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SEPTEMBER 24TH-30TH 2022

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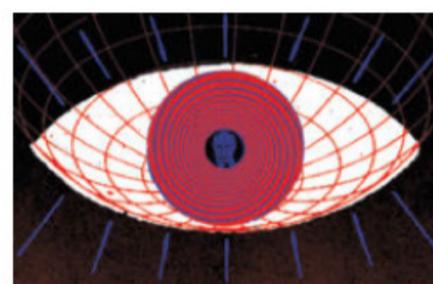
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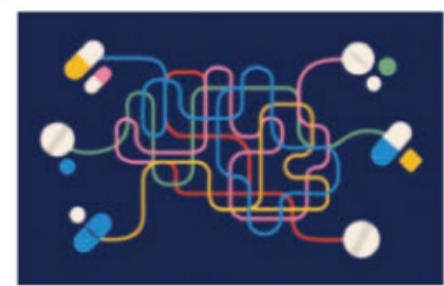
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In a televised address, **Vladimir Putin** announced what he called a “partial” military mobilisation. Though the Kremlin claims that very few Russians have been killed in Ukraine, it nonetheless plans to call up another 300,000 reservists and force them to fight. Anti-war protests erupted in cities all over Russia, and flights out of the country quickly sold out. Hundreds of people were arrested; some officials suggested that protesters be sent to the front line. Analysts said it would take months for the new recruits to be ready for action. Many of the officers who might have trained them are either in Ukraine or dead.

Elections at gunpoint

Mr Putin also said he would support **referendums** in occupied parts of Ukraine, where puppet administrations say they want to be formally annexed by Russia. The referendums were to be held at three days’ notice and at gunpoint. Their results are not in doubt. The aim appears to be to give Mr Putin a rhetorical justification for describing Ukraine’s efforts to recapture its own territory as attacks on Russia itself. He made a lightly veiled threat to use nuclear weapons.

At the UN, Joe Biden called Mr Putin’s **nuclear threats** irresponsible. The Dutch prime minister, Mark Rutte, suggested that Mr Putin was panicking and advised everyone to keep calm. Ukraine’s president, Volodymyr Zelensky, demanded the return of all Ukrainian land, a tribunal for war crimes and reparations for all the Ukrainians Mr Putin’s men have murdered.

Armenia and Azerbaijan agreed to a ceasefire, following the worst outbreak of fighting between the two countries since 2020. America has been involved in efforts to sue for peace in a conflict taking place in Russia’s backyard. Antony Blinken, the secretary of state, held talks with the Armenian and Azeri foreign ministers in New York. Nancy Pelosi, the Speaker of the House of Representatives, visited Armenia, the most senior American politician to do so since Armenia gained independence from the Soviet Union in 1991.

Nine people were killed in **Iran** during the biggest protests against the government in years. They were sparked by the death in custody of a young woman three days after being arrested by the morality police for being improperly dressed. She was wearing a loose head covering.

Palestinian security forces clashed with militants and protesters, after arresting members of Hamas who are wanted by Israel. About 90 people have been killed this year in the West Bank, mostly by Israeli police and soldiers. Israel has repeatedly raided the area after a wave of terrorist attacks by Palestinians and Israeli Arabs.

Large numbers of **Eritrean** troops have invaded Tigray, a northern region of **Ethiopia** that has been battling Ethiopian government forces since late 2020. Eritrea had previously intervened to help Abiy Ahmed, Ethiopia’s prime minister, but withdrew its forces last year because of international pressure and battlefield setbacks. Separately, UN investigators said Ethiopia’s blockade of Tigray was a crime against humanity.

Unrest in **Haiti** escalated after protests over the removal of fuel subsidies turned into more generalised anger over poverty and violence. The Caribbean country has endured instability and gang mayhem since the assassina-

tion of its president last year. American officials say businessmen abroad may be helping to stir up the unrest, which threatens to topple the current prime minister, Ariel Henry.

Hurricane Fiona barrelled a destructive path across the Caribbean. The storm caused the power to go out in Puerto Rico, reviving memories of Hurricane Maria in 2017. Although the American territory has restructured its huge debt, the electricity company is still battling its creditors.

The number of arrests of illegal migrants along **America’s border** with Mexico has passed 2.1m for the fiscal year starting October 1st 2021, a record. Many of the migrants are now coming from Cuba, Nicaragua and Venezuela.

New York state’s attorney-general brought a lawsuit against **Donald Trump** and three of his children, Donald junior, Eric and Ivanka, accusing them of fraud by inflating the value of assets to obtain loans. The suit involves the Trump Organisation. The state also referred the findings to the federal Justice Department as a criminal matter.

Goodbye, your majesty



Queen Elizabeth II was laid to rest in Windsor Castle following a state funeral at Westminster Abbey. At least 26m people watched the service and procession on television in Britain (the figure excludes digital audiences). Before the event London’s transport authority said it expected 1m people to line the streets. A quarter of a million people filed past the queen’s coffin as

it lay in state, according to a government minister. The queue’s maximum length was ten miles (16km).

Weeks of tension between Hindus and Muslims in the British city of **Leicester** erupted into violent disorder following an unauthorised protest by hundreds of people. Police struggled to restore calm; officers from other forces had to be drafted in. Rumours and disinformation about the trouble quickly spread on social media.

A massive typhoon battered **Japan**, killing at least four people and injuring over 110 others. With wind gusts of up to 234km per hour, it left more than 300,000 households without electricity.

Kazakhstan announced early presidential elections to be held on November 20th. The country faced violent unrest and an attempted putsch in January, which was suppressed with the help of Russian troops. Kassym-Zhomart Tokayev, the president, has since consolidated his power and sidelined his predecessor, the strongman Nursultan Nazarbayev.

Kyrgyzstan and **Tajikistan** called a ceasefire, after border skirmishes left at least 100 people dead and displaced tens of thousands. A hotch-potch of exclaves in the region have long provoked border disputes, but the latest clashes are the worst to have afflicted any of the post-Soviet Central Asian states since independence.

In **China** a bus taking people to a covid-19 quarantine facility crashed, killing 27 passengers. The accident sparked a large online protest against the government’s strict covid controls. Angry netizens also criticised a senior health official for advising locals to avoid touching foreigners after China recorded its first case of monkeypox, found in a person who had arrived from abroad.



The **Federal Reserve** raised its benchmark interest rate by another three-quarters of a percentage point, to a range of between 3% and 3.25%. It was the third consecutive such increase and came after figures showed that inflationary pressures are moving extensively beyond food, energy and goods to services prices, such as rent. The Fed now projects the rate to rise to at least 4.25% by the end of the year. Jerome Powell, the central bank's chairman, said "We have to get inflation behind us", and that there was no painless way to do so.

Other central banks also tightened monetary policy at an aggressive pace to battle inflation. The **Swiss National Bank** raised its key rate to 0.5% from -0.25%, ending seven years of negative rates. **Sweden's Riksbank**, a laggard compared with most of its contemporaries, lifted its main policy rate by one percentage point, to 1.75%, the biggest increase in three decades.

Bucking the trend the **Bank of Japan** maintained its ultralow rate. That caused the yen to slide further against the dollar, prompting Japan to intervene in foreign-exchange markets to shore up the currency for the first time since 1998. Before the intervention the yen had fallen by 20% against the dollar this year.

The German government nationalised **Uniper**, Germany's biggest gas importer, to prevent it from collapsing. Uniper had been forced to turn to the more expensive spot market when Russia curtailed its gas supplies, leading to huge losses. The German government also took control

of three refineries operated by **Rosneft**, Russia's biggest oil company, to secure Germany's energy supply ahead of an EU embargo on Russian oil.

In Britain the government introduced a scheme that will cut **energy bills** for businesses by around half over the winter by capping the wholesale price of electricity and gas, an extension of the huge financial support it had earlier promised for households. Many firms risk going bankrupt because of soaring energy costs.

In the driving seat

Volkswagen announced that shares in **Porsche** will debut on the Frankfurt stock exchange on September 29th. Only a small portion of the shares being offered by vw, Porsche's owner, will be available to the public. vw and the Porsche and Piëch families, the controlling shareholders in vw, will own most of the stock. Still, the IPO could value Porsche at up to €75bn (\$74bn).

Ahead of a plan to split its auditing and management-consulting businesses, **Ernst & Young** revealed that revenues grew by 16.4% in the year to June 30th, the best growth rate in 20 years. Sales

from its consulting services grew at a faster pace than those from accounting, although accounting still brought in more money. EY thinks a break-up will allow the consultancy side to thrive, freeing it from conflict-of-interest rules that stop it working with firms that EY also audits. Its 13,000 partners will start voting on the spin-off in November.

Uber said that Lapsus\$, a hacking group thought to operate from Brazil and Britain, was behind an extensive cyber-attack that forced it to shut down some internal systems briefly.

Adobe's share price struggled to recover from the hammering it received after it announced that it would take over **Figma**, an online service used by digital designers to develop apps and websites, for \$20bn. Adobe says the deal will spur growth prospects, but investors are not sure about the combination of legacy software tools with a nimble web-based application. Competition authorities, too, may have a problem with Adobe taking over an innovative rival.

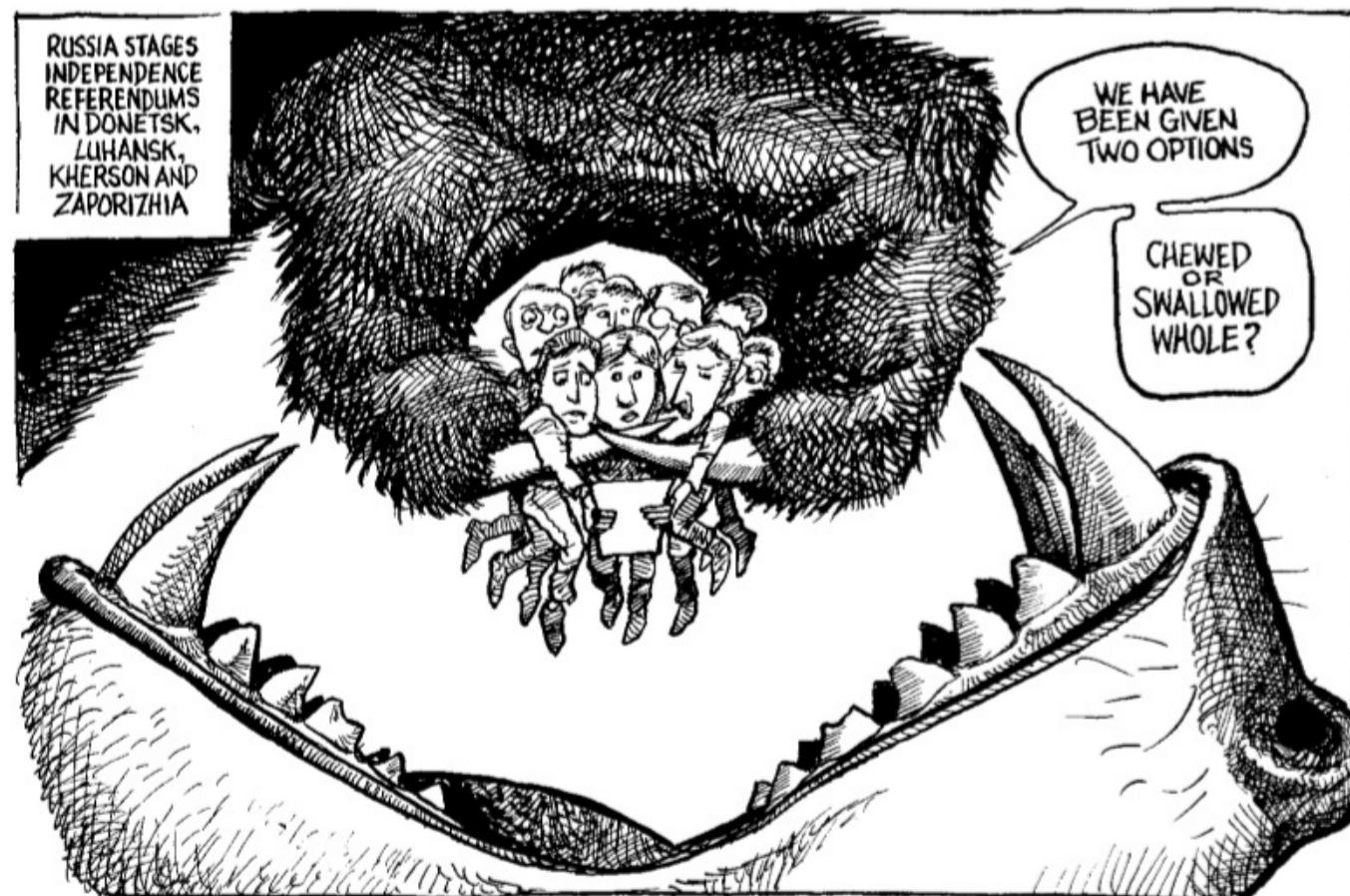
The share price of **FedEx** also floundered after it issued a profit warning. Considered a

bellwether of the interconnected economy, the package-delivery company is facing waning demand and "service challenges in Europe". It announced cost-cutting measures, such as reducing flights by its planes and temporarily parking some of them.

TF1 and **M6**, two of the biggest television channels in **France**, abandoned their proposed merger in the face of antitrust concerns. The channels had hoped that by combining they would be a potent force in streaming. The competition authority was worried that the merger would limit competition in advertising.

Hoovering up your particulars

America's Federal Trade Commission is examining **Amazon's** proposed takeover of **iRobot**, which makes the Roomba autonomous vacuum cleaner. Earlier this month two dozen groups, including the Electronic Frontier Foundation, wrote to the FTC claiming that Amazon's purchase would endanger competition in the market for smart devices in the home while "leveraging vast troves" of consumer information. The Roomba collects household data as well as dust as it busily trundles around.



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Boom time in the Gulf

An energy crisis and fresh alliances are making the region more powerful—and more volatile

IN EIGHT WEEKS roughly 1m football fans will descend on Qatar for the World Cup, many of them travelling via neighbouring cities such as Dubai and Abu Dhabi. They will find a Gulf in the midst of a \$3.5trn energy bonanza, courtesy of Vladimir Putin's war in Ukraine (see Leaders). Western politicians facing a cost-of-living crisis are once again paying homage to the royalty of the fossil-fuel economy. Olaf Scholz, Germany's chancellor, is due to visit this week; in July President Joe Biden fist-bumped Muhammad bin Salman (MBS), the de facto ruler of Saudi Arabia, a country he had branded a pariah for its human-rights abuses.

As we explain this week, the latest oil and gas boom is taking place alongside deeper trends: a re-engineering of global energy flows in response to Western sanctions and climate change, and the remaking of geopolitical alliances in the Middle East as it adapts to a multipolar world in which America is no longer a reliable guarantor of security. The result is a new-look Gulf that is destined to remain pivotal for decades to come. Whether it will be a source of stability, though, is far from clear.

The Gulf states belong to a region that has had a dreadful two decades. Amid wars and uprisings, a million people have died violently in the Middle East and its share of world GDP has dropped from 4% in 2012 to 3%. America has cut its military presence following the debacles in Iraq and Afghanistan, leaving old allies, including the Gulf states, fearful of a security vacuum filled by Iran and its proxies. The three Gulf energy powerhouses of Qatar, Saudi Arabia and the United Arab Emirates (UAE) are autocracies facing a long-run decline in world demand for fossil fuels, even as they suffer from lower rainfall and higher temperatures because of climate change.

It is a daunting starting-point, but two new forces are in play. One is changes in energy markets. At current prices, the six Gulf states—the others are Bahrain, Kuwait and Oman—could earn \$3.5trn over the next five years. Western sanctions on Russia are redirecting how energy is traded around the world (see Briefing). As Russian output flows to the east, the Gulf stands to become a bigger supplier to the West.

In response to tight energy markets, Saudi Arabia and the UAE are ramping up capital investment in oil with the long-run goal of being the last men standing in the industry, enjoying the lowest costs and least-dirty extraction. Together, they aim to raise output from 13m barrels per day last year to 16m in the medium term. Their market share will rise as governments worldwide clamp down on emissions and global demand for oil falls. As Qatar expands its North Field project in the next few years, it will become to liquefied natural gas (LNG) what Taiwan is to advanced semiconductors: its annual target output is equivalent to 33% of all LNG traded worldwide in 2021. From its point of view, the timing, amid a global gas squeeze, could not be better.

Even as energy enriches the Gulf—and adds to the heavy burden of stabilising the world's climate—the second force at work is a new alignment of power in the Middle East. Over the past decade Iran has established a sphere of influence across a northern belt including Iraq, Lebanon and Syria. A reaction is in full

swing as most Gulf states, Egypt, Israel and others grow closer. This is reflected in the Abraham accords, signed by Israel and two Arab states in 2020, which are helping normalise relations in the region (see Middle East & Africa section).

This nascent bloc is partly about developing common defences against Iranian drones and missiles, probably using Israeli technology. But it is also a bet that trade can make these countries richer in a region with puny cross-border links. Already, Israelis have made over half a million trips to the UAE, while the Gulf states have invested \$22bn in Egypt this year. Saudi Arabia and Jordan may one day join the Abraham accords, especially if Israel includes the Palestinians, creating a contiguous trading zone. This bloc will also hope to increase its links with the rest of the world. In February the UAE signed a trade deal with India. As London and Hong Kong stall as financial centres, Dubai is seeking to become the world's last entrepot, where you can do business with anyone (see Finance & economics section).

An obvious implication is that the Gulf is likely to remain as important in world affairs in the coming decades as it was in the 20th century, despite the hopes of some American strategists that its significance would fade. In oil and gas its share of Europe's imports could rise from under 10% today to over 20%. The Gulf states' economic heft within the Middle East is at its highest since 1981, at 60% of regional GDP, and will rise more. In finance the Gulf's \$3trn of reserve and sovereign assets will grow, leading to more investments abroad, such as Qatar's stake in Porsche's offering next week (see Business section). In diplomacy expect it to flex its muscles more beyond its immediate region: the UAE is already a force in the Horn of Africa.

Yet the one thing the new era may not bring is stability, because the very forces behind these opportunities also create volatility. The quest for a security arrangement that relies less on America could backfire. Iran's aggression could lead to a regional arms race fuelled by energy rents, just as the oil booms of the 1970s saw military spending explode. If Iran gains a nuclear weapon, countries such as Saudi Arabia and Turkey may want a bomb of their own. The last chapter of the fossil-fuel age could yet draw China and India deeper into the region.

However, the greatest potential source of instability lies at home. The Gulf states are now trying to follow a mind-bending economic trajectory. They plan to expand fossil-fuel production for 20 or so years and then slash it after 2045. It is possible to see how this would work in theory: the huge rents would need to be quickly reinvested in a high-tech economy based on renewable power, hydrogen and desalination systems, which has enough dynamism to create millions of jobs for a bulge of young people. In practice the task is monumental. Even if it worked, it would put the Paris-agreement climate targets far beyond reach.

The Gulf's autocrats believe they have the long-term perspective to manage this shift. But they are prone to oppression, cronyism and vanity projects. A new Gulf is emerging, but some things remain the same. It is still going to be volatile—and impossible for the world to ignore. ■



Russia and Ukraine

Putin doubles down

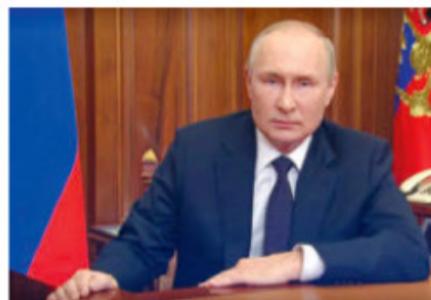
Ukraine has a window of opportunity to push back the invaders before more arrive

TO UNDERSTAND Vladimir Putin, hear what he says about his enemies. On September 21st the man who invaded Ukraine said Western powers “aggressively impose their will...on other countries”. They desire the “plunder” of Russia, said the man with a billion-dollar palace. “They have even resorted to nuclear blackmail,” he said, and threatened a nuclear response if Ukraine tries to take back the territory he stole from it.

After humiliating reverses on the battlefield, Russia’s despot is trying to signal strength. Besides the nuclear threat, which Ukrainians dismissed as a bluff, he ordered a partial mobilisation, vowing to send soldiers to beef up his invasion force, and pledged support to puppet “republics” in Ukraine, which plan to hold referendums this weekend on whether to be annexed by Russia. These sham votes, called at three days’ notice, will give Mr Putin a rhetorical excuse to treat Ukrainian attacks in Donbas as attacks on Russia itself, which could in theory invite nuclear retaliation. Mr Putin is doubling down on his disastrous war (see Europe section).

However, the stridency of his oratory suggests panic instead of power. Mr Putin’s blundering on the battlefield has caused the first cracks in his aura of undisputed command in Russia. Although TV broadcasts constantly lie about the war and alternative voices are muzzled, the reality in Ukraine is now so different from the fantasy beamed into Russian living rooms that it is hard for Mr Putin to keep his story straight. That may be why his information war is weakening abroad, too (see International section).

To Russians, he says that the war is not a war, just a “special military operation” that they can cheer without personal sacrifice. To his Ukrainian foes and their NATO backers, he says he will commit lots of extra troops—his defence minister suggests that 300,000 will go. To paper over the gulf between these messages, he stresses the mobilisation is limited to military reserves (only the other side, he insists, uses men as “cannon fodder”). In truth,



Mr Putin cannot order mass conscription as it would threaten his regime. Even a partial mobilisation is leading to widespread protests and a rush to the border to escape being called up.

Time is not on Mr Putin’s side. Reservists do not need to be taught to shoot straight, but they still require training to deal with new kit and local conditions. If deployed too soon, they will die in droves. They could be slotted into existing, depleted units. That would make it easier for Russia to defend its lines, though probably not to mount new offensives. It does not have enough weapons for a larger invasion force, not least because so many of its soldiers abandoned their guns and tanks when they fled recent Ukrainian advances. It will be months before Mr Putin’s “partial mobilisation” makes a big difference in the field.

That gives Ukraine a window of opportunity. Its Western backers should step up the supply of arms, including longer-range missiles. The best NATO weapons must not be used to attack Russia itself, but the parts of Ukraine that Russia is about to annex illegally should not be off-limits. The West should also train more Ukrainian soldiers. The country has plenty of highly motivated would-be defenders, but so far only Britain is offering basic training to large numbers. Other NATO members should immediately pitch in, perhaps dividing the labour so that one ally focuses on air defence, another on artillery and so forth. The more of its land Ukraine can claw back before Russian reinforcements arrive, the stronger its position will be.

When Mr Putin invaded Ukraine, he thought it would fold. It did not. Now he hopes that its Western backers, lacking the heart for a long struggle, will cut arms shipments and press Ukraine to sue for peace. They must not. Mr Putin is trying to show strength because he is weakened and the Russian people are beginning to sense it. Ukraine must maintain the momentum on the battlefield. Peace will come when Russian citizens grasp that Mr Putin is losing and cannot win. ■

Britain's economy

Truss's rusty Reaganomics

Transplanting 40-year-old economic policy from America to Britain will not work

IN JULY 1981 President Ronald Reagan took to the airwaves promising to “reduce the enormous burden of federal taxation on you and your family”. Inflation was much too high and tight monetary policy had taken interest rates to over 19%—problems Reagan attributed in part to rising government debt. But the president brushed aside the contradiction and argued that tax cuts and deregulation would unleash productivity growth. By August he had signed into law America’s biggest tax cut since the first world war, worth nearly 3% of annual GDP.

Liz Truss, Britain’s new prime minister, is now implementing Reaganomics in Britain, again creating dissonance in economic

policy. The Bank of England (BOE) is fighting annual inflation of 9.9%. On September 22nd, as *The Economist*’s weekly edition was published, the bank was poised to raise interest rates by 0.5 or 0.75 percentage points. Yet the next day Ms Truss’s government was scheduled to lay out details of an enormous fiscal stimulus, comprising tax cuts worth perhaps £30bn (\$34bn) per year (1.2% of GDP) and subsidies for energy bills whose total cost across two years could reach £150bn.

The fuel that fiscal stimulus will inject into the economy will almost certainly lead the BOE to raise interest rates faster than it otherwise would (despite the fact that price caps on energy will ➤

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► bring down measured inflation). No matter, say Ms Truss's backers, because tax cuts will boost productivity. Didn't inflation fall and growth surge under Reagan?

Sadly, Ms Truss's attempt to emulate the Gipper's success is doomed. To see why, consider the currency markets. Reaganomics was accompanied by a strengthening dollar. So were Donald Trump's tax cuts in 2018, which also happened alongside monetary tightening. The greenback is the world's reserve currency, into which investors flock when the appetite for risk falls, as it often does when the Federal Reserve raises rates. A strong currency makes imports cheaper and helps contain inflation.

In Britain, though, the pound has slumped by 16% against the dollar in 2022. That is only a little more than the euro's fall against the greenback, and less than the yen's, but these comparisons flatter sterling. Whereas monetary policy is expected to stay looser in the euro zone and Japan than it is in America, the BOE is expected to raise rates to over 4.5% in 2023, roughly keeping pace with the Fed. The pound has fallen anyway because it is perceived as a riskier asset than those currencies and investors are worried about global growth.

As a result, the BOE will get no help from currency markets as it offsets Ms Truss's fiscal stimulus with tighter monetary policy.

Instead more expensive imports are boosting inflation. That is a big headache for an economy that depends on trade as much as Britain's does.

A second problem is the stagnating supply potential of Britain's economy. It is admirable to try to boost long-term growth by pruning regulations and taxes. But the high growth of the Reagan era was partly the result of women entering the workforce. Britain is ageing and its economy is still adjusting to Brexit. These factors are hurting the supply side of the economy by more than reforms are likely to help.

Ms Truss's cheerleaders seem to have read only the first chapter of the history of Reaganomics. The programme's early record was mixed. The tax cuts did not stop a deep recession, yet by March 1984 annual inflation had risen back to 4.8% and America's ten-year bond yield was over 12%, reflecting fears of another upward spiral in prices. Inflation was anchored only after Congress had raised taxes. By 1987 America's budget, excluding interest payments, was nearly balanced. By 1993 Congress had raised taxes by almost as much as it had cut them in 1981. If Britain's government does not correct its course in the same way, the result will be more conflict between monetary and fiscal policies—and a risk that inflation becomes entrenched. ■

Medicine and the brain

Thinking outside the box

Neuroscience is experiencing a renaissance. Not before time

DIORDERS OF THE brain are a growing worry. Twelve mental-health conditions affect about 970m people around the world according to the Global Burden of Disease Project: more than one in ten of the population. Patchy data mean that this figure could well be an underestimate. On top of that, neurological problems, such as stroke, dementia, migraine, Parkinson's, epilepsy and brain injury are collectively the leading global source of disability. Ageing populations with unhealthy ways of life are likely to make this problem much worse everywhere.

In an ideal world science would be coming to the rescue. But the brain is a complex organ—sometimes described as the most complex structure in the known universe. Through good fortune and subsequent diligence, 20th-century science provided some pharmacological tools with which to treat some of the things that go wrong with it. But its fundamental mysteries have proved difficult to unravel. As a result, progress has been much slower than in treatments for the heart or cancer.

Indeed, it has sometimes been hard to discern much progress at all. The private sector spent an estimated \$43bn on research into therapies for Alzheimer's disease between 1998 and 2017 and came up empty-handed. That epic failure is perhaps the biggest reason why, in the 2010s, many drug firms abandoned or cut back on neuroscience research.

Happily, there are signs of a change afoot. In our Technology Quarterly this week we report on a renaissance in neuroscience, with many drug companies, some of them big ones, showing renewed interest in the field. This fresh energy is coming from a variety of techniques and ideas. Optogenetics, which uses genetic manipulation to get animal brains to reveal their work-

ings—and open them up to change—through the use of light, is transforming brain science in the laboratory, as is the growth of tiny brain-like "organoids". More precise diagnosis and well-validated biomarkers, which reveal the course of disease, are improving clinical trials. A growing openness to the investigation of previously recreational and stigmatised drugs is widening the range of possible medicines. New kinds of treatment, such as gene therapy, are expanding the range of diseases that can be tackled. Other advances are spurring progress in dealing with chronic pain (see Science & technology section).

At the same time a growing mound of "cohort" data is proving critical to understanding the biological roots of brain dysfunction. Projects like the UK Biobank track tens or even hundreds of thousands of individuals over a generation or more. They should help answer questions about the roots of brain disorders such as dementia that may take decades to emerge.

As hopes rise for tackling this final frontier of biomedicine, it is worth remembering that the secrets to a healthy brain are not only going to come from a pill or psychotherapist's couch. The health of the brain is influenced by what goes on outside it, such as nutrition, exercise, the abuse of alcohol, education, social connections and pollution. Of particular relevance these days is air pollution—which could have a negative influence on brain health at both the beginning and the end of life. None of this should be surprising: the health of the brain is tied to the health and the well-being of the body that it sits in. Efforts to ensure better brain health are an investment that will keep paying dividends for individuals, and for societies, for decades to come. ■





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Italy

Should Europe worry?

