 40% in the good times. The state's balance-sheet is there for crises, Mr Kwarteng now accepts. He will spend not because he wants to but because he must. The stakes are obvious. Get it wrong and the chancellor may yet end up the subject of a maiden speech by an ambitious young Labour MP after the next election. ■

**Public health**

## What lies beneath

### How covid-19 spurred governments to snoop on sewage

**N**UHU AMIN is a medical researcher at the International Centre for Diarrhoeal Disease Research in Bangladesh. Later this month one of his colleagues will dig into a pit latrine in Cox's Bazar, a refugee settlement in Bangladesh where 900,000 stateless Rohingya Muslims live. A sample will be extracted, refrigerated, and sent on a 12-hour bus journey to a laboratory in Dhaka, Bangladesh's capital. Once there, it will be tested for the presence of many different bugs, including cholera, typhoid and SARS-CoV-2, the virus responsible for covid-19. With aid from the Rockefeller Foundation, a big philanthropic organisation, Dr Amin plans for his team to repeat the process every week. That, he hopes, will give him insight into how covid-19 is spreading through the camp.

Surveying sewage for pathogens is not a new idea. Several American cities, including Charleston, Detroit and Philadelphia, tracked polio that way in the early 20th century. But the covid-19 pandemic proved to be, as the inevitable joke goes, a "watershed moment". Figures from the jauntily named CovidPoops19 project, hosted at the

University of California, Merced, show that the number of survey sites has risen from just 38 in October 2020 to more than 3,500 now, scattered across 70 countries (see chart on next page). "It's been the silver lining of the pandemic," says Anna Mehrotra at the Water Environment Federation, an American organisation. "We've done a decade's worth of science in the first year," says Doug Manuel, an epidemiologist at the University of Ottawa.

Now public health officials are hoping that all this newly built infrastructure can be transformed into a worldwide early-warning system for all sorts of diseases. America and Europe are dealing with an outbreak of monkeypox, an infectious disease related to smallpox that has, for the first time, spread outside its African home. Cities are already scouring wastewater for strains of the virus. In India, typhoid, dengue fever and avian influenza are high up the list. In Malawi, cholera, rotavirus and shigella are priorities.

Even polio is still of interest. Researchers in London discovered poliovirus in sewage in June this year, alerting authori-

ties to the fact that the virus, thought to have been eradicated in Britain decades ago, was in fact circulating in the capital. In August public-health officials in New York made a similar discovery.

And there may be broader applications, too. Sewage surveillance could measure antibiotic resistance, and help public-health researchers track the consumption of everything from cocaine and alcohol to fruit and vegetables. Monitoring what Bernd Gawlik, an engineer at the European Commission Joint Research Centre, calls "the collective intestine" could offer doctors, officials and police an unprecedented insight into the lives of local populations.

### Flushed with success

The first team to publish results from wastewater testing for covid-19 was based at KWR, a water-research institute in the Netherlands. Researchers discovered early in the pandemic that about half of infected people shed SARS-CoV-2 in their faeces. The Dutch team began testing water from Schiphol airport in February 2020. They spotted the virus just as the country's first cases were being confirmed in hospitals. (Italian researchers might have beaten them to it, had Italy's lockdown not kept them out of their labs). By September every one of the Netherlands' sewage-treatment plants, which cover more than 99% of the population, was being monitored.

Researchers reckon a single infectious case of covid-19 can be detected amid the waste of up to 14,000 people. Testing the ➤

► effluent of an entire population is much cheaper than individually screening each resident, and can often spot cases earlier. Had wastewater data been widely available in March 2020, says Dr Mehrotra, it might have changed the course of the pandemic.

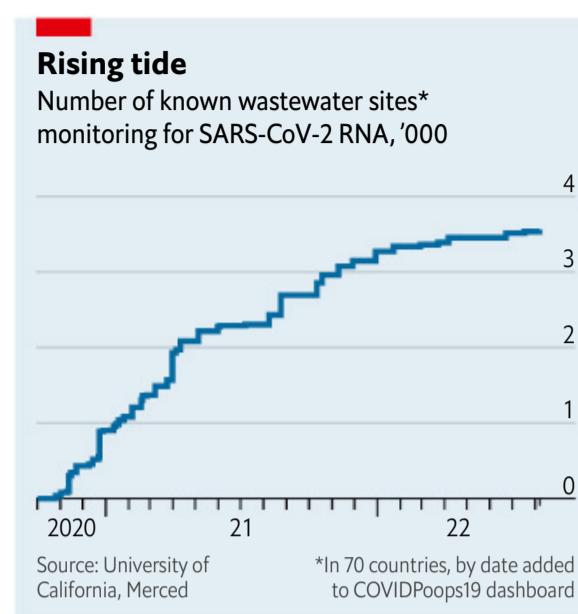
As it was, much of the effort in the early days was piecemeal, led by academics volunteering their expertise to local public-health bosses. From Bangalore to Ontario, all reported that it was difficult to convince harried officials that messing about with sewage could contribute anything useful. But the benefits became quickly apparent. Wastewater analysis proved capable of spotting waves of infections one to two weeks before conventional, nasal-swab testing. Countries with lower rates of conventional testing, such as Malawi, got up to a month's notice.

Besides simply collecting the data, many countries made it accessible online. That allowed all kinds of organisations to make use of it. University campuses in Arizona used wastewater data to catch infection waves early, for example. Boston Children's Hospital decided to postpone non-urgent procedures in response to signs that the Omicron variant of covid-19 was surging in local wastewater.

Building a proper global surveillance network will require techniques improvised during the covid-19 crisis to be tidied up. Collecting, testing and reporting procedures must be standardised, to allow comparisons between different places. Many existing procedures are strikingly low-tech. Tampons are often used as a tool to soak up water for testing, for example. That will probably change. Andrew Engeli, who works at Kando, an Israeli wastewater-data company, believes that the technology necessary to cram a miniaturised laboratory onto a sampling device could be developed within four years or so. That would allow water to be analysed in the field.

Perhaps the most important change, though, involves funding and organisation. Public health measures cannot long be sustained by volunteer academics. In America, an organisation called the Association of Public Health Laboratories is working to help its members develop the capacity to take on more of the routine surveillance work themselves.

Private organisations are also offering their expertise. Verily, the life-sciences subsidiary of Alphabet, Google's corporate parent, is offering testing facilities to sewage treatment plants in eight American states. Biobot is another American firm, founded explicitly to pursue wastewater epidemiology. It has more than 500 testing sites across the country. It hopes to offer sampling and screening to public-health authorities across America and eventually across the world. Kando already runs Israel's sewage-testing system. That covers



around 85% of Israel's population, as well as new arrivals who use the loos at the country's biggest airport.

Not all countries will find it easy to set up monitoring systems. Kando relies for its success on accurate maps of watersheds as well as the sewage network itself. The privatisation of water in Britain has made such information "almost unobtainable", says Dr Engeli. But the biggest challenge is to provide useful data in places with no centralised sewage system at all. And since places such as these are also likely to have only limited health care, disease outbreaks are more likely to spread quickly, which makes tracking them even more urgent.

### The mudlark's progress

The surveillance networks Dr Amin is setting up in Bangladesh highlight some of the challenges. In refugee camps such as Cox's Bazar, 80% of the toilets are pit latrines that require laborious manual testing. Even big cities such as Dhaka have antique and unevenly distributed infrastructure to contend with.

Malawi is also keen on the technology, at least in theory. But as of 2017 only 5% of Lilongwe, its capital city, was served by a sewage system. Wastewater frequently soaks through the ground and into the water table. That means that wastewater surveillance involves monitoring nearby rivers and other bodies of water, says Gama Bandawe of the Malawi University of Science and Technology.

The success of sewage monitoring in tracking covid-19 has boosted interest in other targets, too. Sewage is already monitored in some places for drugs, both legal and otherwise. Biobot started off with the objective of monitoring dosage levels of 30 different painkillers to help better understand America's opioid crisis. In May 2021 analysis of effluent in Seoul found levels of Viagra, a drug which treats erectile dysfunction, that were several times higher than would be expected given the number of prescriptions that doctors had written. A Europe-wide network of sewage analysts

called SCORE has been monitoring levels of cocaine and cannabis in cities across the continent since 2011.

Farah Ishtiaq, a researcher at the Tata Institute for Genetics and Society in Bangalore, is interested in using sewage sampling to track antibiotic resistance, in which bacteria evolve defences against drugs that had previously been fatal to them. Antibiotic resistance worries Indian public-health experts in particular. One paper, published in 2020, estimated that around a quarter of new tuberculosis cases in the country were resistant to at least one of the drugs commonly used to treat the disease; 3.5% were resistant to several.

Others want to monitor health in a broader sense. In 2019 researchers at Arizona State University published a wastewater study that analysed levels of phytoestrogens, chemicals found in plant-based foods. It suggested that sewage monitoring could be used to keep track of a nation's eating habits. Kando has a list of over 500 biomarkers potentially detectable in wastewater. The company hopes that levels of one of these, serotonin, might yield interesting data on depression. In Australia, researchers use sewage to keep track of nicotine and alcohol consumption.

One question is just how precise such monitoring might become. Sewage from an entire city, or even a specific neighbourhood, is pretty anonymous stuff. But in Singapore and Hong Kong it has proved possible to monitor waste from individual apartment buildings and hospitals. In both places, these techniques—coupled with shoe-leather epidemiology—allowed authorities to identify individual covid-19 patients from within individual blocks of flats. In China, the police have already taken an interest in the technology, with at least one drug bust in Zhongshan, a city in Guangdong province, being aided by wastewater monitoring.

Mindful of where the technology may one day lead, some researchers have started to ponder the balance between surveillance and privacy. Steven Hruday, a toxicologist at the University of Alberta, has adapted existing World Health Organisation guidelines on epidemiological surveillance for use with wastewater. He argues that data should only be collected when a specific, legitimate public health usage is intended, and that personally identifiable data should not be shared with bodies unaffiliated with public health.

For now, though, such worries are secondary. The covid-19 pandemic has made officials more interested in the sorts of disease-surveillance systems that epidemiologists have wanted for years. Sewage sampling is cheap, non-invasive and piggy-backs on existing infrastructure. It is a hundred-year-old idea whose time may at last have come. ■



## Companies and their workers

# Help still wanted

### Why businesses are furiously hiring even as a downturn looms

**S**HOULD COMPANIES be hiring or firing? Demand for workers has roared back over the past two years. At the same time fears of recession are widespread. Firms are scrambling to respond—and coming up with different answers. Last week Snap, a social-media firm, said it would fire a fifth of its workforce and noted the “difficult macro backdrop”. Mark Zuckerberg is reported to have told employees at Meta that “there are probably a bunch of people who shouldn’t be here,” but has so far not announced big lay-offs. Tim Cook, boss of Apple, takes the middle course. The iPhone-maker will continue to hire “in areas”, he said recently, but he was “clear-eyed” about the risks to the economy.

For now the hirers are trumping the firers. Figures released on September 2nd show that American employers, excluding farms, added 315,000 workers in August. The Jobs Openings and Labour Turnover Survey (JOLTS), released a few days earlier, reported 11.2m job openings in July. There were almost two vacancies for every unemployed person (see chart 1 on next page). The situation in Britain is similar. The Bank of England forecasts a bitter reces-

sion but vacancies are near record levels.

Why is that? Behind today’s labour paradox lie three factors. First, high churn in the labour market. Second, that market’s post-pandemic shake-up. Last, most businesses, fighting day-to-day battles, have limited bandwidth to deal with subtle cyclical shifts. The few that do may be able to secure a lasting advantage.

Start with high churn. The job market is in a state of perennial change. Simple economic models treat all firms as the same and the economy as a “representative firm” writ large. In reality, firms are very different. Some businesses expand, while others shrink—in booms and in busts. The change in employment captured by indica-

tors such as the monthly non-farm payrolls is a net figure, the difference between job creation and job destruction by enterprises and between joiners and leavers at the level of workers. These flows are large compared with the change in employment. In July payrolls rose by 500,000, but around 6.4m began new jobs and 5.9m left their old ones.

The JOLTS data capture the rate of worker flows in a single month (see chart 2). Over the course of a year, an even larger number of people move from job to job or from not working to working (and vice versa). As a rule of thumb, jobs flow at a slower rate than workers. In expansions job creation outweighs jobs destruction. In recessions, job destruction is greater. But churn is high at all times. Some hiring firms are also firing firms. Walmart, America’s largest private employer, confirmed in August that jobs would go at its headquarters even as it was creating some new roles.

For other businesses, a cyclical downturn is forcing a rethink. Planned lay-offs at firms like Netflix, Robinhood and Shopify are a correction to rapid hiring earlier. A lot of the historical cyclicity in hiring is down to high-growth startups and newish businesses, says John Haltiwanger of the University of Maryland. In booms providers of capital, be they venture-capital funds, banks or public-market investors, are willing to fund all sorts of enterprises. In downturns, they become averse to risk.

Lay-offs can also be a response to deeper structural challenges. In February Ford’s boss, Jim Farley, was blunt about those at ➤

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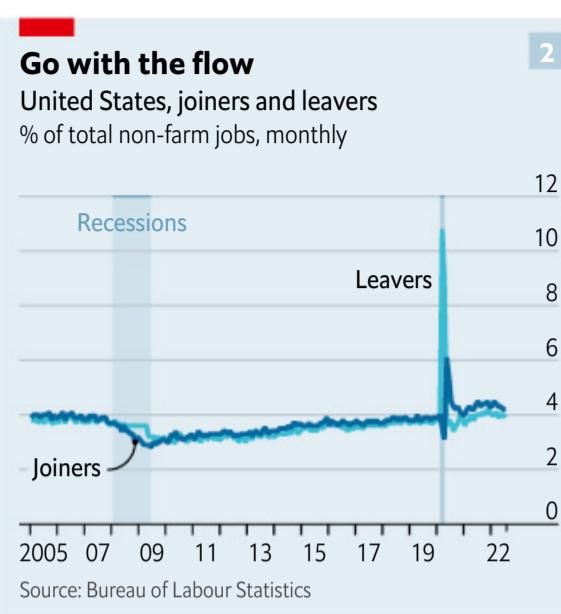
**70** Schumpeter: Who rules Starbucks?

► the carmaker: "We have too many people; we have too much investment; we have too much complexity." In manufacturing, the need to cut jobs invariably means people get fired. But there are industries, notably retailing, where the normal rate of turnover is so high that jobs can be cut without any terminations. Just stop hiring and payrolls will shrink. Mr Zuckerberg's approach, it seems, is to try and hurry along Meta's rate of worker attrition.

What about the second factor, the post-pandemic shift in the job market? Steven Davis of the University of Chicago's Booth School of Business calls it the "great reshuffling". The demand side of the market has not been changed much by covid-19, according to a recent study by Eliza Forsythe of the University of Illinois and three co-authors. Many of the 20m Americans who were laid off in April 2020 were quickly recalled by their employers. The supply side was more radically altered. The employment-to-population ratio remains below its pre-pandemic peak, mostly as a result of older workers exiting the workforce, say the authors. And it is still a struggle to fill customer-facing jobs. The surge in vacancies is especially marked in the leisure, hospitality and personal-care industries.

Employers in America are stepping up the intensity of recruitment. Skills requirements in adverts for customer-facing jobs have been relaxed. Pay has picked up more sharply than in other kinds of work. Ms Forsythe and colleagues find an increased likelihood of unemployed and low-skilled workers moving into white-collar jobs. Opportunities on the higher rungs of the jobs ladder appear to have opened up, because of retirements.

It is much the same in Britain. On a boiling weekday in August, dozens of businesses set out their stall on the campus of the University of Middlesex. Firms like JH Kenyon, a funeral director, Metroline, a bus company, and Equita, a debt-collection agency, were targeting not fresh graduates but the local unemployed. Recruiters recalled how jobseekers used to come to



them—a "constant pipeline", according to one. Now firms are doing the seeking.

The combination of a looming recession, high churn and the shifts in the supply of workers is exceptionally complex to manage for most firms. In principle, a well-run business could recruit strategically across the business cycle. In practice, even the certainty of a recession in 12 months' time would not be enough to help firms fine-tune hiring. They would need to know the magnitude, duration and industry characteristics of any recession. Turning hiring on and off in response to subtle cyclical shifts is unfeasible.

Firms, like people, have limited bandwidth—and that bandwidth is being expended on navigating work-from-home policies. At one extreme is Elon Musk, who has told Tesla's employees to turn up in the office for at least 40 hours a week or "pretend to work somewhere else". At the other are Yelp, a review website, which favours a "remote-first" strategy, and Spotify, which allows "work from anywhere". This approach has advantages in a tight job market. It lets firms cast recruitment nets over a wider area. Remote workers may trade off greater flexibility for lower pay. But there are obvious downsides, too. It is tough to sustain unity of purpose when colleagues barely meet each other.

Can any firms navigate today's tricky labour market well? Apple appears to be doing so. In Europe Ryanair, an airline, hoarded staff during the pandemic and began hiring aggressively as the economy reopened. It has kept flying this summer, gaining market share as rivals have cancelled flights. But for many firms finding an answer to the labour paradox will not be easy. One recruiter at the jobs fair in Britain with a pipeline of infrastructure projects says he hopes it will be unscathed by recession. Still, when it comes to hiring workers in the here and now, it is a scramble. "You just need to be able to turn up on time and show some willingness and commitment," he says of his target applicant. "No previous experience is required." ■



## Technology and academia

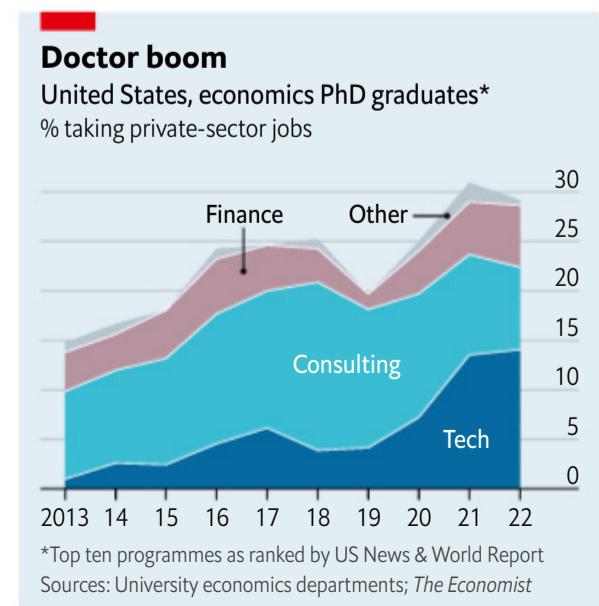
# Mr Smith goes to Silicon Valley

## Big tech cannot get enough economics PhDs

FOR MORE than a decade Facebook, now known as Meta, has awarded fellowships to promising graduate students working on cutting-edge research. The prize, which this year comes with up to two years' worth of university tuition and a \$42,000 stipend, has gone to computer scientists, engineers, physicists and statisticians. Now it has gone to an economist. "I was not expecting it," says Jaume Vives i Bastida, the lucky recipient working on a PhD at the Massachusetts Institute of Technology (MIT).