How afraid should it be of Giorgia Meloni, the woman expected to be Italy's next leader?

UNLESS THE polls are dramatically mistaken, on September 25th Italians will elect the most right-wing government in their country's post-war history. A three-party alliance is expected to win more than 60% of the seats in parliament; the Brothers of Italy (FdI) looks set to dominate the trio, and its leader, Giorgia Meloni, to take over as prime minister.

Liberals shudder. The FdI has its roots in neo-fascism. In speeches Ms Meloni hammers away at illegal immigrants and "woke ideology" (see Europe section). She told American conservatives earlier this year that "our whole identity is under attack", and has accused the European Union of being complicit in ethnic "replacement". She defends and admires Viktor Orban, Hungary's populist prime minister. Ms Meloni's elevation would follow the Sweden Democrats' success last week in becoming that country's second-largest party, with a probable say in the next government. Marine Le Pen in France took 41% of the vote in her race against Emmanuel Macron in April. All these are signs of a powerful shift in the European balance towards the nationalist hard right. Fed up with the failures of the established parties, voters are plumping for the untried and untested.

And liberals are not the only ones to worry. Flinty bankers fret that Ms Meloni will tangle with the EU, go soft on reform and lose control of Italy's mountainous debt stock (\$2.7trn, or over 150% of GDP). The FdI has no experience of government (it was founded in 2012, and took just 4% of the votes in the election of 2018), and its expected coalition will include the parties led by Silvio Berlusconi and Matteo Salvini, two untrustworthy men with a record of tricky relations with Brussels. Both have plenty of reasons to clash with Ms Meloni, who will have stolen a crown each thinks should be his. In a country that has had 30 prime ministers and more than twice that many governments since 1946, this is not a recipe for stability.

How anxious should these very different camps be? The risks are obvious. But there are also reasons to be cool-headed. First, consider social policy. FdI members are strongly committed to Catholic values, and many would like to turn the clock back. But Ms Meloni has clearly stated that she has no plans to strike down the law that permits abortion, which has been in place since 1978 and enjoys solid support; an attempt to repeal it was rejected in a referendum in 1981 by nearly 70% of those voting. Much the same is true for gay rights. Gay civil unions have been permitted since 2016 and, although there is no consensus favouring gay marriage, there is also no urge to scrap the partnerships. A crackdown on illegal migration is surely to be expected, but when Mr Salvini was last in government, between 2018 and 2019, he promised the same, only to find that the obligations of international law and EU rules imposed limits on what he could do.

The reality is that Italy is constrained in many ways, not least through the roles played by its indirectly elected president and the head of its constitutional court, a pair of impeccable centrists. Similar constraints will limit the amount of damage to the EU that Ms Meloni could cause, even if she wanted to. It is true that, like Mr Salvini, she has in the past talked about scrapping

the euro or even leaving the bloc itself. But both of them have grasped that membership of the EU is popular in Italy, where 71% of people support the euro. Ms Meloni has already committed herself to follow the reform plan drawn up by her predecessors and approved by the European Commission, which comes with a handy €200bn (\$198bn) or so of pandemic-recovery money. She does say she will seek some changes to it, but in agreement with the commission; good luck with that.

A bust-up would turn off the supply of money. It would also mean that Italy would become ineligible for support under the European Central Bank's new bond-buying instrument. It would cause a crisis in the markets, and Ms Meloni knows it. Insiders say she is trying to find a reassuring banker to serve as her new finance minister and a respected pro-European to be her foreign minister. Reassurance is Ms Meloni's mission, and in this she is different from Mr Salvini, an unreliable firebrand. The fact that she is the one who has risen to the top of the rightists' pile is the best bit of news in a disquieting situation.

There is one more indubitable plus to Italy's probable new prime minister. Unlike Mr Salvini and Mr Berlusconi, or indeed Ms Le Pen and Mr Orban, Ms Meloni is no fan of Vladimir Putin. Since the invasion of Ukraine, she has been a steadfast and strong voice of support for Ukraine and NATO.



Nonetheless, Ms Meloni faces daunting odds. Italy's economy is unproductive and hampered by structural, cultural and demographic problems. Since 2000, GDP per person has not grown—as it must if Italy is to deal with its stock of debt. Almost a quarter of young Italians are not in employment, education or training, by far the worst level in the EU. The EU-backed reform plan is meant to help correct

this, but the turnaround will be long and slow, if it happens at all. It will need to be pushed for a decade or more, not the 17 months managed by Mario Draghi, the outgoing prime minister.

Is Ms Meloni the right person to do the pushing? Nothing in her speeches suggests that she understands the need for competitiveness. In fact, she favours sweeping nationalisation and protectionism, though she will be unable to achieve either.

Hope, but plan

What happens if the economy goes wrong? After years of interest rates being set at or below zero, the ECB raised them by 0.75 percentage points this month. Further increases are forecast for this year. If the going gets really tough, will Ms Meloni work calmly with the EU and the ECB, or flip to full populist mode, as Greece did a decade ago? An embattled leader, with Mr Salvini snapping at her heels, who tried to shore up her popularity by blaming the EU for Italy's problems would be a very different prospect from the Ms Meloni on offer now. Yet here, too, is a sliver of comfort. Ms Meloni needs the EU because Italy cannot shoulder its debt without help from Brussels. Europe must calmly accept Italy's democratic decision to elect Ms Meloni and help her succeed, while privately warning her how damaging to both Italy and the EU a falling-out would be. ■



BIS

Where perspectives meet

Deputy General Manager
Basel, Switzerland

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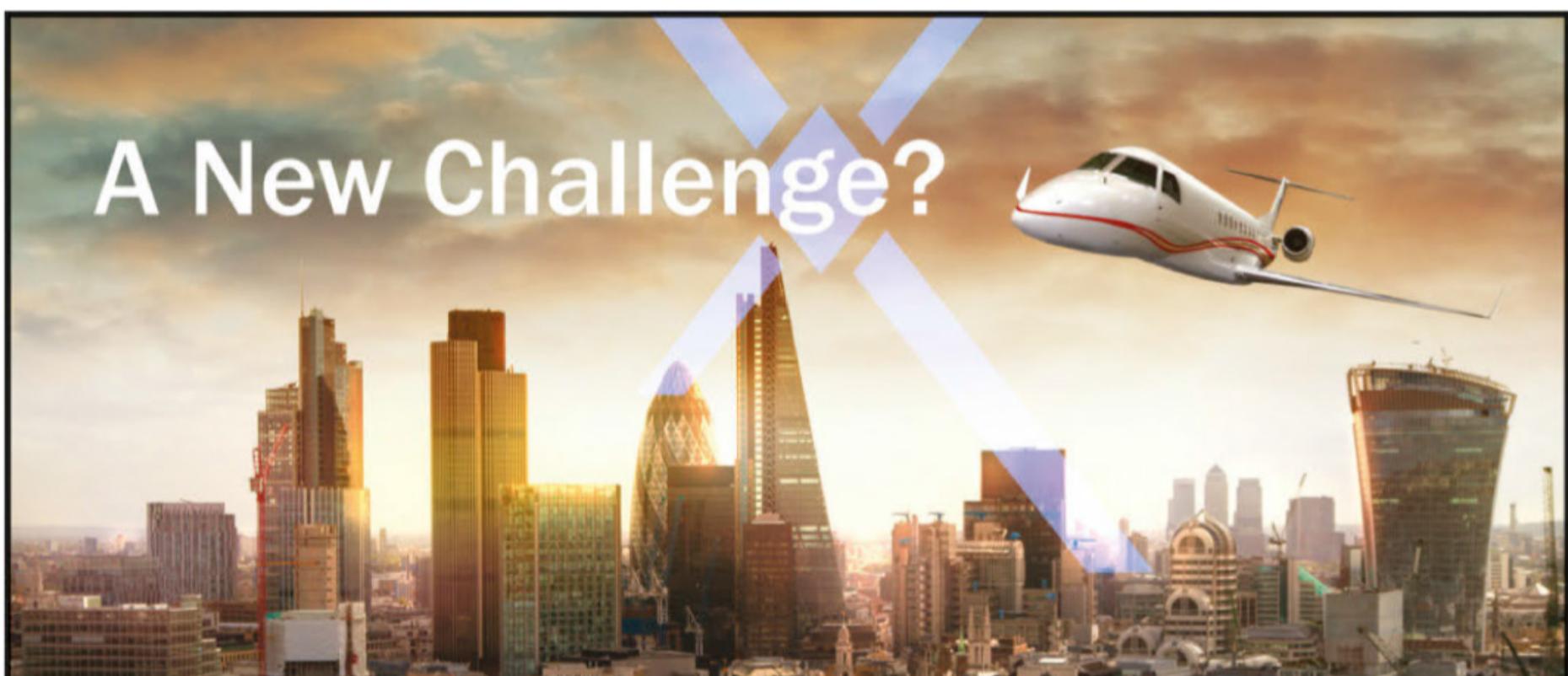
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Blue v red

There are two other aspects fuelling American political disunity that were not mentioned in your briefing ("A house divided", September 3rd). The first is that the red Republican states are over-represented in Congress. This has led to a quasi-political stasis on many key issues for 20 or more years, thereby increasing the anger and frustration of many in the blue Democratic states.

The second is that it is a great oversimplification to classify individual states as red or blue. Very often cities in the red states lean Democratic, if they are not dominated by that party. If Americans ever did start shooting at each other in a new civil war that intrastate heterogeneity, combined with 400m guns, would make the first civil war, with its neat geographical boundaries, look like a civilised affair.

ADAM WILKINS
Berlin

There is a simpler electoral reform that could solve America's political polarisation than the ranked-choice voting method you put forward. Approval voting, a vote for all the candidates you support, is easier to implement than ranked choice and captures something vital that ranked choice doesn't: a clear measure of every candidate's true support. Approval voting has recently been implemented by two cities, Fargo and St Louis, with overwhelming support from their electorates.

MICHAEL RUVINSKY
Vice-chair
Centre for Election Science
Santa Monica, California

For a historical perspective, I point you to the pillarisation, or *verzuiling*, of the Netherlands, which dominated Dutch society from 1900 into the 1960s. Started by politicians, this cultural segregation became entrenched through religion, media, unions, schools and sports clubs. Voters were shielded from diverging opinions in all as-

pects of life, not just politics. The long road out of this quagmire required increased overall wealth and education, a new political party that challenged the status quo, declining church attendance, and youngsters breaking with their parents' traditions. America's culture wars will not disappear in one generation.

EDWIN MEULENSTEEN
Middletown, New Jersey

Not eating well

It was encouraging to read that some American hospitals are trying to serve healthy food to their patients ("The best medicine," September 10th). There is a long way to go. Past studies have found hospitals serving food that left about a third of their patients nutritionally worse off. One recent study found that hospitals in the Veterans Health Administration, America's largest publicly funded health-care system, use vending machines that sell sugar-laden snacks and soda that conflict with government guidelines on nutrition.

Nearly 30 hospitals are also home to fast-food restaurants, which peddle the very products that contribute to heart disease and diabetes. Inside one of the country's most respected medical facilities, the M.D. Anderson Cancer Centre in Houston, is a Chick-fil-A fast-food franchise. And the room-service menu for M.D. Anderson patients features a variety of processed meats, including bacon, ham, pork sausage and pepperoni.

MATTHEW REES
Food and Health Facts
McLean, Virginia

More than 30% of patients in the United States experience malnutrition. The Academy of Nutrition and Dietetics is involved in a comprehensive series of initiatives to address this, from local hospitals to shaping federal government policy. At the heart of our work is the Malnutrition Quality Improvement Initiative, a collaborative work, which is improving care and outcomes for hospitalised adults aged 65

and older by providing a series of nutrition-focused resources. All patients in hospitals and medical centres, and all members of their health care teams, rely daily on the thousands of registered dietitian nutritionists who provide life-saving nutrition-related care, and who should be acknowledged for their significant contributions to America's health.

ELLEN SHANLEY
President
Academy of Nutrition
and Dietetics
Chicago

What lies beneath

Your description of the technologies of sea mines and the measures that can be taken against them was exemplary ("Lurkers below", September 3rd). The campaign against Japanese shipping using air-dropped mines towards the end of the second world war is little known but was highly effective. However, mines often achieve their effects through disruption rather than destruction. Two good examples were the closure of the Suez canal in the late 1960s, in part because of sea mines deployed amid the Six Day war, and the British Baltic campaign of 1944-45, when air-laid mines derailed the German roll-out of advanced submarines that would otherwise have been very effective against Allied shipping.

JOCK GARDNER
Haslemere, Surrey

Autocratic traits

Placing Jair Bolsonaro's tendency to boast about his wife's looks ("Trump's tropical disciple", September 10th) alongside his violent provocations and contempt for democracy calls to mind the similarly unflattering minutiae found in the works of Suetonius and Dio on ancient Rome.

Tiberius's acne was noted by Suetonius, as was Augustus's fear of thunderstorms. Reportedly Claudius was a compulsive gambler who had his carriage modified to permit

dice-rolling on the move. His predecessor, Caligula, appointed his horse as a senior priest.

Paradoxically, men with autocratic urges often exhibit their power in the most trivial of ways. We should count our blessings that Messrs Trump and Bolsonaro are yet to discover the behaviour of their classical counterparts.

NOAH LEE
Melbourne

Work to rule

Bartleby wrote about quiet quitting (September 10th). This is not a new phenomenon. I worked in industry for 50 years and encountered many of what would today be described as quiet-quitting employees. Actually they were proficient at what they did, loyal, responsible and productive. They did not aspire to be CEO and left precisely at 5pm, but that in no way detracted from their contribution to their employer. In fact they led happier lives than those of us with an itch to climb the corporate ladder.

DAVID SCOTT
Vancouver

Negative forecast

The title of your leader "Can Liz Truss fix Britain?" (September 10th) reminded me of a journalistic adage known as Betteridge's Law. It states that any headline that ends in a question mark can be answered by the word no.

NATHANAEL SMITH
Edinburgh

You said that Ms Truss "maintains the fiction that Brexit is an unalloyed good." Coming from a publication that in every article for the past three years has portrayed Brexit as an unalloyed disaster, I find that a bit rich. Pot, meet kettle.

PETER SPURGING
Seattle



Docks, stocks and many floating barrels

DOHA, DUBAI AND SHARJAH

Russia's war has rammed a gun barrel into the mechanics of the energy trade. A great re-engineering is under way

IN 2017 QATAR lifted a 12-year ban on developing the world's biggest natural-gas field, most of which lies under the waters of the Persian Gulf. Soon afterwards it announced plans to exploit its share of the field (Iran, too, has an interest) through a \$30bn project called the North Field Expansion (NFE). The NFE is designed to increase the country's liquefied natural gas (LNG) production from its current rate of 77m tonnes per annum (mtpa) to 110 mtpa in 2026, an amount which, expanded, would be 152bn cubic metres of gas. Critics saw it as an unfeasibly risky punt. Qatar responded by announcing that a second phase would take it to 126 mtpa by 2027—one-third the size of today's LNG market.

In 2019 a global LNG glut pushed the spot price in Asia, where Qatar sells most of its gas, to \$5.49 per million British thermal units (mbtu—the natural-gas business is stalked by unhelpful units), its lowest point in a decade. A year later, as lockdowns enacted in the face of the covid-19 pandemic smothered demand, it fell 20% further to \$4.39—its all-time low. The NFE's critics smelled blood. But Saad al-

Kaabi, the energy minister, stuck to his plan. His calculations showed that, by 2025, "plus or minus two years", the world would be craving gas again.

Mr al-Kaabi was off on timing—but not much else. In 2021 a rebound in energy demand saw consumers scrambling for LNG, in part because it is seen as more climate-friendly than coal. In 2022 the war in Ukraine, which has seen European gas prices soar sixfold in a year, has sent delegation after delegation to Doha, the capital of Qatar, in search of supplies. On the day *The Economist* met with Mr al-Kaabi, Charles Michel, the head of the European Council, was also in town, braving the ferocious heat and fabricated football fever—Qatar hosts the World Cup this winter—to ask for more gas. Two weeks before it had been the prime minister of Greece; two weeks after it was the German chancellor.

They are not coming away with much by way of wins. In August Qatar sent Europe 2m tonnes of LNG. It was only a fifth of the total it shipped that month but, Mr al-Kaabi says, as much as could be managed, because the rest is tied into long-

term contracts, mostly with Asia. Nor will things necessarily get easier in the future. Mr al-Kaabi has signed partnerships with five of the largest Western oil and gas companies; but he is also discussing potential partnerships with Chinese, Indian, Japanese and South Korean firms. And he is willing to make straightforward supply deals "with everybody".

Qatar's dealfest points to a fundamental reordering of the global energy-trading system. In recent years the main organising principles of the sophisticated web of buyers and sellers of fuel around the world have been price and climate concerns. Now the war in Ukraine has reinserted energy security into the mix at a time when supply cannot rapidly grow. The market which will emerge will be structurally tight. It will also be split along a meridian running from the Urals to Saudi Arabia—allowing Gulf states to arbitrage opportunities as never before.

Turning to face the dawn

Of the three fuel flows which matter most—crude oil, oil products (refined oil) and natural gas—start with the one where the ructions are least apparent: the 100m barrel-per-day (b/d) crude-oil market. From December, European countries will be banning seaborne imports from Russia. Those imports accounted for 1.9m b/d last January. Russian crude exports run at about 5m b/d, which makes this a significant loss. European sanctions do not apply to the smaller flow of oil, around 800,000 ↗

► b/d, that arrives by pipeline, a loophole designed to keep landlocked Hungary happy. Seeing an opportunity to punish Europe and sow discord, Russia may cut the flow through pipelines anyway.

It can afford to consider this because Russian crude not sold to Europe can be sold elsewhere. Rystad Energy, a consultancy, reckons Russia will be able to redirect 75% of the oil Europe shuns. This redirection is already in full swing. Although European and American imports of Russian crude are down by 760,000 b/d since February, tallies of ships leaving Russian ports show that it is currently shipping half a million more barrels a day than it did a year ago—implying that 1.3m b/d are already finding a new home (see chart 1).

Last month India, which bought little Russian crude before February, imported 765,000 b/d; China guzzled 900,000 b/d, 230,000 more than a year ago. Adi Imsirovic, a former oil-trading boss for Gazprom, Russia's state-run gas giant, who is now at the Oxford Institute of Energy Studies, reckons China's storage and refinery capacity will be able to mop up many of Russia's excess barrels after the crackdown.

Europe would like to stop this redirection. When the embargo starts European insurance firms, which dominate the global shipping market, will be barred from offering cover to vessels carrying Russian oil. This may not matter much to big players like India and China, which can afford to self-insure; it could be a problem for smaller buyers who lack such means, such as the African countries which in August imported 200,000 b/d from Russia when they had previously bought next to nothing. Europe may exempt those who agree to buy the stuff at a price set by the G7 in order to make such deals more or less profitless for Russia. Russia has said it will not sell at the price the G7 sets.

The whole sick crude

That said, Russia is already getting less than top dollar; Urals crude is selling at 20% to 30% less than Brent crude, the global benchmark. As volumes grow the rebate may steepen. If Russia negotiates long-term deals with Asian countries, as it seems minded to do, they will demand a better price in return for offering a guaranteed market. As this prospect drives down the price in Asia, second-tier producers such as Angola, Brazil, Norway and Venezuela are redirecting their output towards Europe. But so far the job of quenching Europe's thirst is mostly falling to the Gulf states, whose shipments to the bloc have risen to 1.2m b/d, up from 500,000 b/d in February, and America, which last month sent it a record 1.6m b/d.

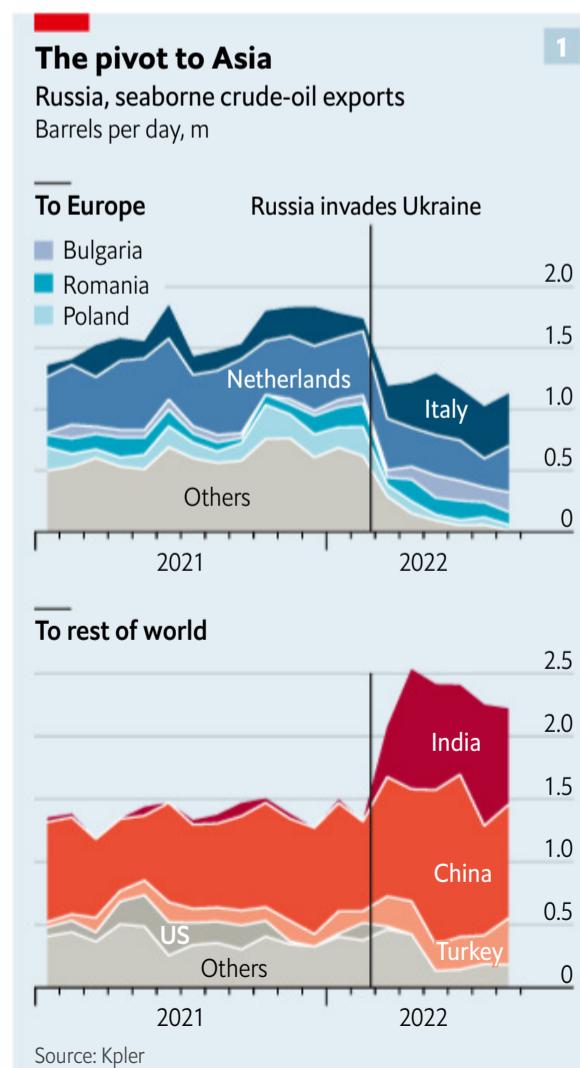
Next year, with little or no Russian oil, Europe may need even more from America, because the Gulf is running flat out.

Weaker members of the Organisation of Petroleum Exporting Countries (OPEC), such as Iraq and Kuwait, are already producing less than the cartel has agreed they can. Only Saudi Arabia and the UAE have room to increase production, perhaps by 1.8m b/d between them. But they fear slowing growth may hinder oil demand; and they are reluctant to undermine Russia. Russia's decision to join OPEC+, as the cartel's extended version is known, in 2016 was the result of decades of effort on the part of the Arab producers.

Getting Iran back into the global market would help Europe a lot. It could rapidly increase its production capacity to nearly 4m b/d. But a deal that would suspend the heavy sanctions America has imposed on the Islamic Republic—the key to unlocking Iran's supplies—looks increasingly unlikely. So next year it will be down to America to pump to the rescue. Which it might, if prices stay high long enough to tempt its shale oilmen to further open their taps.

In the longer run the strongest OPEC members should be able to defend their market share, even if oil demand slumps because of an economic crash. At \$45 a barrel, roughly half today's price, nearly all Saudi Arabia's huge reserves remain profitable; the same cannot be said for America, Canada or Russia (see chart 2). If climate action succeeds in reducing demand to a fraction of what it is today, those low-cost producers will be the last ones left.

Crude oil, though, is not the whole story. It must be refined, and though the



world's refineries have, in aggregate, enough capacity to deal with its crude, the refineries are not evenly distributed. There is a growing shortage of refinery capacity in the West; there is spare capacity in China. This means the effect of Europe's ban on oil products from Russia will be more complex, and perhaps more far-reaching.

A pick-up truck and the devil's eyes

Because of the pollution and emissions involved, and expecting a drop in demand as road traffic becomes electrified, the West's oil majors have invested little in refinery capacity. A lack of maintenance during the various lockdowns further reduced capacity. And because the crude it is now importing is not the same grade as that of the Russian oil many of its refineries are designed for, some of its capacity is not suited to the needs of the day, says Reid l'Anson of Kpler, a data firm. This means Europe cannot simply replace the 1.5m b/d of oil products it bought from Russia last year with crude it can refine itself.

In China, by contrast, concerns about emissions have just led to refineries being underutilised; this year officials in Beijing nearly halved the export quotas allowed to big refiners. About 4m b/d of refinery capacity is not being used.

Because neither China nor India, which has refineries aplenty, have any thirst for oil products, Russia will find it much harder to redirect the refined oil it is no longer selling to Europe (and the lesser amount, 400,000 b/d, that it used to sell to America). That is bad for Russia. But it also means that, unlike the crude-oil sanctions, the oil-product sanctions will cut into the amount of product on the market.

America is doing a lot to plug the gap. Last month it exported a record 6.4m b/d of refined products, a 1m b/d increase in a year. But its refineries cannot respond to demand quickly in the way its oil producers can. And they are currently operating at an average 93% capacity, well above the 85% level deemed sustainable. Sooner or later, traders reckon that the appeal of profit will see China ease its export limits; there are signs this may already be in the works. If so, the global oil-product trade may be turned into a giant "petroleum-laundering operation", says an Emirati oil boss, with Russian crude flowing to China and India being processed into products which end up in Europe.

Europe may decide to turn a blind eye to this. Its need for refined products may be severe. And it can tell itself that such sales do not really enrich Russia, as its crude would have flowed south and east anyway. If instead it seeks to ban such imports it will have a hard time of it. Refiners can always blend various grades so the share of Urals crude falls below any legal, or even detectable, threshold.

Either way, refined oil from the Gulf, where Saudi Arabia and the UAE have both increased capacity in past years, will find willing buyers. History shows that if they should choose to expand their refinery capacity further they will be able to do so faster than their competitors, and at little political cost. The countries are happy to buy Russian refined oil to arbitrage against their own pricier exports.

The big chill

If dealing with constrained supplies of oil products proves a problem, natural-gas shortages will be a far worse one—and a greater opportunity for the Gulf. Russian gas accounted for 45% of Europe's imports last year, with most of it coming via pipeline (see chart 3). In June Russia started to reduce and interrupt deliveries via Nord Stream, its main conduit; it stopped them indefinitely early this month. If it does not restart but other pipelines keep running, Europe will have received 90 billion cubic metres (bcm) of gas from Russia during the whole of 2022, leaving a 60-70 bcm shortfall, estimates McKinsey, a consultancy.

If, as is likely, Russia supplies nothing at all in 2023, Europe will have to find an extra 140 bcm next year—a hole equivalent to 14% of globally traded gas volumes, and to 27% of the LNG market.

And it is to the LNG market that Europe will mostly have to turn. This year it should be possible to replace some 30 bcm of the lost Russian volumes by greater production from the North Sea. But next year Norway, which has been postponing rig maintenance to avoid stoppages, may find itself producing less. There are pipelines from Azerbaijan and Algeria, and the one from Azerbaijan might be able to take some more. But imports from Algeria have been reduced by the closure of one of the two pipelines across the Mediterranean. When it reopens exports are not likely to increase by all that much. Algeria's gasfields are declining and its own consumption is rising.

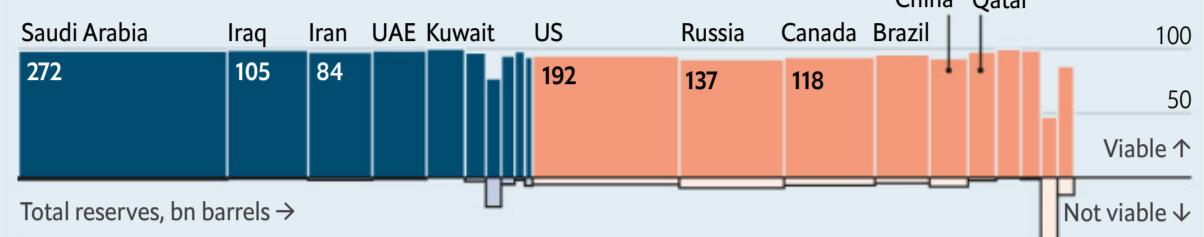
Pearl Petroleum, a gas producer in Iraq, is developing a field in Kurdistan that could, once scaled up and connected to the Turkish pipeline network, deliver 20 bcm a year to Europe, starting perhaps in as little as a year. But discussions have been stuck for months because Europe won't commit to a long-term contract, says Badr Jafar, Pearl's chair. Similar bemused complaints are heard elsewhere. One gas producer who recently spoke with Germany's energy minister describes the position as "schizophrenic": it desperately wants gas, but is unable to commit to buying beyond next winter. Mr al-Kaabi says Europe's insistence on paying the spot price makes it difficult for him to agree to long-term deals with security of supply.

The absence of pipelines means most of the deficit will need to be made up through

Who's afraid of a drop in price?