Silicon Valley is increasingly turning to economics for insights into how to solve business problems—from pricing and product development to strategy. Job-placement data from ten leading graduate programmes in economics shows that tech firms hired one in seven newly minted PhDs in 2022, up from less than one in 20 in 2018 (see chart). Amazon is the keenest recruiter. The e-emporium now has some 400 full-time economists on staff, several times as many as a typical research university. Uber is another big employer—last year the ride-hailing firm hired a fifth of Harvard University's graduating PhD class.

For the dismal scientists pay is a factor, says John List, a professor at the University of Chicago who has worked at Uber and Lyft. But tech companies also offer many of the benefits of a university career without the "publish or perish" culture. In the past, heading to the private sector often meant forgoing research completely. Now, explains Mr Vives, "Research can still be a big component of your job." Access to the companies' ample data is another selling point, says Steve Tadelis of the University of Cali-



fornia, Berkeley, who spent two years at eBay, an online marketplace.

For big tech, meanwhile, economists offer skills that computer scientists and engineers often lack. They tend to have a good grasp of statistics, as well as a knack for understanding how incentives affect human behaviour. Most important, economists are adept at designing experiments to identify causal relationships between variables. Machine-learning engineers usually think in terms of prediction problems, notes one Ivy League grad who recently started a job in tech. Economists can

nail down the causal parameters, he says.

An e-commerce firm may want to estimate the effect of next-day shipping on sales. A ride-hailing firm may wish to know which sets of incentives lure drivers back to the city centre after they are hailed by customers attending a big concert or sporting event. In two periods between 2015 and 2017 Mr List and colleagues at Lyft, Arizona State University and Boston University manipulated the prices and wait times for Lyft rides across 13 American cities to estimate the value of time. The study, which found that Lyft users value their

time at about \$19 per hour, yielded a paper. It also led to a new feature on the Lyft app called "Wait & Save", which lets riders opt for a longer wait time in exchange for a lower fare.

For all its recent recruitment success, Silicon Valley may have a harder time attracting the finest economists. In contrast to fields like artificial intelligence, "our best minds still stay in the academy," observes Mr List. Maybe not for long. "I would like to be a professor, I would like to do research for a living," says Mr Vives. "I can also do that at a tech company." ■

## Bartleby Loud about quiet quitting

*Bosses' reactions to an anodyne idea are telling*

IT'S NOT the crime but the cover-up. And it's not the video but the reverberations. In the past few weeks the term "quiet quitting" has entered conversations about the workplace. A 17-second clip on TikTok, a social-media platform, in which an American called Zaid Khan embraces the notion of not going above and beyond at work, has caused an awful lot of noise.

The video itself is amazingly anodyne. A piano tinkles. Bromides such as "Work is not your life" and "Your worth is not defined by your productive output" flash on the screen. Mr Khan implies that time not spent hustling at work can be better spent playing with a bubble machine and admiring trees.

Dull or not, it stamped on a nerve. Workers approvingly shared their stories about deciding not to work overtime, about prioritising work-life balance and about doing enough to get their job done without succumbing to burnout. Several bosses promptly lost their moorings. Kevin O'Leary, a businessman-cum-television-personality, called it "the dumbest idea I've ever heard". Arianna Huffington, another entrepreneur, wrote a LinkedIn post in which she described quiet quitting "as a step towards quitting on life".

The fact that some employees feel unenthused about their work is hardly new. In all workplaces employees show varying degrees of commitment to their jobs. Some work late, others leave at 5 o'clock sharp, a few seem to do little more than respire. A survey of workers around the world by Gallup, a pollster, found that only 21% of them are engaged by their jobs. The very idea of going above and beyond requires a distribution of effort, with less committed colleagues providing a baseline against which

others can be judged. The nature of the work also matters: it is easier to be engaged by some jobs than others. It is unsurprising, too, that quiet quitting has a particular resonance now. Lots of employees feel detached from their work.

The bargain of hard work for higher pay is less attractive than it once was. A succession of big shocks, from the financial crisis of 2007-09 to the pandemic, has made career planning seem pointless to some. Higher salaries go less far in many places: housing affordability is at its lowest level on record in Britain, according to Halifax, a lender. All of which may make some workers less motivated to pull all-nighters in search of a promotion.

The melodramatic reaction of some bosses looks stranger at first glance. This is not the start of a revolution, after all. Mr Khan's post may have garnered 3.5m views on TikTok but the most viewed video on the platform has been seen 2.2bn times (it features an illusionist on a broomstick). Even slackers need to make money; showing application is still a pretty reliable way of getting ahead in the workplace.



Even so, for many chief executives, it may well feel as though the ground is shifting in new and disturbing ways. Consider the types of people who tend to make it to the corner office. These are individuals who almost certainly want to be on the highest rung of a career ladder, who are heavily influenced by monetary incentives and who have made work their life. Quiet quitting is simply not in their make-up.

Yet old certainties about what motivates people have changed. The pursuit of purpose matters more than it did during the formative years of many of today's bosses. The modern version of Gordon Gekko would run a social-impact fund and say "green is good". Research published last year showed that co-workers and culture matter more to people's sense of job satisfaction than pay, a blow to anyone who thinks that the prospect of landing a bigger pay cheque is all it takes to gin up wild enthusiasm.

The pandemic has discombobulated bosses in other ways. Advice to burn the midnight oil jars when everyone else is worried about burnout. Plenty of corner-office occupants want employees to return to the office, the environment in which they built their careers; the end of summer has seen another push from many American companies to fill up the cubicles again. The idea that employees may all be playing with bubble machines rather than going the extra mile feeds suspicions about remote work.



The quiet-quitting kerfuffle tells a tale of two alienated groups. One comprises those disenchanted employees who wonder what the point is of working themselves to the bone. The other is a less obvious tribe: those in the corporate elite whose way of thinking about the workplace is under threat.

## The beauty business

# Wrinkle treatment

### Young brands have a thing or two to learn from mature rivals

PEOPLE LIKE to feel pretty. Over the past ten years Americans have spent more than \$500bn on beauty products. By 2024 the Chinese are expected to splurge more than \$100bn a year. In the past most of that would have gone to cosmetics conglomerates, such as L'Oréal and Estée Lauder, or to consumer-products giants like Unilever, selling every imaginable tincture to make everything from toenails to tresses more fetching. But in recent years fresh-faced newcomers, often more specialised and more digital, have entered the fray.

Now the upstarts are showing some wrinkles, as their business models are tested, investors lose patience with red ink and the incumbents up their game. The sales of Glossier, a hot American make-up firm most recently valued at \$1.8bn, fell by a quarter in 2021. The firm has laid off a third of its staff; its long-rumoured initial public offering (IPO) may be the subject of rumours for a while yet. Olaplex, a haircare firm that went public last September in a blockbuster IPO that valued it at over \$15bn, has since shed half its market capitalisation. Do the beauty challengers need to undergo their own metamorphosis?

The time-honoured way to market cosmetics was to pay millions to mostly white, mostly female top models and A-list stars who would appear in ads in glossy magazines and on billboards. Shifting the products, which were mostly made in-house, invariably involved a booth in a department store, a chemist's or a specialist re-

tailer such as Sephora. The upstarts took a different tack. They outsourced production and enlisted social-media influencers of all hues and genders to promote their brands. This was meant to drive traffic to their online stalls, either on the firms' own websites (an approach pioneered in the beauty business by Glossier) or on existing e-commerce platforms such as Amazon and Shopify in the West or JD.com and Alibaba's Tmall in China.

This approach has some big advantages. It affords the young companies access to data on shoppers and their preferences, says Lindsay Drucker Mann, chief financial officer of Il Makiage, another young American make-up darling. "If we sell through wholesale, we lose that information," she explains. Given how quickly make-up trends can sometimes change—just think of the sudden popularity of minimalist "clean-girl make-up"—such information is invaluable.

It also helps digitise beauty shopping, which as a deeply sensory experience has long resisted digitisation. Il Makiage is developing artificial-intelligence (AI) algorithms (sometimes by acquiring smaller AI firms) to help people choose the right foundation shade. Other brands use AI-assisted quizzes to help buyers pick the right product for them.

Techno-literacy may also make it easier to identify and target historically underserved market segments. Fenty Beauty caters to consumers who, like its founder,

Rihanna, a pop icon, have a darker skin tone. In May the firm (which is part-owned by LVMH, a French luxury conglomerate) launched in eight African countries. Uoma Beauty, created by Sharon Chuter, an executive who quit the old cosmetics industry over its failure to be more "multicultural", offers 51 foundation shades. Uoma's sales grew sharply in 2021, relative to 2020. Pharrell Williams and Harry Styles, two other pop stars, have each launched gender-neutral beauty brands. Revenues of Byredo, which has been making gender-neutral perfumes since 2006, surged to \$141m last year, up from \$18m in 2020.

Increasingly, however, the upstarts' digital-first approach is showing its limits. Outsourcing, for example, allows the companies to remain light on assets but can turn out to be costly at a time of supply-chain shocks of the sort that have rocked many sectors during the pandemic.

The influencer-based marketing strategy, meanwhile, has proved great at encouraging initial purchases but not necessarily repeat buys. Moreover, as the influencer economy has grown, so have the cheques demanded by the biggest names. They command as much as \$200,000 for a single social-media post. The fees may be bid up further as the incumbent giants increase their social-media exposure, which most of them are desperately trying to do in order to appeal to younger shoppers.

### The ugly truth

Bricks-and-mortar shops where many purchases, particularly of make-up, are spur-of-the-moment, remain critical to the beauty business. Most Americans still buy their cosmetics from Walmart. Chemists such as Walgreens and CVS also maintain a large market share. Around 90% of Uoma Beauty's sales are through retail partners, says Ms Chuter. In July Glossier stepped away from an exclusively direct-to-consumer approach by agreeing to sell some of its make-up through Sephora (which is owned by LVMH).

Big-beauty bosses are no doubt watching all this with glee. The upstarts' problems have highlighted the incumbents' abiding advantages: greater scale, sturdier supply chains and robust distribution networks. They also boast more resources to funnel into research and development (and not just chemistry labs: L'Oréal runs thriving tech incubators in America, France and Japan) or into acquisitions.

Even before the latest crunch some startups were becoming willing buy-out targets. In 2019 Drunk Elephant, an American skincare brand (founded in 2012), sold itself to Shiseido, a Japanese giant (founded in 1872). As more of the upstarts trip up and funding dries up amid a venture-capital winter, they too may find that old beauty still has allure. ■



Il Makiage bears its teeth

## European utilities

# Generating controversies

BERLIN

### Why some power companies are on the brink while others are on a high

**R**OBERT HABECK, the telegenic economy minister of Germany's newish coalition government, has become a darling of the German media. He has been called a "rock star" and mooted as the next chancellor. Now the media has turned on him over his plan to bail out some utilities with a natural-gas surcharge that could cost an average four-person household an extra €480 (\$480) per year (plus value-added tax). The measure is just one part of a complex set of government interventions.

Mr Habeck argues that the levy is necessary to save utilities such as Uniper or the SEFE Group (formerly Gazprom Germania). They are facing billions in losses as a result of Russia's decision to curtail supplies of gas in response to Western sanctions over its invasion of Ukraine in February. In order to meet their obligations to customers, the power companies must cover the shortfall by buying the fuel at exorbitant cost in the spot market.

The trouble is that as designed, proceeds from the levy could go to some energy companies that appear to be doing rather well out of the current ruckus. They include firms such as Gunvor, an energy trader based in Switzerland whose net profit nearly quadrupled in the first half of the year, and RWE, a German one which reported an adjusted gross operating profit of €2.9bn for the first six months of 2022, up from €1.8bn for the same period last year.

A humbled Mr Habeck has vowed to look for ways to adjust the levy to avoid benefiting undeserving firms. RWE has pledged not to take advantage of the scheme. Still, the episode illustrates the topsy-turvy state of Europe's energy markets, where some companies are asking for bail-outs while others stand accused of price gouging and threatened with windfall taxes on excess profits. The winners are getting "revenues they never calculated with; revenues they never dreamt of; and revenues they cannot reinvest to that extent," fulminated Ursula von der Leyen, the president of the European Commission, the EU's executive arm, on September 7th.

The most troubled utilities are, predictably, those that depend directly on gas from Russia. Germany's Uniper, Europe's largest importer of the stuff, worked smoothly with Gazprom for more than 40 years until June. Since then Russia's state-owned behemoth has cut deliveries by 80%. In July Uniper reported an €12.3bn



A market on fire

loss for the first half of 2022. The government agreed to take a 30% stake and provided €15bn in emergency aid. Even so, Uniper continues to lose €130m a day, calculates Wanda Serwinowska of Credit Suisse, a bank. As the supplier of more than 25% of Germany's gas, it is too big to fail. On August 29th it asked kfw, a state-owned bank, to increase its €9bn credit line by €4bn.

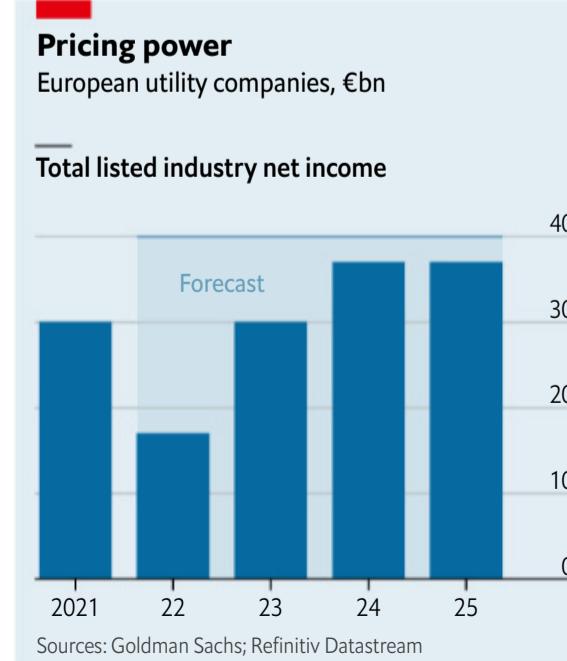
On August 31st Wien Energie, Austria's largest regional utility, which is also heavily reliant on Russia, received a €2bn credit line from the government to meet margin calls. The company is in talks with officials about a €6bn bail-out. And on September 4th Sweden and Finland announced that

they have made \$33bn available for Nordic utilities that struggle to trade on extremely volatile power markets, where sky-high prices mean that companies must post much higher collateral to secure trades. The collateral needs of Fortum, a Finnish utility, jumped by €1bn, to €5bn, in a week.

Utilities that do not depend on gas to generate power are doing considerably better. But their latest results have little to do with the current turmoil. Because most companies hedge and sell forward contracts for electricity and gas, profits today often reflect the price of commodities a few years ago, says Alberto Gandolfi of Goldman Sachs, another bank. All told, Mr Gandolfi forecasts, European utilities will generate combined net profits of €17bn this year, down from €30bn in 2021 (see chart). If governments do not intervene, those combined profits could bounce back roughly to last year's levels in the next few years, the bank reckons.

Even if all of this—some €150bn between 2020 and 2024, according to Goldman Sachs—were confiscated by the state, it would be a drop in the bucket next to the €2trn that Europeans will need to fork over in extra energy bills between 2021 and 2023 if prices do not come down. Sam Arie of UBS, one more bank, warns against raiding utilities for cash. A windfall tax would discourage them from making much-needed investments. It could, for example, prompt RWE to rethink its plan, announced in July, to invest €5bn in renewables this fiscal year, 30% more than it had originally planned. It would also leave the firms with less money to build infrastructure to bring liquefied natural gas from terminals in the west of the European continent to its gas-starved centre.

Investors in Europe's listed utilities have remained remarkably placid. The combined value of the biggest firms looks as boring as ever. The market may have concluded that excess profits will be taxed away—or simply won't materialise. ■



# Schumpeter | The siren call

*Starbucks and the perils of corporate succession*



THE TRANSFER of corporate power from battle-hardened builder to professional manager is always tough. Howard Schultz, who turned Starbucks from a handful of Seattle coffeeshops to a global behemoth, has pulled it off twice. At the turn of the millennium he passed on the chief executive's mantle to an heir, only to return to shepherd the firm through the global financial crisis of 2007-09. He then abdicated once more in 2017. After stepping in as boss for a third time in April, he is now preparing to hand over the keys to the caffeinated kingdom yet again.

This time the ascendant prince is Laxman Narasimhan. The announcement of his exit from his current job as CEO of Reckitt, a British consumer-goods giant, caught the market by surprise on September 1st, wiping 5%, or \$3bn, from the company's market capitalisation. Nicandro Durante, a member of Reckitt's board, will be in charge until a permanent replacement is found. A second surprise came hours later: Mr Narasimhan's new job. He will join Starbucks in October as chief executive-in-waiting. Initially he will acquire privilege but not power, learning the ropes on a whirlwind tour of coffee farms and city stores before taking over as chief executive proper in April 2023.

Mr Narasimhan comes from blue-blood managerial stock: two decades at McKinsey, a consultancy, preceded a stint as chief commercial officer at PepsiCo. In September 2019 he was appointed as Reckitt's boss. Verdicts on his time there are positive, if perhaps premature. After laying out his strategy in February 2020, Mr Narasimhan oversaw growth in the firm's top line and protected margins despite the huge cost inflation afflicting the industry (and many others). Covid-19 and a baby-formula shortage in America were unexpected tailwinds during his tenure. How his strategy will perform in calmer times is an open question—Reckitt shareholders will feel short-changed by his early exit and a stubbornly flat share price.

Shareholders in Starbucks, a firm twice as big as Reckitt in terms of both revenues and market value, are nevertheless quietly encouraged by his operating record. The first important date in Mr Narasimhan's calendar is September 13th, when Starbucks will hold its much-anticipated strategy day. With the company's share price down by almost 25% this year, Mr Schultz needs to brew up

something hot. He is expected to flesh out his woolly "Reinvention" strategy (the goal is apparently to "inspire and nurture the human spirit—one person, one cup and one neighbourhood at a time"). For investors, the presentation may provide much-needed clarity about the firm's future direction. For Mr Narasimhan, it will be the scorecard against which he will be marked.