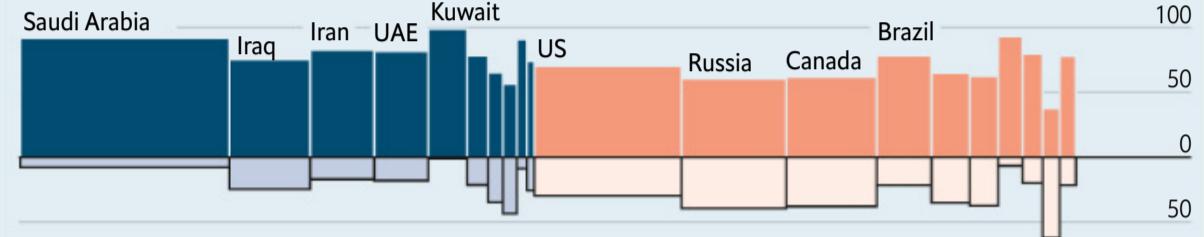
Share of crude-oil reserves that are viable, ten largest OPEC and non-OPEC producers, 2022, %

At \$90 a barrel ■ OPEC ■ Non-OPEC



Total reserves, bn barrels →

At \$45 a barrel



Source: Rystad Energy

LNG or done without. When Russian gas was available on tap, Europe deemed LNG an unnecessarily fussy pair of braces which, having a perfectly serviceable belt, it did not need. It did nothing to encourage natural-gas producers in America and elsewhere to get liquefaction facilities off the ground. Its purchases from Gazprom were indexed to the price of gas at a Dutch hub, which was low throughout the decade, and it did not enter into long-term deals. So scant was the EU's interest that much of the LNG that came its way was immediately dispatched elsewhere: last year the EU was the biggest LNG re-exporter on the planet.

Now that it wants more it faces two problems. One is the paucity of its regasification infrastructure. In principle the continent has the capacity to turn LNG imports into 209 bcm of gas a year, which on the face of it looks ample. But Germany,

Europe's biggest gas consumer, has no import terminals at all, and one-third of the capacity is in Britain and Spain, from which there is only enough pipeline capacity to provide the core of the continent with a paltry 35 bcm a year.

To remedy this, European countries are paying handsomely to attract movable plants on giant barges. By the end of 2023 ten of them—one-fifth of the global fleet—will be docked at European ports. The EU is also building five onshore import terminals, at the cost of \$500m-1bn apiece, but they will take longer to come online.

New currents

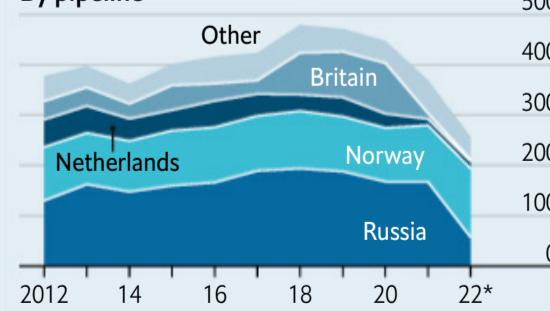
Where will the LNG for these new terminals come from? Only 37% of global LNG volumes are traded on spot or on short-term contracts. The rest is locked for the long term, usually a decade or more. For now, Europe is getting as much as it can, largely by sucking in cargo that would otherwise have gone to Asia. The best proxy for the amount of LNG being rerouted while at sea is where the tankers in the Atlantic end up. Last month 70% went to Europe, says Zongqiang Luo of Rystad, up from just 38% a year before. Asian countries are also reselling part of their stock. But soon the bidding war could grow fiercer, as Asian buyers stock up for the winter and China's gas demand rebounds from the low caused by its zero-covid policy.

This all looks likely to be very frustrating for Russia. Europe accounted for 76% of the 240 bcm of gas it exported last year. Cutting it off thus leaves it with a huge unsold surplus. There is a pipeline linking its gasfields (almost all in the west of the country) to China, but it is barely bigger than the connections from Britain and Spain to the heart of Europe. China, Mongolia and Russia recently met to discuss a

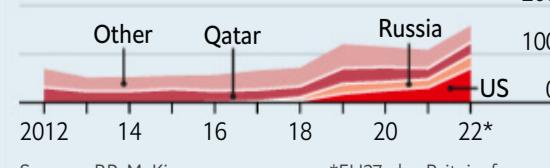
The big crunch

Gas imports to European countries
bn cubic metres

By pipeline



As liquefied natural gas



Sources: BP; McKinsey

*EU27 plus Britain, forecast

► pipeline that might be able to supply another 50 bcm to China by 2030, more than doubling capacity. But it is hard to imagine that China, unwilling to tie itself to one (unreliable) supplier, would endorse the idea unless it can extract a huge discount, making the project unprofitable. This must all make increasing LNG production immensely attractive to the Russian government. But Western sanctions are depriving Russia of the technology and skills it needs to make that happen.

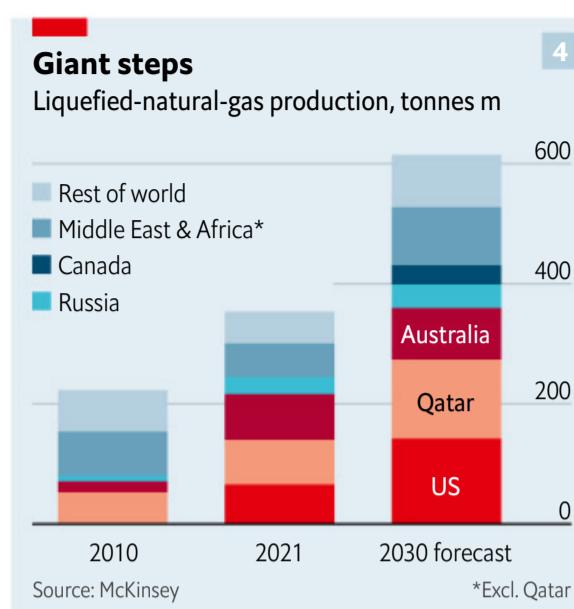
Over time new supply will come online. Some of it will come from Africa, where hopes have been high, though an Islamist insurgency near a giant gasfield in Mozambique is making investors skittish. In America there are new projects planned which should produce 44 mtpa (60 bcm a year), and existing facilities will be ramped up both there and in Australia. And there will be the huge North Field increases in Qatar. All told there could be enough new LNG infrastructure in the world to handle 260 mtpa more than the industry deals with today, a 74% increase (see chart 4).

That is enough to lead some to worry about a glut. Mr al-Kaabi is not one of them—not because they are necessarily wrong, but because he feels that the emirate can tough a glut out. It has a cost advantage in gas like that which the UAE and Saudi Arabia have in oil. Even if prices are pushed down, much of Qatar's reserves will remain profitable to exploit. “[We] have the downside covered,” says Mr al-Kaabi. “Others will go offline before [us].”

The transition brought about by the war, by sanctions and by a general increase in energy-security worries will be costly to many. Russia is close to the top of the list. Its revenues from exports of oil products and natural gas are set to slump dramatically, and whatever happens, the market for its gas in Europe will never be the same again. But some others may suffer almost as much, if not more. The outlook for energy-poor countries in the developing world is grim; many are already being priced out of the market. Saad Rahim of Trafigura, a trader, says tenders for delivering diesel to Africa used to receive three or four bids; now they often get only one.

Nor are well-off countries immune. Europe will suffer especially, at least in the interim. Its industrial heartlands may wither as a competitive advantage built on cheap Russian gas evaporates. But the same may also happen to parts of industrial Asia which find themselves contending with a persistently high gas price.

There are some things for which gas is uniquely suited—industrial processes such as fertiliser manufacture, for example. But when it comes to generating heat or electricity, gas can be replaced. Coal typically emits at least twice as much carbon dioxide per kilowatt-hour of energy as



gas burned in modern plants, and sometimes much more. It also produces deadly local air pollution. But competition for the stuff is heating up.

Bangladesh and Pakistan are both building up their stocks. Russian coal, which is also under European embargo, is increasingly finding its way to China, India and Turkey, if at 40-60% discounts. Europe is getting coal from America, Colombia, South Africa—exports from which have grown tenfold in a year—and even all the way from Australia. Prices for high-quality coal have hit three records in nine months, making the higher shipping costs worth it.

The seeds of time

If the climate is a loser that makes the world a loser. The same goes for the free market. Tight supplies make OPEC the swing producer again, giving it clout to move prices by making minor tweaks to output. Price-fixing is harder in LNG, and Mr al-Kaabi says Qatar will never be part of an OPEC-like cartel. But whereas until now spot pricing seemed on its way to becoming the global norm, Asian-style indexing



Rising or setting?

is returning to favour. And more volumes are being locked away. New fixed-destination contracts worth 20 mtpa have been signed since January; most are not set to expire for 20 years or more, according to Wood Mackenzie, a consultancy.

Big producers with the capacity to export more are in for a windfall. America will cement its status as a major fossil-fuel exporter. Australia can hedge its positions across fast-growing Asia, selling more to China while also being the supplier of choice to Japan and South Korea. But it is the prospects for the Gulf states which stand out most clearly.

Saudi Arabia and the UAE have mended ties with Europe and feel strong enough to reject American requests for high production rates. As shortages of technology and people eat into Russia's oil exports their prospects in Asia will improve. And in an increasingly political market, the Gulf cities' reputation as entrepôts where everything goes is a strong selling point. Oil traders from India, Russia and Geneva are beefing up their presence. In the first half of 2022 Russian oil accounted for 11% of the oil transiting in Fujairah, a port in the UAE, with some of it later disguised as oil from the emirates. As the centre of gravity of the energy trade moves towards them, their oil benchmarks and trading venues may gain more clout, says Gary King, a former boss of the Dubai Mercantile Exchange.

Perhaps the biggest winner of all is Qatar. The International Energy Agency, an official forecaster, says that unless countries strengthen their climate pledges, gas demand will grow until at least 2050. Such a trajectory would be bad in terms of climate change, a problem to which the Gulf is terribly exposed. But it would ensure continued earnings for Qatar. If emissions are cut more quickly it would earn less. But it might well flourish more in less hellish heat, and would probably still do better than its neighbours. Ambitious cuts will get rid of oil before gas; for as long as gas remains traded globally, Qatar's position should be secure.

If global markets break down further, it might come under pressure to pick a side. But it has been actively increasing its options. QatarEnergy, the national petroleum company, already owns key LNG import terminals across the West, including in Britain and Italy. Mr al-Kaabi says it is set to spend more than \$100bn in the coming years—including up to \$10bn on the Golden Pass project, a huge LNG export terminal in America, and \$20bn on “the largest ship order in the history of LNG”. But as Qatar spreads its wings it is also seeking ways to keep control. A negotiator at one of the Western firms which became partners in the NFE this summer says the terms of the deal mean that cargoes destined for Europe will be divertible at Qatar's whim. ■



America and the world

Wooing the waverers

NEW YORK

A strengthened Joe Biden warns of global disorder if Russia wins in Ukraine. But many countries want to stay out of geopolitical rivalries

WITH VLADIMIR PUTIN's latest nuclear threats ringing around the hall, President Joe Biden came to the UN's headquarters on September 21st to warn the world's leaders that all of them had a vital stake in defending Ukraine against Russia's invasion. "This war is about extinguishing Ukraine's right to exist as a state, plain and simple, and Ukraine's right to exist as a people," he declared. "Whoever you are, wherever you live, whatever you believe—that should make your blood run cold."

Mr Biden gave little detail of how America would respond to Russia's moves to annex parts of Ukraine, or to any use of nuclear weapons. The speech did not attempt to set out American policy in Ukraine, but to win over the world's doubters by casting Russia as an imperialist land-grabber.

For an American president the annual gathering of the UN General Assembly ought to be akin to playing a home match. The UN was America's brainchild. Its headquarters are in New York. America benefits from an unrivalled network of friends and

allies. In Mr Biden, it also has a leader who believes in "relentless diplomacy".

What is more, Mr Biden is enjoying a winning streak. Abroad he has helped Ukrainian forces push back Russian troops from some areas. At home he has scored big legislative wins, his ratings have risen and his Democratic Party's prospects in the midterm elections have improved.

Yet he faced an uphill task in New York. Many leaders are reluctant to take sides in the West's proxy war with Russia, or to be caught in the contest for supremacy between America and China. "I have come to say that Africa has suffered enough of the burden of history; that it does not want to be the breeding ground of a new cold war," said Macky Sall, the president of Senegal and current chairman of the African Union. Like others, he managed to bemoan the impact of the Ukraine war without mentioning Russia. He urged de-escalation, a ceasefire and a negotiated solution.

Ukraine won a procedural victory when, despite objections from Russia, the

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General Assembly agreed to allow its president, Volodymyr Zelensky, to address leaders by pre-recorded video. Nevertheless, Western countries worry that support for Ukraine is weakening. Richard Gowan of the International Crisis Group, a think-tank, notes that America and its European allies have not tabled a substantive General Assembly resolution on Ukraine since overwhelmingly winning a series of votes in March and April. "Ukraine fatigue", he explains, could lead to narrower votes and so give succour to Russia.

Some countries, particularly in Africa, have a lingering sympathy for Russia from when the Soviet Union was a strong advocate of dismantling other countries' empires. Some feel they are suffering the effects of a war that does not concern them. Others have more pressing problems.

"Our world is in peril—and paralysed," warned António Guterres, the UN secretary-general, setting out a list of menaces, including the risk of human annihilation from nuclear weapons or climate change, that the world was failing to deal with because of geopolitical rivalry. Rather than a "G-2" world dominated by America and China, he said, "now we risk ending up with G-nothing. No co-operation. No dialogue. No collective problem-solving."

Western leaders seemed to have a four-part game plan at the UN. First, Mr Biden softened his long-standing division of the world into rival camps of democracies ➤

► against autocracies. He made no apology for upholding democracy as "humanity's greatest instrument". But he said all countries, regardless of their form of government, had signed up to the UN charter, which proclaims "the sovereign equality of all its members" and forbids "the threat or use of force against the territorial integrity or political independence of any state". It was the duty of all states to defend it, or suffer the collapse of world order. President Emmanuel Macron of France, often seen as soft on Mr Putin, was notably blunt: "Those who keep silent today serve—despite themselves, or perhaps secretly with a certain complicity—the cause of a new imperialism."

The second part of the West's strategy is to mitigate the repercussions of the war. A summit on food security, jointly hosted by Antony Blinken, America's secretary of state, set out a plan to respond "at scale and in concert" to growing hunger around the world. Mr Biden promised \$2.9bn in additional aid to deal with the food crisis, on top of \$6.9bn committed earlier this year.

Third, America wants to be seen to respond to broader concerns. On global health, Mr Biden pledged help to ensure the world is better prepared to confront the next pandemic, and to support the fight against AIDS, tuberculosis and malaria. He said he was ready to talk to rivals about arms control. But Russia was making "irresponsible nuclear threats" and China was pursuing a "nuclear build-up without any transparency". America's offer of nuclear talks with North Korea had met with no response; those with Iran had stalled. On climate change, too, Mr Biden had a stronger hand given the passage of the Inflation Reduction Act, which includes \$369bn in measures to curb greenhouse-gas emissions, "the biggest, most important climate commitment we have ever made".

Fourth, America re-embraced the seemingly hopeless cause of reforming the UN Security Council. The five permanent members (America, Britain, China, France and Russia) should wield their veto only in "rare, extraordinary situations", Mr Biden said; and the council should increase the number of permanent and non-permanent members. He gave few details. But given that the most obvious candidates include Japan, Germany and India—friends of America's whose elevation is opposed by either China or Russia—he may simply be trying to put his rivals on the spot.

How much these efforts will shift waverers remains to be seen. At the least, Mr Gowan notes, Mr Biden no longer comes across as weak: "You hear less talk about the inevitable return of Donald Trump. That improves America's ability to do stuff in the UN system."

Beyond the debating chamber, the global balance of power is changing. "Every

day the war goes on, Russia's military is degraded," argues Richard Fontaine of the Centre for a New American Security, a think-tank in Washington, DC. "Russia is militarily weaker and diplomatically more isolated. That is a significant win."

Just as recent successes have given Mr Biden a boost, however, future setbacks could weaken him again. European allies face a winter of fuel shortages. Asian friends are dismayed by Mr Biden's protectionism. And American democracy remains dangerously polarised. That greatly complicates the task of handling the country's many foreign challenges—from Ukraine to Iran and Taiwan. ■

Abortion

Bad politics?

WASHINGTON, DC

Republicans' proposed abortion ban could backfire

MIDTERM MATHS

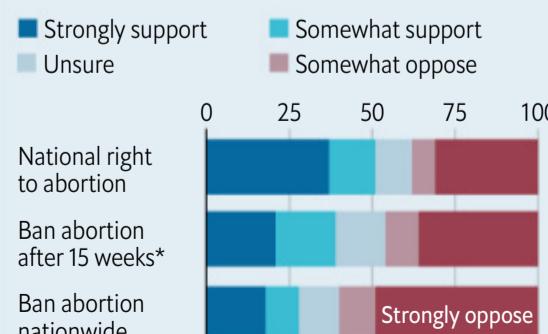


STATE LAWMAKERS in West Virginia on September 13th passed a bill that will ban nearly all abortions except to save a pregnant woman's life or in cases of rape or incest. The law will punish any person who performs an abortion on a woman after eight weeks of pregnancy (excluding those exceptions). Voters in the Mountain State are among the most conservative in America, yet a 2018 referendum on an amendment to the state's constitution affirming that nothing in it "secures or protects a right to abortion or requires the funding of abortion" got just 52% of the vote. So few expect that a similar bill would be popular in many other states. Few, apparently, except federal Republican lawmakers.

Caveat voter

"Would you support or oppose Congress passing a law doing the following?"

United States, % responding, Sep 17th-20th 2022



*With rare exceptions, while allowing stricter bans in states

Source: YouGov/The Economist

Lindsey Graham, a Republican senator from South Carolina, announced on September 13th a plan to push for a federal ban on abortion after 15 weeks if the Republican Party wins both chambers of Congress in November. The law would allow for exceptions in cases of rape and incest and to save the life of the mother. Many supporters, citing public-opinion polls, say they are confident the bill would be popular. They are mistaken.

True, polls show that most Americans do support some restrictions on abortion after the first trimester. A survey carried out between September 3rd and 6th by YouGov, an online pollster that conducts weekly surveys with *The Economist*, found that 30% of Americans favour legal abortion in all cases, 30% favour some restrictions (such as for minors or "late-term abortions") and 30% favour restrictions on all abortions except in "special circumstances" such as rape, incest or when a mother's life is endangered. Only 11% support abortion being banned in all cases.

On the surface such findings seem to suggest backing for Mr Graham's bill. It would allow some exceptions for rape, incest and health-threatening pregnancies. Those exceptions are popular, and late-term abortions are unpopular.

Yet just because Americans favour a certain policy outcome in abstract does not mean they support it being implemented in reality. This is especially so when it comes to banning certain actions. Witness the failure of a recent abortion referendum in Kansas (which would have amended the constitution to allow the state legislature to ban the procedure in subsequent legislation). According to a separate *The Economist/YouGov* poll, conducted from September 17th to 20th, a broad majority (60%) of Americans oppose Congress enacting a blanket federal ban on abortion.

Asked if they favoured "banning abortion after 15 weeks of pregnancy with rare exceptions, while allowing states to enact stricter bans", a plurality of 46% answered that they did, and 39% were opposed (the rest said they were unsure). But even this fair reading of Mr Graham's proposal is less popular than more progressive alternatives. A majority of 51% of Americans, according to our poll, favour Congress "establishing a national right to an abortion" (the details of which were not specified), while 38% do not.

It was perhaps bad politics for Mr Graham and his Republican colleagues to propose such a ban with the midterm elections around the corner. The US House and Senate are both reasonably competitive, our forecast model shows. It currently gives the Democrats a one-in-three chance of holding the House and a four-in-five chance of retaining the Senate.

The Democrats' chances have been im-

▶ proving ever since the Supreme Court overturned *Roe v Wade*, its landmark decision protecting abortion federally. According to a poll by *The Economist/YouGov* in early July (the last time the question was asked), 59% of Democrats say they would vote for a candidate for office based solely on that candidate's position on abortion, whereas only 41% of Republicans say the same. And our mid-September poll shows that Democrats are more strongly opposed to the proposed ban than Republicans are strongly in favour of it. Making the midterms a referendum on a national abortion ban is probably not the electoral hit that Mr Graham may have hoped. ■

Donald Trump's legal troubles

Et tu, New York

WASHINGTON, DC

The former president faces a sweeping new lawsuit

MANY AMERICANS who harbour nearly religious reverence for Donald Trump—especially those steeped in QAnon mythology—speak of the former president as a sort of Messiah. Of late he has resembled more the beleaguered biblical character of Job, beset by one legal woe after the next. The latest blow came on September 21st when Letitia James, the attorney-general for the state of New York, filed a lawsuit against Mr Trump, three of his children and his real-estate business alleging a “staggering” level of fraud extending over a decade. Ms James is seeking to permanently bar the Trump family from operating a business in New York and to recover \$250m in ill-gotten gains. She has also referred the findings of her investigation, which has taken three years, to federal prosecutors for possible criminal charges.

A lesser man with Mr Trump's legal burdens might have already been bowled over. A criminal investigation into possible mishandling of some of the nation's most sensitive secrets—which led to the spectacle of FBI agents dropping by unannounced to Mr Trump's estate of Mar-a-Lago in Florida—is likely to stretch for months. The January 6th committee in the House of Representatives has already unearthed many unflattering details of the president's actions the day his supporters stormed the Capitol, and may seek to release more before the end of the current congressional term. The Department of Justice appears to be following its work closely. In Georgia, Fani Willis, the district attorney for Fulton County, has empanelled a grand jury to investigate the efforts of Mr Trump and his allies to overturn the election results in that state. Even

someone as famously litigious and avowedly rich as Mr Trump is reportedly struggling to find enough attorneys.

Ms James's inquiry concerns more mundane matters than election tampering and sedition. The 214-page complaint alleges that Mr Trump and his businesses flagrantly misrepresented and inflated his net worth and the value of his properties in order to mislead prospective lenders and secure preferential financing. In the 11 annual statements put out by Mr Trump's company between 2011 and 2021, the ample team of investigating government lawyers have compiled 200 specific instances in which the assets were presented with fraudulently inflated values.

Some of the specifics are risible in their audacity. In 2015 Mr Trump's personal flat was allegedly valued as though it were 30,000 square feet (2,787 square metres) when it was actually 10,996 square feet. The complaint also alleges that Mar-a-Lago was valued at \$739m on the premise that the land could be sold and developed for residential use, when Mr Trump had in fact signed away these rights (and sought an income-tax deduction for doing so). An honest evaluation of the property's value would have been little more than one-tenth the amount claimed, the attorney-general writes.

One of the central actors identified, Allen Weisselberg, the chief financial officer for the Trump Organisation, pleaded guilty last month to unrelated charges of tax fraud. He has agreed to testify in a separate criminal trial against the company. That trial begins in October.

But dismissing damning facts and specific allegations—whether they concern insurance fraud or mishandled nuclear secrets—has never been hard for Mr Trump. In the Trumpian alternative universe, which friendly media outlets help to create, all legal investigations against him,



Letitia James launches her assault

including Ms James's, are simply part of a great political “witch hunt”. Before an expected presidential run in 2024, the president's legal team is seeking to delay the inquiries until at least the election year, at which point their political motives would look even more suspicious.

Mr Trump takes his supporters' loyalty for granted, and is not scared to invoke it to shield himself from legal scrutiny. When he was asked on September 17th by a conservative radio host what would follow after an indictment, he answered: “You'd have problems in this country the likes of which perhaps we've never seen before. I don't think the people of the United States would stand for it.”

Despite years of legal jeopardy, no one can credibly challenge Mr Trump's hold over the Republican Party. Enough of his supporters see him as a latter-day Job—a good and prophetic man put upon for no reason other than his own virtue. And they hope that their hero has the same happy ending: after a long despondency, restoration to a glory even greater than before. ■

Lobsters

Claws out

PORTLAND, MAINE

Maine's lobster industry is feeling the pinch

“WE HAVE TO go where the lobsters want to go...the rockier, the craggier, that's where we want to be putting our traps,” says Ali Desjardin, as she pulls up a lobster trap from the ocean floor. She grabs a gauge to measure the area from the rear of the eye socket down the length of the back. Any lobsters kept must have backs between 3½ inches and five inches (12.7cm) long. Everything else is returned to the sea. Females carrying eggs are also tossed back, a regulation Maine lobstermen put in place in 1872. Lobstermen notch females with a V to indicate to other fishermen that they are needed breeders. A purple rope, known as a line, attaches the trap to a floating buoy. Allegations about this line are rocking the entire lobster industry in Maine.

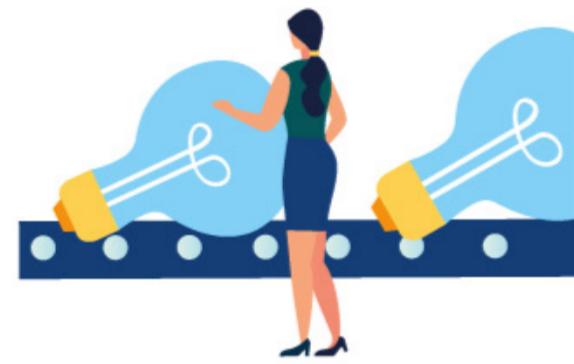
Earlier this month Monterey Bay Aquarium's Seafood Watch, a California programme which advises consumers and businesses on what marine life to eat, placed the Atlantic lobster on its “avoid” list. According to Seafood Watch, the lines used in lobster fishing can entangle the endangered North Atlantic right whale. Outraged Maine lobstermen say they have not had an entanglement with a right whale in nearly two decades. Most say they have never even seen one. “It's been extraordi-

POSITIONED FOR THE UNPRECEDENTED

Fostering a Resilient Mindset to Enable Growth

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Here, company leaders describe how resiliency fosters growth—not only for Iron Mountain, but for their customers too.



Bill Meaney

President and Chief Executive Officer,
Iron Mountain

We recently celebrated our 70th anniversary as a company and a pioneer in global records and information management. Today, thanks to our organizational resilience - learned and practiced through multiple recessions and other global upheavals - today Iron Mountain is the trusted partner that companies - which includes serving more than 950 of the Fortune 1000 over decades - rely on to help build their own resilience. We do this by helping our customers protect and gain greater value through our

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Barry Hytinen

EVP, Chief Financial Officer

Our ambition is to double the size of our business. Yet at the core of our growth mindset is the desire to help our customers work more efficiently and effectively to achieve their business transformation goals. To that end, we offer them a wide variety of products and services with truly global reach to support them on their transformation journeys.

And to make that happen, we've committed to funding an investment plan that focuses on customer solutions, innovation, people, process

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and technology. For example, our expansion into businesses like data centres, digital solutions and asset lifecycle management complements our core records business.

Altogether, we're investing in our people, processes and technologies, accelerating our growth path in line with our expanded markets. This multi-phase growth strategy will turbo-charge us towards our long-term growth ambitions.



Deirdre Even斯

EVP & General Manager,
Asset Lifecycle Management

We all know that the pandemic has super-charged companies' digital transformations.

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Cross-functional collaboration is perhaps the most important aspect of resilience-building and navigating

extraordinary challenges. Companies need to move from planning for a specific outcome to planning for scenarios, forcing our teams to be prepared to quickly pivot in times of uncertainty. It also builds strategic muscle as it forces us to try to think and see around corners.

Companies and teams must go even further in co-creating with their customers and other players in their business ecosystem to address common challenges and opportunities. We're helping with that effort with our Asset Lifecycle Management business with our recent acquisition of ITRenew, which enables us to help customers at every step of the technology lifecycle - from deployment to decommissioning to remarketing to redeploying their data center and corporate it assets, with the utmost security and data governance that we're known for. With this model, we help customers in achieving their sustainability goals, while creating greater operational efficiency and contributing to the circular economy.



To learn more about Iron Mountain's strategy for organizational resilience, visit ironmountain.com.



Maine's finest

▶narily frustrating," says Patrice McCarron of the Maine Lobstermen's Association, an advocacy group. "We pride ourselves on being stewards of the resource."

Since 1997 lobstermen have removed 30,000 miles (48,000km) of rope from the water, weakened remaining lines so that whales can break free, incorporated "weak leaks" and "weak inserts" in and below the buoys, and added distinct markings to trace any entangling gear to the specific fishery responsible for it. They have also cut the number of lobster traps. Curt Brown, a lobsterman and marine biologist, said at a recent press conference that: "Maine lobstermen have probably put in more effort, more time and more money than any group in this country to protect right whales."

Seafood Watch believes these measures "do not go far enough". The right whale (supposedly so named for being the "right" whales to hunt because they floated when they were killed) is in danger of extinction. Fewer than 350 North Atlantic right whales survive. According to one study, over 80% of them have been entangled in fishing gear at least once. They bear the scars.

Maine's lobstermen say that the damage is not caused by them. There have been no documented deaths associated with Maine gear. Seafood Watch should be celebrating a proactive industry, says Luke Holden, a lobsterman and owner of Luke's Lobster, a restaurant on Portland pier. He also owns a processing plant and sells to Whole Foods, a supermarket chain. "What else can we do to reduce risk?" he asks. "How can we work together to continue to protect what's important?"

The National Oceanic and Atmospheric Administration (NOAA), the federal agency which oversees the country's fisheries, has long been working with Maine to support sustainable lobster fishing and protect endangered species. "We fully recognise that

Adolescent health Trans plans

New standards of care for transgender people are causing concerns

AS IF MORE drama were needed in the gender wars, the public launch of the latest standards of care by the World Professional Association for Transgender Health (WPATH) on September 15th was a mess. Known as soc8, they originally included a list of minimum ages for treatments—14 for cross-sex hormones, 15 for removal of breasts, 17 for testicles. Hours later, a "correction" eliminated the age limits. The head of the drafting committee, Eli Coleman, said the publisher went ahead "without approval" before final changes were made.

This only intensified concerns about the document's "gender-affirming" approach that supports self-diagnosis by adolescents and children. WPATH, based in Illinois, has been the main transgender-health organisation that is looked to for guidance across the world. Since its views count, critics worry about soc8 saying hormones and surgery should be allowed at even younger ages. They think this medicalises too many teens who need neither, just therapy. soc8 also says puberty blockers are reversible, a contested claim.

The document does try to find some middle ground. It accepts that other mental-health issues must be dealt with. But it insists that a systematic review of evidence of outcomes in youth transitioning, called for by critics, is not possible, even though Britain did one (the findings contributed to the decision to close the Tavistock youth clinic that also promoted gender affirmation).

Maine lobstermen have done a ton over the years," says Allison Ferreira of NOAA, "but more needs to be done." Last year NOAA set a goal of reducing risk to whales by 90%. Its plan for doing this includes ropeless traps, which could be costly. "We are all going to have to make big changes to this industry," says Annie Tsilikis of the Maine Lobster Dealers' Association. "Fishermen will have to make major adjustments on the water. And we don't know what that's going to do to impact the supply."

"One thing in this business, if you can hold on long enough, the wind will stop blowing," says Mr Holden's father, Jeff, who was the first licensed lobster processor. "The losses will stall when the market straightens itself."

But this time is different. Many fear the industry is being eliminated. A study conducted in 2016 shows that the lobster sup-

"WPATH has been taken over by activists," says Julia Mason, a paediatrician in Oregon. Mr Coleman responds that such criticism is wide of the mark: "This is a professional organisation of people who all adhere to the Hippocratic oath."

The most controversial chapter is on eunuchs, who "may seek castration to better align their bodies with their gender identity". It refers to a website which hosts stories about castrating boys against their will. Stella O'Malley, an Irish psychotherapist who heads Gen-spect, a group questioning "affirmation", says there is a danger of "a new sacred ideology emerging that you cannot criticise". As with the Catholic church, she says, "this will inevitably attract some bad-faith actors".

Until now, transitioning has been justified by the hope that it could ease distress. Though some studies have found short-term improvements in mental health, these disappear in long-term studies. soc8 shows WPATH has now changed this aim, to helping trans people achieve "lasting personal comfort", points out Will Malone of the Society for Evidence-based Gender Medicine, an advocacy group. "Distress was clinical. Now it's about cosmetic procedures to achieve personal comfort."

Worried parents, many of them on the political left, point to the growing number of detransitioners. Sweden and Finland, meanwhile, have ignored WPATH, done systematic reviews—and restricted hormones and surgeries for adolescents.

ply chain in Maine contributes \$1bn to the state's economy each year. As many as 12,000 people work in it. And the loss of the lobster industry would go beyond the lobstermen, dealers and processors. Restaurants and lobster shacks, which rely on holiday-goers lured by quaint coastal fishing towns, could be hurt, too. If the lobster business vanishes, many coastal towns could struggle to survive. Thousands of families and small businesses that rely on the catch would suffer.

Lobster is synonymous with Maine, so integral to its brand that the state offers a licence plate depicting the crustacean. Your correspondent lost count of how many people she saw wearing belts with pictures of lobsters. The lobster industry is more than a job for most. "It's part of our identity," Ms McCarron says. "It's part of our heritage." ■



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Detroit's recovery

Revving up

DETROIT

Motor City is once again betting on the car industry to ride to its rescue

JOURNALISTS VISITING Detroit on September 14th and 15th were given two quite different views of its future. On the 14th, the opening day of the first North American International Auto Show to be hosted in Detroit since 2019, they watched through a window as Joe Biden clambered into a new bright-orange petrol-powered Chevrolet Corvette, and later drove an electric Cadillac SUV across the floor. In a speech that followed, the president, a self-professed "car guy", drew a direct link between cars and prosperity. "American manufacturing is back. Detroit is back. America's back," he declared.

On the 15th, however, some who stuck around saw Pete Buttigieg, Mr Biden's transportation secretary, visit an exit ramp of the Chrysler freeway, just east of downtown Detroit. Together with Gretchen Whitmer, Michigan's governor, and Mike Duggan, Detroit's mayor, he announced a huge chunk of federal funding to remove a section of the motorway that in the 1950s was built at the expense of residents (most of them black) of what had been a thriving district. "This stretch of I-375 cuts like a gash through the neighbourhood," he said. By the end of the decade, instead of what Mr Duggan called a car-filled "ditch" separating downtown from the east of the city, Detroit will have a "boulevard", open to cyclists and public transport as well as cars.

For over a century Detroit and the car industry have been practically synonymous in America. The success of the Ford Model T helped a modest port town grow into America's fourth-biggest city. But the industry's influence on the city is mixed. From the 1960s middle-class white flight—enabled by mass car ownership and road-building—hollowed it out. By 2013 its population was one-third of its peak in the 1950s. That year Detroit became the first large American city to go bankrupt.

Now the city leadership is once again banking on the car industry to drive its economic recovery, even as it tries to tear down some of the car-related infrastructure of the past. Will it work?

Detroit has made remarkable strides since the bankruptcy. Cranes dot the downtown skyline, building new condominiums and restoring old ones. New restaurants and bars hum with tourists. A new tram system, the QLine, runs along Woodward Avenue, carrying visitors between downtown and the Detroit Institute of

Arts, with its magnificent Diego Rivera murals. A decade ago some homes could be bought for almost nothing; in June the median sales price hit \$100,000—low compared with most American cities, but the highest it has ever been in Detroit. The city's finances are in surplus.

The pandemic could have upended this resurgence. Before 2020 much of Detroit's success came from growing office employment. But most of those jobs are held by suburbanites, who drive in each day, rather than residents of the city proper. Roughly one-quarter are probably still working from home, depriving the city not only of spending but also of the income tax that the city levies on non-resident employees working there.

Yet Detroit has recovered better than might have been hoped, says Gabriel Ehrlich, of the University of Michigan, largely thanks to the creation of blue-collar jobs. Many are in construction; a new bridge is being built. But car factories are also opening. Near Hamtramck, an independent enclave surrounded by Detroit, General Motors has converted an old plant into an assembly centre for electric vehicles named "Factory Zero". Stellantis, the firm once known as Fiat-Chrysler, has opened a new factory, Detroit's first in 30 years, which will employ 5,000 workers—mostly residents of the city, under an agreement struck with the mayor—to build Jeep SUVs.

How sustainable is this recovery? Mr Duggan, who was elected in 2014, claims



Time to diversify

credit for the blue-collar jobs growth. "This was the result of an intentional strategy to reposition Detroit," he says. He sees a future in which the car industry invests heavily not only in manufacturing but also in designing new technology, such as autonomous vehicles, and even flying ones. "We're staying very close to our friends in the auto industry," he says. That the city is starting to undo some of its auto-centricity, by dotting streets with bike lanes and tearing down a freeway, is perfectly consistent with this, he says. He notes that Ford is rebuilding Michigan Central Station, a long-derelict Beaux Arts pile, as a walkable "campus" for its design teams.

Not everyone is convinced. The car industry is hiring because it is transforming, suggests Mr Ehrlich—it needs to produce new electric cars and keep its internal-combustion-engine production going, too. But electric cars are easier to assemble than petrol ones, which might eventually mean fewer jobs making them.

A different road ahead

Over the past 60 years the car industry's share of Detroit's economy has almost consistently declined. Part of this is because of rising imports and production shifting elsewhere. But part is simply that it takes fewer people to build cars. Even if Detroit captures a bigger share of new output than it has in the past, it may not suffice to keep a large share of the population employed.

And Detroit needs a lot more jobs. According to the Census Bureau, although the number of white and Hispanic residents grew in the decade to 2020, a shift of the black middle class to the suburbs still meant that Detroit lost 11% of its population overall. Mr Duggan disputes those figures, arguing that amid the pandemic, census workers failed to count residents properly, and that data from the postal service and utility companies show homes being reoccupied, not abandoned. But few non-political observers are as boosterish. "I don't know if we can yet characterise it as a vibrant and booming city," says Esmat Ishag-Osman of the Citizens Research Council of Michigan, a think-tank. The unemployment rate is still over 10%. And with interest rates rising, the rude health of car manufacturing is far from assured.

In the long run, the only way to fully reverse Detroit's decline is to diversify its economy. The growth of office employment and of the downtown may have slowed for now, but it is probably more sustainable than the car industry. There are good political reasons to chase manufacturing jobs—well-paid, they help lift people with limited qualifications into the middle class. It is no wonder that people like Mr Biden and Mr Duggan are so keen on them. But the car industry has disappointed Detroit plenty of times before. ■



Head in clouds? Or real-world strategy?

...

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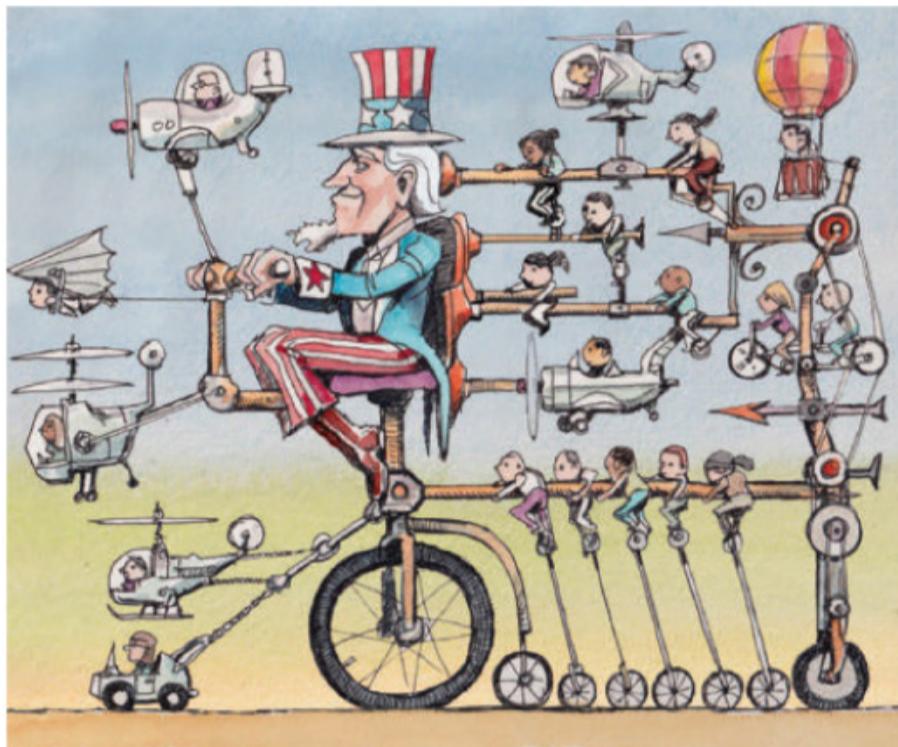
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Building a better working world

Lexington | In praise of the deep state

Despite common criticism, there is plenty of good news about American government



ONE OF DONALD TRUMP's finest acts as president was to blow off the White House Correspondents' Dinner. Of the annual rubber-chicken events that mark Washington's calendar, it is the most decadent, a pageant of self-importance that illuminates the distance of the federal city from the people it is supposed to serve. At the other end of the spectrum of semi-official functions is the event honouring the winners of the "Service to America" medals, the so-called Sammies. It might not sound dazzling: the medals go to bureaucrats who made the bureaucracy better. Yet it is a reliably inspiring affair. It has heart where the White House Correspondents' Dinner, in its flashes of authenticity, musters only spleen.

"I always knew I wanted to serve a cause greater than myself," says Barbara Morton, who won the management-excellence medal at the ceremony on September 20th for her work at the Department of Veterans Affairs (VA). Sammie-winners talk like that; there is no irony anywhere near their notion of public service. In their acceptance speeches they tend to deflect credit to others.

And, rather than dwell on what they have achieved, they almost invariably wind up envisioning the future of their work, be it a spacecraft headed to Mars, the immunisation of Americans against monkeypox or the complete digitisation, at last, of the procurement forms at the Department of Labour. "We are looking forward now," said Hilary Ingraham, one of three women from the State Department honoured for resettling more than 72,000 Afghan refugees, quickly finding homes for them in 331 cities across 49 states. She appealed to the audience for help in "exponentially increasing the number of refugees who are settled to the us", people "who seek freedom and safety for themselves and their families and who in turn contribute so much to our country".

Administrations come and go. The bureaucracy abides. There are about 1.9m federal civil servants, atop of whom each incoming president gets to sprinkle roughly 4,000 political appointees, to set priorities and, in theory, to run the show. But the bureaucracy does not await a new president like an orchestra tuning up for a new conductor, nor is it a tanker that slowly shifts direction when new hands take the helm. It defies metaphor or analogy—it is too vast and complicated—and in any case it is too important to be so lacking in continuity. Federal workers build rockets, deliver mail,

chase bad guys, clean bathrooms, inspect meat, buy jets, maintain hiking trails. The bureaucracy cannot really be run like a business, and politicians who make that claim do not understand how the government works. It is impervious to market forces; it can have no singular bottom line. When government agencies serve people well, they do so because the bureaucrats believe in their work.

Cindy Newberg has worked for almost 30 years at the Environmental Protection Agency. She was honoured for her success combating hydrofluorocarbons as the director of the stratospheric protection division (a title that might seem reward enough). She spoke of the determination and ingenuity required to tackle climate change, "to not look at something and say, 'Climate, it's too big, we can't fix it,' but to say, 'Let's take a small piece of this, let's tackle a few chemicals, then let's tackle a few more.'" If you move too fast, she said, "you turn industry off," but if you move too slowly, "you don't meet the needs of humanity." Only in government, she said, can one hope to take on such a big problem.

In 2014 the VA was engulfed in scandal after it emerged that some veterans were waiting more than 100 days to be seen by a doctor. Hundreds of thousands were struggling to get their benefits. In response, the VA created a "Veterans Experience Office", and Ms Morton, a lawyer who had been with the department for ten years, became its deputy chief. To understand where matters stood, the office surveyed thousands of veterans. Only 55% said they trusted the department to fulfil its commitments.

After conducting hundreds of interviews with veterans, Ms Morton and her team created a clear "welcome kit" explaining all benefits and services available to veterans across their lifetimes. Also in consultation with veterans, they launched a new version of the VA website that replaced news about the department with clear navigation for people looking to gain access to their benefits, and also made it easy for veterans to update their information. As secretaries of the VA came and went (four, so far, in the life of the Veterans Experience Office), Ms Morton and her colleagues kept surveying veterans every quarter, treating the resulting trust number as their north star. By the last sounding it had climbed to 76%—far from perfect, but much improved. "We have such creative spirits in government," Ms Morton says. "People think government is so static or stale or limiting, and it's quite the contrary."

Sammies time next year

The Sammies are run by the Partnership for Public Service, a non-profit group (the medals are named after its founder, Samuel Heyman). This year some 30 finalists, drawn from 400 nominations, gathered for a reception in the spring. "I can tell you I was blown away by the great work going on in government," recalled Gregory Robinson, as he accepted the medal for federal employee of the year. The son of sharecroppers, Mr Robinson took over management of the James Webb Space Telescope programme in 2018, when it was 11 years behind schedule and \$9bn over budget. NASA credits him with turning things around and achieving the telescope's flawless deployment. "I know the political rhetoric makes a lot of people not appreciate government," Mr Robinson continued. "But I tell you, I think we're in really, really great hands."

Spreading that message might help recruit the next generation of Sammie-winners to a government in which less than 7% of the workforce is under 30. President Joe Biden resurrected a presidential tradition by showing up at the White House Correspondents' Dinner this spring. He would do well to start a new one by attending the Sammies next year. ■

**Brazil**

The unknown known

SÃO PAULO

The Economist interviews Lula, the front-runner to be Brazil's next president

TWO DECADES ago, when Luiz Inácio Lula da Silva was running for president, “it was as if a meteor was going to hit Brazil,” recalls Périco Arida, a Brazilian economist. Markets “demonised” Lula, as the leftist former president is known. The currency, the real, lost 35% of its value and Lula had to write a letter to the Brazilian people promising that, if elected, he would not do anything rash. After he won, “the meteor disappeared,” says Mr Arida. Lula was fiscally prudent during his first four-year term, between 2003 and 2006. After being re-elected to a second, his Workers’ Party (PT) government used a commodities boom to help the poor. Lula’s policies were sometimes inefficient, and he expanded Brazil’s bureaucracy. But he was neither rash nor radical.

Now he is running again. On October 2nd Lula faces Jair Bolsonaro, the populist incumbent, in the first round of a presidential election. Mr Bolsonaro is trying to revive old fears about Lula, and then some.

The former president is a “devil who wants to impose communism on Brazil”, he has said. Most Brazilians seem unconvinced. Lula leads by 48% to 37% according to *The Economist*’s poll tracker (see chart on next page). The real is stable. “Businessmen know [what to expect from] a PT government,” Lula tells *The Economist*, rattling off his achievements: 4.5% annual growth, on average, during his two terms; reduction of public debt from roughly 60% to 40% of GDP; slowing of inflation from more than 12% in 2002 to just under 6% in 2010; an increase in the minimum wage; and 20m Brazilians who escaped from poverty.

Yet if Lula wins a third term, his job will be much harder than it was when he took office in 2003. Brazil’s fiscal situation is worse: public debt is 78% of GDP and 93%

of the budget is consumed by mandatory spending on things such as salaries and pensions. The global outlook is fraught. Though high commodities prices have helped the economy, inflation is hurting the poor. Political conditions are tougher, too. Brazil’s Congress is more avaricious and less co-operative.

Lula likes to remind Brazilians of how “happy” they were when he was first in charge. But he does not acknowledge that Brazil’s current woes started with his protégée and successor, Dilma Rousseff, also of the PT. When growth slowed, her government tried to stimulate the economy and shore up political support by borrowing to spend more. This led to a fiscal crisis and Brazil’s worst-ever recession, from 2014 to 2016.

Third time a charm?

Lula has tried to convince markets that he would not go on an uncontrolled spending spree. He chose as his running-mate Geraldo Alckmin, a business-friendly, centre-right former governor of São Paulo state. Lula has criticised a few of Ms Rousseff’s policies, such as keeping fuel prices artificially low and offering tax breaks worth more than 450bn reais (\$86bn) to businesses (which amounted to 7.5% of GDP).

But many economists are uneasy about the return of a leader who believes that the state should be the motor of economic ↗

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Brazil's election

How close is the race to be president? *The Economist's* tracker aggregates the polls daily. See the latest odds at economist.com/brazil2022

▶ growth. "If the government doesn't stimulate development, if the government doesn't take the initiative, if the government doesn't make credit available, things don't get done," Lula says.

Many ordinary Brazilians are frustrated by Lula's refusal to accept responsibility for policies that led to the recession, or to apologise for the PT's role in the corruption scandal known as *Lava Jato* ("Car Wash"). "The PT is tired of apologising," Lula says, though the party has never actually done so. Lula spent a year and a half in jail after being found guilty of accepting bribes, though his convictions were later overturned by the Supreme Court. He maintains his innocence and says that the real "irregularities" were the conduct of prosecutors and judges.

From meteor to moderate

If Lula is elected, his priority will be helping the 33m Brazilians who live on less than 289 reais (\$55) per month, the highest number since 2012. He says he would increase cash transfers, expand a social-housing scheme and introduce a debt-forgiveness programme. He calls this "putting the poor back in the budget" and bets that it will boost consumption and growth.

The IMF forecasts that the economy will grow by 1.7% this year, because of stimulus spending in the run-up to the election, but by only 0.7% in 2023. In August Mr Bolsonaro sent a budget proposal to Congress that did not include 143bn reais' worth of promised social spending, including the current monthly transfer of 600 reais to 2.2m of Brazil's poorest families and a promised pay increase for public workers, whose salaries have been frozen since 2017.

Since 2016 Brazil's budget has been restricted by a constitutional spending cap that limits the growth of spending to the rate of inflation. But recently Congress has suspended the cap to fund covid-19 spending and stimulus measures to benefit Mr Bolsonaro's campaign. As a result, it has lost its power as a fiscal anchor. Even Mr Bolsonaro's pro-business government announced that if he were to be re-elected, he plans to replace it with a "more flexible" fiscal rule. Lula also wants a new fiscal framework that allows for more short-term borrowing while assuring markets that the debt-to-GDP ratio will come down in the medium term.

Lula's advisers say they would also move quickly on a reform that would increase taxes on the very rich while simplifying the labyrinth of levies on consumption, which are a drag on growth. Both PT economists and orthodox ones stress the need for such a move. Some PT types also seek to increase government revenues by taxing dividends or even wealth; Lula has not ruled this out. Other economists want a fiscally neutral reform that pairs higher income taxes on high earners with lower payroll taxes for firms to incentivise formal employment. Either way, these changes seem unlikely. Tax reform has eluded every government since 1965, as it involves difficult negotiations with states and interest groups.

Lula's long-term strategy for growth relies on expanding big public banks to fund infrastructure projects, with investment from both the public and private sector. Lula and his economists often cite President Joe Biden's infrastructure law in the United States as a model. But while Brazil may need investment, "the idea that the state knows where to invest is an error," says Bernard Appy, an economist who left Lula's government in 2009 as it became more interventionist. The key question, he says, is whether Lula and his team understand that in order for Brazil to grow faster, it needs reforms to improve the quality of spending and the business environment, or whether they think spending by itself will be enough.

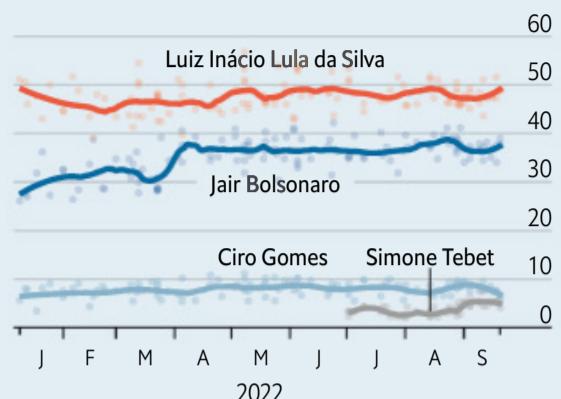
Lula's campaign manifesto suggests the latter. In addition to a classic leftist vision for the economy, it advocates a heavy dose of intervention, describing a "national food reserves policy", the exchange rate as "an instrument to reduce volatility", and the need to "Brazilianise" petrol prices. "The [Brazilian] worker earns in reais. So why do you have to dollarise petrol prices?" says Lula. In other words, he wants prices



A face from the past

No surprises

Brazil, voting intention in first round of presidential election, %



Sources: National polls; *The Economist*

at the pump in Brazil to be divorced from world prices. He suggests this could be done by building more refineries; in practice it would surely require price controls and subsidies.

According to Monica de Bolle of the Peterson Institute for International Economics, "that programme is a repetition of every PT programme going back to 1989, [but] what you see on paper and what the president does are two different things." She and her colleagues have compared scores of manifestos with actual policies, and found that in office the PT tends to be more moderate than its campaign proposals.

Wrestling with red tape

Lula has made it clear that his government would not privatise Petrobras, the state oil firm, or Banco do Brasil, the largest public bank. But he has also suggested that he would not reverse the recent privatisation of Eletrobras, the state power company, or a pro-business labour reform passed in 2017. Several months ago Lula called the labour reform a product of "slaveholder mentality"; he has since adopted a less combative tone and talks about "updating" it by adding protections for gig workers.

Guilherme Mello, who runs the economic-policy team at the PT's official think-tank, says that public banks in a third Lula government would be careful when selecting projects to support. "The reality now is not one of national champions," he says, referring to Ms Rousseff's disastrous policy of showering a few companies with cheap credit in the hope of turning them into global giants, as most other Brazilian firms floundered.

Instead there will be a focus on credit for small businesses, incentives for clean energy and stronger guarantees for private investors to protect them against losses owing to red tape. Mr Mello also wants Brazil's new fiscal rules to create a "culture for evaluating public policy".

Much will depend on Lula's economic team. He says he wants a politician as finance minister rather than an economist, ➤

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Bello Bucale's big re-election lie

Abolishing term limits is the road to tyranny

“THE PEOPLE should have the right to reject or continue down the road on which they are travelling,” said Nayib Bucale on September 15th as he announced, to cheering officials, his intention to seek re-election as El Salvador’s president in 2024. Consecutive terms are banned by the constitution, and he warned that there would be criticism from abroad. But, he went on, this would be “hypocritical” since “nearly all developed countries” allow for re-election and it is banned only “in the third world”. His plan represents a big step towards another elected dictatorship in Latin America.

His statement contained a whopping fib. Of 35 countries considered developed by the IMF, the names of which he read out, all but the United States and South Korea have parliamentary systems. Their heads of government are not directly elected. Unlike Latin American presidents, these prime ministers are accountable to parliaments and can fall at any time, as has happened recently in Britain, Sweden and Italy. Many academics think Latin America would benefit from adopting parliamentary government. But the region shows no sign of doing so and this is not the issue that interests Mr Bucale.

Strip away that lie and is Mr Bucale’s intent so damaging? After all, a maximum of two terms is the rule in the United States, and two consecutive ones in Argentina and Brazil, for example (though in these cases the term is four years rather than El Salvador’s five). And Mr Bucale is surely right in thinking that Salvadoreans would like to keep him. For most of the period since a peace agreement in 1992 ended a civil war between the army and left-wing guerrillas, the country has suffered sluggish economic

growth, rising criminal violence and persistent corruption.

Mr Bucale, aged just 41, can claim to mark a decisive break with the past. His handling of the pandemic was effective if heavy-handed, mixing harsh lockdowns with generous handouts. He has cut the murder rate sharply, first with a reported truce with gangs and then, when this broke down, through a draconian crackdown. Under a state of emergency imposed in March he has jailed more than 50,000 supposed gang members. El Salvador has more prisoners relative to its population than any other country.

He has accompanied all this with national populist rhetoric, attacking “oligarchies”, the two-party system that ruled before he took office and, above all, “foreign powers”. “They gave us 200 years of their recipes and they all failed,” he said in his speech, delivered on his country’s independence day. “Now for the first time we are applying our own recipe.”

The recipe has worked for him, at least. His approval rating stands at 86%, according to CID-Gallup, a pollster. In a legisla-



tive election last year his New Ideas party won a two-thirds majority in the national assembly. He used that to retire a third of the judges and appoint a Supreme Court to his liking. The constitution, reformed as part of the peace agreement, states that alternation in power is “indispensable”. But the court’s newly appointed constitutional chamber duly ruled that the ban on re-election violated the people’s right to choose whom they want. On paper this ruling applies only to a second term. But it doesn’t take a shaman to foresee that the same argument would apply in 2029.

For practical purposes El Salvador has thus joined Bolivia, Nicaragua and Venezuela in abolishing term limits. To achieve this in Venezuela, Hugo Chávez went to the trouble of organising a new constitution and a referendum. Mr Bucale has aped the newer fashion of getting pliant courts to do the job, as in Bolivia and Nicaragua. It is no coincidence that most if not all checks and balances on the executive have withered in these countries.

The problem for Salvadoreans is that if and when they tire of Mr Bucale it may be too late for them to get rid of him. Already, his bullying of the media means he has escaped scrutiny for his use of the country’s money to speculate in cryptocurrencies. So far that has cost \$57m, reckons Moody’s, a credit-rating agency. Some analysts believe El Salvador is heading towards a debt default.

The countries that have abolished term limits are among the poorest in Latin America. Those that allow a second term but only with a gap are the richest (Chile, Costa Rica and Uruguay) or among the fastest-growing (Panama and Peru). It is permanent re-election which is correlated with the “third world”.

possibly because he will need to convince Congress to support reforms and loosen its grip on the budget. Since Lula left office in 2010, discretionary spending by the president has shrunk from 18% to 7% of the budget, and much of that is diverted to individual lawmakers’ pet projects in their home districts. In the past, the government would pay for pork in exchange for support for the president’s agenda. But a new kind of amendment created by Mr Bolsonaro made transfers practically automatic, ceding decision-making power to the speaker of the house and providing little oversight.

Whoever wins the election “will be a prisoner to this system”, says Marcos Lisboa of Insper, a business school. Lula wants to get rid of Mr Bolsonaro’s rule. Convincing Congress will not be easy.

Lula was pragmatic in the past, and tries to sound so today. Giving a speech to the São Paulo Federation of Industries in August he talked about the need for “reindustrialisation”, lamenting the drop in car production and Brazil’s dependence on commodity sales to China. He proposed solutions such as investments in technology and the green-energy transition.