It is already clear that he will have his work cut out. Transaction volumes in America during the most recent quarter were flat, with sales growth driven by customers spending more following price increases. A recession, which now looks more likely than not as the Federal Reserve continues to raise interest rates to quash soaring inflation, would disrupt this approach. Even brands with strong pricing power and customer loyalty (27m members of Starbucks's loyalty programme contribute about half of its sales in America) must be careful not to overstretch consumers' wallets, which could dampen demand. International growth is unlikely to come to the rescue, either. The government in China, the company's biggest foreign bet, insists on tough covid-19 restrictions that have dragged sales at the 6,000 or so Chinese Starbucks down by more than 40% in the three months to July 3rd, year on year.

At the same time, changing consumer tastes require new investment. It is increasingly the complex roster of customisable cold beverages that keeps customers coming back. As simple Americanos are out and iced toasted-vanilla oat-milk shaken espressos are in, the ruthless efficiency drive and menu-preening which Mr Schultz successfully deployed to cut costs in the wake of the financial crisis would probably prove more difficult still.

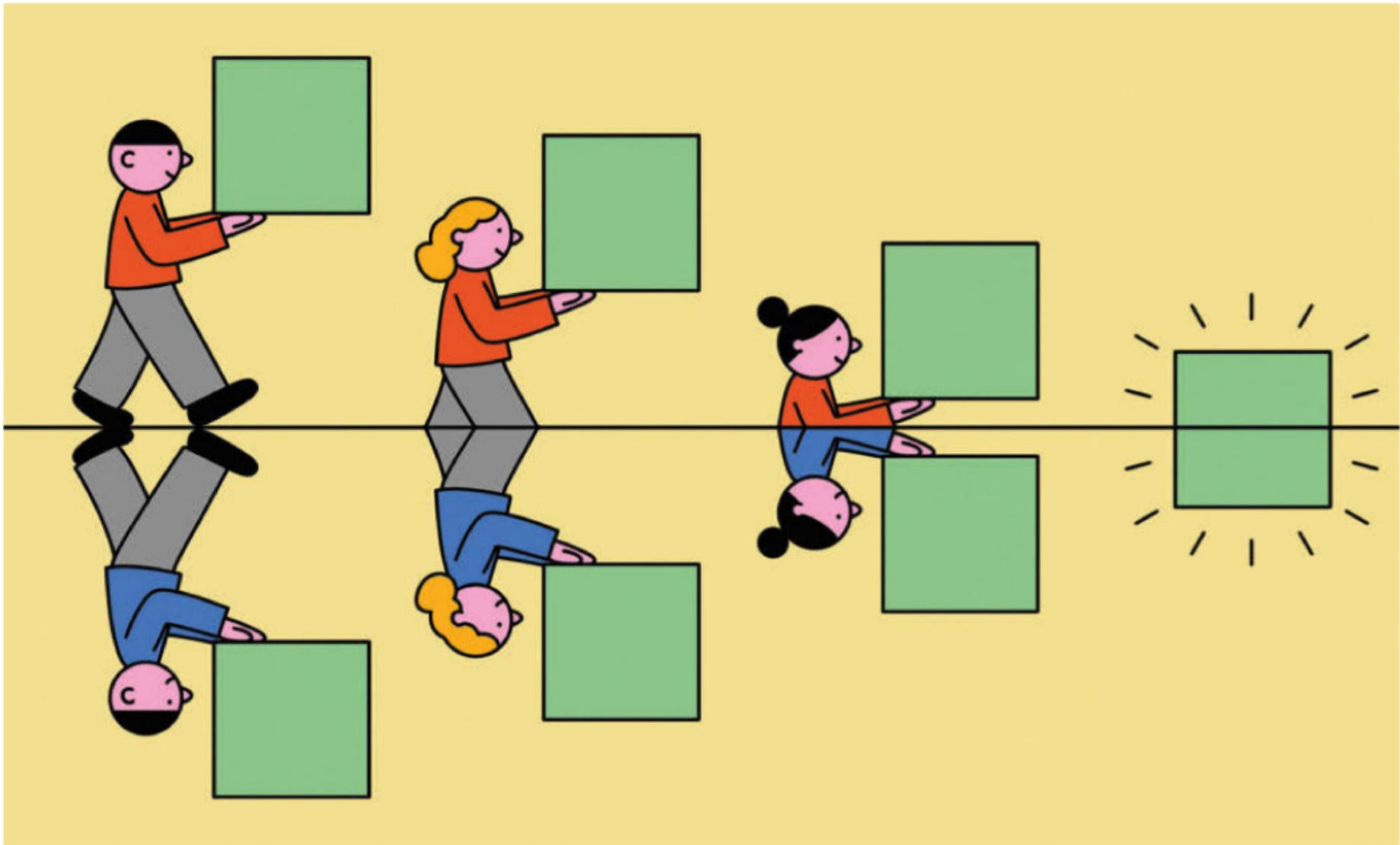
Cost-cutting will be further complicated by continued tightness in labour markets. This makes hiring harder. It also makes for bolshier baristas. More than 230 of the company's outlets have voted to unionise since the end of last year. Starbucks is fast becoming a symbol of retail rebellion.

It is too early to quantify the financial impact of this movement, but one certainty is that Mr Schultz, who has long opposed unions and instead offered generous benefits, will cast a long shadow over this dispute even after relinquishing executive power. The hiring in April of Frank Britt, a workforce-relations specialist, as chief strategy officer, suspension the same month of a \$10bn-plus buy-back scheme in the name of investment in the workforce, and fractious legal disputes over the treatment of unionised shops guarantees as much. Any hint of wage rises in the September strategy review would further hamstring the new CEO.

## Sleepless in Seattle

Mr Narasimhan could yet make the job his own. His time at Reckitt certainly hints (without quite yet conclusively proving) that he is a skilful manager. At a time of increased meddling in American business from both the left and the right, he is also less of a political liability than Mr Schultz, a billionaire who considered running for president as an independent and manages to be a hate figure both to conservatives, who denounce him as a symbol of vapid corporate wokeism, and to progressives, who see him as an anti-union robber baron.

The incoming boss may find a way to sidestep his larger-than-life predecessor and innovate, rather than merely acting as a hired gun brought in to implement a strategic vision he had no hand in crafting. If Starbucks is to succeed in the long run, that is what both he and Mr Schultz must understand. And if the new CEO disappoints, at least shareholders know there is business's biggest barista waiting in the wings. ■



## Currencies (1)

# The merge

### Crypto prices have crashed, but the technology is about to radically improve

IT IS 2PM Universal Coordinated Time (UTC) on August 18th and all over the world people are dialling in to a fortnightly “core developers” Zoom call, which is broadcast live on YouTube to anyone who wants to watch. None of the participants have their cameras on. Most appear as just black squares with names—including one labelled Vitalik, behind which lurks Vitalik Buterin, the inventor of Ethereum.

A handful of users have adopted a panda avatar, with cartoon faces swaying and smiling in time to their human counterparts. That they picked the monochrome bear is thanks to Hsiao Wei Wang, an Ethereum researcher, who created a meme showing two bears, one black and one white, doing the “fusion dance” from “Dragon Ball Z”, a popular anime show. In the show the dance fuses two creatures into a single, stronger one. The panda—a combination of the two bears—has since become a symbol for “the merge”.

The merge is the name the crypto-community has given to the point at which the

Ethereum blockchain will transition from using “proof-of-work” as a consensus mechanism—the method by which all the computers maintaining a blockchain agree to add new transactions to it—to using “proof-of-stake”. They call it the merge because, for almost two years, a separate proof-of-stake blockchain, called the Beacon chain, has been running alongside the original Ethereum one for developers to test, improve and test again. The Zoom call is for the developers to agree on when the two chains will join together. The date and time of the event will depend on how much computer power is being used to maintain the blockchain, but should happen at

around 1am UTC on September 15th.

This is no mere technical tweak. It is a complete overhaul of a \$200bn software project that has been running for seven years, which will, if all goes to plan, be implemented with no downtime. People in crypto compare the process to changing the engine of an aeroplane mid-flight. Proof-of-work is hugely energy intensive, requiring vast amounts of computing power, and has resulted in blockchains, such as Ethereum and Bitcoin, consuming as much energy as small countries. Proof-of-stake will require 99.9% less energy to operate. The effect on emissions will be as though, overnight, Chile had been switched off (see chart 1 on next page). More important still, the merge will, if successful, show that Ethereum has the capacity for self-improvement, opening the door to more sweeping changes.

Crypto is in need of good news, for the past year has been a torrid one. A handful of dodgy deposit-taking ventures have gone bust, wiping out savings; a crypto hedge fund has blown up; a stablecoin was revealed to be anything but stable. The total market capitalisation of crypto has crashed to around \$1trn, about \$2trn lower than it was this time last year. Ethereum’s improvements would not unpick any of this destruction. But, by reducing crypto’s environmental impact and highlighting the potential for future improvements, it would suggest that it has a brighter future ➤

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than many now appreciate.

The idea for the Ethereum blockchain was first published in 2014 by Mr Buterin. As with Bitcoin, it is a large database of all the transactions that have ever taken place in the cryptocurrency. But Mr Buterin's crucial insight was that the blockchain could do much more than that—it could also keep track of lines of code. This allows Ethereum to record transfers of the currency, but also of all the assets and functions that are maintained in "smart contracts", self-executing agreements in which a chain of actions follows when certain conditions are met. This capability has made it possible for developers to build a large network of financial institutions, such as exchanges and lenders, in code on the Ethereum blockchain.

The blockchain is maintained by about a dozen pieces of software, called "clients", that are worked on by the core developers. These are built in a variety of programming languages, including Go, Rust, Java and C#, and the software is run by the "nodes"—computers that run the client software to maintain the history of the Ethereum blockchain. All decisions about what to do, and whether upgrades will be implemented, are made by a consensus among developers, people who hold ether, the native token of the Ethereum blockchain, and people who have built applications on top of Ethereum or listed real-world assets on the blockchain. Any plans and code are published in real time on GitHub, a repository for programmers. The core developers meet, as pandas or otherwise, to discuss potential upgrades every two weeks. Anyone can in theory become a core developer just by working on the software.

The result is that developers are a ragtag bunch. Some are employed by firms like ConsenSys, a Brooklyn-based blockchain-software outfit established by Joe Lubin, one of the handful of people who helped found Ethereum after Mr Buterin's white paper in 2014. Some are employed by the Ethereum Foundation, a non-profit organisation set up in Zug, Switzerland, in

2014 with the proceeds of the sale of ether tokens. Others are hobbyists incentivised to help out because they hold tokens. At least 122 developers in 30 countries have worked on the merge software.

Ethereum is not a company, and Mr Buterin, for all his clout and importance as its creator, is not its chief executive. It is open-source—much like Linux, an operating system, and Firefox, a web browser—but the ability to buy a stake in its success, through ether tokens, provides an incentive to get involved in maintenance. The extent to which governance is truly decentralised is not entirely clear. In a recent interview with Noah Smith, an economics blogger, Mr Buterin said that, at the start of the project in 2015, he was doing most of the research and thinking about what Ethereum should be, as well as a lot of the coding to make it a reality. By 2020 he was doing perhaps only a third of the research, very little coding, but most of the "high-level theorising". In the past two years, he said, even the high-level theory "has been slowly but surely slipping away from me".

To implement a change like the merge requires sufficient consensus among the interested parties. All the major clients must be rewritten to use the new code, enough nodes must update their software and all the applications layered on the blockchain—like stablecoins backed by dollars in bank accounts—must accept the new merged chain is the one that will maintain the status of their assets. It can be surreal to watch in real time. It is as if *The Economist* started to live stream its editorial meetings and allowed subscribers to commission articles and select covers.

### The miners strike

Nor are all the interested parties in favour of the merge. Miners have invested as much as \$5bn in hardware to run the proof-of-work consensus mechanism. On September 15th or thereabouts that hardware will no longer earn them much of a return. The way proof-of-work maintains the security of a blockchain is by incentivising hundreds of thousands of computers to solve a mathematical puzzle. The computer that first finds a solution alerts the other miners and, if they confirm the result, updates the blockchain and is paid. As such it pays, in lovely, freshly minted ether, to have lots of mining hardware.

Proof-of-stake makes decisions about updating the blockchain by a vote among the holders of a cryptocurrency. Voting power, as well as the share of the rewards, depends on how much ether has been staked. If stakers misbehave, such as by putting through faulty transactions, their stake can be destroyed. Thus on September 15th the advantage of having lots of mining hardware will disappear. Instead, the advantage will be in holding ether.

### Battle of the blockchains

Exchange rate, bitcoin per ether



Source: Bloomberg

Miners could attempt to put off the merge by revolting. But the nodes appear to be mostly going along with the update. According to ethernode, a website that tracks Ethereum activity, around 75% have updated their software to be ready. The alternative is to attempt to "fork" the blockchain, by still running the old software and hoping that enough others do the same that the old version of the blockchain will continue to exist. A dispute over a hack in 2016 led to Ethereum splitting into two chains: Ethereum (the dominant one) and "Ethereum Classic" (a much smaller one).

For a split this time, "there basically needs to be one single miner in the world who decides they want to continue with the proof of work," meaning there almost certainly will be one, says Justin Drake of the Ethereum Foundation. The question is how many miners stick and how many twist. Chandler Guo, who supported the Ethereum Classic fork in 2016, is attempting to organise miners around a proof-of-work token called "ETHW". "I fork Ethereum once, I will fork it again!" he has said. Although the miners have reason to stay with the old way of doing things, the economics of trying a forked chain will probably not add up. It will only make sense to mine ETHW if the value of the token is worth enough. And a version of Ethereum minus DeFi apps, stablecoins and developers is probably not worth very much.

Institutions such as Circle, a stablecoin operator, have thrown their weight behind the new approach, rather than any forks. In a statement on August 9th the firm said that it "intends to fully and solely support the Ethereum proof-of-stake chain post-merge". Wallet operators and exchanges are also backing the proof-of-stake chain.

These dynamics reveal the balance of power inherent in Ethereum. The developers cannot put through updates that are universally hated, because doing so would cause a messy fork; the miners cannot resist an update if everyone else supports it. The decisions made by those that run applications on top of the blockchain, like

### Farewell to Chile

Ethereum, annualised estimated energy consumption, TWh



Source: Digiconomist

► Circle, can help solve disputes between the camps. This is very different from traditional tech platforms. Apple can push through an update that neither iPhone users nor app developers like, and there is little either group can do about it short of ditching iPhones altogether. There is no such thing as a “forked” iPhone.

The way Ethereum gets to a consensus is “kind of a messy and ad-hoc process”, admits Mr Drake. But there are enormous benefits if things go well. The impact of the overnight elimination of its energy needs will be thinly spread as Ethereum is mined all over the world. Almost half the nodes are in America; around a tenth are in Germany. Other countries, like Singapore, Britain and Finland, are home to less than 5%. But in smaller countries where mining is disproportionately popular, like Singapore, it is possible energy prices could fall.

The change also reduces the need for mining hardware. Nvidia, a chipmaker, makes graphics cards for gaming that can also be used for mining ether. From May to July, in part fuelled by rumours of an impending merge, revenues from its chips fell by almost half compared with the previous three months. On eBay prices of second-hand graphic cards are tumbling.

Since the network will no longer need so much energy and hardware to maintain it, rewards for validating transactions can be reduced. “With proof of work the scarce resource offered in return for rewards is computing power. That is very expensive because you have to pay for electricity bills and you have to cover hardware costs,” notes Mr Drake. With proof of stake, the scarce resource is instead digital money. “So the maintenance cost is essentially the opportunity cost of that money, which is maybe 3% or 4%.” Thus Ethereum will pay out just 10% as many tokens per block validated by stakers post-merge as it did to miners before it.

This change in the monetary system is probably one reason why, since the timing of the merge began to firm up in mid-July, ether prices have jumped. The currency has climbed by almost 50%, even as bitcoin and other crypto tokens have traded sideways (see chart 2 on previous page). Ethereum’s boosters think a successful merge could pave the way for “the flippening”, when the market capitalisation of ether surpasses that of bitcoin for the first time. It is currently about half as valuable as its rival cryptocurrency, which is close to its highest share since 2017.

The other big benefit is security. At the moment, to take control of the Bitcoin or Ethereum blockchain an attacker needs 51% of the total computing power used to mine the currency. Rough estimates put the cost of this at \$5bn-10bn. To attack a proof-of-stake blockchain would require buying up and staking half of all tokens,

which would currently cost around \$20bn.

Some think these benefits will come at the cost of centralising power, since under proof-of-stake big holders reap more rewards, increasing their holdings further. But, says Ben Edgington of ConsenSys, the blockchain-software firm, this argument is wrong-headed. Small stakes will earn less than big stakes, but they will hold the same percentage of total outstanding tokens through time, meaning their relative power will not increase. With proof-of-work there are also returns to scale from building huge mining rigs, which are more efficient. “There is no way someone could set up a competitive at-home mining rig,” notes Mr Edgington.