But not all are convinced. Lula does not talk much about reducing trade barriers or making public spending more efficient. His government is unlikely to pass a much-needed administrative reform that would link public servants’ pay to performance and break the ratchet that means a high share of spending grows automatically with inflation. Businessfolk are concerned. Salo Davi Seibel, a billionaire who attended Lula’s speech in August, says that the risk facing Brazil is not a meteor but a “chicken flight”—an economy that flaps its wings, lifts off the ground and flops. ■





Vietnam's economy

Chain reaction

BAC NINH

Trade wars, a pandemic and deglobalisation have all failed to stop Vietnam's rise. Now comes the hard part

ANTONY TO swaggers between the rows of humming machines in his factory in Bac Ninh province, in Vietnam's north-east, as they spit out blistering-hot bits of plastic. His firm, Hanpo Vina, ships the bits to the Samsung plant down the road as well as to nearby makers of printers, speakers, laptops and other electronic items. Mr To picks a Brazil-bound Samsung phone charger from a counter and displays it proudly. On the back, laser-etched in Portuguese, is a version of that familiar stamp of globalisation: *Fabricado no Vietname*.

That message—Made in Vietnam—has been emblazoned on ever more products in umpteen languages since the formerly communist economy started opening up and promoting private enterprise in the late 1980s. Since 2000, Vietnam's GDP has grown faster than that of any Asian country bar China, averaging 6.2% per year. It has lured big foreign firms in droves. What

started with apparel makers such as Nike and Adidas seeking low-skilled labour has turned into a boom in electronics—higher-value goods that create better-paid jobs for more highly skilled workers. In 2020 electronics made up 38% of Vietnam's goods exports, up from 14% of a much smaller pie in 2010 (see chart on next page).

The trade war between America and China, which started in 2018, has helped. In 2019 Vietnam produced nearly half of the \$31bn-worth of American imports that moved from China to other low-cost Asian

countries (though some of these goods were probably just modified Chinese-made ones stamped "Made in Vietnam").

Add to that growing geopolitical tensions between the superpowers, China's onerous pandemic restrictions and its rising labour costs, and it is easy to see why many big firms are turning to Vietnam. Apple's biggest suppliers, Foxconn and Pegatron, which make Apple Watches, MacBooks and other gadgets, are building big factories in Vietnam and look set to join the ranks of the country's largest employers. Other big names moving chunks of production from China to Vietnam include Dell and HP (laptops), Google (phones) and Microsoft (game consoles).

All of which could lead to more growth, and make millions of Vietnamese people better off. That in turn could boost the popularity of the Communist Party, which has run the country as a one-party state since the end of the war in 1975. The government wants Vietnam to become rich—with GDP per person exceeding \$18,000, up from just \$2,800 today—by 2045. It hopes to do this partly by moving from cheap garments to complex electronics that require investment and skilled labour.

Vietnam has many things working in its favour. Its workforce will remain young and sprightly as China's ages and shrinks. ►

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The country is an enthusiastic member of over a dozen free-trade agreements, giving it easier access to scores of national markets. Its political leaders are less skittish about covid-19 than China's, too. Vietnam fully reopened its borders in March. China retains many barriers to entry.

The country of some 100m people also has geographical blessings, such as more than 3,000km of coastline. And it is right on China's doorstep. Thanks to massive infrastructure spending on things like new roads, its electronics cluster is just a 12-hour drive from Shenzhen, China's tech capital. "You don't have to reinvent your supply chains here," says one industrial-park operator. The government's knack for staying cosy with both China and America is valuable, too.

Yet there is still plenty to be done if Vietnam's factories are to move farther up the value chain. Its manufacturing base is still much shallower than China's. Foreign firms would love to buy more parts locally, which could be faster and more convenient than sourcing them from just over the border. But they usually fail to find what they seek.

The Hanpo Vina factory of which Mr To is justly proud illustrates not only what Vietnam has achieved but also the limits of that success. It is a rare domestic supplier of parts to an important foreign manufacturer. But the plastic bits it makes are some of the simplest in Samsung's Galaxy phones. Moreover, its plastic-injection machines are imported from South Korea. The resin they mould into plastic comes from China. The Vietnamese stuff does not meet Samsung's quality standards, admits Mr To. This sort of work is at the lower end of the electronics value chain, rewarded with lower pay, and easier for other countries with unskilled workers to swipe.

Nor can Vietnam simply copy out of the playbook of China or South Korea. Globalisation is falling out of favour. Big markets are reshoring. Trade deals prohibit the state-aid tactics used by some other countries that went from poverty to prosperity.

Trading up

Vietnam, merchandise exports, \$bn



A former Vietnamese official notes that the Chinese government was able to set the rules for foreign companies keen to sell to China's vast market. "In Vietnam we don't have the power," she says.

Foreign investment helps, but it will take time to show results. Next year Samsung will open a research facility in Hanoi, the capital. It is also looking into setting up semiconductor factories in the country. In May Pham Minh Chinh, the prime minister, joined leaders of other South-East Asian countries for a summit with President Joe Biden in Washington. But he also used the trip to drop by the Silicon Valley headquarters of Apple, Google and Intel.

The government has its own part to play. Workers are plentiful in Vietnam but talented managers are rare. So are skilled technicians. Although Vietnam already punches well above its income level for schooling, its university and vocational-training programmes need a boost. Michael Nguyen, the country head of Boeing, an aerospace giant that sources some parts in Vietnam, suggests firms such as his could work closely with universities to tailor training to what they need. If Vietnam is to grow as rich as China, let alone Japan, South Korea or Taiwan, it will have to invest not just in infrastructure, but also in its people. ■

Liquor policy

Unholy spirit

DELHI

India's capital has run out of booze

LIQUOR STORES in Mumbai take orders from customers on WhatsApp, deliver drinks to the doorstep and accept payment by credit card, mobile transfer and even cash. In booming Gurgaon, just over the state border from Delhi, India's capital, enormous emporia entice thirsty—and thrifty—tipplers. In Delhi itself, though, potential buyers of booze must visit dank, government-run establishments, often in insalubrious markets, and join jostling, all-male queues for limited stocks of whatever is available that day. It is a hellish ordeal.

Last year the Aam Aadmi Party (AAP), which runs Delhi, belatedly came to the same conclusion. It allowed private vendors to start selling booze, arguing that ending the government's monopoly would curb corruption and raise tax revenues. The new policy, which came into effect in November, markedly improved life for consumers. Clean, well-lit shops sprang up to rival those in Gurgaon. Market forces encouraged competition and discounts. Women began to buy their own bottles instead of dispatching male friends or relatives to push through the crowds on their behalf. It was an Eden of ethanol.

That paradise has been lost. In July the government said it would take back control. The result was an immediate shortage. Most new shops sold off their stock and shut down. Bars and restaurants ran dry. Delhiwallahs dug out bootleggers' numbers or resumed booze runs over the border. (Liquor policy is set at the state level in India.) On September 1st the government monopoly was restored. Even the handful of private shops from the old, old regime are gone.

The main reason for the fiasco is



The customer is always contrite

political wrangling. In India's federal system, Delhi is not quite a state, nor directly ruled by the national government, but something in between. The Bharatiya Janata Party, which runs the country, also exercises control over bits of the capital's administration. It was against the policy from the start. No doubt it also spied an opportunity to poke a rival party in the eye. It accused the AAP of turning the capital into a den of vice and corrupting women and the young. And it alleged corruption in the awarding of licences to sell liquor (the AAP strongly denies this). The AAP ditched the policy after the central government's agencies launched a corruption probe and raids against its officials.

No matter. The AAP promises to present a new policy and try again in the coming months. In the matter of libations, paradise may yet be regained.



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North Korea's nukes

Pass the button

SEOUL

Kim Jong Un considers devolving power over his nuclear arsenal

GIVEN THE frequency with which Kim Jong Un threatens to annihilate his enemies, it is perhaps unsurprising that American and South Korean leaders just as often discuss launching a "decapitation strike" against North Korea's dictator. Yoon Suk-yeol, South Korea's current president, is no exception. He has repeatedly talked up his country's "kill chain" plans, a system for pre-emptive strikes against North Korea's missile facilities and its leadership if an attack is thought to be imminent.

Mr Kim seems to be growing tired of death threats. In a speech to parliament on September 8th he reiterated that his country would never give up the bomb as long as "nuclear weapons exist on earth and imperialism remains". Notably, he promulgated a law clarifying when North Korea might use its nukes. They could now be launched "automatically and immediately" if the leadership or nuclear command structure were "placed in danger".

The move signals a significant maturation of the North's deterrent. Previously Mr Kim had sole authority to use nukes. The new law preserves his "monolithic command" over the arsenal, but opens up the possibility that he might delegate this authority. The legislation is short and ambiguous, probably in a deliberate attempt to prevent South Koreans and Americans from testing Mr Kim's red lines. But the message is clear enough: any attempt on Mr Kim's life or the weapons that prop up his regime will lead to nuclear war.

This is an explicit statement of a "fail deadly" nuclear strategy, a promise that aggression will be met with automatic and unacceptable force. It is "a very traditional solution to a traditional problem", says Ankit Panda of the Carnegie Endowment, a think-tank in Washington.

During the cold war both America and the Soviet Union adopted such strategies. America stipulated that a "full" nuclear strike would be launched against the Soviet Union and China if its president were killed in the course of an attack on America. It revised this policy in 1968, permitting field commanders only "limited response", deeming the risk of catastrophe too high. A corresponding Soviet system, named Perimeter, had to be switched on manually, but would then launch nuclear missiles without additional authorisation if it detected a nuclear strike and was unable to contact the Soviet general staff.



Monolith and minoliths

Those with their fingers on the button are caught in what Peter Feaver, an American political scientist, has called the "always/never dilemma". They want assurance that the weapons will always be ready to go when needed, but will never be used without proper authorisation. Devolving power over nukes helps with the "always" but not the "never", as it raises the risk of both unapproved and accidental use.

The Kim dynasty has survived for seven decades by jealously guarding its power and coup-proofing the structure of its armed forces. Granting the nuclear codes to subordinates would empower them in a way that probably makes Mr Kim uncomfortable. Pre-delegating authority to initiate a nuclear attack also increases the possibility of technical or human errors. A commander ordering a strike based on information from a faulty attack-detection system is worryingly plausible.

Such risks may motivate South Koreans and Americans to tread cautiously. There is little to prevent Mr Kim from developing new weapons. The regime has been impervious to threats and sanctions. Mr Yoon's recent offer to help develop the North Korean economy in exchange for "substantive progress" towards denuclearisation was met with palpable disdain: Mr Kim's sister called Mr Yoon a "naive little child". Nuclear threats help preserve Mr Kim's regime. Yet if a nuclear weapon were to be fired without his permission, he would be the ultimate loser. America and South Korea have made it clear that using nukes would result in his regime's annihilation.

America and South Korea have been expecting a new nuclear test for months now. North Korea has remained quiet, perhaps waiting until after China has held its party congress in October so as not to annoy its patron. While they wait, the allies might consider toning down the death threats. ■

Central Asia

Border disorder

ALMATY

Deadly fighting erupts between Kyrgyzstan and Tajikistan

WHEN THE leaders of China, India, Russia and several Central Asian countries travelled to Uzbekistan for a security summit on September 15th and 16th, most observers were watching for signs of cracks in the relationship between Vladimir Putin, who is waging a war of aggression in Ukraine, and his counterparts in India and China, who have remained close to him (see Banyan). Yet the regional powers' partners in the region were more concerned by events closer to home. The day before the meeting started, fighting broke out over territorial disputes between Kyrgyzstan and Tajikistan.

The border clash is the worst between any of the five post-Soviet republics in Central Asia since they achieved independence in the early 1990s. Some 100 people have been killed, twice as many as in a bout of fighting last year. In a region already reeling from Russia's invasion of Ukraine and a flare-up of hostilities between Azerbaijan and Armenia, the clashes are bound to cause more instability.

The current trouble started with a shoot-out near Vorukh, a Tajik exclave in Kyrgyzstan (see map), and escalated into full-blown fighting two days later. Vorukh is one of nine pockets of land in the Fergana Valley that are ruled by one country but surrounded by another. The borders that produced these exclaves are at the heart of the dispute. Drawn in the Soviet era on the basis of population levels at the time, as well as horse-trading between local power-brokers, the meandering frontiers have prompted fierce competition over land and water ever since they turned from administrative boundaries into real borders after the collapse of the Soviet Union. The past





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► two decades have seen some 230 border incidents with Kyrgyzstan alone, says the Tajik government.

Both countries blame the other for the violence. Kyrgyz officials said the recent hostilities began after a Tajik border guard strayed into their territory and opened fire on Kyrgyz troops. The Tajiks said Kyrgyz officers shot at their forces without reason. By the time the two countries' presidents negotiated a ceasefire on September 16th, the fighting had spread across an area of 2,000 square kilometres. Tajikistan counted 41 dead while 59 died in Kyrgyzstan,

which also reported that over 136,000 civilians had been forced to flee their homes (Tajikistan did not publish numbers).

Madeleine Reeves of Oxford University described the incident as an "armed military incursion by Tajikistan", given that Tajik troops attacked infrastructure and civilian facilities some distance from disputed areas. Some observers speculated that Tajikistan is aiming to make life in Kyrgyz border villages so unpleasant that they empty out and become easier to take over.

The fighting is an additional headache for Russia, which claims to act as a security

guarantor in a region that it sees as its backyard. Both Tajikistan and Kyrgyzstan are Russian allies. Both host Russian military bases and are members of the Russia-led Collective Security Treaty Organisation (CSTO), the region's answer to NATO.

Russia has issued mealy-mouthed expressions of concern and offered to help with proper demarcation of the border between the two countries. That would be a useful start. But with Russia distracted by its disastrous campaign in Ukraine, that seems unlikely to happen. For now, the violent bickering looks set to continue. ■

Banyan The kaleidoscope turns

Why Narendra Modi criticised Vladimir Putin in Samarkand

AFTER VLADIMIR PUTIN invaded Ukraine in February, only two Asian governments, the dictatorships of North Korea and Myanmar, cheered his aggression. Yet the region's two most populous countries so conspicuously abstained from UN resolutions condemning Mr Putin's attempt to wipe Ukraine off the map that it looked as if they were tacitly supporting the aggressor.

After all, China's president, Xi Jinping, had just declared a friendship with "no limits" between Russia and China. As for Narendra Modi, India's prime minister, who loves to boast of leading the world's biggest democracy, his fence-sitting looked to some like an implicit endorsement of Mr Putin. That is certainly how Russia's state-controlled media presented it.

Which explains why the meeting between the Indian and Russian leaders in Samarkand, in Uzbekistan, last week was so electrifying. It took place on the sidelines of the annual summit of the Shanghai Co-operation Organisation (SCO), a security forum of Eurasian states that was marred by deadly border clashes between two of its members, Tajikistan and Kyrgyzstan.

At the meeting, Mr Modi publicly dressed down Mr Putin over the seven-month-old war. "I know that today's era is not an era of war, and I have spoken to you on the phone about this," Mr Modi said in front of the cameras. As striking was Mr Putin's squirming response. He acknowledged Mr Modi's concerns and mendaciously promised to do everything he could to end the conflict. At the same summit Mr Putin acknowledged that China, too, was privately expressing concerns about the course of the conflict.

Neither Mr Xi nor Mr Modi is about to dump Russia. Their countries have be-

come the biggest buyers of Russian oil, which is under sanctions in the West. Moreover, India relies heavily upon Russian weaponry. But the evident shortcomings of Russian kit, as demonstrated in Ukraine, worry India, and give it another reason to avoid alienating the West, from which it increasingly buys arms.

Meanwhile, the spikes in food and energy prices caused by Mr Putin's war are a big domestic headache for the two Asian leaders. Russia's widely documented brutality towards Ukrainian civilians is an embarrassment by association—India has called for an international investigation into possible war crimes. Above all, strongmen hate a loser, and a diminished Mr Putin is starting very much to look like one. Indeed, his decision on his return from Samarkand to call up reserves and annex parts of occupied Ukraine smacks of desperation, not renewed strength.

Mr Modi may have had one more reason to remonstrate with Mr Putin in Samarkand. India has long thought of Central Asia as a neighbourhood in which it has both economic and security interests.

Geography has often made them difficult to serve, with a perennially hostile Pakistan and now a Taliban-led Afghanistan standing between India and the region.

That is why India "hitched its Eurasian wagon to the Russian star", as C. Raja Mohan of the Asia Society Policy Institute, an American think-tank, puts it. Close ties with the Soviet Union gave India privileged access to the Central Asian republics during the cold war. More recently, Russia lobbied for India's inclusion in the China-dominated SCO. But now the war in Ukraine is weakening Russia's pre-eminent influence in Central Asia, and India's with it.

To India's irritation, the vacuum is being filled by China, which is already Central Asia's biggest economic partner and now seeks wider influence. On his way to the SCO, Mr Xi pointedly chose to stop in Kazakhstan, making it his first trip abroad since the pandemic started. There he reassured Kassym-Zhomart Tokayev, the president, of China's support for Kazakhstan's "independence, sovereignty and territorial integrity".

Only one country is potentially challenging those: Russia. Like Ukraine, Kazakhstan shares a long border with Russia and has a sizeable ethnic-Russian minority. Since the collapse of the Soviet Union, Russian ultranationalists have claimed swathes of northern Kazakhstan. Their rhetoric has grown shriller this year. Pro-Kremlin commentators accuse Mr Tokayev of disloyalty for not supporting Russia over Ukraine after it helped "save" him from an attempted putsch in January. That is just one example of how a distant war is causing the Asian kaleidoscope to turn in unexpected ways. Mr Xi calling on Mr Tokayev, for all his protestations of undying friendship with Mr Putin, is another.





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**Hukou**

The widening gap

Despite recent reforms, many internal migrants will remain second-class citizens

CHINA'S NETIZENS are usually cheerleaders for nationalist causes. So the recent showering of praise on Vietnam by some of them has been striking. A bout of it occurred last month when exaggerated news circulated on Chinese social media that Vietnam was preparing to abolish its *ho khau* system of household registration, which makes it difficult for people from the countryside to obtain social benefits in cities. "Vietnam has completely surpassed China," wrote one commenter on Weibo, a Twitter-like platform. "The future star of Asia", enthused another.

China's equivalent of *ho khau* is *hukou* (they are different pronunciations of the same term), a system devised in the 1950s to keep farmers in their villages. The Communist Party acknowledges *hukou*'s unfairness to a large share of China's population, but despite numerous tweaks, its malign effects persist (as they will in Vietnam, where the system is simply going digital). Chinese officials may struggle to justify giving citizens different rights according

to their place of origin, but they fret that equalising benefits would be colossally expensive. They also see the system as a useful brake on migration to the biggest cities, where they fear the spread of slums, crime and conflict with urbanites who are reluctant to share their superior schools and hospitals with people they regard as lower-class outsiders.

In recent years, the issue of *hukou* reform has been front and centre. President Xi Jinping speaks of the need to *shiminhuá* (make into urbanites) rural migrants—in other words, allow these 300m-400m people to enjoy the same access as other city-dwellers to education, health care, pensions, housing and government jobs.

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— Chaguan is away

Smaller towns and cities have long been doing so. In 2019 the government said bigger ones, with up to 3m urban residents, should follow suit, and those with populations between 3m and 5m should ease their restrictions on obtaining local *hukou*. The biggest cities were allowed to continue using a points system to determine migrants' eligibility for benefits. This is based on criteria such as skills, education and social-security payments.

Official reports are vague about how many cities with populations under 3m have already abolished their restrictions on obtaining local *hukou*. In July *Shanghai Securities News*, a state-run newspaper, said an "overwhelming majority" had done so. That may sound like huge progress. There are more than 600 such cities in China. Only about 30 are bigger, including Zhengzhou, the capital of Henan province in central China. It has been hailed by state media as a pioneer among cities with populations over 5m for unveiling plans this month to relax its *hukou* restrictions.

But there is less to this than meets the eye. For most cities it is relatively easy to lower *hukou* barriers because they are not big magnets for migrants. The largest cities are the main destinations—though not Zhengzhou, which lies in a province renowned for exporting labour to other parts of China. And abolishing *hukou* barriers may not be quite what it sounds. As Charlotte Goodburn of King's College London ➤

► points out, applicants may still require proof of residency and employment (they will need such documents in Zhengzhou, if its plans go ahead). These are difficult for many migrants to acquire, as they often work without a contract and live in places that do not provide rental agreements.

Local governments have little incentive to offer full social benefits to the poorest of migrants. But their revenues rely heavily on the property market. With the market now slumping, they are keen to attract migrants with stable jobs who are likely to be higher earners and therefore potential homebuyers. Zhengzhou has been struggling since early this year to boost demand for housing, by making it easier to get mortgages and for migrants to buy flats.

Lifting *hukou* restrictions may not help any more than these other measures. On Weibo, commenters have heaped derision on the notion that people would flock to a city in such economic trouble. Some have also questioned why migrants would even want local *hukou*. Many farmers fear that if they abandon their rural homes and farmland they will lose a fallback option should they fail to make ends meet in the cities: they often leave behind elderly family members as caretakers of their land-use rights. “I’ve been in Zhengzhou for 13 or 14 years and haven’t obtained *hukou*,” wrote one netizen. “But one’s own land is sweet-smelling, isn’t it?”

Even by one of its own much-touted measures, the central government’s efforts at *hukou* reform are failing to produce the desired results. In 2014, less than one and a half years after Mr Xi took power, the government published plans for a “new style” of urbanisation. It called for a reduction by two percentage points in the gap between the proportion of people living in cities (then 53.7%) and the proportion with urban *hukou* (about 36%) by the end of the decade. In fact it had widened by about one percentage point (see chart). Last year saw the first narrowing of the gap in years. In July the government issued new plans, calling for a “conspicuous” reduction by

2025, but not giving a target.

The new plans still express anxiety about the “over-rapid” growth of the biggest cities and do not call for the scrapping of their *hukou* restrictions. The central government clearly sees the points system as a way of allowing them to suck in talent while erecting barriers that make it difficult for those without sufficient points to use local public services.

For young migrants, lack of access to free schooling for their children is a big concern. If they cannot enroll them in state schools, they have little choice but to send them to private ones for migrants that are costly and often shoddy—or else leave their children at home in the countryside (tens of millions live apart from both parents). China’s migrant population is ageing, however. Many of those approaching retirement age, having toiled for decades in cities, are now wondering whether to stay or go back, if they still have a home in the countryside. Caring for them in their twilight years is a burden that cities show no enthusiasm for taking on. ■

Politics

A bit more Mao-like

BEIJING

How Xi Jinping might change the Communist Party’s constitution



WHEN IT COMES to the top job, don’t expect any surprises at the Communist Party congress in October. There is little doubt that Xi Jinping will secure a third five-year term as party chief. But there will at least be some drama surrounding the party’s constitution. Observers will be watching to see how Mr Xi changes it. Even seemingly arcane revisions may signal that he sees himself on a par with communist China’s founder, Mao Zedong.

One area under scrutiny is Mr Xi’s philosophy, officially known as “Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era”. Wide-ranging and vague, it is hard to define. Nevertheless, at the previous congress, in 2017, it was inserted into the constitution. That placed Mr Xi in a league above his immediate predecessors, Hu Jintao and Jiang Zemin. Their philosophies were also enshrined in the charter—but without their names attached. Deng Xiaoping’s name was inserted only after he had died, and his thinking is merely called a “theory”.



They have thoughts

Mr Xi was the first living leader since Mao to be named as a guide to good Communist behaviour. Now there is speculation over the clunky name of Mr Xi’s philosophy. Party media have already begun using snappier forms. Some observers believe it will also be shortened in the constitution, to “Xi Jinping Thought”. Not only is that easier to say, but it evokes the founder’s philosophy, “Mao Zedong Thought”.

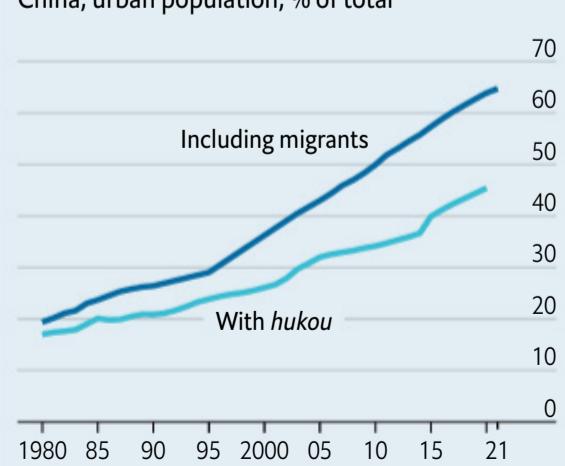
A second possible change would be more significant. Mr Xi has been called the helmsman of the country and the people’s leader—titles associated with Mao. But he has yet to re-establish the position of party chairman, a title that became almost an extension of Mao’s name. This tweak may sound blandly bureaucratic. But the title of chairman harks back to a style of overbearing leadership which was rejected by the party after the chaos and paranoia of Chairman Mao’s rule. In 1982, six years after Mao’s death, the position was abolished to signal that the party had adopted a more collective style of decision-making. To resurrect it would be a symbolic rejection of this post-Mao consensus, and a revealing marker of Mr Xi’s clout.

Mr Xi is China’s most powerful leader in decades, with a clutch of formal titles, including general secretary, at present the highest position in the party. He is also president (a largely ceremonial role) and head of the armed forces. Titles, anyway, are an imprecise measure of authority in China. In the early 1990s, as an old man, Deng Xiaoping wielded supreme power, though his only formal title was honorary head of the Chinese Contract Bridge Association. Mr Hu, by contrast, held the same positions as Mr Xi, but had less authority.

There could be a practical advantage to resurrecting the chairmanship role, says Ling Li of the University of Vienna. Mr Xi will be violating recent retirement norms if he stays on as general secretary at the congress. He has thus avoided anointing a

Benefits only for some

China, urban population, % of total



► successor. But by becoming chairman, Mr Xi would make it clear that he plans to remain in power indefinitely, argues Ms Li. That, in turn, might make him feel secure enough to name an heir, perhaps as vice-chairman or general secretary. Mao did much the same, cycling through four heirs-apparent before his death. A successor could be revealed "at a pace and in a manner that Xi finds most comfortable", wrote Ms Li last year.

In 2016, as Mr Xi was accumulating power, an anonymous letter appeared for a brief time on a state-run website. "Hello, Comrade Xi Jinping. We are loyal Communist Party members," it began, before cutting into the president for, among other things, ditching the party's system of collective leadership and allowing himself to become the subject of a personality cult. Six years later those charges seem even more accurate, but it is hard to imagine any criticism emanating from the congress. Rather, the event is likely to kick off a new round of adulation for Mr Xi, with echoes of the Mao era. ■

China-India relations

Still frosty

Where things stand between Asia's two biggest countries

XI JINPING SEEMED anxious to make up for lost time on his first trip abroad since the pandemic began. At a two-day summit of the Shanghai Co-operation Organisation in Uzbekistan this month, the Chinese president's schedule featured a dozen meetings with national leaders. Yet there was one notable omission: India's prime minister, Narendra Modi. Not only did the two not meet, they did not appear to exchange greetings when they stood next to each other at a group photo.

Some frostiness was expected given they had not met since a long-running dispute over a shared Himalayan border flared into clashes that killed 20 Indian troops and at least four Chinese ones in June 2020. On September 8th this year, however, both sides began withdrawing forces from a fifth point on the border, after pulling back from four others in the past two years. The timing raised hopes of a Xi-Modi meeting. Their mutual snub suggests the border dispute is stabilising, yet far from over.

This matters not just because it has the potential to spark a broader conflict between Asia's two biggest countries, which both have nuclear weapons and fought one brief border war in 1962 (China won). It has also prompted a historic change in India's

military posture, forcing it to shift resources away from Pakistan—its longtime adversary—and to enhance defence ties with America and its allies, especially Japan and Australia. They too are seeking to counter China's military ambitions.

Managing relations with India has thus become one of Mr Xi's biggest diplomatic challenges. He is attempting to assert China's territorial claims, while positioning it as a champion of the developing world and undermining American efforts to build a coalition of like-minded democracies, including India. As well as alienating Mr Modi, who shares some of his authoritarian instincts, Mr Xi also risks losing access to the vast and fast-growing Indian market for Chinese companies that are struggling to grow at home and in the West.

The dispute has its roots in the fuzzy frontiers sketched out when India was British-ruled. China claims the Indian state of Arunachal Pradesh. India claims a swathe of Chinese-controlled territory called Aksai Chin (see map). Since 1993 they have had protocols to stop encounters on the de facto border, known as the Line of Actual Control (LAC), from escalating. Those include not using guns when border patrols clash. But as each side has improved border infrastructure in recent years, encounters have become more frequent—and more violent.

The latest flare-up began around May 2020, when Indian officials say China moved new troops and equipment towards the LAC on the fringes of Aksai Chin. China said it was responding to new Indian infrastructure in the area. Each accused the other of breaching the LAC and moved in thousands of troops and heavy weapons. Brawls erupted, culminating in the clash that killed 24 soldiers—the first combat deaths on the border since 1975.

The most recent disengagement comes after a 16th round of commander-level talks in July and mirrors the earlier withdrawals. Between September 8th and 12th,

both sides pulled back forces from an area that India calls Gogra-Hotsprings and China calls Jianan Daban. That effectively creates a buffer zone on either side of the LAC in which neither side conducts patrols or has any structures. It also leaves two main areas where the standoff continues—one near the village of Demchok and the other on the Depsang plains farther north.