### Blocking progress

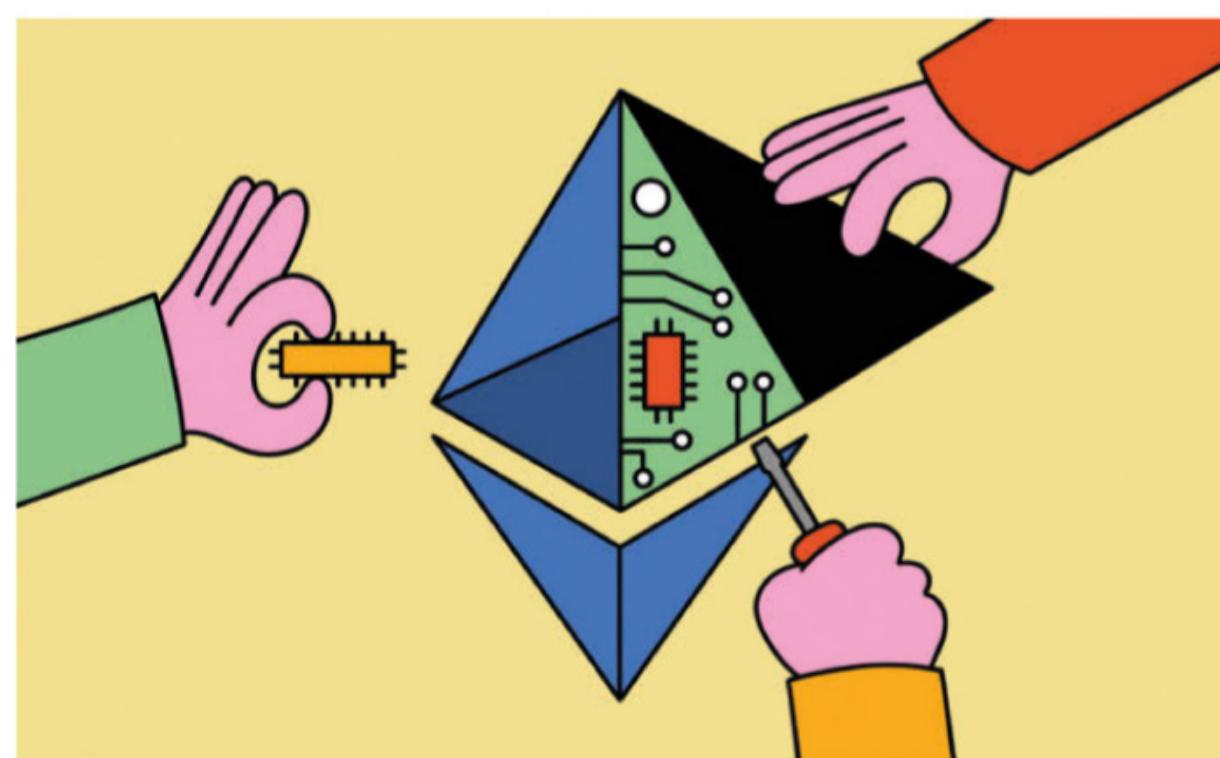
Another risk is that the transition fails in some way, which could undermine public support. Mr Lubin, Ethereum’s co-founder, is unperturbed. He says “there has just been so much testing that I think the blockchain elements will go perfectly smoothly.” The only potential missing link in the transition, Mr Edgington thinks, is the wider community. Given the complications in installing new components, and the need to get to grips with a new way of working, some participants may be lost. But there will only be problems if more than 40% are, and that is unlikely, he says. Applications, such as exchanges, that run on top of the blockchain may, though, experience some hiccups. Major software updates reveal all kinds of bugs in previously sound-looking code. Important DeFi apps, like Aave, a lending platform, are readying themselves by suspending transactions in ether over the merge period.

If all goes smoothly, the merge will be a step towards a much more useful technology. Many of the financial applications that operate on top of the blockchain are extremely efficient, in part because they

automate the functions of a financial system. Smart contracts automatically match buyers and sellers or borrowers and lenders at an exchange. An IMF paper found that the marginal costs of financial intermediation by DeFi apps were about a third as much as rich-country banks and a fifth of emerging-market banks. But the efficiency for users is hampered by how slow and expensive using the Ethereum blockchain can be. At times when the network is busy the charges to have transactions recorded, called “gas fees”, can spike to as much as \$100 for a single transaction.

Upgrades after the merge are mostly aimed at improving scale and efficiency. In July, at an Ethereum conference in Paris, Mr Buterin joked that the path for the blockchain is first to “merge”, and then “surge”, “verge”, “purge” and “splurge.” The surge, next on the list, refers to “sharding”, which is the process of splitting a database into pieces to spread the load. This will allow the blockchain to process many more transactions and should reduce the fees required to use it. “Ethereum today can process about 15-20 transactions a second. This Ethereum...it’s going to be able to process 100,000 transactions a second,” Mr Buterin proclaimed.

The verge will implement a new kind of mathematical proof known as “Verkle trees” and make “stateless clients” possible. That will mean someone can run the software to operate a node without having to store the entire “state” of the blockchain, an enormous amount of data. The purge will remove old data on the blockchain’s history. The splurge is “all of the other fun stuff”, which could be anything that Mr Buterin and the cryptoheads fancy. A successful merge is the first step on the path towards all of these changes. It would prove that decentralised groups of people can do risky, contentious and important things. Time to find out if they can. ■





## Currencies (2)

# Dodging the dollar

HONG KONG AND SHANGHAI

## The digital yuan offers China a way to cut its financial dependence on America

**I**N RECENT MILITARY drills, China has simulated an invasion of Taiwan, which it considers a “renegade province”. Talk of war has preoccupied Chinese bloggers, pundits and politicians since Nancy Pelosi, speaker of America’s House of Representatives, visited Taipei in August.

Finance officials in Beijing have no doubt been prepping for a conflict, too. They have watched with dismay as America and its allies imposed crippling sanctions on Russian banks and kicked seven of them out of SWIFT, a Belgium-based messaging network used to send payment instructions. A Chinese invasion of Taiwan could result in similar measures, freezing Chinese banking activity abroad. In a shooting war over Taiwan, no one knows who would win. In a financial war, an American victory seems assured.

China’s dependence on the dollar has long been a source of frustration in Beijing. It not only cements China’s vulnerability to sanctions, but also exposes China to America’s macroeconomic whims. To many officials, it is perverse that their country, the world’s largest exporter and official creditor, should rely so heavily on the currency of the world’s biggest importer and borrower. For over a decade, China has tried to promote the yuan as an alternative. Yet progress has been hampered by another source of Chinese discomfort: uncontrolled capital flows (see chart 1). China’s limits on the movement of its money—in

place to prevent speculation—make the yuan difficult for the world to embrace.

Thus few bankers think the yuan will soon replace the dollar as the world’s currency of choice. But that is not the only prize worth pursuing. Other goals are more feasible and more urgent. In particular, China’s technocrats aspire to build a payments system that is easier for its trading partners to use and harder for America to block. They might also hope that such a system could make the yuan more influential abroad, without compromising China’s capital controls at home.

New technology might help. Since May 2020, China has been experimenting with a digital version of the yuan, now known as the e-CNY. Residents of 23 pilot zones across 15 provinces can download “e-wallets” onto their phones. The wallets are provided by their banks or popular payment platforms, like Alipay. But the e-CNY they contain represent a claim on the central bank itself. Some 260m individuals and 4.5m shops can now handle the digital yuan, according to the People’s Bank of China (PBOC), the central bank. Thanks to promotions and handouts, the digital currency has been used in over 260m transactions worth about 83bn yuan (\$12bn) since its inception until the end of May, with an average transaction size of about 300 yuan.

China insists the e-CNY is first and foremost for domestic use. Officials were spooked by innovations like Libra and

Diem, the digital currencies proposed by Facebook. They also want a secure backstop, and perhaps a rival, to Alipay and WeChat Pay, the hegemonic private payment platforms. For this reason, the e-CNY has been designed for retail use. It can be held by individuals and non-financial firms, rather than just banks.

Yet a few Chinese scholars are willing to voice greater ambitions. Sun Lijian of Fudan University has argued that a digital yuan might help break the dollar’s monopolistic status and could be used to finance projects associated with the Belt and Road Initiative, China’s overseas infrastructure-building programme. Some of the biggest believers in the e-CNY’s potential seem to be wary observers in America. A recent book published by the Hoover Institution, a think-tank, argues that the e-CNY could play an important role in internationalising the yuan and “transforming the geo-economic landscape”. In particular, “it is likely that countries seeking to circumvent US sanctions will explore using the e-CNY as an alternative channel for cross-border transactions,” it noted.

The e-CNY could help internationalise the yuan in several ways. It could make it easier and cheaper for foreigners to make cross-border payments—and harder for America to block those transactions for geopolitical purposes. That would increase the appeal of the yuan, even if China’s capital controls remained in place. The digital yuan could also change the way those controls work, by programming them into the currency itself.

Within China, e-CNY payments are quick and free, for now. (The central bank may charge a fee in future, according to *Caixin*, a Chinese magazine, to operators of the wallets and linked services, if not to end users.) The PBOC has made no announcements about how an overseas user might receive a wallet. But China’s bankers are full of speculation. Some believe Chinese regulators will set up a special financial zone where users abroad could apply for wallets. Here, banks and other financial-services firms would be invited to create “know-your-customer” businesses for the screening of applicants. Foreign users might eventually be allowed to do this remotely through Chinese banks in their home countries.

Once a foreigner has qualified for a wallet, e-CNY transactions with other wallet-holders should be quick and cheap, even if they are separated by a geographical border. In the early stages, most transactions would be with Chinese firms or customers. But once the number of foreign wallet-holders reaches a critical mass, some payments need not have a Chinese user on the other side of the trade.

Cross-currency transactions seem a more distant prospect. But China’s experi-

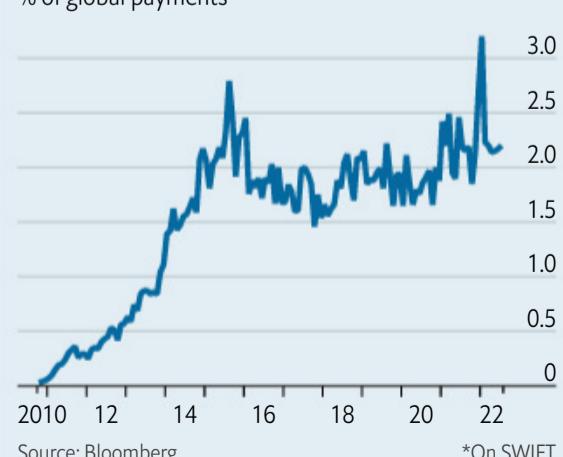
ment with the e-CNY has spurred many other governments to look into digital currencies of their own and how they might be exchanged with each other. Take, for example, mBridge, a programme set up by the Hong Kong Monetary Authority and joined by the PBOC, the central banks of Thailand and United Arab Emirates, and the Bank for International Settlements, a club of central banks in Switzerland. One initial aim is to enable digital-currency transactions in the Greater Bay Area, a large region in southern China where three currencies (the yuan, the Hong Kong dollar and Macau's pataca) now operate. The involvement of other central banks indicates mBridge's long-term ambitions are much larger.

Platforms like these could eventually help settle international payments at a fraction of the expense of the current correspondent-banking model. The cost of sending a \$500 remittance through a bank from South Africa to China now averages over 14%, or \$70 (see chart 2). The technologies underlying digital currencies have been found to cut the transaction, energy and storage costs connected with these legacy systems. Moving away from centralised clearing and creating competition among various platforms could also help bring down costs. For China, the project is strategic, not commercial, and therefore it will almost certainly seek to undercut other systems on price, notes a recent paper by Ross Buckley of the University of South Wales, Douglas Arner of the University of Hong Kong and others.

Such systems might also be less vulnerable to sanctions. America's response to Russia's war in Ukraine has shown that Western powers can debilitate foreign banks by kicking them out of SWIFT. America can also bar its financial institutions from dealing with a country under sanctions, making it impossible for the country's banks to settle dollar payments with the rest of the world. Payments in digital yuan would use neither the dollar nor SWIFT and could conceivably bypass commercial-banking institutions altogether.

### Uncommon currency

Chinese yuan  
% of global payments\*



The e-CNY might make America's financial weapons less convenient and less precise, thus raising the bar to their use. But it would not spike them altogether. Even if America could not directly prevent an e-CNY transaction from going through, it could still deny access to its clearing system to any institution using the e-CNY in a way it did not like (ie, to serve a blacklisted country). Since America could not monitor e-CNY activity as closely as it can monitor dollar payments, some transactions might escape its notice. Yet if the inscrutable e-CNY became too big a threat to its sanctions regime, America could in theory ban its use by any institution that wants to retain access to the American clearing system. That would force the world to choose between the dollar and the digital yuan.

### Remote capital controls

Lower transaction costs and less vulnerability to sanctions could make the e-CNY more appealing to foreigners. Other characteristics of the digital yuan could make its overseas use less nerve-wracking for China's authorities. Officials worry less about capital leaving the country than about it leaving the currency. They are fairly relaxed about Chinese residents and firms accumulating yuan-denominated claims on the rest of the world. But they worry about runs on the currency, especially if those runs develop speculative momentum. In China, regulators can limit the amount of yuan that residents are allowed to sell for foreign currency. They can also quiz residents about why they want dollars. Regulators do not have the same control over non-residents, especially if non-residents hold yuan in foreign banks.

Several aspects of China's existing financial plumbing betray this nervousness. Its own cross-border interbank payments system, CIPS, has been slow to admit foreign banks, for example. Within this system, yuan payments can leave China but stay within a trusted circle of largely Chinese intermediaries. Its "Wealth Connect" programme, introduced last year, creates

another kind of closed loop. It allows rich individuals in China to buy investment products in Hong Kong, thereby gaining exposure to assets denominated in foreign currencies. But when they cash out of those investments, they may do so only in yuan. This stops people from moving trunk-loads of yuan out of China.

The e-CNY could enable another closed loop. Transactions in e-CNY take place across the balance-sheet of China's central bank. That makes it easier for the authorities to monitor the use of China's currency even among non-residents. Because the e-CNY can only pass between approved e-wallets, China's authorities could also weed out potential speculators during the approval process. Digital wallets would be likely to encode a number of user characteristics, such as their country of residence and the industry they work in. These sorts of details could be used to grant or deny people and firms access to yuan payments, or limit their payments to certain sizes. China could then be confident that any digital yuan circulating outside its borders would not fall into the wrong hands for the wrong reasons. With such control, academics speculate that demand for e-CNY among unsavoury parties would be low.

China's digital currency is also "programmable". The e-CNY can be distributed with conditions, such as a time frame for spending it. In theory any condition can be programmed into digital currencies, says Michael Sung of FreeFlow Finance, a cross-border payments firm. Regulators could, for example, set limits on how much could be sold for foreign currencies. That would help them to limit any runs on the currency, even if the yuan were held by foreigners beyond their normal regulatory reach.

Imagine, for example, that e-CNY wallets were granted to a number of grain traders in Africa, alongside related businesses, such as farmers, pesticides vendors and logistics firms. Money lent to these companies could be programmed to be exchangeable only with approved companies within this supply chain. The PBOC could also monitor payment flows closely. Cashing out the e-CNY into other currencies with unapproved banks could be easily stopped.

Such control and a god's eye view of the currency could make the PBOC more comfortable with allowing flows of its currency into trade finance and supply chains. Charles Chang of Fudan University points out that authorities have already been experimenting with changes to yuan-convertibility rules in Hainan. Officials have said that Hainan will become a free-trade

**Correction:** Last week's Buttonwood ("Head in the ichimoku cloud") said that Eugene Fama and Kenneth French won the Nobel prize for work on factor investing. In fact, Mr Fama won a Nobel prize for his work on the efficient-markets hypothesis and Mr French is yet to win one. Sorry.

port by 2035. They aim to make the island province an offshore trade and finance centre, much like Hong Kong. As Mr Chang notes, it is not hard to imagine this type of finance zone being used as a base to conduct digital-yuan trade finance.

But will users outside of China want it? In poorer countries, probably yes. Securing financing in dollars in poor parts of Africa can be incredibly difficult. Supply is limited. Business owners often wait weeks and pay hefty fees and bribes for access. Many firms in poorer countries already opt for yuan-based trade finance when it is avail-

able. A switch to e-CNY could only help, as long as there is ample supply of it and overseas users can get digital wallets.

A restricted currency is naturally less appealing than an unrestricted one, just as food stamps are worth less than their equivalent in cash. So a programmed digital yuan would be less appealing than a currency free of restrictions. Yet if China's conventional currency remains hard to come by, because of the government's nervousness about speculation and misuse, then the digital yuan could be a viable alternative. It would be less freely usable, but

more freely available. Moreover, most users of a currency have no intention of panic-selling the currency unless everyone else does. So technological speed bumps designed to prevent runs need not be fatal to the digital yuan's international appeal.

Much of this is still speculation. As tensions rise with America, the domestic roll-out of e-CNY will bring little comfort to Chinese technocrats who fret about imminent conflict. In the long-term, though, the digital currency will be more significant. It may eventually help the yuan span the world without leaving its lane. ■

## Buttonwood So near to a good year

*Emerging-market stocks are struggling in an intangible world*

**H**ALFWAY THROUGH the year, as commodity prices soared and stock-markets plunged, it looked as if emerging-market stocks might do something they had managed only once in the past decade: to beat the returns of American ones. Two months on and the hope is gone. A small bounce in rich-world share prices means emerging-market underperformance will probably continue.

America's interest-rate rises—and the expectation of more to come this year—have not helped emerging-market economies, especially those with large import bills and dollar-denominated debts. Over the past decade, though, the performance of the dollar has been mixed and interest rates low. In the same period, the MSCI EM index has returned just 2.9% a year, against 9.5% for rich-world stocks.

A big problem is the growing gap between emerging-market and rich-world profits. In the heyday of emerging-market returns, before the global financial crisis of 2007-09, margins for the two indices were similar. But unlike American stocks, emerging-market profits never recovered. Forward margins—net profits expected by analysts this year and next—sit at 7.5% in emerging markets, compared with 12.8% in America and 8.9% in the euro zone. The gap is the widest it has been this century.

Several factors explain this. For commodity-exporting countries like Indonesia, Brazil and Mexico, enormous margins before the collapse of Lehman Brothers reflected sky-high prices of commodities as varied as soyabeans, oil, coal and nickel, rather than good management. Since then, prices have come back down to earth. Even at the Bloomberg Commodity Index's recent peak, after Russia's invasion of Ukraine, it sat 43% below its high in that period.

More than a fifth of the MSCI EM Index is made up of state-owned enterprises, which are lumbered with responsibilities beyond profits. Many are also in energy and finance, which have had a poor decade. In the ten years to the end of June, state-owned firms in the index offered annual returns of 2.6%, against the 4.2% offered by their private counterparts.

The change in which countries make up the index, something investors hoped would give them more exposure to fast-growing economies, has done little to help. In 2005 four markets—Brazil, South Africa, South Korea and Taiwan—each made up larger shares of the index than China. Now, Chinese stocks listed in Hong Kong and the mainland account for a third of the index, by far the largest share.

But despite economic growth, Chinese profits remain depressed. The MSCI China index sits, astonishingly, below its peak in dollar terms, which it hit in 2007. In 2013 Yu Yongding, then of the China Society of World Economics, a think-tank, said that the profit on a few tonnes of steel was "just about enough to buy a lollipop". Overca-

pacity in crucial Chinese industries, which have been flooded with investment, is still a problem.

Will profits grow? IT outsourcing offers a chance to pair the traditional emerging-market strength of lower wages with an increasingly digital global economy. But digitisation is also reason to be sceptical of an emerging-market resurgence. The rise of firms with large stocks of intangible assets, such as software and intellectual property, explains much of the increase in profits in the rich world, and America in particular. One estimate suggests that intangible assets, mostly undisclosed, were worth 90% of S&P 500's market value in 2020, up from 50% in 1990.