More talks are expected to try to create similar buffer zones in those areas. "From the standpoint of increasing stability and preventing crises, these buffer zones play a very important role," says Taylor Fravel of the Massachusetts Institute of Technology. But the latest agreement covered a relatively small area, and was military, rather than political. "So I would not view it as a diplomatic breakthrough making possible a bilateral summit," he added. Critically, China still rejects Indian demands to return to the status quo prior to April 2020.

Mr Xi's motives are clear. Having placed new emphasis on territorial issues, he wants to show progress and stability ahead of a Communist Party congress in October that is expected to grant him a third five-year term as leader. He also wants to focus on Taiwan, mindful of recent American moves to enhance ties with the self-governed island and of Russia's troubles in Ukraine. Besides, China has upgraded its infrastructure in Tibet and stationed enough forces there to respond quickly to another crisis on the Indian border.

Mr Modi, too, appears anxious to avoid further clashes, given China's superior firepower. For him, though, the calculus is more complicated. He has been facing criticism within India, including from retired military commanders, for ceding territory to China. Rahul Gandhi, a prominent opposition politician, tweeted on September 14th that Mr Modi had "given 1,000 sq kms of territory to China without a fight" and asked how he planned to retrieve it. That is not a realistic option. Neither, for the moment, is reconciliation. ■



TO

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Fixing the brain

TELL THEM I MADE IT



MADE IT

Hem Moktan earned just \$45 over the three years he was concealed as a child laborer in Nepal. He was only a young boy, but the carpets he hand-knotted were sold in fine showrooms across the United States and Europe – until one company partnered with GoodWeave. GoodWeave rescued Hem and provided him counseling, education and a place to live. Now with a master's degree, Hem heads GoodWeave Nepal's child protection program, transforming other children's futures as his was.

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Fixing the brain

Opening up the box

After fallow decades, neuroscience is undergoing a renaissance, says Natasha Loder

FROM YOUR reading of the words on this page, to your memory of breakfast, to the tickle of hair against your skin, your experiences are the work of nerve cells. So are your feelings, chains of reasoning, good and less good habits. So are your anxieties, moods, and the tremblings and lapses of memory which, if they do not afflict you yet, are likely to do so eventually. The whole panoply of human experience can be found in electrochemical pulses passed along and between the 90bn nerve cells, also known as neurons, that make up a person's brain.

When minds change, so do brains—and the opposite is also true. Things which change brains and central nervous systems, or the behaviour of specific types of neurons and supporting cells within those structures, can also change minds, for better or worse. When brains age, or are damaged, or are diverted with recreational drugs, minds alter, too. Sometimes entire personalities shift. This means that drugs and other treatments that target neurons can be used to address both physical diseases—neural degeneration, for example—and mental ones.

One hundred years ago, a single discipline of neuropsychiatry dominated the study and care of brain dysfunction. A schism emerged, starting in the 1930s. Today the neurology departments that deal with organic dysfunction of the nervous system, and the psychiatry departments which treat human minds, remain apart. Many people believe that a merger of the two is long overdue. This becomes more important as the biological ties to mental disorders such as depression and anxiety become apparent. As thoughts and

feelings, and thus the way the brain has been wired, have a role to play within the brain, they too play a role in disease.

The science informing both fields is at the same time advanced and also quite primitive. The brain is so complex that scientific understanding of it can seem decades behind that of other organs. As well as its billions of neurons the brain boasts similar numbers of non-neuronal cells known as glia, which provide the insulation to keep neural currents separate, as well as the nutrients needed for neurons to generate those currents and the immune responses and waste-disposal services the brain needs to stay healthy. Glial cells even help prune away the unwanted connections in the brain during development. The story of the role these cells play in the health of the brain is only just starting to be told.

Neurons talk to each other across gaps called synapses, places where a signal that has been transmitted electronically along the body of one cell is translated into a chemical message for transmission into the next one. More than 100 of these neurotransmitters have been discovered so far. But although some, such as serotonin and dopamine, have become household names, there is still much work to be done to understand how they and their more obscure classmates operate.

In the second half of the 20th century doctors discovered a range of psychiatric drugs. But each of the three major classes of psychiatric drugs—antidepressants, antipsychotics and anxiolytics—were discovered by chance. Scientific accounts of how they worked were absent, sketchy or wrong. A decade ago no mechanis-

►tically novel drug had reached the market in more than three decades. There was talk of psychopharmacology being in crisis.

But new insights in neuroscience are now arriving with impressive speed. Much of it is underpinned by genetics and a growing knowledge of molecular circuitry. Other drivers of progress include tools such as optogenetics, organoids and new forms of imaging, as well as a broadening interest in the underlying workings of the brain. One of the most exciting recent insights is the extent to which the brain is plastic, giving birth to new neurons throughout the human lifespan, something that points to great potential for treating and even curing many diseases of the brain.

These advances are bringing innovative approaches to targeting diseases of the brain. Optimism is also coming from successful new treatments for disorders such as depression, epilepsy, migraine, postnatal depression and spinal muscular atrophy (SMA).

Time to change your mind

New approaches include neuroimmunology, which targets the immune cells of the brain; gene therapy, which delivers working genes for those that are broken; and a revived interest in psychedelics, neuromodulation and precision medicines based around genetic or molecular pathways. Other novel approaches such as gene editing, stem-cell transplants and RNA therapies could also lead to new treatments, as could studies of recreational drugs which try to gain insight and therapeutic approaches from their manifestly mind-altering power. Psychiatry is undergoing a rethink, with efforts to improve classification and diagnosis of disease, and through closer ties to neurobiology. Investors, biotech firms and forward-thinking pharma companies are showing renewed interest in neuroscience. Drug pipelines are filling up.

Just as well. According to the Global Burden of Disease project 12 mental-health disorders affect about 970m people. Their prevalence has increased by 48% since 1990 as the population has grown. With more than one in ten people on the planet affected, it is a global problem, although what data are available suggest it is more marked in Western countries (see map).

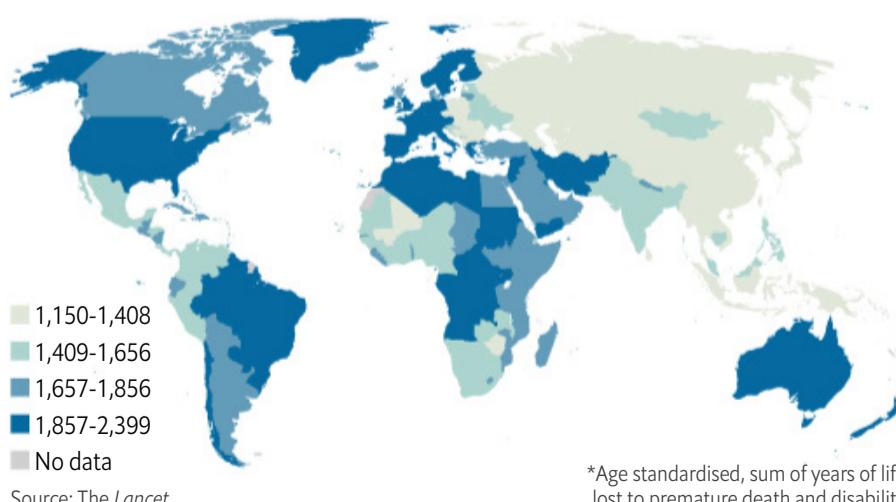
Neurological problems exact their own toll. Stroke, dementia, migraine, Parkinson's, epilepsy and traumatic brain injuries are collectively the leading global source of disability. Ageing populations mean the number of deaths due to neurological diseases is rising rapidly, particularly in low- and middle-income countries.

The brain is often described as the most complex structure in the known universe. It is unsurprising, perhaps, that medicine has struggled to remedy its many and varied disorders. Yet with novel approaches to the science and innovative treatments, there is new energy and enthusiasm in the sector. The discoveries ahead will change brains, minds—and lives. ■

A world of cares

Disability-adjusted life years* for mental disorders, 2019

Per 100,000 population



Intelligent design

From luck to judgment

Chance has played a big role in the development of drugs for the brain. Science is moving beyond it

THREE ARE two of them: life-size statues of reclining men carved out of white Portland stone. On the right, the statue's face is contorted in distress and rage, his body restrained by chains. He is called "Raving". On the left is a limp figure, unbound, with a vacant expression. He is called "Melancholy". In 1676 they were installed above the entrance gates of Bethlem, the London hospital known infamously as "Bedlam". Today they grace the entrance hall of the Bethlem Museum of the Mind in Beckenham, a London suburb, where the latest incarnation of that same psychiatric hospital is to be found.

Here patients benefit from a more detailed diagnostic approach than the distinction between mania and torpor. Almost 300 mental-health disorders are recognised by the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders, the authoritative guide on such matters. Add in neurological disorders such as epilepsy, brain tumours, stroke, migraines, wasting diseases like amyotrophic lateral sclerosis (ALS) and so on and you have another 600 problems seated in the brain. You could fill the turbine hall of the Tate Modern with all the relevant statues.

But there are growing concerns that this book-keeping is still flawed. Disorders such as depression and Alzheimer's may consist of many more distinct disorders than science currently recognises. And the overlap in symptoms between disorders such as depression and anxiety calls into question whether top-down categorisations are making useful distinctions.

In some cases, similar clusters of symptoms could be down to different underlying biological mechanisms. In others, symptoms common to disorders treated as distinct might be accounted for, in large part, by closely related underlying mechanisms. Notable past failures in drug development, for example in Alzheimer's and other dementias, have come thanks to inadequate understanding of the links between what goes wrong in the mind and what is happening in the brain. That in turn is one of the reasons why corporate interest in neuroscience by pharma firms has been stuttering. There are signs, though, that change is afoot.

To understand how things came to be this way a short journey into the history of drug development is useful. The number of people in hospitals like Bethlem rose relentlessly for centuries. Then, in the 1950s, research into antihistamines by Rhône-Poulenc, a French drug company, produced chlorpromazine, a compound which appeared to cool the body and was judged to have some potential in anaesthesiology. Cold baths had been used as a treatment for mania in Bethlem and elsewhere since the 17th century, and so an enterprising researcher suggested that chlorpromazine might be a good alternative. It proved remarkably successful, though for reasons that had no direct connection with body temperature. Under the trade names Largactil, and later Thorazine, it became the first widely used antipsychotic drug, its use in psychiatry quickly taking off in Europe and North America.

The discovery of what Thorazine could do is one of many lucky finds that revolutionised psychiatry in the post-war years. Lithium for mood disorders was found during experimental tinkering with guinea pigs, while looking for signs of a toxic substance in their urine that was the cause of mania. Chance also led to the development of benzodiazepines such as Valium for the treatment of anxiety. The compound that would become the first such drug

► (Librium) was literally left on a laboratory shelf for three years. It was about to be thrown away when it was tested on mice, on the off-chance that it might work. Iproniazid, the first of a family of antidepressants called monoamine-oxidase inhibitors, was found as part of a search for tuberculosis treatments when it was noticed that it made some patients euphoric.

This marvellous serendipity delivered drugs that worked much better than anything psychiatry had previously had to offer. By doing so it made it possible for conditions that had previously seen people hospitalised to be treated in the community. But it also had a long-term side-effect. The good fortune meant that drugs came about without a clear account of the deficit or problem they were addressing. When luck ran out, there was not enough by way of understanding to replace it.

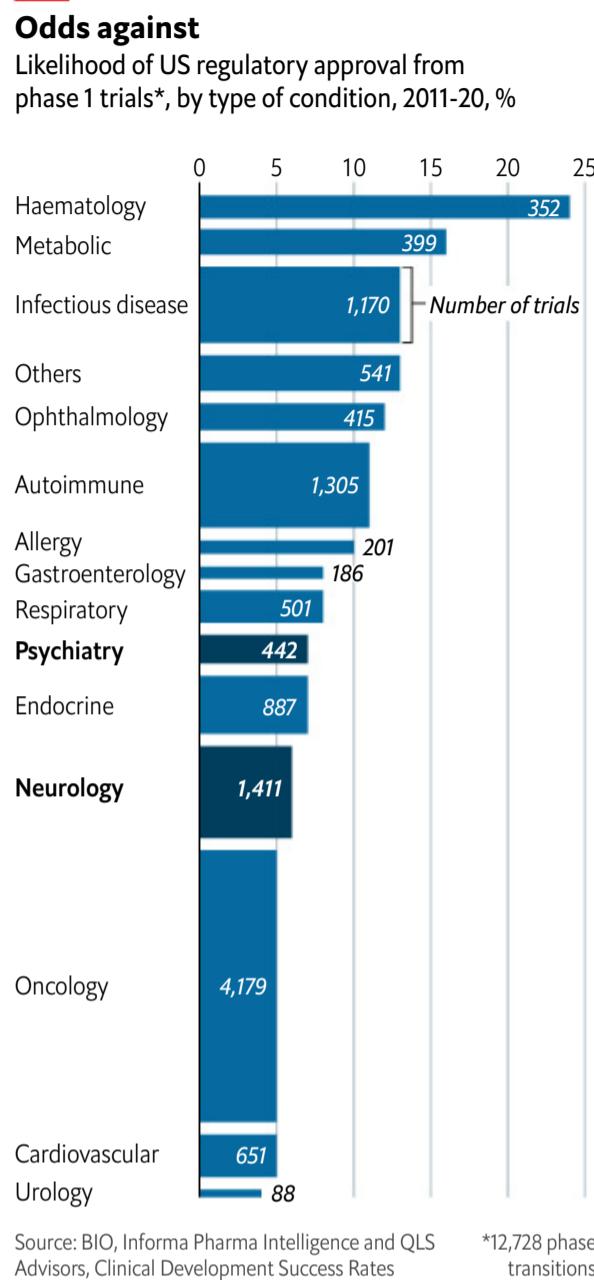
Science was not entirely stymied. The post hoc discovery of the targets in the body which the drugs addressed allowed some theorising about what was going wrong. Tweaks to the molecular structure of drugs that worked produced others that worked in similar ways. Drugs that helped some people in one condition were tried out on others, sometimes successfully. Today, selective serotonin-reuptake inhibitors developed to treat depression are available to those with anxiety, bulimia, obsessive-compulsive disorder or post-traumatic stress disorder.

But the lack of compelling, detailed accounts of the ways the brain goes wrong is one of the reasons why the development of novel and functional drugs has been so challenging. Between 2011 and 2020 the likelihood of a drug in psychiatry being approved by the Food and Drug Administration was 7.3%. In neurology it was 5.9%. (The industry average is 7.9%.) As well as being less likely to succeed in trials (see chart), neurology drugs also take much longer, on average, to develop, further decreasing their appeal.

High failure rates are one of the reasons why, from 2010 on, a lot of pharma firms largely left neuroscience or radically pruned their work in it. They included GSK, AstraZeneca, Bristol-Myers Squibb, Pfizer and Amgen. Other big firms cut back. And if the withdrawal was quite broad, and the reasons multiple, the single most important factor behind this can be traced to the fortunes of those seeking therapies for one disease in particular: Alzheimer's.

It is an attractive misfortune for firms to tackle, with a large number of sufferers that looks set to grow as societies age around the world. But trials that take years to run, and require lots of patients, make tackling it expensive. The \$43bn or so invested in developing 146 new Alzheimer's drugs between 1998 and 2017 to little effect did a lot to dampen big pharma's appetite for neuroscience, says Kate Bingham, a managing partner at sv Health Investors, a venture-capital firm.

As is normal in diseases of the brain, the money was spent without a clear account of what the underlying problem was. The most obvious damage seen in the disease is the build-up of plaques of a protein called beta amyloid. The majority of the failed



treatments were aimed at amyloid.

The most recent great hope based on these ideas, an antibody drug called aducanumab made by Biogen, an American drug company, was approved last year by America's Food and Drug Administration (FDA). But striking inconsistencies in the trial data made the move highly controversial. Ten of the 11 experts on an advisory panel looking at the drug's trials recommended against its approval, but were overruled by the FDA. Biogen withdrew its application for approval in Europe in April, and in America neither the government nor commercial insurers will pay for it. Antonella Santuccione Chadha, head of the Women's Brain Project, had spent eight years working on the drug. She describes the result as "one of the most painful experiences". Despite all the years of toil, patients still have no disease-modifying treatment to turn to.

Robust and diverse

Now neuroscience has to learn the right lessons. Although genetic data suggests amyloid is part of the story, it remains unclear, even after all this time, whether this protein is a cause or consequence of Alzheimer's. Many now feel it is time to move on. Ms Bingham says there was a single-minded focus on the amyloid pathway. "The lion's share of both public and industrial funding has been on that," she says, "to the exclusion of really exploring the rest of other mechanisms that are likely to cause Alzheimer's disease."

There is now a lot of fresh thinking in the field. One possibility is that Alzheimer's might start in the mitochondria, structures inside cells that generate the chemical energy that drives both body and brain. Another idea is that it might derive from the brain's failure to clear up, and throw out, the waste it generates over time. Many mechanisms that mess up the workings of neurons—or kill them—could lead to dysfunction with age. The synapses might not be firing well, tags that mark out particular genes for use could fall off, blood vessels could become faulty or parts of the brain could become inflamed (perhaps, but not necessarily, as the result of an infection). That last factor, inflammation, is of particular interest; many lines of evidence suggest ties between neurodegenerative conditions, inflammation and the brain's immune system. This system is driven by cells known as microglia that eliminate pathogens, unwanted molecules and debris from cells.

Shifting ideas about what might go wrong are already apparent in the clinical-trial landscape. In 2021 the Alzheimer's Drug Discovery Foundation reported that, of 118 potential treatments for Alzheimer's in trials, four out of five drugs in phase 1 are focused on novel targets. So is the majority of those in phase 3 trials. These are testing drugs to reduce inflammation, improve blood flow, protect neurons and improve how the brain metabolises energy. The foundation says the pipeline of drugs is now "more robust and diverse".

A lot of the new energy, ideas and, most importantly, funding now flowing into the field is coming via smaller biotech firms. ►

Many lines of evidence suggest that neurodegenerative conditions are tied to inflammation and the brain's immune system



► The same is true in other diseases of the brain, including depression and Parkinson's, where new tools for, and approaches to, drug development are emerging. Firms are chasing new treatments for ALS, depression, Duchenne's muscular dystrophy, frontotemporal dementia, Huntington's, post-traumatic stress disorder (PTSD) and many others. It would only take a few successes for the retreat of big pharma from the area to reverse itself. There are already signs of an uptick in interest in neuroscience among big firms such as AbbVie, GSK, J&J, Lilly and Novartis. If big pharma does return, though, it will not be to the world it left. Instead, a more complex future beckons.

One reason for optimism is that the failures of the past are now driving an exploration of many more fundamental ideas about what could go wrong in the brain. The excitement about the potential of new ideas regarding the mechanisms of disease to produce new "druggable" targets, as the industry calls them, has to be understood in the context of the possibility that what once seemed like simple diseases are a lot more complex. Some drugs may only work in some patients exhibiting a particular form, or subtype, of their diagnosed disease. In other cases the best option may be using a number of drugs concurrently, and possibly combining them with other sorts of treatment. A white paper from Informa, a consultancy, predicts that meaningful outcomes for patients with ALS will require combinations of compounds, working together, to deliver meaningful outcomes to patients. If the field is looking more promising than it did a decade or so ago, it is also demanding new kinds of precision when it comes to the underlying biology of the brain. ■

Precision neuromedicine

Thinking inside the box

The challenge of being as specific in treating the brain as oncologists are in treating cancer is invigorating biotech

ABROKEN BRAIN, hidden inside a skull, is harder to diagnose than a broken leg. The fact that there is somebody inside the skull to tell doctors how they feel might seem to offer a way round this. But the feelings patients describe are not easily mapped on to the brain. Definitions of mental diseases are vague. "Major depressive disorder and generalised anxiety have an 80% overlap in disease definitions," says Daniel Karlin, the chief medical officer of MindMed, a biotech firm.

What patients say they are feeling is also a possible source of confusion. Amit Etkin, the CEO of Alto Neuroscience, points out that in Asia the symptoms that Western psychiatry uses to diagnose depression—low mood, tearfulness and the like—do not work very well, because the symptoms are expressed in more physical terms: "I feel cold," 'My limbs are heavy', or abdominal distress". But when depression is defined at a biological level, Dr Etkin says, the same distinct subtypes emerge—three to five of them, he reckons. Alto is trying to use EEGs and behavioural testing to match patients to drugs to improve the chances of giving patients the treatments that work best for them.

There are other arguments for taking issue with established diagnostic procedures. Take autism. A study published in 2021 found between 1998 and 2018 there had been a 787% increase in diagnosis in Britain. In America, it is now diagnosed in one in 44 children. Uta Frith, a professor emerita of cognitive development at University College London who worked on autism throughout that time, said this was evidence that the diagnosis had been "stretched to breaking point and has outgrown its purpose".

The experiences of people affected by attention-deficit hyperactivity disorder (ADHD), depression, Parkinson's and other conditions also vary immensely. There is a growing awareness among those looking for therapies that better, more biological ways of defining patient populations are needed; better psychiatric treatments require clearer ideas about what needs fixing in whom. "I don't think in 20 years we will be calling things 'Alzheimer's,'" Ms Bingham of sv Health Investors predicts. "I think we will be talking about diseases driven by specific pathways and biologies."

The model here is oncology. Cancers used to be treated according to the organ in which they were found and their morphology. Today oncology is moving quickly towards molecular precision, identifying the specific pathway or pathways that are driving a cancer's growth and attacking them directly with a range of tools from small molecules to antibodies to genetically engineered immune cells. When Dr Etkin argues that the biology driving depression should be more "measurable, conserved and objective" he is speaking for a generation of researchers who want a similar level of insight into the mechanisms of the mind.

One advantage such measurements offer is the ability to "stratify" patients—that is, to split them into groups of patients who differ in some biologically relevant way. In September, scientists from Rensselaer Polytechnic Institute, in New York, proposed that the autism spectrum could be split into three distinct categories associated with different maternal risk factors such as infections, joint disorders and pregnancy complications. These sorts of findings allow distinct patient groups to be identified, making trials more likely to be clear cut.

Neumora, a remarkably well-funded startup based in Watertown, Massachusetts, puts "deconvolving" patient populations ►

► into more and more homogenous subtypes at the core of its work. As Paul Berns, head of the firm and of ARCH, a venture-capital firm which is one of Neumora's investors, puts it, "We can't treat everybody the same way. We are getting really poor outcomes and spending a lot of money." The firm is making use of data on large cohorts of people, such as those collected by UK Biobank, which is following half a million people over decades, and the Parkinson's Progressive Markers Initiative funded by the Michael J. Fox Foundation. These cohorts show how diseases change over time at varying levels, from the genes on up.

One of Neumora's projects is a trial for a drug which blocks the kappa opioid receptor (KOR) in patients with severe depression. The trial is focused on patients with a high score for "anhedonia", the inability to feel pleasure. John Dunlop, Neumora's head of R&D, says data suggest that the KOR is expressed in areas of the brain that deal with motivation and reward. So if the drug works well in depressed patients with anhedonia it might be useful in other diseases where the deficit also crops up, such as schizophrenia and post-traumatic stress disorder. Similar approaches based on mechanism, rather than a classic diagnosis, have served oncology well, producing drugs such as PD-1- and PARP-inhibitors that cross organ-based cancer categories. Whether anhedonia cleaves closely enough to a detailed, and correctable, molecular mechanism in the brain will only become clear with further work.

Good for what ails you

Other approaches look into the basic biology of the brain's development. In 2006 a technique was discovered whereby body cells could be turned into stem cells able to develop into a range of specialised cell types. With the right encouragement, and a three-dimensional scaffold on which to grow, neural stem cells made this way give rise to complex "organoids" made up of a range of different types of neuron and some glial cells, too. These "mini brains" composed of human cells have opened a whole new field of research, making it possible to compare organoids from people who suffer from an affliction with those of people who do not. Organoids grown from cells from people with autism, for example, have more "inhibitory" neurons than is typical, which may make them prone to develop particular types of neural circuitry.

Another distinctively 21st-century approach is optogenetics. By adding genes for fluorescent proteins to an animal's genome it is possible to see different pathways in the brain light up as they are activated. More remarkably, by adding novel genes which make proteins on cell surfaces light-sensitive, it is possible to create brains where the behaviour of specific types of neuron can be controlled from outside by light.

Lab animals grown with such modifications can show how, at a neurological level, they regulate complex behavioural states. Fluorescent markers reveal how neurons connect to each other, and allow a map of the brain's highways and byways to be created—a "brainbow". This has shown how patterns of neural activity regulate functions such as thirst, respiration, energy balance and sleep. It has revealed the dynamics of information transmissions and the patterns of activity that are involved in some of the brain's plasticity.

Lab animals are not the only targets for genetic modification. Some patients undergo it too, in the form of gene therapies.

In 2019, the gene-therapy drug Zolgensma was approved for use in patients with spinal muscular atrophy (SMA)—a progressive condition in which the loss of motor neurons weakens muscles. It is caused by mutations in the gene without which motor neurons find it hard to survive. Zolgensma delivers competent copies of the SMN1 gene to nerve cells inside a viral "vector".

On your biomarkers

Similar gene therapies are also a promising approach to various diseases of the retina—the sheet of light-sensitive cells and neurons at the back of the eye—and to Dravet syndrome, a form of epilepsy. Lysosomal storage disorders, inherited metabolic diseases that are the source of many neurodevelopmental problems, also look like promising gene-therapy targets. But some diseases caused by an errant gene are proving challenging to address with this method. Efforts to tackle Huntington's, a fatal neurological disorder, with gene therapy have been fraught with difficulties.

Gene therapy is not the only approach to inherited disorders traced to a single gene. There are various cunning ways short pieces of DNA and its relative, RNA, can be used to change the amount of protein made according to the recipe in a particular gene, either reducing it or, sometimes, increasing it. Ionis Pharmaceuticals is working with Biogen to expand the use of some of these approaches in neurological diseases. It is testing a drug called tofersen to treat a form of ALS caused by a problem with the SOD1 gene—the defect behind the disease in 2% of patients. It is a good example of the benefits of stratification; if all forms of ALS were seen as the same, the potential of a drug that addresses a specific fraction of them would go unnoticed.

The tofersen trial is also a good example of the potential of biomarkers. A measurable biomarker that is well correlated to the course of disease gives researchers an early peek at whether success seems likely. The trial has seen "robust" reductions in the level of neurofilament (the structural components of the sheath that insulates nerve axons) in the blood. When neurons are injured, proteins from these structures are released into the blood. Their level is thought to indicate the numbers of damaged or degenerat-



▶ing nerves. In multiple sclerosis levels of neurofilament are lowered by treatment with a number of new disease-modifying therapies. The emergence of neurofilament, and other biomarkers, as trusted signs of the underlying course of a disease should facilitate a flurry of innovation.

The blood is not the only place to look for biomarkers. Imaging instruments and the precise study of bodily behaviour can also furnish them. But those found in the blood are particularly useful because of the ubiquity of blood testing. Biomarkers that truly track the course of a disease are not just useful for doctors and clinical trials. Some might also provide early warning of its development before the onset of symptoms—in time, perhaps, to make changes to the way in which they live.

TREMENDOUS STUFF

The usefulness of such changes in patients' behaviour and situation is a reminder that, in most diseases of the brain, genes are only one factor, and a complicated one at that. The most common diseases of the brain are influenced by factors such as diet, exercise, the environment, life history and other diseases as well as by a set of genes the membership of which has risen rapidly as the sequencing of whole genomes has accelerated. There are now more than 100 genes associated with Alzheimer's, Parkinson's and ALS. Denali, a biotech company in San Francisco which is at the forefront of the field, calls genes involved in neurodegeneration "degenogenes", echoing the use of "oncogenes" in studies of cancer.

Identifying such genes is potentially helpful; it has also at times been misleading. Early genetic studies provided some evidence for a connection between Alzheimer's and beta amyloid which, in concert with the role of amyloid plaques in the disease, encouraged drugmakers down a blind alley. One school of thought is that genetic studies of people who have been diagnosed with a disease may be finding genes that have failed to protect their nerve cells from the progression of disease, rather than genes that identify the disease's causal mechanism.

In Alzheimer's, the broader range of associated genes now on offer may provide new clues. Sabah Oney, a venture partner with ARCH, says that if one looks at genes for the root cause of Alzheimer's it is startling that 22 of the 25 highest-risk genes map directly to the immune system—and specifically to its inactivity. He likens the brain's immune system to the fire brigade, police and rubbish collection. They all need to be continuously active to keep the brain healthy. If any fails, pathological damage accumulates.

One focus in the study of dementia is TREM2, a gene that codes for a protein on the surface of the microglia involved in the brain's bit of the immune system. Alector, a biotech firm based in San Francisco, is one of the companies that think a drug aimed at that receptor protein might boost the microglia's activity; it is developing an antibody drug to that end. Again, there is an analogy to oncology, where getting the immune system better engaged in the fight against disease is the focus of much research. Alector's work has drawn the attention of GSK, a big pharma firm, which invested \$700m last year. Vigil Neuroscience, based in Massachusetts, is also targeting TREM2 as part of a strategy focused on microglia.