Developing economies spend far less on R&D. Of those typically included in emerging-market indices, only South Korea and Taiwan surpass American R&D spending, which sits at 3.5% of GDP. The equivalent figure in China is 2.4%, and the government's campaign against the country's most successful consumer-tech firms—like Didi, in ride-sharing, and Alibaba, in e-commerce—bodes ill for intangible-focused firms. According to the World Bank, R&D investment runs to less than 1% of GDP in India, Indonesia, Mexico and South Africa.

Firms that invest in intangibles are often found in bustling cities, of which emerging markets have no shortage. But they also need reliable governance and legal systems, so that investments can be protected from copycats. Openness to foreign expertise and cross-border collaboration are also crucial. Given the absence of these conditions in many developing economies, it may be a while until emerging-market returns, and thus the performance of emerging-market stocks, match those in the rich world.

### Submerged

Share prices, January 2008=100, \$ terms





### Currencies (3)

## Pretty green

### Why the dollar is strong and why that is a problem

HERE ARE a few familiar descriptions of the dollar: "the cleanest shirt in the laundry basket", "the least-ugly mug in a beauty contest", "the one-eyed man in the kingdom of the blind". Nobody, it seems, loves the dollar; they just really dislike the alternatives. And that aversion is only growing. The DXY, an index of the dollar against half a dozen major currencies, is at a 20-year high (see chart 1). Among the dirtiest of the dirty linen are sterling, the euro and the yen (see chart 2).

Every fresh lurch upwards prompts some big questions. First, what is driving it? Much of the recent rise reflects differences in monetary policy. At the turn of the year, the Federal Reserve became more de-

termined to tackle inflation. A series of interest-rate increases since then, with more expected, has turned the dollar into a high-yielding currency. Lofty interest rates are a draw to global capital, which in turn has pushed up the dollar.

The dollar is also a refuge in troubled times. Scared investors tend to reach for the currency. And high oil and gas prices are generally bad for energy importers, such as Europe, but good for energy exporters, such as America. The handful of currencies that have kept pace with or beaten the dollar this year tend to be those of energy-producing countries.

In short, the dollar is the go-to currency largely because America has proved a reliable source of economic growth. That is particularly true now. Europe is edging closer to recession. The closely watched purchasing-managers' index suggests the euro-zone economy shrank in August.

Less noticed is that Asia is also losing steam. Sluggish export growth is the latest worry for China's economy, the vitality of which has been sapped by a property hangover and the country's zero-covid policy. China's weakness is apparent across Asia. Industrial output fell sharply in South Korea, Taiwan and Japan in July. Export orders have slumped. High energy costs have not helped. The currencies of these countries have wilted against the dollar. In Japan, where the central bank has stuck with ultra-low interest rates, the authorities have

hinted that they may intervene to halt the yen's slide. In China there has been renewed action to support the yuan.

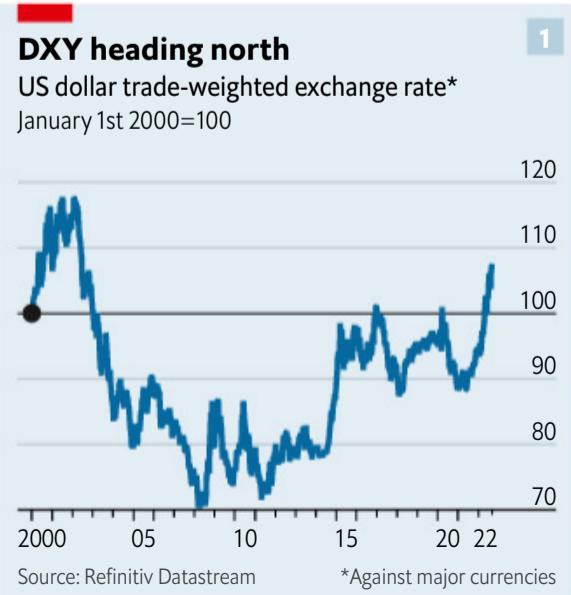
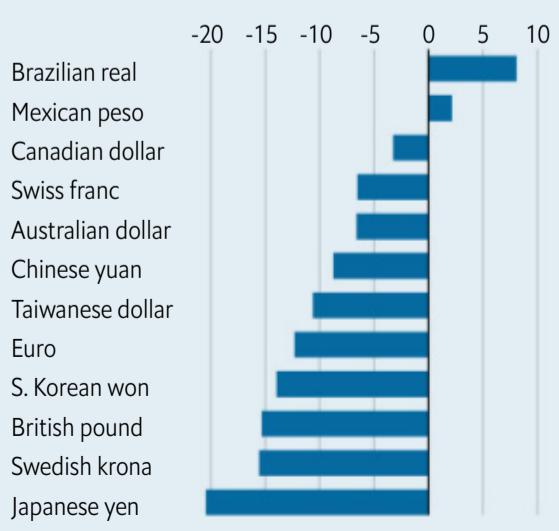
So is the dollar now a problem? In principle, its strength is a remedy for unbalanced global growth, since it gives European and Asian exporters an edge over domestic producers in the stronger American market. In practice, a strong dollar makes matters worse. It squeezes global credit, because countries and companies beyond America's borders borrow in dollars. So when the dollar rises, it becomes more expensive to pay back debts out of local-currency revenues. For many emerging-market economies, the higher cost of dollar borrowing trumps the boost to exports they get from a weaker currency. Dollar strength may not even be a boon for rich countries, says Steve Engleander of Standard Chartered, a bank. Exporters in Europe are hamstrung by energy disruptions, so cannot take full competitive advantage of a favourable exchange rate.

Will the dollar ever weaken? For that three conditions need to be met. First, the global growth gap has to narrow. A hard landing in America won't do the trick. A synchronised downturn in all regions of the world would only spark a run to the safety of the dollar (although the beleaguered yen might finally catch a bid). What is needed is for growth prospects outside America to improve. A second condition is a rapid reduction in price and wage pressures in America. This would allow the Fed to ease off the monetary brake, withdrawing some yield support from the dollar. The third condition is related to the first two: a weaker dollar requires some kind of good news on global energy. Absent that, it is hard to see Europe closing the growth gap with America.

None of these conditions seems likely to be met soon. Until they are, the dollar will stay mighty—but only because the yen, the euro and the rest are so puny. ■

### 2 Beauties and beasts

Currencies against the \$  
Jan 3rd-Sep 6th 2022, % change



## Free exchange | Power corrupts

*How to get through the winter without wrecking Europe's electricity market*



MOST PEOPLE hate fluctuating prices. When they fall too far, they are seen to be threatening firms. When they rise too high, they are seen to be unjustly enriching them. But economists look at price movements and see the revelation of crucial information. The recent frenzy about interventions in European electricity markets is an especially brutal example of this age-old dynamic.

In recent weeks, forward prices for daytime electricity for the fourth quarter of the year briefly spiked above €1,200 (\$1,200) per megawatt hour in Germany and above a surreal €2,500 in France. The usual price is around €50. The reason for this is simple: scarcity. The loss of generating capacity to maintenance (in France), closure (in Germany) and drought (across the continent) brought more and more gas plants into action, and their fuel has become extremely expensive since Russia wielded its energy weapon.

Just like in any other market for a homogenous good, the price of power is set by the most expensive supplier. This means that even power plants with low operating costs, such as nuclear ones or wind farms, receive the high prices that gas plants are charging. The result is vast profits—and public outrage. Based on forward curves, Morgan Stanley, a bank, reckons that electricity spending in the EU could rise by more than €800bn, an increase worth an astonishing six percentage points of GDP. Thus politicians have started to ask whether a different pricing mechanism is needed.

The problem is that designing an electricity market is hard. The juice cannot yet be stored at scale, and has to be delivered at the exact moment it is needed. Producers need to spend a lot of money upfront to build a windmill or power plant, and need to be able to recover it and make a profit over decades. Climate-change policies dictate that more and more renewable electricity is fed into the system, despite being mostly at the whim of wind and sunshine.

Europe's current design is a sequence of markets, some continent-wide, where electricity providers such as power plants meet retail suppliers, large industrial customers and others. Some deals are made months or even years before electricity is delivered, as suppliers and customers need clarity over revenues and costs. The reference price for electricity and for the settlement of many long-term agreements is set on the spot market, where the physical delivery of electricity is traded for the next day. Suppliers bid accord-

ing to how much it would cost to provide an extra unit of power, known as its marginal cost.

The idea behind this is straightforward. To generate electricity at low cost and in an increasingly carbon-free manner requires a lot of information. Some technologies, such as nuclear, are good at providing a constant stream of power. Gas is good for firing up quickly. Solar is best around lunchtime. The marginal price of power provides the information needed to switch between them, by signalling the value of an additional unit of electricity.

The market also provides incentives to use power when it is cheapest to generate. Currently, prices are lowest at lunchtime and in the night. The transition to renewable energy means that prices will become more volatile. But that volatility is what drives innovation and investment in storage, smart meters and hydrogen. A high-capacity battery, and the storage it provides, will be most useful when prices oscillate between extremes.

For a while, it looked as though the problem with Europe's market was that prices were too low. With more and more renewable energy entering the market, the price of electricity sometimes fell to zero and even turned negative. The question was how marginal gas power plants—that might be needed to cover a windless, cloudy winter day—could make enough money during the rest of the year to survive. Some countries opted to add a capacity market; that is, they auctioned off payments to generators just for being there. Others stuck with an “energy-only market”.

The question now is very different. Europe's markets face sky-high prices for electricity, as the result of a war. It is a situation for which they were not designed. Thus policymakers face three challenges. The first is to preserve the marginal-price signal, for both generators and consumers, in the face of political pressure to weaken it. Lowering prices, for example by subsidising gas used in electricity generation, as Spain and Portugal have done, would elsewhere require some other form of rationing to allocate scarce energy. (Spain and Portugal can get away without rationing because Spain is an important gas hub, so can easily import more.)

The second is how and if to redistribute profits. The German government has recently decided to grab those it considers excessive, while leaving the price signal alone. (The European Commission may advise countries to do something similar.) It will do this through what is essentially a windfall tax that limits the share of the spot-market price that suppliers can keep. The problem is that generators have hedged their exposure to differing degrees, meaning the true recipients of the windfall profits may prove hard to find, and may in fact sit outside the energy market.

### Bright sparks needed

The third is to ensure that Europe's energy market is ready for the next crisis, and to do so without sacrificing its advantages. At present, the spot market efficiently allocates capacity and provides signals on energy scarcity, offering an incentive for investment in renewables. But to guard against sustained shortfalls in capacity, and thus another price crunch, Europe's energy markets must adapt. Long-term hedging markets are not very liquid, because consumers used to see little need for price security. In the future, they will probably see more. Regulators could help. A proposal by researchers at the Massachusetts Institute of Technology advises them to buy “affordability options” from generators, a form of insurance that would return profits from excessive prices to consumers, in effect creating an automatic windfall tax. How politicians would love to have something like that in place now. ■



## Extreme weather

### A taste of years to come

**La Niña and climate change have combined to create a spate of heatwaves and floods this year. Get used to it**

THE RECENT floods in Pakistan have submerged a third of the country and left more than 1,100 people dead. Monsoon rains, the heaviest in a decade, caused flood surges of more than a metre in parts of the country. It is not the only part of the world to have endured extreme weather this year. Early on, Australia was hit with unprecedented rain and heat. In May record rainfall in Brazil led to mudslides and floods that killed over 100 people. By the summer, east Africa was suffering its fourth consecutive year of drought. Meanwhile, temperature records were broken in cities across Europe, and rivers there ran drier than at any point for 500 years. A 70-day heatwave across much of China saw temperatures regularly exceeding 40°C, with the country's two largest lakes dropping to their lowest recorded heights.

What explains the series of extreme events? Attributing any single weather event to climate change is a complicated business. Part of the difficulty reflects the intricate mechanisms of Earth's climate, where persistent warming is the ominous

background hum against which numerous other patterns play out. "Every event is a combination of climate change and climate variability," says Caroline Wainwright, a climate scientist at Imperial College London.

#### Weather versus climate

One of the most powerful sources of natural climate variability is the El Niño-Southern Oscillation (ENSO), a phenomenon in which the climate all around the tropics (and in some regions beyond) moves into one of two extreme states. It takes the first part of its name from conditions in the Pacific Ocean. In a year without ENSO effects, the trade winds blowing east to west across the Pacific push near-surface warm water

in the same direction. When the winds blow more weakly than usual, the warm water remains in the central and eastern Pacific, causing more rainfall in that part of the world, an event known as an El Niño.

When the winds blow particularly strongly, more warm water than usual accumulates in the western Pacific, causing more rainfall there, and more cold water comes up from the depths off the coast of South America. This is known as La Niña—a condition that the world has been in for almost all the past two years.

La Niñas bring with them certain statistically predictable effects, including droughts in Chile, the Middle East and the horn of Africa, and higher rates of rainfall in west Africa and South Asia (see chart on next page). Though the interconnectedness of the global climate means that some effects will inevitably be felt farther afield, the strength of the causal chain fades with distance from the tropics. The fluctuations are big enough, though, to affect average global temperatures. Because they keep heat in the ocean from getting into the atmosphere, La Niñas tend to make the world cooler than it would otherwise be.

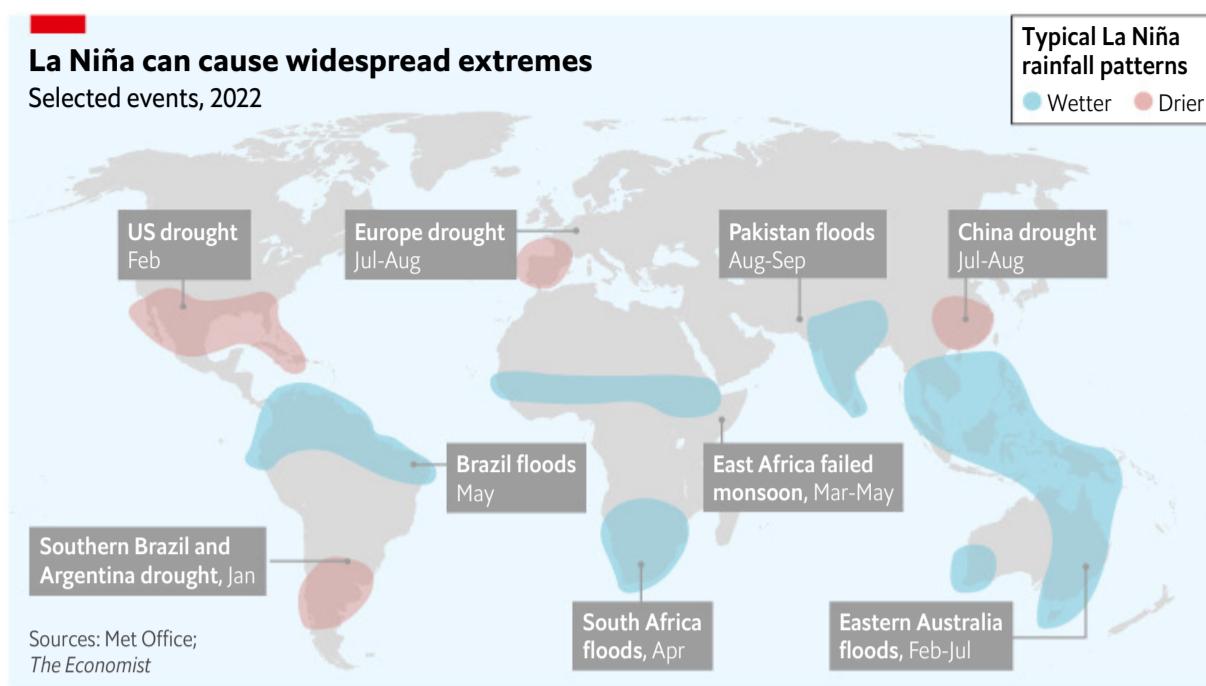
What is happening in Pakistan is likely to be a catastrophic concatenation of multiple factors. A hotter planet means there is more moisture in the air (an additional 7% for every extra degree Celsius), leading to more extreme rainfall and greater risks of flooding. This means La Niña-induced rainfall can be unusually deadly. Global ↗

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warming also has an indirect effect, as high temperatures experienced in the Himalayas earlier this year accelerated the melting of glaciers and overloaded rivers. It is also possible that air pollution in the area, which complicates air-circulation patterns, may have a role to play as well. The World Weather Attribution Project, a global network of climate modellers, began work recently to disentangle the various factors involved in Pakistan, with an assessment expected within the next few weeks.

La Niña itself may start to look different in a warming world, however. Though ENSO does not operate in isolation from climatic warming, the exact relationship between the two continues to perplex modellers. This year, for example, will be the third in a row with a La Niña, the first time this century such a “triple dip” has been recorded. Ordinarily, ENSO operates on a three- to seven-year cycle, with strong El Niños tending to be followed by a balancing La Niña. Not only is this year’s triple dip unexplained, says Mat Collins at the University of Exeter, it is not consistent with what climate models suggest will happen with climate change.

Climate models, however, are in greater agreement that the regions affected by La Niña will tend to expand over time. Angola, for example, which lies beyond the boundary of Africa’s traditional La Niña flooding zone, has this year experienced high rainfall during the La Niña season.

La Niña years are also getting warmer. This March, the authorities responsible for the Great Barrier Reef in Australia announced that the coral reef had experienced a mass bleaching event in which corals expel their symbiotic algae as a reaction to rising temperatures. Only the sixth such event of modern times, it was also the first to take place in a La Niña year.

This year’s La Niña may well be representative of those to come, with its higher temperatures, increased flooding and severe droughts. A pressing concern is the

impact this will have on a world where resources are already sapped by a rapid succession of disasters. “We’re already not coping and it’s only getting worse,” says Maarten van Aalst, director of the climate centre for the International Red Cross and Red Crescent.

Equally fraught are questions of responsibility. Whether or not specific disasters were made more likely to occur by ENSO, climate change is doubtless playing a role in increasing their severity. This implicates richer countries most responsible for historic pollution, which have thus far largely been spared the worst consequences of their emissions.

This year’s extreme-weather events, therefore, set a particularly dramatic backdrop for the upcoming COP27 meeting in Egypt, which will be held in November, with its long-awaited discussions on who bears the blame and, more important, who will foot the resulting bill. ■

### Vaccinology

## Parasites prevented

### A new malaria jab shows promise

MOST DISEASES that used to kill children in large numbers have succumbed to vaccines. Malaria is an exception. In 2020 it killed 640,000 people, mostly African children under five years old. Scientists have not ignored the scourge: the first candidate vaccine trial took place in the 1940s; more than a hundred jabs have been in development since.