Investment in startups like Neumora, which explicitly brands itself a precision-neuroscience company, and gene-inspired pathway-specific approaches like those of Vigil and Alector, show that this approach is becoming popular with both researchers and investors. But not everyone is convinced. "Precision neurology is a bit of an oxymoron from a pharmacological perspective," says Duncan Emerton of Citeeline Pharma Intelligence, a data provider. "Current treatments for neurological indications are very rarely precise in their mechanism of action, with numerous off-target effects being seen." It may come to be, but it is not here yet.

Jeff Jonas, chief innovation officer at Sage Therapeutics, a drug company, believes that so far the concept is incomplete. "The idea that you can find a single target that will give you an efficient path-

way—it just has never been shown to be the case". He likens the effort to precision elephant-recognition, which provides good data on tails and trunks, but limited understanding of the animal. Sage's approach is to look for drugs active in the brain and seek out big effects. Its drug zuranolone, a neuroactive steroid, is related to a steroid already used to treat postpartum depression. Dr Jonas says it resets the brain's normal balance and, as a result, changes the end state of depression. The drug is intended to act quickly, far faster than traditional antidepressant drugs.

Whoever is right about the best approach to precision neuroscience, biomarkers and more tightly defined patient groups is certainly likely to yield stronger signals about the efficacy of trials—something that will improve the disastrous economics of the field. And in many ways, disagreement in the field about the right approach is to be welcomed. The failures of the past came from too much groupthink and a focus on the same narrow idea. A thousand flowers are blooming. Some of them will wither and die. But with so many new biotechs digging deep where big pharma has feared to tread, progress by some of them is inevitable. ■

The psychedelic revival

Ancient wisdom?

You do not have to drink the revolutionary Kool-Aid to see a role for psychedelic drugs in mental health

THE FORMAL lawns and topiary of the garden in which Amanda Feilding, Countess of Wemyss and March, is sitting embody a perfect English orderliness; beyond its edge lies a wilderness of Anglo-Saxon moats, sun-dappled woodland and magical stepping-stone trails. This promise of untamed hinterlands puts the grounds of Beckley Park in perfect sync with their mistress. Lady Wemyss is the queen of psychedelics.

Psychedelics have a history which is probably longer than that of civilisation. They have powerful effects on the brain and their lore is rich in anecdotes about effects on mental health, some for better and some for worse. As pharmaceutical companies tried to find new approaches to the brain, the potential of psychedelics might have seemed an obvious road to go down. But law and stigma blocked it. Until five years ago corporate investment in psy-►

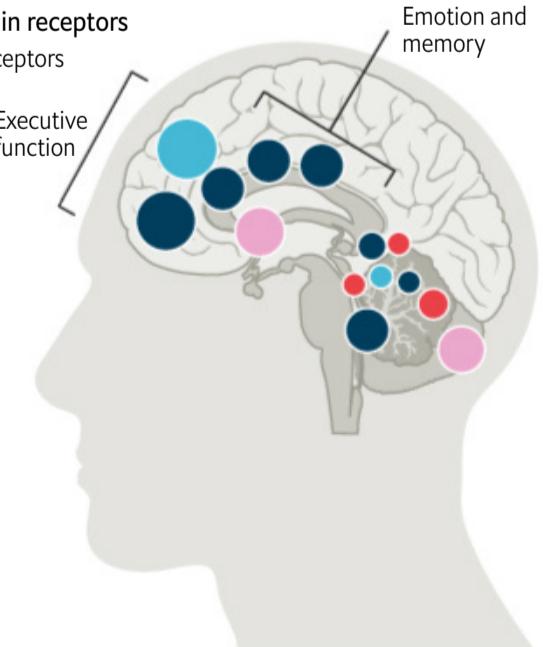
Tuning in

Psychedelic interactions with brain receptors

Circle size=effect and number of receptors

Psychedelics

5-MeO-DMT*	
● 5-HT2A	● 5-HT1A
Ketamine	● NMDA
LSD	● 5-HT2A
● 5-HT2B	● 5-HT1A
Mescaline	● 5-HT2A
Psilocybin	● 5-HT2A



*Based on dimethyltryptamine
Source: Cowen and Company, PubChem

►chedelics as medicines was more or less unthinkable.

Work by Lady Wemyss's Beckley Foundation, the Multidisciplinary Association for Psychedelic Studies (MAPS) in San Jose, California, and other such groups have helped to change that. So has the broadening acceptance of marijuana as a medicine and the softening or repeal of laws limiting its use. A change in the attitude of regulators and researchers towards running proper trials of the drugs has also contributed. Applying modern scientific techniques to the question of how psychedelics and other drugs affect the brain and mind is now seen as opening up possibilities for insight, treatment and profit.

The pioneer in this re-evaluation has been ketamine, an anaesthetic that is also used recreationally. About 20 years ago anecdotal evidence that the drug had an effect on depression led to academic trials; the work piqued the interest of J&J, a big drug company. The ketamine sold generically is a mixture of two compounds with the same chemical formula; J&J won a patent on a nasal spray called Spravato which contained just one of those compounds, s-ketamine. America's Food and Drug Administration (FDA) approved it as a treatment for major depression in 2019.

Barefoot in the cross-head

Spravato demonstrated the potential of innovation based on recreational drugs: it was the first drug for depression based on a novel biological mechanism to have been approved in 30 years. But it has not been a big commercial success. It is expensive and has to be taken under medical supervision, which adds to costs and faff.

Despite that, all manner of drugs that were mooted as being psychiatrically beneficial in the 1960s are finally being put through their paces in rigorous clinical trials under the eyes of strict regulators like the FDA. Dimethyltryptamine, ibogaine, LSD, MDMA and psilocybin are being tried. These drugs are targeting the treatment of addiction, anxiety, depression, eating disorders and post-traumatic stress disorder (PTSD).

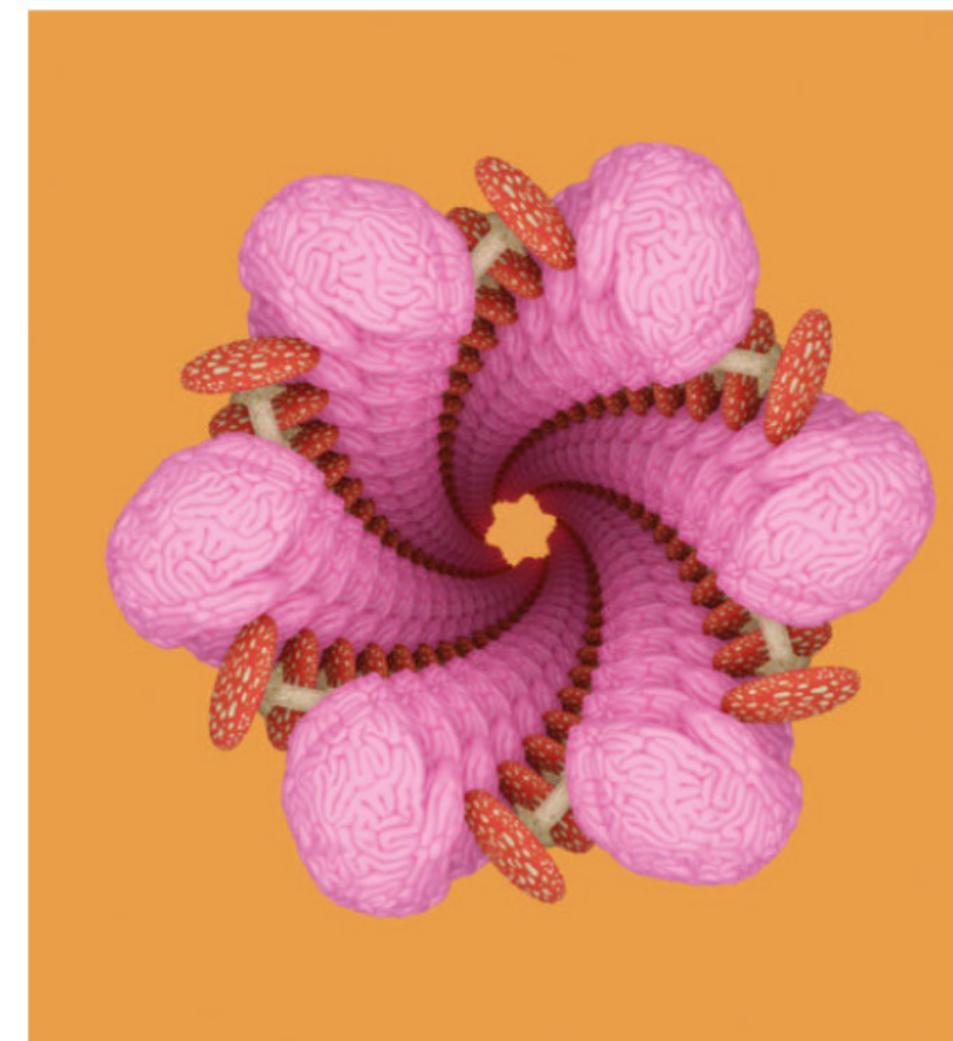
The non-profit group MAPS is looking at MDMA-assisted therapy for PTSD. MDMA, widely known as ecstasy, is a small, amphetamine-like molecule prized for creating feelings of empathy. The MAPS trial put participants through three preparatory sessions, three sessions in which either MDMA or a placebo was administered and nine post-treatment therapy sessions. At the end, 67% of participants in the MDMA group no longer met the diagnostic criteria for PTSD, compared with 32% in the placebo group.

Psilocybin is a focus for COMPASS Pathways, a London-based startup. Last year it published the results of a trial comparing different doses of psilocybin, all paired with therapy, in cases of treatment-resistant depression (TRD). Three weeks after treatment 29% of those who got the highest dose were in remission.

Given what the TR in TRD stands for, a response rate of almost 30% was exciting to scientists. But it was a disappointment to many who had been listening only to the media hype about the potential of psychedelics. The remission seen by fewer than one in three did not always last; only one in four were still in remission three months on. And three of the patients in the high-dose group displayed suicidal behaviour, compared with none in the other cohorts. Suicidality is common in TRD and in trials of anti-depressants, but it is nonetheless a cause for concern.

One of the two underlying capabilities of psychedelics that interests researchers is that they seem to be able rapidly to induce neural plasticity—physical changes in the growth of neurons and of the connections between them. A recent study by scientists at the Yale University School of Medicine showed that, within 24 hours of a single dose of psilocybin, neurons in the prefrontal cortex of a mouse brain

Within 24 hours of a single dose of psilocybin there was a 10% increase in the number of neuronal connections and some connections were stronger



changed; their dendrites—the bits which receive inputs from their neighbours—grew longer and denser. There was a 10% increase in the number of neuronal connections and evidence that some of those connections were stronger.

Think of the neurons as close-packed trees flourishing in the lush gardens of the prefrontal cortex, which organises thoughts and actions. Dendrites are their tangled branches. A healthy brain has a rich canopy. Withered branches can lead to losses in connectivity and less communication between the context and areas associated with motivation and reward.

In the study, the connections between neurons in the mice's brains became both more numerous and stronger, suggesting connectivity was improved. Not all the changes lasted; but a month later some were still visible. And they were correlated with changes in the animals' stress-related behaviour.

The drugs trigger this sort of change in the neurons by activating various combinations of a specific set of receptor proteins which includes three types of serotonin receptor (5-HT1B, 5-HT2A and 5-HT2B) and NMDA, a glutamate receptor. Different drugs favour different receptors (see diagram on previous page) which is why they have different effects. MDMA, which produces psychedelic-like effects but without hallucinations, works on the 5-HT2 receptors, inducing a rapid release of serotonin and dopamine.

Ketamine and ibogaine, which is extracted from an African shrub, both work on NMDA as well as other receptors—including, in the case of ketamine, opioid receptors. The biochemistry of this is also linked to anatomy. Activation of 5-HT2A—in which the visual cortex is comparatively rich—seems to be necessary (although not sufficient on its own) to generate hallucinations.

If plasticity is one interesting aspect of psychedelics, the other is that by firing up receptors they also disrupt activity within the brain's neural networks. Srinivas Rao,

► the chief scientific officer of atai Life Sciences, a German company that specialises in psychiatric drugs, says the psychedelics and their kin are “loosening” connections in the brain and then altering network functions. Atai is pursuing ketamine for TRD and ibogaine for opioid addiction.

Dr Rao warns that psychedelics are not going to be cures for most people with chronic conditions like depression. The loosening of connections in a network-disrupting trip might shift some of them out of a rut; it will not stop them returning to it. But many think the drugs open the door for talking therapies to work better and for patients themselves to initiate new approaches to life. A few patients will be lucky enough to have durable responses. Guy Goodwin of COMPASS Pathways sees psychedelic treatment as a way for some patients to achieve a step change. “It may be for a minority,” he admits. “How we increase that minority is a question we are going to have to work on in the future.”

There are other factors which could limit the uptake of these medicines. Like Spravato they will probably be approved for use only in certified health-care settings and with strict protocols; a patient given a dose of psilocybin, or MDMA, requires many hours of supervision. That makes these drugs very unlikely to be the first line of therapy offered to people who roll up at their doctor’s office with depression or anxiety. They are also likely to be approved for use only in the context of psychotherapy.

Such requirements may mean that more people seek the benefits more cheaply. The approval of Spravato coincided with an up-tick in the use of generic ketamine, given by intravenous infusion, in clinics across America and Europe. And the drugs in question are all, more or less by definition, available informally.

Who's for a short, unstrange trip?

One alternative would be to develop second-generation drugs based on the same principles but more easily administered. Delix Therapeutics, based in Boston, Massachusetts, is heading full tilt to the creation of psychedelic substances with the hallucinatory effects eliminated, which would mean they could be used by patients without supervision. Dave Olsen, chief innovation officer at Delix, says the drugs work because they encourage neuroplasticity; if that is the case, then the trippiness may not be necessary. He points to studies showing that dental patients anaesthetised with ketamine wake up with an enhanced mood; having some kind of conscious “experience” is not integral to the drug’s effects.

There will be potential patients who hope he is right. Some proponents of psychedelics think the mystical experience is integral to the clinical outcome, revealing insights into the psyche that are impossible to obtain any other way. This means they find it hard to bend their minds around the idea that some of the mentally unwell do not want to “change” their consciousness. They just want to get better. Rory, a hairdresser from Lancashire, had suffered from depression all his life; he had tried everything and was keen to find something that worked. Yet his first experience with a ketamine infusion was so horrendous he did not want to come back.

Delix, for its part, is not saying that the world does not need hallucinogens to treat mental-health disorders, nor that the network effects they offer are not useful. It is just saying that drugs that do only part of what psychedelics do could be useful in and of themselves. Dr Rao says, “being empiric I view the hallucinations as a manifestation of network disruption.”

Psychedelics are obviously not the be all and end all of new approaches to clinical neuroscience, let alone the one true path to raised consciousness and, as some would have it, humankind’s continued evolution. They may well be particularly prone to placebo effects, something it is hard for trials to rule out since people tend to know if they have been given a placebo or sent on a trip. But if high hopes (sorry) seem likely to court disappointment, their study in clinical settings should yield some helpful therapeutic advances and new insights into the way minds sit in brains. ■

Computer interfaces

Wired up

Medicine is driving the ever-tightening coupling of human brains to computers. The consequences will be profound

THE STENT is a commonplace miracle. Every year millions of people around the world have their coronary arteries enlarged and reinforced by these life-saving little expandable tubes of mesh. The elect club of those who have had their whole worlds enlarged by “stentrodes”, on the other hand, numbers just three.

The stentrode is a routine stent, made from a flexible alloy called nitinol, to which an array of 16 laser-cut platinum electrodes has been added. It is inserted into the jugular vein in the neck and guided up into the brain, where surgeons guided by real-time x-rays snuggle it into a blood vessel running past the part of the cortex responsible for movement. A short lead runs back down the vein to a small powerpack and communications unit implanted in the chest. That base unit uses infrared light to send data to a receiver stuck on the skin, from which it passes to a computer.

The stentrode is not inside the grey matter of the brain, interacting directly with neurons: it remains in the blood vessel. But its electrodes pick up the electrical goings-on around them, and over time the patients can learn how to think thoughts that the computer takes as commands. Used in concert with systems that track eye movements the stentrode allows them to interact with the world using only eyes and thoughts (see box on next page).

Systems that can read brain waves are old hat. But if fitted non-invasively to the outside of the cranium they are cumbersome and relatively low in resolution; and sticking them into the brain proper requires surgeons to drill holes in the skull. The stentrode provides a skull-sparing way to get high-quality signals out of specific bits of the brain.

The appeal is obvious. In an increasingly computerised world, a brain-computer interface (BCI, also sometimes called a brain-machine interface) that lets the paralysed think words onto screens and tell apps, machines or eventually prosthetic limbs what to do could be of huge benefit. The stentrode is not the only device in the field; Neuralink, a company founded by Elon Musk, is looking at a system that would be inserted using cunningly automated surgery.

As readers of science fiction will be aware, the ultimate—if currently far-off—potential of such technologies could go well beyond medicine. There are a number of situations where being able to control things at a distance by mind alone might be a useful capacity for the currently able-bodied, too. The stentrode work, mostly carried out by researchers in Australia and commercially developed by Synchron, a company in America, has been partially funded by the Pentagon’s far-out-ideas factory, DARPA.

BCIs are part of an emerging field of neural technology. The idea of stimulating the nerves for medical benefit can be traced back to antiquity, when Scribonius Largus, physician to the emperor Claudius, noted that electric fish could be beneficial to people in constant pain. In the modern era electroconvulsive therapy, first used in 1938, became a treatment for some serious forms of depression in the post-war decades. It fell out of favour after “One Flew Over the Cuckoo’s Nest”, a book that was made into a film, showed it in a darker light, and there are divergent opinions as to its efficacy. But it is still administered to around 1m patients a year, mostly for severe depression.

In the early 1960s deep brain stimulation (DBS) arrived. It uses electrical stimuli which vary by pulse width, voltage and frequency to treat Parkinson’s, obsessive-compulsive disorder and epilep-

►sy. As confidence in the therapy has grown it has been investigated as a treatment for other things, including cluster headaches, chronic pain, eating disorders, Tourette's syndrome and treatment-resistant depression. It has advanced, recently, by offering "closed loop" forms that need no manual adjustment but are programmed to respond on the basis of electrophysiological biomarkers. Its appeal is limited, though, by the cost and difficulty of neurosurgery. Many Americans suffering from obsessive-compulsive disorder who might benefit from DBS cannot access it because of restrictions imposed by their insurers.

That DBS can get results has been clearly demonstrated. How it does so is less well understood. There is thus an emphasis on finding just the right place to stimulate. Scientists have rough ideas of

where brain circuits for various functions are to be found and increasingly sophisticated imagining tools are adding ever more detail, which helps the technique. But the circuits differ greatly from person to person; searching for the sweet spot for the electrodes can take a lot of time and effort.

In some cases another option for targeting a troublesome bit of the brain can be simply to destroy—surgeons like to say ablate—it. Removing the bit of tissue where an epileptic person's seizures originate is a routine surgical approach in some severe cases of the disease. Here the exciting new twist is to make use of ultrasound. It can be focused powerfully enough on millimetre-sized targets deep in the brain to ablate them, and this can be done on a patient in an MRI, thus allowing surgeons to see what they are doing with ►

Brain scan

Mind over matter

The feeling of doing by thinking

PHILIP O'KEEFE, a 62-year-old logistics worker and passionate fan of the Brisbane Lions, a local football team, also suffers from ALS, which has paralysed him. In 2020 a "stentrode" was inserted into a blood vessel in his brain from where it monitors activity in part of his cortex. The following year he used signals passed through that probe to send his first tweet: "hello, world! Short tweet. Monumental progress." *The Economist* talked to him about the experience.

The Economist: What was your first reaction to the idea?

Mr O'Keefe: I wasn't too sure about the idea initially. I sought the advice of some friends in the medical field and they came back and said 'Yes, definitely be involved'. My initial thought was I would be able to think words or sentences that would be transcribed onto the computer. Once I understood what was involved I was very keen to be part of this.

The Economist: Did you have to spend some time making it work? Or did it work fairly instantly?

Mr O'Keefe: The first day there was a signal it was like waking up Christmas morning to find all the presents under the tree are yours. It was unbelievable.

The Economist: What has been the most surprising thing about the experience?

Mr O'Keefe: It's been remarkably unobtrusive. Because of my condition, we have a house with smart switches. So, if I am in front of the control screen, I can turn the lights on or off anywhere in the house if I want to. I have done that to the kids a couple of times. It gets their attention.

The Economist: How is this helping you



in your day-to-day life, work and relationship with the others?

Mr O'Keefe: Well, to be fair, my device is a first-generation device put in as part of the initial clinical trial. I was the second person in the world to receive it. The device is still obviously going through development stages. It enables me to use emails, to use apps like WhatsApp to scroll through various sites and do online banking. The ability to live a normal computer life is there. So, whatever you can do on a computer I can do. At this stage, I am a bit slower than you would be, but there is the ability to do almost anything if I want to.

When the device was implanted, I was still working part-time. I could do some of my online work with the device. I could go onto my company's portal and update information and produce reports.

The Economist: What would you say is the best thing about the implant?

Mr O'Keefe: From a physical perspective,

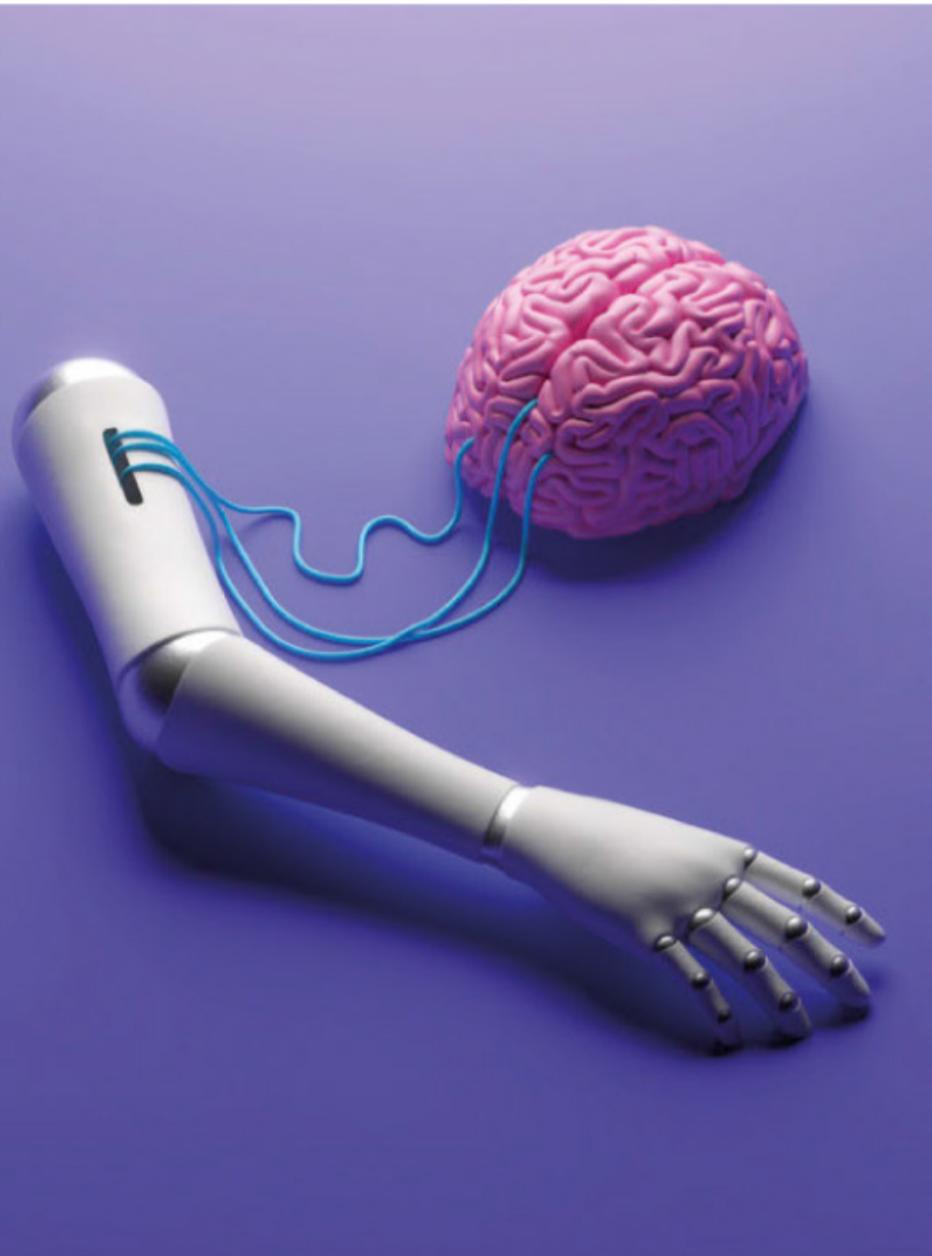
the best thing is you don't know it's there. There is no irritation. For me the device has become a part of my life. It's quite a seamless process. In fact, it gives you back the ability to be independent. There is no doubt from my perspective being involved in this gave me a reason to live. It gave me back a lot more enjoyment about life and gave me things to do, it gave me the ability to stay in touch with what's going on.

The Economist: What would you like to tell the readers about brain-computer interfaces?

Mr O'Keefe: This is a new horizon. It really is. The human brain is an amazingly complex thing. Having a direct link between your brain and your computer, it's just another step down the path of human evolution. I mean, 120 years ago we couldn't fly and now we are talking about sending people to Mars. It's another step in technology. Yes, we need to be careful about what we do but we are human beings, we need to understand, we need to learn.

The Economist: Do you feel enhanced in any way?

Mr O'Keefe: Do I feel enhanced? Do I feel like Superman? No, I don't. I do feel very fortunate through misfortune to be able to do this. I get a sense of pride when I talk to people and see their eyes open up in amazement. I'm very happy that what I've done has been successful. I'm grateful for the attention they give to me. But I don't see myself as some super being. I'm just a bloke who got involved in a process and who was able, with some very smart people, to prove a concept and prove it worked. And it will get bigger and better.



► their sound scalpel in the dark depths beneath a completely intact skull. The technique has already been used to treat some types of brain tumour. It is being investigated for anxiety, depression, epilepsy, intracerebral haemorrhage, movement disorders and pain.

Another promising neuropsychiatric use of ultrasound is in tackling the blood-brain barrier. The body keeps this demarcation line tight, stopping almost all the things found in the blood stream, including a lot of drugs, from getting in among the neurons. Sometimes this is a good thing. Loperamide (Imodium), widely used to control diarrhoea, has stronger effects on the brain's opioid receptors than its relative morphine does, but it is much less good at crossing the blood-brain barrier. But the barrier also means there are drugs that might do a lot of good in the brain but cannot get there. It appears that ultrasound may be a practical way of disrupting the blood-brain barrier for limited periods and in specific places. It might thus offer a way to open portals into realms to which drugs would not otherwise have access.

Part of the charm of ultrasound is that it does not require making holes in the skull. Transcranial magnetic stimulation (TMS) has the same advantage. An electromagnetic coil is placed against the scalp to generate magnetic fields to which nerve cells are sensitive. High-frequency stimulation increases the cortical excitability, while low-frequency stimulation depresses it.

At present TMS is mostly being used against depression, which is thought to stem in part from poor neural connections in the pre-frontal cortex. A particularly precise version of the therapy uses MRI scans to allow the therapy to be used on the part of the pre-frontal cortex which should have connectivity to the subgenual cingulate—a part of the brain that plays a role in processing emotions, and is a target aimed at by DBS approaches to depression.

Beyond this, though, TMS is also being studied for application in the usual suspects, such as anxiety, pain, OCD, PTSD, Tourette's and other movement disorders. It may have other applications, too. Frances Jensen, a professor of neurology at the University of Pennsylvania says that when a stroke victim is trying to regain speech, adding TMS to normal speech therapy can "supercharge" the circuits they are trying to get back.

Mind meets brain

The idea of therapy acting through the conscious mind being improved by magnets stimulating the brain below brings home one of the things that is remarkable about the current era of neuroscience and medicine. The workings of the mind and the subvening brain are still suffused by mystery; but science is offering new ways to intervene in them which can be used, and combined, to good effect. Drugs and neuromodulation are not alternatives; therapy and psychedelics can work in tandem. Just as neuroscience now learns from optogenetics, organoids and AI as well as its older techniques, precision neuromedicine will be a calling that uses not just many tools but many different types of tool.