But the malaria parasite, spread by mosquito bites, is more complicated than viruses. The first successful vaccine was RTS,S developed by GlaxoSmithKline (GSK).

It was approved by the World Health Organisation in 2021 but only prevents 44% of malaria episodes in young children. The results from a new vaccine, reported in *The Lancet Infectious Diseases*, suggest improvements are on the way. The new jab, called R21, was developed at Oxford University. It is paired with an adjuvant (a substance that boosts the immune response to a vaccine) called Matrix-M, which was developed by Novavax, an American biotech firm, for its covid-19 jab. The latest results are from a trial in Burkina Faso, where almost half of people get malaria each year. The trial enrolled 450 children aged 5-17 months. One group received the vaccine with a lower dose of the adjuvant; a second got the vaccine with a higher dose of the adjuvant; and a third, which served as a control group, received the rabies vaccine. All children were given a primary course of three jabs spaced four weeks apart and a booster jab 12 months later. They were followed for a year to see how many fell ill with malaria.

The efficacy of the higher-adjuvant jab was 80% in the follow-up year; for the lower-adjuvant jab it was 71%. A booster extended the efficacy of the primary three-dose regimen from 12 to 24 months. The booster seems important because antibodies resulting from the primary course wane—something seen with other malaria jabs too. And higher levels of antibodies were found to be correlated with protection against malaria. The booster restored antibodies to the level they reached 28 days after the primary three-course regimen. Whether further jabs will be needed to maintain immunity is being investigated.

Comparing R21’s efficacy with that of GSK’s jab is not simple. The R21 trial took place in an area where malaria is seasonal and all children got their shots just before the malaria season began. The GSK trial was done in several countries in Africa, some with year-round malaria transmission. In such places vaccinated children can be bitten by malaria-carrying mosquitoes before they develop antibodies or when antibodies have started waning. That would seem to make the jab less effective. How much better the Oxford jab really might be should soon become clear, when results from a larger trial are expected.

Where R21 has a clear advantage, however, is in its availability. The Serum Institute of India, which has teamed up with Oxford University, can make up to 200m doses per year, compared with 18m doses coming from GSK in the next three years. R21 should also be cheaper, in part because it uses less of one of the key ingredients, a hepatitis B “carrier” protein. If the final trial of the new vaccine goes well, it may be deployed as soon as 2023. And malaria’s days as a mass child-killer could at last come to an end. ■

**Ancient surgery**

# One foot in the grave

**Humans were performing amputations earlier than thought**

THE EASTERN side of the island of Borneo—or Kalimantan, as it is known by the locals—is otherworldly. The island, which is bisected by the equator, is blanketed by tropical rainforest. The rock underfoot is limestone, the remains of prehistoric coral reefs heaved up from the ocean floor. Over millions of years, rivulets have carved into the stone, creating networks of caves, treacherous sinkholes, and imposing towers of rock called “karsts”.

The landscape could be straight out of an “Indiana Jones” film, which is appropriate, because the region is a hotspot for archaeologists. In a paper published this week in *Nature*, a team from Griffith University in Australia have announced perhaps the biggest archaeological find from the island yet. In Liang Tebo, a cave on the Sangkulirang–Mangkalihat Peninsula of eastern Borneo, scientists have excavated the oldest grave ever found in South-East Asia. The 31,000-year-old skeleton they found was missing its left foot and part of the left leg, showing compelling signs of surgical amputation. If correct, that means surgical procedures were being carried out some 24,000 years earlier in the archaeological record than previously thought.

“If you’re looking north from the main chamber of Liang Tebo, you’re surrounded by the cave,” says India Ella Dilkes-Hall, lead excavator on the dig. “Behind you is a higher second chamber, to your left is a higher third chamber, and then directly north, you are looking straight out at tropical rainforest.”

In early 2020, Dr Dilkes-Hall and colleagues excavated a small trench in the floor of the cathedral-sized main chamber, where they found the bones of a 20-year-old man, carefully buried with a small piece of red ochre next to his face. That is significant, because Borneo is home to some of the earliest known rock art. One of the oldest known examples of figurative art, a 40,000-year-old painting of a banteng (a type of wild cattle), is located in Lubang Jeriji Saleh cave, a short trek away.

But as startling as what was found is what was missing: the man’s left leg and foot, from the last third of his shin down. “The recovered parts of the left tibia and fibula present with a very unusual bony growth which closely matches clinical instances of deliberate amputation,” says Timothy Maloney, a lead author of the latest study. The surface of the bone suggests

that the young man underwent amputation as a child and survived for six to nine years after the fact, recovering well and apparently thriving as an amputee. To pull off such a sophisticated medical procedure would have required detailed knowledge of human anatomy and the ability to negotiate exposed tissue, veins, arteries and nerves, never mind the risk of infections.

“There is a strong case to be made that these communities had an understanding of antiseptic and antimicrobial management, potentially taking advantage of the impressive plant biodiversity of the region,” says Dr Maloney. The find overturns existing assumptions that sophisticated medical knowledge only took off in Europe around 7,000 years ago. Indeed, it suggests that humans may have been performing sophisticated medical procedures in South-East Asia while humanity’s close cousins, the Neanderthals, still roamed southern Europe. ■

**Microscopy**

## Zooming in

**Making the invisible visible**

IN 1665 ROBERT HOOKE, a British polymath, published “Micrographia”, a book in which he described using what was then still a relatively new instrument—the microscope—to investigate the tiniest structures of everything from rocks to insects. Zooming in on a slice of cork, he saw a honeycomb-like structure and coined the term “cell” to describe the tiny pores he saw.

Microscopes have come a long way since the 17th century and have helped scientists see smaller things in ever more detail. But they still have their limits—mod-

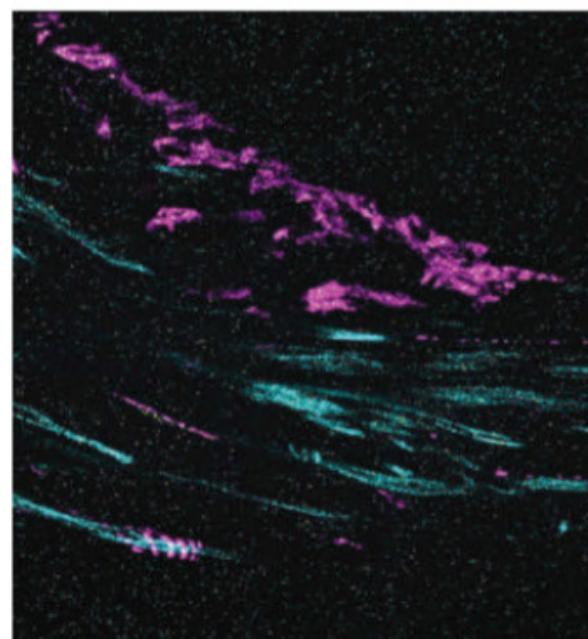
ern optical microscopes cannot image structures smaller in size than the wavelength of visible light, or a few hundred nanometres. Because light spreads out as it moves through small gaps, detail below a certain scale gets fuzzy.

In 2015 Edward Boyden, a neuroscientist at the Massachusetts Institute of Technology (MIT), found a way past the physical limitations of the microscope by flipping the imaging problem on its head. Rather than inventing a better microscope, he found a way to make the object itself bigger. His technique, known as “expansion microscopy”, works by physically magnifying tissue. First, proteins of interest are tagged with fluorescent markers. An expandable gel is then inserted into the tissue and enzymes are poured in to chew up the rigid structural components of the cells. The gel expands, bringing the fluorescent markers along with it. This magnifies the initial protein structure by around four-and-a-half times, while preserving its proportions. An optical microscope, with a typical resolution of about 250 nanometres, can then produce images of individual elements within cells that are, in reality, only 60 nanometres in width.

Many proteins, however, have nooks and crannies that are too narrow for the fluorescent tags to squeeze into. Even with expansion microscopy, structures like Alzheimer’s disease-related amyloid-beta plaques look like blurry blobs. To this problem Dr Boyden has devised a new solution: adding the fluorescent markers after expansion of the sample, rather than before. And instead of using enzymes, his new method uses heat. This has enabled him to widen the nooks and crannies up to 20-fold, while still keeping the proteins intact. The new technique was described recently in *Nature Biomedical Engineering*.

Dr Boyden calls this method “expansion-revealing microscopy”. Since the method can be applied iteratively, he reckons it will eventually be able to create a 100-fold magnification of protein structures. Already his team at MIT has used it to reveal detail in synapses, the nanometre-sized junctions between nerve cells, and also to shed light on the mechanisms at play in Alzheimer’s disease, revealing occasional spirals of amyloid-beta protein around axons (pictured, in pink), which are the threadlike parts of nerve cells that carry electrical impulses. The team plans to study crowded protein structures linked to Parkinson’s disease and molecules implicated in the ageing process in the brain.

Hooke’s “Micrographia” contained dozens of drawings of insects and plants. It was a bestseller and, by popularising microscopes, accelerated scientific progress. Three centuries on, expansion-revealing microscopy continues the quest to peer deeper into the world of the very small. ■



A whole new world



### Progress and its discontents

## Can't buy me love

An economic history of the 20th century is a tale of stunning material progress—and of its limits

**Slouching Towards Utopia.** By J. Bradford DeLong. Basic Books; 624 pages; \$35 and £30

BETWEEN THE hot war in Europe and a brewing cold one between America and China, today's world has a very 20th-century feel. Amid these echoes, historians and international-relations buffs have been reappraising the failure of liberal democracy to consolidate its victories over rival political systems. In his new book, Bradford DeLong of the University of California, Berkeley, places the successes and failures of the 20th century in their economic context. In doing so, he provides insights into how things have gone wrong in more recent years—and what must go right if catastrophe is to be avoided in the current century.

"Slouching Towards Utopia" is an impressive achievement, written with wit and style and a formidable command of detail. Ambitiously, Mr DeLong seeks to redraw the temporal map. Many historians—among them the late British scholar Eric Hobsbawm—have preferred to chop mod-

ern history into a long 19th century, stretching from the French revolution to the crisis of 1914, and a short 20th, ending with the fall of communism. Mr DeLong, by contrast, argues that the period from 1870 to 2010 is best seen as a coherent whole: the first era, he argues, in which historical developments were overwhelmingly driven by economic ones.

At its outset, despite the Industrial Revolution, even the most prosperous parts of Europe and North America still had one foot firmly planted in a Malthusian world—in which, for millennia, technological improvements never yielded enough new production to outrun population growth. Incomes had stuck close to subsistence levels. Yet from around 1870, growth found a new gear, and incomes in leading economies rose to unprecedented levels, then kept climbing.

The step-change in growth stemmed from technological advances, specifically three meta-innovations that drove rapid and sustained progress: the modern corporation, the research laboratory and globalisation. Thanks to these, a widening part of

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humankind hurtled towards "economic El Dorado", a land of plenty that prior generations could scarcely have imagined.

Mr DeLong—an economist after all—helpfully quantifies the dramatic change in economic fortunes. For roughly 10,000 years before 1500, humankind's productive potential (meaning the stock of useful knowledge, roughly corresponding to real output) doubled about once every three millennia. Over the following 370 years, that productive power doubled again. Thereafter, it rose at a pace of just over 2% per year, which equates to a roughly 20-fold rise in productive power over 140 years. It was economic magic, which allowed living standards to rocket even as the global population swelled to 7bn.

Had the denizens of the 19th century known how fantastically wealthy their descendants would become, many would have supposed those heirs lived amid peace and contentment. Yet building harmonious societies out of material abundance has proved maddeningly difficult.

Mr DeLong frames this history as a duel between the insights of Friedrich von Hayek, an Austrian economist who extolled the power of the free market, and Karl Polanyi, a Hungarian thinker who warned that the market was there to serve man, not man the market. In the years before the first world war, markets generated rapid growth—but also soaring inequality and jarring disruption. People pushed back, demanding greater political rights, which they used to pursue regulation of

► the economy and social insurance. After the war, both the Polanyian and Hayekian impulses contributed to disasters: in the totalitarian socialism of the Soviet Union on the one hand, and, on the other, in the Depression, which persisted and deepened until politicians eventually abandoned laissez-faire orthodoxy.

In the aftermath of the second world war, though, the mix of a market economy and a generous safety-net made for a happy marriage of Hayek and Polanyi—"blessed by Keynes" (as Mr DeLong puts it), who provided the insight that governments should act to prevent recessions. The union bore fruit, in the form of a three-decade post-war run of torrid growth never matched before or since. And yet the last third of Mr DeLong's long 20th century was coloured by disappointments.

When growth sagged and inflation rose in the 1970s, voters supported politicians promising market-friendly, or "neoliberal", reforms, such as lower taxes and reduced regulation. (During a stint in Bill Clinton's Treasury department, Mr DeLong was himself a steward of such policies.) Those reforms failed to keep growth high and led to worse inequality—yet rich countries pressed on with them, the author writes, up to the global financial crisis and the end of the long 20th century.

#### The values gap

Could things have gone better? In Mr DeLong's version of history, key events are often the product of chance rather than structural forces. He reckons, for instance, that had victory in the Falklands war and the collapse of communism not seemed to validate the records of Margaret Thatcher and Ronald Reagan, voters might have been quicker to see the limitations of their economic outlook. But that analysis underestimates how deeply neoliberal ideas took root across both the left and the right, at least in the Anglosphere. Barack Obama was no Reagan nostalgist; his unwillingness to respond to the financial crisis in a more interventionist way seems to have been grounded in a genuine belief that doing so would have made things worse.

Indeed, if this book has a weakness, it is its occasional reluctance to give credit to people's beliefs, rather than narrow economic concerns, as a driving force of history. Mr DeLong cites Max Weber's dictum that though "material interests may drive the trains down the tracks...ideas are the switchmen." The start of the 21st century suggests that faiths and myths and values are even more consequential than that.

"Slouching Towards Utopia" shows how economic growth can transform the world. It also demonstrates that material prosperity alone cannot transport people to the promised land. The future may well be shaped by fights about what can. ■

#### Television in Brazil

## Frame the swamp

AQUIDAUANA

#### A vintage Brazilian telenovela is updated for a different age

**W**HEN BENEDITO RUY BARBOSA first pitched "Pantanal", a *telenovela* about rugged ranchers and landless peasants, to TV Globo, Brazil's biggest television network, it was rejected. So Mr Barbosa took his idea elsewhere. For months his crew relocated to the region that gave the show its name, which is home to the world's largest tropical wetland. They flew over flood-plains in small aircraft to reach their locations. They filmed their actors silhouetted against sunsets.

The resulting drama, first aired in 1990, captivated audiences. At a time of hyperinflation, high crime and unemployment, the landscape of "Pantanal" seemed like paradise. Now, three decades on, paradise is being remade, this time by TV Globo.

These days streaming services threaten the network's hegemony, especially among middle-class and younger Brazilians. Instead of Mr Barbosa, now in his 90s, his millennial grandson, Bruno Luperi, is in charge. The generational reset has paid off. Since the new "Pantanal" had its premiere in March, hordes of youngsters have followed it on TV and online. Parents and grandparents who remember the original are also tuning back in. At its peak the show has been watched by over a third of Brazilians, or 77m people. Even some supporters of the right-wing president, Jair Bolsonaro—who tend to think TV Globo is biased against him—have succumbed.

Adapting his grandfather's work was daunting, says Mr Luperi. He has succeeded in large part by honouring the original. Revolving around three generations of the Leôncio family, the plot is a faithful retelling of their loves and losses. The cast and budget are bigger, but the locations—mostly in the municipality of Aiquidauana—are often the same. (The actual Pantanal region stretches across more than 42m acres, from south-western Brazil into Bolivia and Paraguay.) Many scenes are again filmed at sundown, when the Pantanal's waters sparkle and cattle stir up glistening dust.

Though set in the present, the new "Pantanal" looks back to bygone habits and draws on regional folklore. Characters dance the Paraguayan polka, wear straw hats woven from *carandá*, a tropical palm, and drink *tereré*, a kind of *mate* tea. These customs barely survive in the Pantanal, notes Guilherme Rondon, a musician from a local family who has been involved in both versions of the show. The programme, he thinks, is helping preserve the region's traditions. It is also attracting tourists.

But in other ways, says Mr Luperi, the "era has changed", on-screen and off it. Over three decades deforestation in the Amazon has disturbed rainfall and flood patterns in the Pantanal. On the single-lane highways that cut through the vast cattle ranches, signs still warn drivers about armadillos and anteaters crossing ►



A ride down memory lane

► the road. But sightings of them are rarer. Charred palm trees recall the fires that in 2020 blazed through roughly a quarter of the region, killing 17m vertebrates by some estimates. In the Pantanal's southern reaches, a visitor's best chance of spotting the jaguar, its most legendary creature, is now in the rice fields, not on the plains.

The *telenovela* writer should illuminate these changes, Mr Luperi thinks. Man's relationship with nature is at the core of the show, he explains. Characters monitor crops and the silt building up in rivers. The show's new generation of ranchers press their elders to farm their land in a more sustainable way. In 1990 *Velho do Rio* (Old Man of the River), a magically shape-shifting character, was one of the first figures in a Brazilian soap opera to defend the environment. This time around he comports himself like an activist. In one scene, to punish a forest arsonist, he is transformed into an anaconda and tries to drag the offender into the flames.

Other kinds of behaviour have been updated too. The protagonist of both versions is Jove Leôncio—a young man who in his Generation X incarnation enjoyed a barbecue, but as a Gen Z'er has turned vegetarian, observes Taís Ilhéu, a journalist and *telenovela* fan. The Jove of the 1990s would occasionally make homophobic jokes; now he chastises his father's.

Meanwhile, viewers who (surveys suggest) themselves have less sex than their forebears are also offered fewer racy scenes on ranches and in rivers. The sexualities depicted in the story are more diverse. And other tensions and scenarios are interpreted differently. Maria Bruaca, a down-trodden-housewife character, was often mocked by audiences of yore. Portrayed and viewed more sympathetically, she has become a fan favourite.

Not everyone is enamoured of the remake. The pace of the series is quicker, and some scenes seem designed to be clipped for the internet, says Luiz Joaquim, a cultural critic who prefers the original. Other sequences are vehicles for (doubtless lucrative) product placement: in a recent episode, a character extols at length the virtues of her favourite washing detergent. In Portugal, where it has aired since May, the new "Pantanal" has flopped.

TV Globo does not seem too bothered. Amauri Soares, the network's director, says its stories cater to contemporary Brazil and won't always appeal overseas (though "Pantanal" will soon be broadcast across Latin America). That domestic audience is rapt. As Veneza Ronsini of the Federal University of Santa Maria says—paraphrasing Jesús Martín-Barbero, a distinguished anthropologist—Brazil has an urban face but a "peasant heart". And as the lyrics of the *telenovela*'s theme-tune insist, the "heart of Brazil" lies in the Pantanal. ■

## British fiction

# A life's work

**Lessons.** By Ian McEwan. Knopf; 448 pages; \$30. Jonathan Cape; £20

**I**N RECENT YEARS Ian McEwan's fiction has been playful and inventive. "Nutshell" (published in 2016) was an audacious restyling of "Hamlet" that featured as its narrator a garrulous, erudite unborn child. "Machines Like Me" (2019) explored the brave new world of artificial intelligence within a counterfactual past. And the novella "The Cockroach" (2019), written as a response to Brexit, repurposed Kafka's "The Metamorphosis" to satirise the state of a divided nation.

Mr McEwan's latest novel returns to more traditional fictional territory. This is not to say that "Lessons" is devoid of big ideas and artistic risks. Indeed, in some respects it may be the author's most ambitious work to date. Well over 400 pages long, and tracking the course of a single life, it is a dense yet deeply absorbing book.

One day in 1986 Roland Baines has an "insomniac memory" of a formative experience at boarding school: during a piano lesson, his teacher, Miriam, kissed him on the lips. Back in the present, Roland's waking thoughts continue to be dominated by the reckless act of another woman—his wife, Alissa—and the needs of his infant son. A week earlier Alissa vanished, leaving him holding the baby, fielding a detective's questions and harbouring "the untidy unwashed feeling of being a suspect".

From here, the novel charts Roland's progress through the years. Some sections are devoted to his past, in particular his sentimental education from Miriam and his subsequent failure at school. Unlike his absent wife, who achieves international renown as a novelist, much of Roland's adult life consists of missed opportunities and squandered potential. Instead of making a career as a poet or a concert pianist, he ekes out a living writing "wised-up doggerel" for greetings cards and playing the piano in lounge bars.

Nevertheless, he finds comfort and stimulation in books, music, family, friends and a late-flowering love affair. At one point he believes he has grasped the way to steer his life smoothly: "Make a choice, act! That's the lesson." Fate, though, may not be finished with him yet.

Mr McEwan's account of his protagonist's long, "shapeless existence" could have made for a rambling, directionless novel. In places it feels episodic, reading



Son, can you play me a memory?

like a catalogue of births, deaths, marriages, relationships and reunions (or "reckonings"). Yet Roland emerges as a vivid and sympathetic creation. He feels all the more real when Mr McEwan shows how his life is affected by global upheavals, from the Cuban missile crisis to the fall of the Berlin Wall and the spread of covid-19.

"How easy it was to drift through an unchosen life, in a succession of reactions to events," writes Mr McEwan. Roland's journey is not easy, but the dramatic evocation of his struggles and setbacks means readers will follow him every step of the way. ■

## Writers' lives

# The lady vanishes

**Agatha Christie: An Elusive Woman.** By Lucy Worsley. Pegasus Crime; 432 pages; \$29.95. Published in Britain as "Agatha Christie: A Very Elusive Woman"; Hodder & Stoughton; £25

**O**N FRIDAY DECEMBER 3rd 1926 Agatha Christie left her husband and young daughter and went missing for 11 days. Using detective work befitting one of Christie's novels, Lucy Worsley puts this mysterious disappearance at the heart of her colourful new biography, piecing together what really happened that winter.

According to Christie's own account of those 11 days, she lost her memory after crashing her car in a half-hearted suicide attempt. But her comments on the matter were misreported by the press, inflicting

lasting damage on her reputation. Dismisive of her testimony as a female writer, the papers preferred the more salacious story that she had framed her adulterous husband for murder.

Ms Worsley's version of events hews closer to Christie's and is far more convincing. The novelist was seriously ill from a combination of depression and "dissociative fugue" (or stress-induced amnesia). The pain of her mother's death, her husband's infidelity and the possible loss of the family home did indeed culminate in a suicide bid, followed by a stay at a hotel in Harrogate, Yorkshire, under a false identity. Ms Worsley calls the press's treatment of Christie at this time "the great injustice" of her life.

A more impenetrable mystery is why, when she died in 1976, her estate was worth only £100,000 (in today's money, £550,000 or \$630,000). Ms Worsley describes the drain on Christie's finances of tax bills and the upkeep of assorted properties, but is at a loss to explain how the world's bestselling author was consistently strapped for cash. She is on firmer ground in her poignant portrait of the complex relationship between Christie and her daughter, Rosalind, who was shipped off to boarding school and "internalised the fact that she was less impressive, less important, than her mother".

Family life was eccentric. Christie, a teetotaller, quaffed glasses of cream in lieu of champagne and hosted generous parties at Greenway, a house in Devon that she crammed with art and silverware. She developed an impressive ability to churn out detective fiction without her guests ever seeming to witness it. Rosalind had to compete hard for her mother's attention, yet was among the few people who could reassure her that she was a bona fide novelist. As Ms Worsley notes, Christie suffered from a lifelong case of impostor syndrome: even in her 80s she remarked that she didn't truly feel like an author, preferring to present herself as a regular housewife.

But as this book ably demonstrates, the little girl born into a conventional Victorian household turned out to be anything but ordinary. She loved travelling (and went surfing in South Africa "in a pearl necklace"), had a weakness for fast cars and embraced psychology during periods of mental illness. She became a writer at a time when women of her background were expected to marry rather than work. This book concludes that she "redefined the rules for her social class and gender".

Ms Worsley herself writes engagingly, with a smattering of racy phrases (Archie Christie, that adulterous first husband, is said to have been "incredibly hot"). She combines an almost militant support for her subject with a considered analysis of her books and plays—making the case that,



**A life of crime**

in her themes and formal innovation, Christie was much more than a writer of formulaic potboilers.

In the end, though, why the "queen of crime" was so self-effacing is never quite clear. Much about this "elusive genius" appears destined to remain secret. She seems to have preferred it that way. ■

#### Military strategy

## The general in his labyrinth

**Command.** By Lawrence Freedman. Oxford University Press; 624 pages; \$34.95. Allen Lane; £30

CARL VON CLAUSEWITZ, the Prussian general and theorist of war, is much-quoted and little understood. His most famous dictum—"war is the continuation of politics with other means"—actually suggests two ideas. One is that war must always be aimed at specific political ends. It is not spasmodic violence. The other is that politics does not stop when the shooting starts. Deterrence and diplomacy co-exist with combat. "Command" shows why generals must heed both those lessons—and what happens when they do not.

Sir Lawrence Freedman, Britain's most distinguished scholar of war, surveys 15 different battles and campaigns. He begins with the paradigmatic case of disagreement between a general and his master: that between Harry Truman, America's president, and Douglas MacArthur, his top commander, over strategy in the Korean

war. "The case for limited war in the nuclear age had been made", writes Sir Lawrence, "but in the military had not yet been accepted." MacArthur, a chronic insubordinate, chafed at the constraints imposed by the White House. He agitated for the use of battlefield nuclear weapons and publicly criticised American foreign policy.

What is noteworthy is not that he was sacked, but that it was not easy to sack him. MacArthur was a "revered figure, beyond criticism" and a potential political rival to Truman. Yet he was, in the end, a bad commander who made poor decisions and lost the confidence of his officers and troops. It is trickier when a general is both insubordinate and brilliant.

One of the book's most compelling chapters examines Ariel "Arik" Sharon, the Israeli commander who became prime minister. Sharon habitually ignored or defied his superiors if he spotted military opportunities. During the Yom Kippur war of 1973, he flouted orders by charging towards the Suez canal, later refusing to withdraw from the other side of the waterway.

He was indulged in part because of his sense of daring and initiative. "Arik is conducting his own private war," complained his superior officer. "Better a noble steed that you have to restrain than a lazy ox you have to beat," retorted Moshe Dayan, the defence minister. In a later war in Lebanon, Sharon, by then minister of defence himself, described his philosophy: "In the morning I fight the terrorists, and in the evening I go back to Jerusalem to fight in cabinet." Sharon's contempt for procedure is one reason the war went so badly.

In Israel, where military service is mandatory and generals routinely become politicians, the line between civilian and military leadership has often blurred. In dictatorships, the distinction frequently collapses entirely. Despot-commanders are unaccountable and often incompetent. General Yahya Khan, Pakistan's military dictator, was drunk or fornicating during key moments in a war with India in 1971. It culminated in his country's dismemberment and the creation of Bangladesh.

Despots are also capricious and intolerant of bad news. Hitler sacked 11 of his 18 field-marshals and 21 of 37 colonel-generals, often micromanaging battles from his headquarters. Saddam Hussein executed 300 high-ranking officers in the summer of 1982, during an ill-conceived war with Iran. Vladimir Putin, Russia's president, is thought to have sacked six generals in the first six months of his war in Ukraine. In May Western officials said that Mr Putin was taking decisions that would usually be made by a colonel or brigadier.

The result is often pathological decision-making. "Once it was required that all decisions had to be checked with him", writes Sir Lawrence of Saddam, "the sys-

tem became drained of all initiative." Field commanders often find it easier to conceal setbacks than own up to them. Talking to Mr Putin early in the current war, European leaders described the heavy casualties Russia was taking because they doubted his own spooks had told him. (Though largely completed before the war began, the book contains an excellent account of how the conflict evolved between 2014 and 2022.)

Yet command presents serious challenges even in the most high-functioning democracies. Truman's frustration with MacArthur was echoed 60 years later in

Barack Obama's concern that his generals were trying to force him to escalate the war in Afghanistan. And because almost all Western wars are now fought by coalitions, chains of command are tangled. War may be the continuation of politics—but whose politics? Sir Lawrence recounts how, during NATO's war with Serbia in 1999, Major-General Sir Mike Jackson, commander of British forces on the ground, refused an order from his American boss, General Wesley Clark, the alliance's top officer, to seize Pristina airport from the Russians: "Sir, I'm not starting world war three for you."

Such tussles between layers of command are often the most bitter and consequential relationships in war. During the Cuban missile crisis, Soviet admirals put their submarines in a "terrible predicament", notes Sir Lawrence, by insisting they loiter in the Sargasso Sea while staying undetected. It was an impossible demand: the admirals did not grasp that the boats had to surface to recharge batteries and communicate. The lesson is that good command looks both ways, sensitive to the politics raging above while remaining in touch with the war being fought below. ■

## Johnson Comprise and compromise

*Confusingly, some words have two opposite meanings. Why?*

FANS OF ANCIENT history may have thrilled to the news in the *New York Times* that a mystery was solved: "A Long-Lost Branch of the Nile Helped in Building Egypt's Pyramids." A new study, the subheading said, "confirms a long-held theory that builders used the river to transport the heavy blocks that comprise the ancient wonders." But usage grumps may have scowled. Indeed, the line was soon changed: in the revised version, the wise old theory was "that builders used the river to transport the heavy blocks that make up the ancient wonders."

The traditional rule is that "the whole comprises the parts, and the parts compose the whole". The pyramid comprises the blocks, not the other way round; by the same reasoning, "comprised of" is wrong too. But if you do not know this rule, you are hardly alone. It was a favourite of Theodore Bernstein, a long-time copy guru at the *Times*, who repeated it in usage books of 1958, 1965 and 1977. After all that, it does not seem to have stuck with the paper's editors, nor with many other competent writers.

A word should not, in a perfect world, mean the opposite of itself; if galaxies comprise stars, surely stars cannot comprise galaxies. But in fact there are lots of words that are their own opposites, so many that they have not just one but several names: contronyms, auto-antonyms or, most poetically, "Janus words", named for the two-faced Roman god who looks in opposite directions (and so gave his name to January, which faces back into the old year and forward to the new).

"Sanction", for example, can mean both "to approve of" and "to lay a penalty upon". "Fast" can mean speedy or stuck in place. "Cleave" can mean to split, or to cling tightly. "Fulsome" praise can be full-throated and genuine, or cloyingly

insincere. One class of Janus words is particularly troublesome: those that mean different things on opposite sides of the Atlantic. "Moot", for instance, means "that which can be argued; debatable" in Britain; it means "not worthy of discussion" in America.

Some of these oddities arise from mere coincidence. The two senses of "cleave" are actually different words that happen to be written the same way in modern English. (That is why the "cutting" version has the past participle "cleft", while the other does not.)

But others are the result of drift. Look up almost any common word in a historical tome such as the Oxford English Dictionary, and the oldest meaning will often be surprisingly far from the current one. ("Silly", for example, is a distant cousin of "soul", and once meant something like "holy".) The Janus words arise when a new meaning branches off, while the old one survives. So the oldest version of "fast" means "fixed in place", but at its branching moment, it came to be an adverb meaning to do something with a kind of intensity. It

is probably from that "intensity" sense that the "moving intensely"—that is, quickly—came about.

That process of gradual change (while the old meaning endured) is also what happened to "fulsome" and "moot". The oldest meaning of "fulsome" was merely "abundant, plentiful", but this connotation underwent a process that linguists call "pejoration": the literal meaning stays roughly the same, but the sense of "in a bad way" is added. By 1602 Ben Jonson was using "fulsome" in the sense of cloying or overdone. And in the 19th century Americans began using "moot" to mean not just debatable, but debatable only theoretically, and so of no point.

Finally, some Janus words come about through simple confusion. "Inflammable" has been used to mean both "able to be set on fire" and "unable to be set on fire". That first meaning is the older one, sharing a root with "inflame". But *in-* is also a common negating prefix, leading to the second interpretation. And so it is with "comprise", which may have arisen in its more recent sense (the parts comprising the whole) through confusion with its cousin, "compose".

It is tempting to think that such self-contained opposites cannot and should not survive. But the deprecated "the whole is *comprised of* the parts" usage has been around since the 16th century. One Wikipedia editor has removed it from articles tens of thousands of times. That, though, was because others (themselves, presumably, knowledgeable volunteer editors) had written it tens of thousands of times in the first place. Whether all this is really a tolerable state of affairs may be moot in the British sense of the word. But "comprised of", at least, seems to be here to stay, making it moot in the American one.



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## Economic data

	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago latest	quarter*	2022†	% change on year ago latest	2022†	%		% of GDP, 2022†		% of GDP, 2022†		10-yr gov't bonds latest,%	change on year ago, bp	per \$ Sep 7th	% change on year ago
United States	1.7	Q2	-0.6	1.5	8.5 Jul	7.9	3.7 Aug	-3.7	-3.9	3.3	189	-	-	6.97	-7.3
China	0.4	Q2	-10.0	3.6	2.7 Jul	2.4	5.4 Jul‡§	2.2	-6.2	2.4 §§	-29.0	6.97	-	144	-23.7
Japan	1.6	Q2	3.5	1.8	2.6 Jul	2.1	2.6 Jul	1.7	-6.1	nil	-8.0	144	-	1.01	-16.1
Britain	2.9	Q2	-0.3	3.6	10.1 Jul	8.7	3.8 May††	-3.1	-5.0	3.1	237	0.87	-	1.32	-4.5
Canada	4.6	Q2	3.3	3.6	7.6 Jul	7.0	4.9 Jul	1.2	-3.5	3.1	191	1.32	-	1.01	-16.8
Euro area	4.1	Q2	3.1	2.8	9.1 Aug	8.1	6.6 Jul	1.4	-4.4	1.6	189	1.01	-	1.01	-16.8
Austria	6.0	Q2	11.5	3.7	9.0 Aug	8.9	4.6 Jul	-0.9	-4.7	2.2	228	1.01	-	1.01	-16.8
Belgium	3.3	Q2	0.8	2.2	9.9 Aug	9.3	5.9 Jul	-1.0	-4.8	2.2	224	1.01	-	1.01	-16.8
France	4.2	Q2	2.2	2.4	5.8 Aug	6.2	7.5 Jul	-1.9	-6.1	2.2	221	1.01	-	1.01	-16.8
Germany	1.7	Q2	0.6	1.0	7.9 Aug	8.3	2.9 Jul	3.5	-3.2	1.6	189	1.01	-	1.01	-16.8
Greece	7.8	Q2	5.0	4.0	11.6 Jul	9.0	11.4 Jul	-5.8	-5.0	4.2	327	1.01	-	1.01	-16.8
Italy	4.7	Q2	4.6	3.0	8.4 Aug	7.2	7.9 Jul	0.3	-6.1	3.8	307	1.01	-	1.01	-16.8
Netherlands	5.3	Q2	10.9	2.6	12.0 Aug	10.8	3.6 Jul	7.4	-3.2	1.9	208	1.01	-	1.01	-16.8
Spain	6.3	Q2	4.6	4.7	10.4 Aug	9.2	12.6 Jul	0.5	-5.2	2.8	247	1.01	-	1.01	-16.8
Czech Republic	3.6	Q2	1.9	2.2	17.5 Jul	16.7	2.3 Jul‡	-3.6	-5.7	4.7	285	24.7	-	24.7	-13.4
Denmark	3.3	Q2	3.7	2.1	8.7 Jul	8.2	2.7 Jul	8.3	0.8	2.0	197	7.47	-	7.47	-15.9
Norway	3.9	Q2	2.9	3.2	6.8 Jul	4.8	3.2 Jun‡‡	16.4	8.7	1.4	76.0	10.1	-	10.1	-13.5
Poland	4.9	Q2	-8.1	3.2	16.1 Aug	14.7	4.9 Aug§	-3.0	-3.7	6.1	410	4.75	-	4.75	-19.8
Russia	-4.0	Q2	na	-7.5	15.1 Jul	18.0	3.9 Jul§	11.2	-3.8	9.0	186	61.0	-	61.0	20.3
Sweden	4.1	Q2	3.6	2.3	8.5 Jul	7.3	6.4 Jul§	3.0	-0.2	2.0	178	10.8	-	10.8	-20.3
Switzerland	2.8	Q2	1.0	2.4	3.5 Aug	2.9	2.2 Jul	6.2	nil	0.9	116	0.98	-	0.98	-6.1
Turkey	7.6	Q2	8.5	3.3	80.2 Aug	73.7	9.7 Jun§	-3.6	-3.8	11.1	-532	18.2	-	18.2	-54.2
Australia	3.6	Q2	3.6	3.2	6.1 Q2	6.0	3.4 Jul	1.9	-2.6	3.6	243	1.49	-	1.49	-9.4
Hong Kong	-1.3	Q2	4.1	0.7	1.9 Jul	2.9	4.3 Jul‡‡	1.4	-6.7	3.2	213	7.85	-	7.85	-1.0
India	13.5	Q2	-12.7	6.9	6.7 Jul	7.0	8.3 Aug	-1.5	-6.6	7.2	99.0	79.9	-	79.9	-8.1
Indonesia	5.4	Q2	na	5.1	4.7 Aug	4.9	5.8 Q1§	1.2	-3.8	7.2	109	14,918	-	14,918	-4.7
Malaysia	8.9	Q2	na	5.0	4.4 Jul	3.1	3.8 Jun§	2.2	-6.0	4.1	89.0	4.50	-	4.50	-7.6
Pakistan	6.2	2022**	na	6.2	27.3 Aug	18.5	6.3 2021	-5.0	-7.0	12.6 †††	288	223	-	223	-25.0
Philippines	7.4	Q2	-0.4	6.7	6.3 Aug	4.9	5.2 Q3§	-3.8	-7.7	6.7	245	57.1	-	57.1	-12.5
Singapore	4.4	Q2	-1.0	3.5	7.0 Jul	5.7	2.1 Q2	18.9	-1.0	3.2	173	1.41	-	1.41	-4.3
South Korea	3.0	Q2	3.0	2.7	5.7 Aug	5.5	2.9 Jul§	3.1	-2.5	3.7	177	1,384	-	1,384	-16.4
Taiwan	3.0	Q2	-7.0	2.9	2.7 Aug	3.3	3.7 Jul	14.0	-1.2	1.3	89.0	30.9	-	30.9	-10.7
Thailand	2.5	Q2	2.7	2.8	7.9 Aug	6.0	1.5 Dec§	-0.3	-5.0	2.8	127	36.7	-	36.7	-11.0
Argentina	6.0	Q1	3.5	4.3	71.0 Jul	70.2	7.0 Q1§	nil	-4.6	na	na	141	-	141	-30.4
Brazil	3.2	Q2	5.0	2.2	10.1 Jul	9.7	9.1 Jul‡‡	-0.7	-6.2	12.0	111	5.25	-	5.25	-1.5
Chile	5.4	Q2	nil	2.0	13.1 Jul	11.5	7.9 Jul‡‡	-7.1	-1.7	6.5	143	884	-	884	-12.0
Colombia	12.6	Q2	6.0	6.6	10.8 Aug	9.8	11.0 Jul§	-5.1	-4.7	12.3	530	4,452	-	4,452	-14.3
Mexico	2.0	Q2	3.7	2.4	8.2 Jul	7.6	3.2 Jul	-0.8	-3.2	9.1	205	20.0	-	20.0	-0.6
Peru	3.3	Q2	2.3	2.6	8.4 Aug	7.8	7.6 Jul§	-3.7	-2.1	8.0	166	3.90	-	3.90	5.4
Egypt	5.4	Q1	na	5.7	13.6 Jul	12.4	7.2 Q2§	-5.1	-6.4	na	na	19.3	-	19.3	-18.5
Israel	4.8	Q2	6.8	5.7	5.2 Jul	4.4	3.4 Jul	2.7	-0.5	3.0	200	3.43	-	3.43	-6.7
Saudi Arabia	3.2	2021	na	7.6	2.7 Jul	2.5	6.0 Q1	14.4	9.3	na	na	3.76	-	3.76	-0.3
South Africa	0.2	Q2	-2.9	1.9	8.1 Jul	6.4	33.9 Q2§	-1.2	-6.2	10.4	152	17.3	-	17.3	-17.5

Source: Haver Analytics. \*% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. \*\*Year ending June. ††Latest 3 months. #3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

## Markets

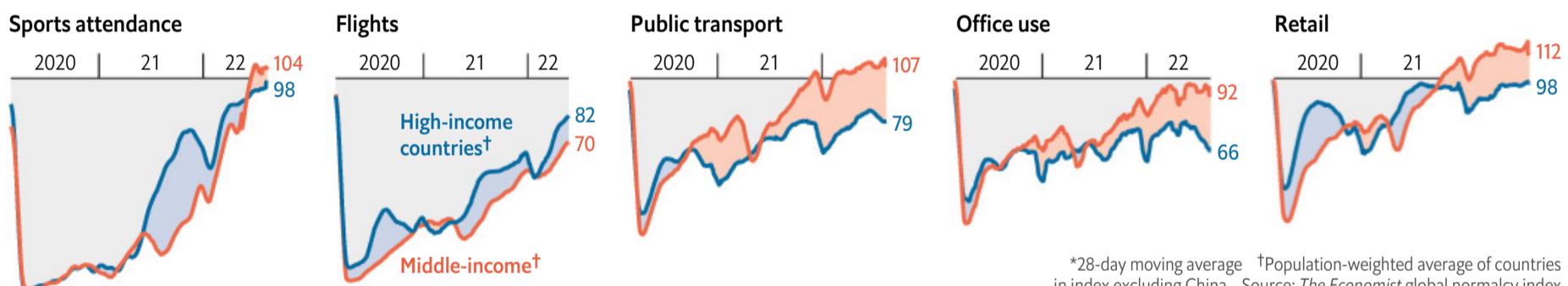
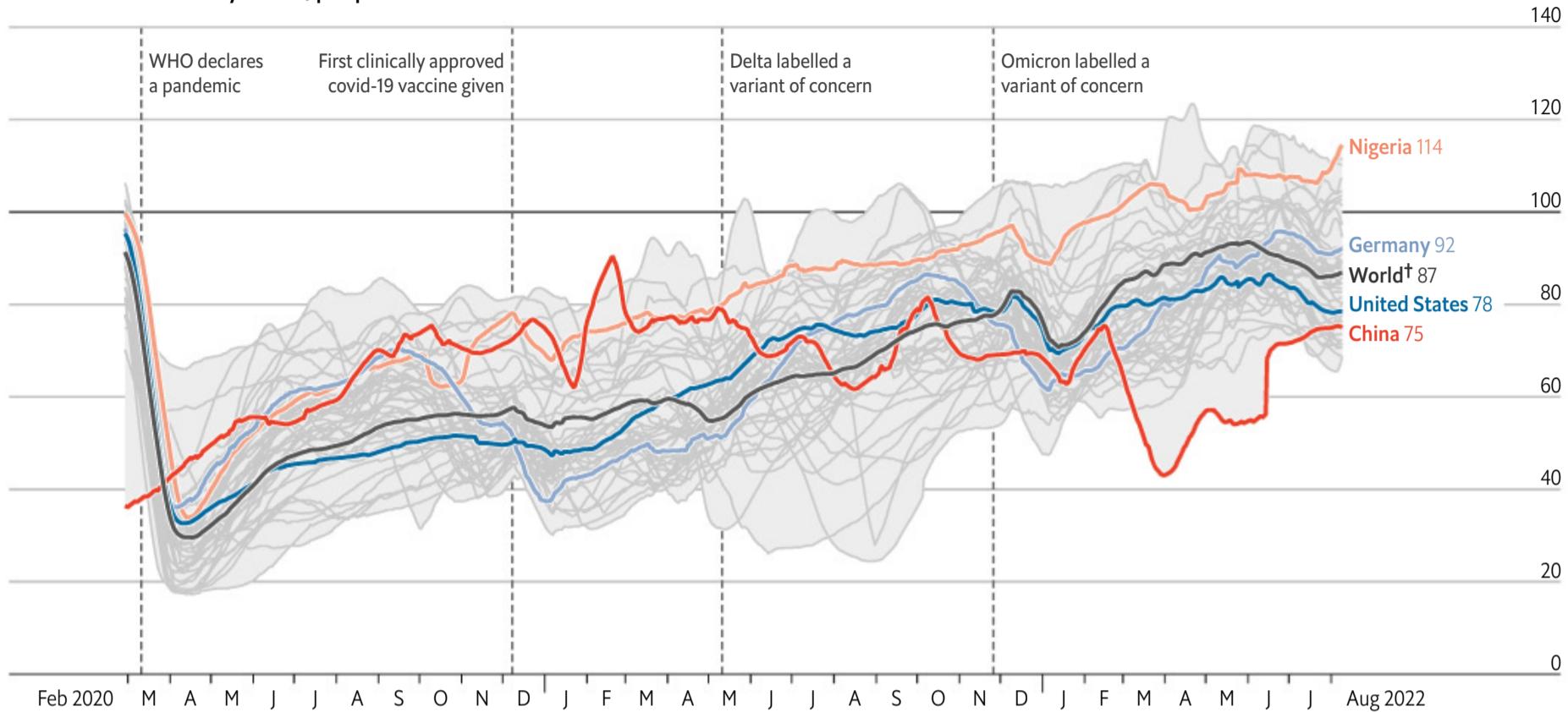
In local currency	Index Sep 7th	% change on:			index Sep 7th	% change on:			Dec 31st 2021
		one week	Dec 31st 2021	one week		one week	Dec 31st 2021	one week	
United States S&P 500	3,979.9	0.6	-16.5		41,766.1	-1.4	-6.3		
United States NAScomp	11,791.9	-0.2	-24.6		3,210.8	-0.3	2.8		
China Shanghai Comp	3,246.3	1.4	-10.8		2,376.5	-3.9	-20.2		
China Shenzhen Comp	2,123.2	1.3	-16.1		Taiwan TWI	14,410.1	-4.5	-20.9	
Japan Nikkei 225	27,430.3	-2.4	-4.7		Thailand SET	1,639.9	0.1	-1.1	
Japan Topix	1,915.7	-2.4	-3.8		Argentina MERV	141,001.5	3.5	68.9	
Britain FTSE 100	7,237.8	-0.6	-2.0		Brazil BVP	109,763.8	0.2	4.7	
Canada S&P TSX	19,241.4	-0.5	-9.3		Mexico IPC	46,057.0	2.5	-13.5	
Euro area EURO STOXX 50	3,502.1	-0.4	-18.5		Egypt EGX 30	10,232.3	2.3	-14.1	
France CAC 40	6,105.9	-0.3	-14.6		Israel TA-125	2,019.9	-2.5	-2.6	
Germany DAX*	12,916.0	0.6	-18.7		Saudi Arabia Tadawul	11,863.8	-3.4	4.7	
Italy FTSE/MIB	21,489.4	-0.3	-21.4						

# Graphic detail The global normalcy index

The Economist September 10th 2022 89

→ Most of the world is returning to pre-pandemic activity levels, but some changes may persist

The Economist normalcy index\*, pre-pandemic level=100



\*28-day moving average †Population-weighted average of countries in index excluding China Source: The Economist global normalcy index

## Same same, but different

Activity is returning to pre-pandemic levels, but not in the same places

**I**N MUCH of the world, the pandemic may be as over as it ever will be. Vaccinations, including boosters, and efforts to halt new variants or winter waves will probably continue. But China remains the only major exception to accepting SARS-CoV-2 as endemic. On September 1st it locked down Chengdu, a city of 21m (see China section). In other countries, governments are no longer making radical new interventions in how people live to contain this virus.

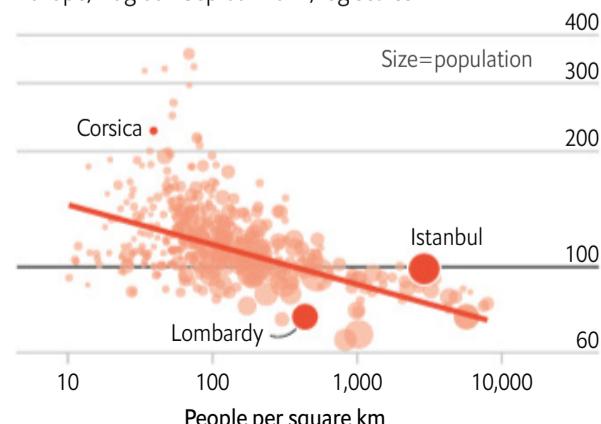
But if the new endemic normal is here, how does it compare with the world before the pandemic? The evidence so far suggests small changes in what people do, but bigger shifts in where they do it.

To track how behaviour has changed over the course of the pandemic, *The Economist* in 2021 devised a “global normalcy” index. Our index employs eight indicators that together track transport use, leisure

time and commercial activity for 50 countries, representing 75% of the planet’s population and 90% of its GDP. The index is scaled so that 100 is equivalent to pre-pandemic levels. Worldwide, the index hit an all-time low of 34 points on April 11th 2020, during the first wave of lockdowns.

Today our index shows that activity is, by and large, almost back to where it used to be. As of mid-August, the world was at 84% of the pre-pandemic normal, summer holidays in many countries notwithstanding. That rises to 87% when China, which scores 75 points, is excluded. In eight of the 50 countries we measure, activity is now

Retail, pre-pandemic visits=100  
Europe, Aug 8th-Sep 6th 2022, log scales



greater than it was before covid-19 arrived.

But hidden within these averages are signs of big and seemingly long-term shifts: people are moving about less, especially to stare at screens. In rich countries, offices are about a third less crowded than they were before the pandemic began—and this has not changed much since the end of last year. And whereas people have returned as spectators to professional sports, cinema box-office receipts are still down by 30% compared with 2019. Instead, more time is spent at home.

This has made cities less tightly connected to work. Data on how people move around from 25 European countries show the general trend: fewer people visit tightly packed urban centres to shop or work, but other activity is largely back to where it once was. Weekend subway passenger numbers are creeping back to pre-covid norms in cities such as London and New York, but weekdays are 30-40% quieter.

It may be that after much tragedy, a positive consequence of the pandemic will be fewer tedious and apparently inessential journeys. Less travel and more efficient use of buildings could reduce energy consumption and pollution. The new normal could have been worse. ■



## A piece of cloth

**Issey Miyake, maker of clothes, died on August 5th, aged 84**

IN 2016, AN elderly woman sent Issey Miyake a sheet of *washi* paper. It had been hand-made by her in Shiraishi, in northern Japan, from the inner bark of the gampi tree or the paper mulberry bush. Once soaked in water and dried in the sun, the fibres were tougher than those of wood pulp. For a thousand years *washi* had been used for everyday clothes, toys and priests' vestments; there had once been dozens of factories in Shiraishi. Now the only provider was this woman, who thought Japan's most famous designer might like a sample for his archive. But he did not store it away. His first thought was, what can I make with this?, and his first act was to pin it into the rough shape of a kimono jacket. All clothing in ancient times had started like this, as a simple rectangle of woven stuff from a hand-loom. That simplicity remained the touchstone from which his ideas sprang.

The world saw him as a fashion designer, a highly successful one, the name behind a brand that has around 300 stores worldwide and offshoots into scent, bags and furniture. But fashion itself did not interest him, nor the fame of a name. He hid from the commercial side, leaving that to well-trained deputies, while he stayed as a small cog of creativity, playful but self-effacing, travelling constantly to see local textiles and materials and, over much tea-drinking in his design laboratories, inspiring the team of daring minds he had gathered round him.

A designer's work, he kept insisting, was neither elitist nor frivolous. He was engaged in *monozukuri*, the art, science and craft of making things, and his vivid colours and extraordinary shapes had a serious purpose. He wanted his clothes to work in real life and to bring people joy. (*Fuku*, clothing, sounded much like the word for happiness.) That was no small aim. Yet he had to argue his case hard, first as a student who had no chance, as a Japanese male, to study clothing design, and then as a young designer, who had to go to Paris to learn his trade with Laroche and Givenchy

when he found no encouragement and no respect at home.

As a maker he cared about every part of the process, from yarn to fabric to machinery. Almost anything could be turned into clothes. He used rattan, bamboo and paper, all of which had been tried in Japan long before, but forgotten. Recycled plastic and bottle caps, with an ingenious tweak in the process to soften their brittleness, were woven into shirts that he wore himself. Yarns derived from petrochemicals, rayon and nylon, were useful rather than despised. He actively favoured polyester, the fabric he used for his "Pleats Please" range, which when heat-pressed in layers of paper produced pleats that never crushed or lost their edge, fitting and swirling as beautifully after weeks in a suitcase as on the very first day of wearing. He had tried silk, but it hadn't worked.

Most fascinating, to him, was the way clothes worked with the human body and the space that lay between fabric and living skin. His clothes were not finished until they were being worn, lived and moved in, just as music was unfinished until it was played. Even his Bao Bao bags, wildly popular constructions of polyvinyl triangles on a hard mesh, changed shape as they were filled and adjusted themselves to the wearer. He moulded his fabrics to bodies in ways that looked hard and sculptural but were flexible and soft, making customers feel cocooned and courageous both at once. As a child he had wanted to be an athlete or a dancer, and on the catwalks of Paris and New York models sometimes danced in his clothes, to reinforce the point.

In Paris, witnessing the student revolt of 1968, he decided that his clothes should be not just for the upper bourgeoisie, but for everyone. (His prices were not exactly mass-market, but reasonable for haute couture.) That principle also lay behind "A Piece of Cloth" (A-POC), a computer-controlled process that produced tubular pieces of polyester jersey, woven from a single thread, which each customer could cut into their own seamless clothes. In 1999 his models launched the idea by parading in one continuous piece of red cloth, each robed slightly differently but all swathed together, like the ribs of a fan.

The first pieces of A-POC were produced on a disused machine that had once made fishing nets. Though he claimed to know nothing about machines, such chance discoveries delighted him. An older process could be used to realise a futuristic idea, technology as much as art. While tradition inspired him, optimism and nagging dissatisfaction drove him on, towards a time when gender in clothes could be forgotten, anyone could wear anything (as men could, and did, wear his pleats), recycled fabric became the norm, and pattern-makers, sweatshops and middlemen disappeared from the world of fashion.

His fixation on the future also had a deeper cause. In August 1945, at the age of seven, he saw the blinding red flash of the atomic bomb exploding over his city, Hiroshima, and the black rain that followed. He was just going back to class after morning assembly; instead he had to run home, desperate to find his mother among the crowds of panicking and burning people. She had survived, but was so badly burned that she died three years later. He himself was soon lamed by osteomyelitis, a disease caused by radiation. Among the striding and dancing models in his free and easy creations he walked with a broad smile, and with a limp.

This story lay hidden until 2009. He did not want to be known as the designer who had survived Hiroshima. The focus had to be shifted away from destruction, towards creation; away from shadows, to the light. As a young man struggling to survive in the blasted city, he had taken up painting, using his fingers because he could not afford brushes. On his way to classes he would pass the city's twin Peace bridges, East and West. The designer Noguchi Isamu, who later became his friend, had built concrete balustrades for them. Those on the West bridge ("To die, to depart"), ended with a broken flower-stalk plunging into the ground. Those on the East ("To live, to build") ended with flowers growing, lifting their heads to the dawning sun. Live, build. Make things. ■

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