Too much of the 20th-century history of psychiatry was a history of either/or; some proponents of talking cures have derided drugs as chemical coshes, some pharmaceutical devotees have struggled to see any sense in explanations that go beyond the workings of synapses. The drive towards specificity documented in this report look like showing this is a false dichotomy. The bottom-up approaches which target the molecular, genetic and electrical fundamentals of the brain can assist top-down approaches to brain disorder such as talking therapies. Understanding the roots of neurodegenerative diseases before they begin to produce symptoms—roots which may reach back decades into young adulthood or earlier—should lead not just to better drugs, but to insights into how to lead lives in which those roots never get to sprout and bear their morbid fruit.

The ancient dictum that "healthy bodies produce healthy minds" is not universally true. The fact that bodily health can underpin mental health, though, is undoubtedly. Brains are influenced by nutrition, physical exercise, use of alcohol and other drugs, social connections and pollution (particularly, these days, air pollution). Pre-natal exposure to pollution, for example, is likely to play a role in some early developmental disorders. Exposure later in life could play a role in dementias. A new trial shows that taking a common multivitamin over three years leads to an improvement in memory and cognition, underlining the role of nutrition. Human brains are the key to the wealth of any society, as well as its future. Doing a better job of taking care of them deserves a little more headspace.

And the effort to do so through deeper understanding deserves celebration. The human brain is an organ of truly remarkable complexity, and there is perhaps no measure of that complexity more impressive than the fact that the human minds which those brains produce are making real progress in understanding it. Human brains have begun an epic journey of self-discovery. ■

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Israel and its new Arab partners

The Abraham economy

DUBAI AND TEL AVIV

Since the Abraham accords were signed in 2020, Israel's trade and security ties with Arab states have blossomed

“WE'RE PASSING over Saudi Arabia, then crossing over Jordan to arrive in Ben Gurion airport in about 40 minutes,” intones the pilot of a low-cost flight from Abu Dhabi to Tel Aviv. The plane is packed. A smattering of Emiratis keen to do business in Israel occupy the front seats. More raucous Israeli Jews and Palestinians returning from holiday weekends in the Gulf sit farther back. “*Sababa le-gam-rei!*” (Hebrew for “bloody brilliant”), exclaims an Israeli student, describing her trip. In the two years since the United Arab Emirates (UAE) and Israel signed the Abraham accords, more than half a million Israelis have made the journey. After a century of Jewish and Arab conflict, the trip already feels normal. Soon there will be 20 flights a day between the two countries.

A Jewish community had taken seed in Dubai, the glitziest of the Emirates' seven statelets, even before the accords were signed. But since then it has sprung into the open, growing from hundreds to thousands of Jewish residents, many of them

Israeli. A Jewish school is doubling its intake every six months. There are kosher restaurants like Café Bibi, named after Benjamin Netanyahu, the former Israeli prime minister who signed the accords.

For the first time since its creation in 1948, Israel has a warm peace with an Arab country, not just the formal, often frosty ones with Egypt and Jordan, its immediate neighbours. The UAE is “the first to bring Israeli and Arab people together”, says Ebtesam al-Ketbi, who heads an Emirati think-tank. The accords are underpinning a realignment of trade, diplomacy and security arrangements in the Gulf. They are largely economic, built on the hope that trade can bring peace and restore the Mid-

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dle East to its historic role as the cross-roads of the world's trade, linking Asia and Europe through the Silk Road and Africa through the Incense Road. But they also have a hard edge and are aimed at counter-ing Iran, whose proxy forces have fired rockets or used drones to attack Saudi Ara-bia, the Emirates and Israel, and whose nu-clear programme could soon give it the ability to build a nuclear bomb.

"People-to-people can dissolve tensions," says Peng Xiao, the CEO of G42, an Emirati company working on artificial intelligence and surveillance (with ties to the president's brother and national security adviser, Sheikh Tahnoon bin Zayed). His firm has opened two offices in Israel and already has 50 employees there. Within five years a third of his 5,000 workers will be Israeli, he reckons. Rapyd, an Israeli payments company, sees itself as a trailblazer with a new office in Dubai. "For Israel it's like going into space," says Arik Shtilman, its boss.

On the Israeli right, politicians who once routinely lambasted Arab leaders are boasting of their connections in the Gulf. Ron Dermer, a prominent foreign-policy adviser to Mr Netanyahu, is a partner in Exigent Capital Group, a firm that is eagerly investing there. Ben Volkow, the CEO of Otonomo, a tech company in Tel Aviv, says he is scouting to hire more Arab Israelis now that a Saudi firm has bought almost a quarter of his stock. From the floor of Tel ➤

► Aviv's stock exchange the atmosphere is no less hopeful. "Not even the sky is the limit," said Muhammad al-Khaja, the Emirati ambassador to Israel, before ringing the opening bell. Mr Khaja insists that within a decade the UAE will be one of Israel's five biggest trading partners.

It has made a good start. Bilateral trade has exploded from \$11.2m in 2019 to \$1.2bn in 2021. At only about 0.2% of Israeli GDP, trade with the UAE is far behind Israel's biggest partners, the EU and Turkey. But it is already a lot more than Israel's trade with Egypt and Jordan, even after decades of peace and diplomatic relations (see chart).

From the UAE's point of view, the Abraham accords with Israel are part of a broader trade strategy that is bypassing the six-country Gulf Co-operation Council, which has yet to fulfil its aims of creating a common market and shared currency. The Emirates have signed trade agreements with Indonesia and India, and are negotiating with Colombia and Kenya. The goal, says Thani al-Zeyoudi, the UAE's trade minister, is to move from being a gateway to the region to a "gateway to the world".

Down the yellow brick road

It is a reasonable ambition. Arab countries trade little with the world besides energy. Excluding oil and gas, the 22-strong League of Arab States accounts for only 2.7% of the world's flow, despite having 5.6% of its population. Trade within the group is particularly sluggish. Just 18% of it is conducted within the region, compared with 34% in East Asia and 69% in Europe. This stifles development and keeps many Arab countries dependent on fossil fuels.

One reason is that there is no effective rules-based common market along the lines of the EU. Although the pan-Arab Free Trade Area (PAFTA), signed in 1997, lowered tariffs on goods within the region, it still has some of the world's highest trading costs. By contrast, many exports from the EU into the region face fewer non-tariff barriers, according to a UN study. Many of the region's economies are natural competitors, seeking greater market share for their energy exports, rather than producing different goods and services that can be traded between them. Israel, with its tech-focused, service-based economy and large defence manufacturers, offers new products and markets.

"Israel is a tech supermarket," says Amir Hayek, Israel's ambassador to the UAE. The movement of ideas offers the greatest promise, he reckons. Israel's expertise in agricultural technology, especially irrigation and hydroponics, could prove particularly helpful.

Cyber-security and defence is another sphere of co-operation, especially as Gulf governments think America may be withdrawing from the region. Israel has been



pushing a plan to link radar stations and missile defences to shield the UAE from Iran and give Israel early warning of any Iranian missiles launched in its direction. Exports of Israeli arms to the Abrahamic quartet rose to \$800m in 2021, 7% of the country's total military sales.

Under President Donald Trump, the Pentagon shifted overall responsibility for Israel from EUCOM, its European command, to CENTCOM, the one that covers the Middle East and Iran. Since that change Israel has been taking part in joint military exercises with its new friends, as well as with countries that don't recognise it, such as Tunisia and Saudi Arabia. It now has military people stationed in Bahrain. "We're the region's new America," says a senior official. Naftali Bennett, Israel's prime minister until June, championed a plan to build a regional defence system that would use lasers to blast missiles.

Since the UAE signed the accord in September 2020, three other Arab countries—Bahrain, Morocco and Sudan—have formally followed suit. Relations with Egypt are starting to thaw. Other Gulf states have eased entry procedures for Israelis, while stopping short of official recognition. But the big Abrahamic question is whether Saudi Arabia, the Arabian peninsula's biggest economy and a potential land bridge



between Israel's Mediterranean coast and the UAE, could join the club. "We're becoming this incredible conduit for Israel," says the CEO of G42, flagging up other Arab countries that could follow suit. He says his company's investment of \$300m in Israel will open markets for Israeli telecoms in Saudi Arabia, among others. Bahrain, already a member of the club, serves as a banking hub for financial transactions between Israel and Saudi Arabia. Even Iranians in Dubai, Iran's favourite escape-hatch from Western sanctions, say they are eyeing deals with Israeli tech firms.

Muhammad bin Salman, Saudi Arabia's crown prince and de facto ruler, is said to have allocated \$2bn to invest in Israeli startups. This year one of the kingdom's wealthiest families, the al-Rajhi, bought stakes in two Israeli companies. The kingdom already has a self-proclaimed ultra-Orthodox chief rabbi who commutes from Jerusalem, as well as a new kosher restaurant. "Veterans from Unit 8200 are trying to replicate Silicon Valley in Riyadh," says a well-connected Saudi watcher, referring to the Israeli army's cyber-arm, whose former members often end up founding or working in tech startups, and are said to be setting up shop in the Saudi capital. Few expect formal relations to improve so long as King Salman bin Abdulaziz lives. Although ailing, he has long supported the Palestinian cause. Even so, "most things are possible short of recognition," says another Saudi official, "including tourism."

Yet these new friendships remain fragile. After the peace accord was signed between Israel and the Palestinians in Oslo in 1993, Israel took part in regional economic conferences heralding "a new Middle East". Morocco, Oman, Qatar and Tunisia opened liaison offices. But when bloody conflict erupted between Israel and the Palestinians a few years later, all such talk of harmony evaporated.

Bigwigs on both sides now hope to insulate the accords from Israel's conflict with the Palestinians. "Let's not mix this [the Abraham accords] with that [the Palestinians]," says an Emirati official. Few say it openly, but the accords mark a tacit acceptance by many Arab rulers that Israel, for the time being, has won. Some even suggest they offer a way of ending this enmity. Mr Bennett, in whose office lobby lies a coffee-table book titled "Dubai Wonder", calls his pact with Raam, the first Arab party to join an Israeli government, an "internalised" version of the Abraham accords.

Yet many expect the accords will be severely tested if there is flare-up in Jerusalem or a resumption of fighting between Israel and Hamas, a Palestinian militant group that controls Gaza, or Hezbollah, a militia-cum-political-party in Lebanon. Both groups are building rocket arsenals aimed at Israel. The strain would be partic-

icularly intense if the fighting leads to large numbers of Palestinian or Lebanese civilian casualties, something Israel's military planners argue they would struggle to minimise since both Hamas and Hezbollah hide their rockets in homes and schools.

Moreover, politicians, diplomats and businessfolk on both sides of the accords have moved faster than the general population has. A survey by the Washington Institute, an American think-tank, shows public support for the Abraham accords in the UAE and Saudi Arabia has fallen sharply since they were signed. The Arab Barometer, a pollster, found that only 5% of people in Jordan and Egypt were keen on having much friendlier relations with Israel (though responses in Morocco and Sudan were more enthusiastic).

Such views are mirrored in Israel, where many still distrust Arab countries. "Israelis are happy with normalisation as long as it stops at the Jordan river," says Liel Maghen, an Israeli analyst. Many Israelis, brought up for generations in the belief that Israel is a beacon of democracy in a desert of backward-looking tyranny, are nervous about venturing out. Israeli left-wingers, too, shy from what they see as a right-wing and anti-Palestinian deal. "I'll never go to Dubai," says Noam Shuster-Eliassi, an Israeli comedian, mocking her fellow citizens for stopping Palestinians at checkpoints but then flying to the UAE.

And the economic benefits of the accords to both sides may still be too nascent to make the new peace-and-business process irreversible. This is partly because red tape, possibly born of mistrust, keeps getting in the way of deals. Dubai's al-Tadawi Hospital is still waiting for approvals to hire Israeli doctors. Rapyd, the Israeli financial-software provider, has yet to receive its Emirati operating licence. Sudan, which signed the accords in January 2021, has since stalled on implementing them.

On the Israeli side, bureaucracy stands in the way of Emirati plans for mega-projects. DP World, a giant port operator based in Dubai, withdrew its bid to develop Israel's Mediterranean port at Haifa after Israel changed the ownership rules. Israeli officials have blocked Emirati plans to reactivate an energy pipeline stretching from the Red Sea to the Mediterranean. Even an Emirati-funded project to provide Israel with solar power produced in Jordan, in exchange for Israel sending water to its parched neighbour, has been stalled. Israel has been slow to approve the building of a desalination plant on its shores.

Meanwhile, the Abrahamic idea of a railway from the Gulf to Haifa, Israel's port on the Mediterranean, is still blocked by Jordan (see map). Israel and Saudi Arabia have built their lines right up to the Jordanian border. But mindful of its own Palestinian majority, Jordan won't link them up

until Israel also extends its network to the Palestinian West Bank. If these tracks were all connected, the volume of container traffic would double "almost immediately", says Yisrael Gal, an Israeli economist.

Also galling for pioneers of the Abrahamic club is the prospect that Iran, its great rival, may yet steal a march on it by reopening the old east-west Silk Road. For the first time since Cyrus the Great ruled Persia 2,500 years ago, Iran now has a landbridge stretching from Central Asia through Iraq, Syria and Lebanon to the ports of the Mediterranean. Members of the accord need not fret. Their club links together dynamic, growing economies. Iran's road connects failing states and seems mainly used to carry weapons.

The Abraham accords promise much, yet are in their infancy in a region that dashes even the worthiest of dreams. But they also offer a rare chance for economic renewal and for the Jewish state to be accepted by its neighbours as something other than an enemy—perhaps even, as the Koran calls Abraham, a friend. ■

Iran

Burning their hijabs

Women rise up against the Islamic Republic

FROM FAR-FLUNG villages to the steps of Tehran University in the capital, women are leading men. They are at the front of protests and rally the crowds by burning their mandatory hijabs (headscarves), cutting their hair and dancing in public. Their immediate cause is Mahsa Amini, a 22-year-old student, who died on September 16th after morality police beat her, apparently for wearing a loose hijab. But their grievances are fed by four decades of religious strictures that have fallen heaviest on women. After a week of gunfire and killing, their protests are spreading.

The social curbs are the latest in a wave of measures designed to shore up the Islamic Republic as a successor is found for the octogenarian Supreme Leader, Ayatollah Ali Khamenei. In recent years the Ayatollah has purged his regime of reformers and consolidated all branches of government under trusted zealots such as Ebrahim Raisi, his hardline president.

Trying to tighten control, Mr Raisi issued a "hijab and chastity" decree that has emboldened the morality squads. These have removed posters of unveiled women in cafes and ordered proprietors to replace songs with instrumental music. Their men, dressed in black and armed with ba-

tons, have put hundreds of women in morality centres for "re-education", according to a human-rights group.

The battle over morality has become more technological since the revolution of 1979, when Islamist thugs shouted "ya rusari ya tusari" ("cover or suffer"). These days the authorities are planning to use facial-recognition software to detect the underdressed on the metro and an icon was recently added to the taxi app, Snapp!, to report female passengers who are improperly attired. (Rebellious women have their own app, Gershad, to report and track the location of morality squads.)

Fearing reprisals, some protesters are deleting their social-media profiles. Others are turning violent. State media have reported a series of lynchings of clerics. Eight worshippers were stabbed on September 17th in a mosque in the southern city of Shiraz.

The regime is rattled, not just by anti-religious protests but also by the prospect of economic unrest. Since 2012, GDP per head has fallen from more than \$8,000 to under \$3,000. Even as incomes plummet, prices are soaring. The regime blames American sanctions for the economic suffering but Mr Raisi's policies are exacerbating the collapse. He has tightened restrictions on the internet. The controls may make it harder for people to get the news, but they are also suffocating businesses.

Still, the government shows no signs of backing down. A former apparatchik reckons it needs only half a million loyalists to control Iran's 84m people. "They've learnt from the Shah's downfall to take an offensive posture no matter what," says Yaser Mirdamadi, an exiled cleric and relative of the Supreme Leader. Many expect that after a few more days of killing a curtain of fear will again descend over Iran. As a father in Tehran puts it: "Parents will shrink-wrap their girls before letting them out." ■



What we wear is not your affair

Mali

Hostages to fortune

DAKAR

A junta kidnaps friendly foreign soldiers, imperilling a UN peacekeeping mission

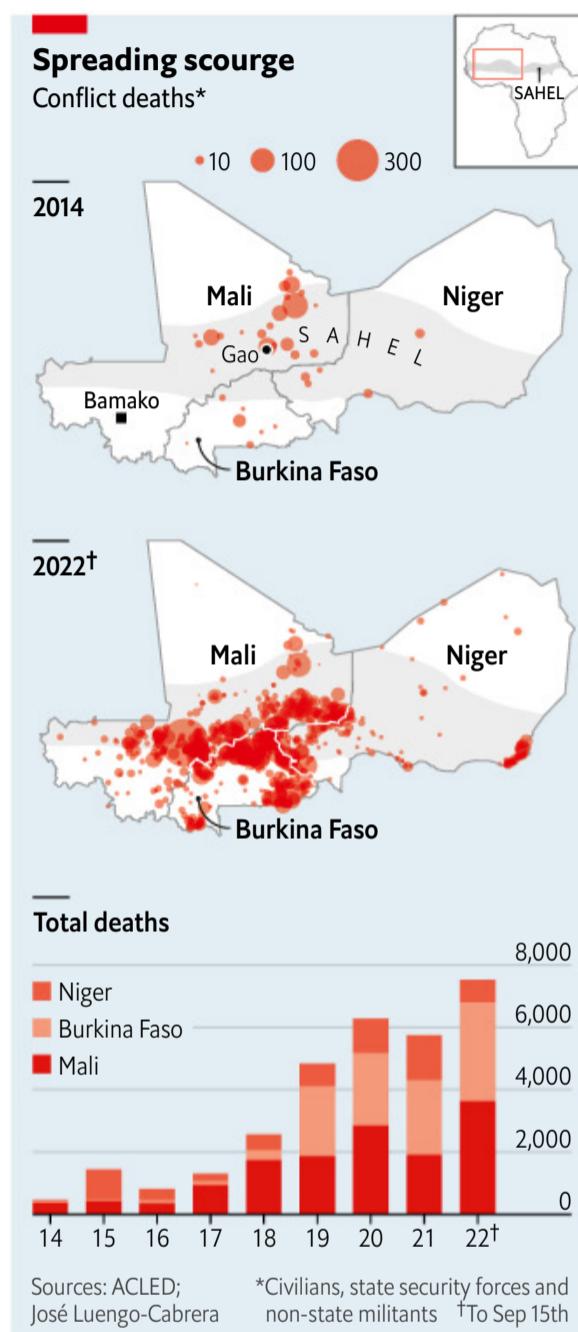
WHEN 49 IVORIAN soldiers landed at the airport in Bamako, Mali's capital, on July 10th they did not expect trouble. For several years hundreds of Ivorians have patrolled their northern neighbour as UN peacekeepers. Yet the Malian junta, in charge after coups in 2020 and 2021, arrested the soldiers and called them mercenaries with a "dark purpose". Ivory Coast said the soldiers were fulfilling a long-standing UN security contract—and demanded their release. More than two months later 46 of them are still detained.

The saga marks another step in Mali's descent. Jihadists loosely affiliated with al-Qaeda and Islamic State are ravaging the country and the broader Sahel region (see map). The junta had promised to hold elections in February but seven months on, no votes have been cast. Constant spats with France, which once had more than 5,000 troops fighting jihadists at Mali's request, prompted the former colonial power to withdraw completely this year.

Another reason why the French left was that the junta hired Russian mercenaries from Wagner Group. Since their arrival, the mercenaries and Malian army have massacred hundreds of civilians, yet failed to improve security. By mid-September more than 3,600 people had been killed this year, almost double the number for all of last year. Amid the chaos, a 15,000-strong UN mission made up largely of west African and European soldiers struggles on. Yet the arrest of the Ivorians and a spate of other incidents are casting doubt over its future.

To free troops for peacekeeping, the UN mission is helped by "national support elements", which provide security and logistics but are not formally peacekeepers. The detained Ivorians were meant to guard the base in Bamako of a contractor working for the German contingent of UN peacekeepers. The detained soldiers "are not mercenaries", said António Guterres, the UN secretary-general. "It's obvious." Some of their paperwork was sent at the last minute or was not quite in order. Mali might fairly expect greater respect for the rules, but such issues are usually quickly resolved.

Instead Mali's junta chose to pick a fight, though why is still unclear. A Western diplomat thinks it reflects "a high degree of paranoia within the government". Some of the junta's delusions may have been fed by their unproven suspicions that Ivorians were behind a failed attempt last



year to assassinate Assimi Goïta, the coup leader and self-proclaimed president.

Other observers argue that if the junta truly believed that Ivory Coast was trying to topple it, then surely it would have expelled hundreds of Ivorian peacekeepers. Some think the junta is simply looking for a new scapegoat to blame for its failings, now that the French have left.

Like a kidnapping kingpin, Mr Goïta wants "compensation" to release the Ivorians. The junta has also suggested trading them for Malian political exiles in Ivory Coast, some of whom the colonels want to arrest. "Our soldiers are not mercenaries but hostages," says Amadou Coulibaly, the Ivorian government spokesperson. Ivory Coast has called an emergency summit of regional leaders.

The hostage saga is one of many dis-

putes hampering the UN's operations. Shortly after Mali arrested the Ivorians it halted all UN troop rotations for a month. Germany, which has more than 1,000 soldiers in Mali, has repeatedly had to suspend its operations because the junta has withheld flight authorisations to rotate soldiers, provide reconnaissance or, if needed, conduct medical evacuations.

More recently Mali has, in effect, banned aircraft from almost everywhere north of Bamako. That air space is being reserved for Mali's new Russian strike aircraft, which seem to be piloted either by Wagner mercenaries or the Russian air force, says a Western diplomat.

Given the presence of mercenaries and increased risks of patrolling without air support, some countries are withdrawing their contingents. Sweden has said it will pull out its troops next June, a year earlier than planned. Egypt has also suspended its operations and Benin is pulling out entirely. Germany may be next.

When asked earlier this month about the future of German troops in Mali, Chancellor Olaf Scholz said his government was considering whether it still makes sense for them to be there. "The safety of soldiers must be guaranteed," he said. Germany would not want to be in a situation where it "would depend on the good co-operation of the Russian forces", Mr Scholz added.

If Germany left, others would, too. At a minimum the mission would be sharply reduced in size, says Andrew Lebovich, a researcher on the Sahel. The UN is conducting its own review. Some UN officials believe that their mission will not be able to continue if relations with the Malian government do not improve, says the diplomat. A withdrawal would leave the junta without anyone else to blame for its failings, notes Denis Tull of the German Institute for International and Security Affairs, a think-tank in Berlin. "We will see whether the emperor has any clothes," he adds.

A weakened UN might suit the junta, which flatly opposes some of the peacekeepers' work, especially their investigations into human-rights abuses. But the colonels are still divided over whether to kick it out entirely, since it also brings in much-needed aid and the Malian army sometimes relies on the UN to evacuate its own wounded.

The UN has struggled to slow the bloodshed in Mali largely because it is too small to secure such a large country. It is also somewhat hobbled by its peacekeeping mandate when there is no peace to keep. Even so, its troops, especially those provided by European countries, are well armed and mobile. Their long-range patrols offer at least transient security to the places they visit, allowing aid to flow in to neglected villages. Without the UN, life would be even more miserable for many Malians. ■



Democracy and poverty

Escaping the dead hand of dictatorship

MSUNDWE

Two years after saving its democracy, Malawi remains the world's poorest peaceful country

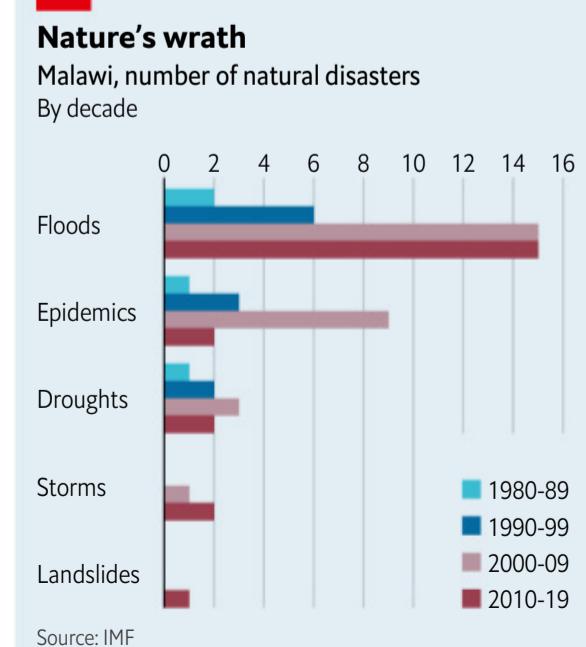
IN MANY PARTS of the world democracy can feel abstract and immutable, like mountains in the distance; voting is not a triumph but a chore. But not in Msundwe, a thin strip of road lined by stalls selling beans, maize and cabbages about 40 minutes drive from Lilongwe, Malawi's capital. Here democracy feels as fresh and real as the scars people still bear from beatings, shootings and mass rapes three years ago.

"The people in this area rose up against the previous government," says Kondwani Mangani, a wiry 25-year-old motorcycle-taxi driver. "Then the police came and brutalised people." Shops were ransacked and at least 18 women were gang-raped by policemen viciously trying to put down protests against the theft of a presidential election by Peter Mutharika, then the incumbent, according to an official report.

In 2020 Malawi's Constitutional Court annulled the election and ordered another vote. It was won by Lazarus Chakwera, a theologian and reformist determined to end corruption and boost growth. Malawi's robust defence of its democracy was widely hailed as a victory for the rule of law in a region cursed by autocrats. It also kindled hope of renewal in this land of roughly 20m people that has stubbornly remained the poorest peaceful country in the world.

Yet the first two years of Mr Chakwera's term offer discouraging insights into just how difficult it is for even a well-intentioned leader to root out entrenched graft and invigorate a sclerotic farming economy in the face of a changing climate.

Mr Chakwera, who bursts with natural charisma and speaks with the intonation of an American evangelical preacher, admits he has made no progress on his three main priorities of providing jobs, creating wealth or improving food security. The main reason, he says, has been a "consortium of crises". First the covid-19 pandemic slammed the economy, driving growth down from 5.4% in 2019 to 0.9% the following year. Then came Ana, one of the increasingly frequent tropical storms lashing the country (see chart). It washed away crops, harming food production, as well as hydropower stations that provided 30% of Malawi's electricity, leading to blackouts. Third was the war in Ukraine, which



pushed up the price of fertiliser and fuel, two of Malawi's biggest imports, straining its foreign-currency reserves. Now fuel and fertiliser are running out. "My dream has not really happened as it should have," Mr Chakwera says ruefully.

Exogenous shocks and natural disasters largely explain why Malawi has struggled of late. But these do not explain almost six decades of sluggish growth since its independence in 1964 that have left Malawi with a GDP per person of just \$545.

Part of Malawi's problem is that it is small, landlocked, resource-poor and dependent on neighbours that have often fallen into conflict. Paul Collier, a development economist, has argued that Malawi would struggle to grow rich even if it had the best governance and policies. With little of either it has posted growth per capita of just 1.5% a year over almost seven decades, reckons Stefan Dercon, another development economist. "It takes effort of a particular kind to achieve such poor performance," Mr Dercon wryly noted in his recent book, "Gambling on Development".

That effort was made by a small elite that is in equal parts rapacious and addicted to the statist policies of Hastings Banda, Malawi's former dictator. Banda liked to control every detail, from the lengths of women's skirts to the prices of farm produce. Although Malawi shook off Banda's dictatorship in 1994, it is not yet free of the dead hand of his interventionist state.

Roughly 80% of Malawians still scrape a living from the soil. Instead of encouraging farmers to choose freely what to grow and sell, the government meddles by setting prices (which people ignore), banning exports from time to time, and giving sacks of fertiliser and seeds to the poor, whether they want them or not, at a cost equal to 1.5% of GDP. Researchers at the International Food Policy Research Institute reckon it would be five times cheaper to import a bag of maize than to import the fertiliser needed to grow that bag.

One reason the subsidies continue against all common sense is ideology. Lobin Lowe, the agriculture minister, says they are to ensure that Malawi is self-sufficient in food "not only at the national level, but also at the household level". Another reason must surely be the juicy profits that can be made on fertiliser contracts.

Mr Chakwera has made a start at curbing graft, backing a new head of the anti-corruption bureau who is doggedly trying to pursue a case that allegedly implicates politicians, judges and journalists. Yet even if corruption is reduced, that will not be enough. Agricultural markets need to be freed; regulations that make it hard to do business or create jobs need to be slashed. "Malawi's biggest problem," says a veteran Western diplomat, "is that its government won't stop meddling." ■



Italy

The Brothers are coming

ROME

What will Italy's next government be like?

THE WOMAN who smiles winningly at voters from the electoral posters of the Brothers of Italy (FdI) party could scarcely be more reassuring. *Pronti*, say the posters: “Ready”. The message is that the woman, Giorgia Meloni, leader of the FdI, and her Brothers are prepared for government after Italy’s election on September 25th. Reassurance has been an important part of Ms Meloni’s campaign.

It was not always that way. There was a time when she warned that “There can be no possible mediation.” In a gravelly—even menacing—voice, she continued: “Yes to the natural family. No to the LGBT lobby. Yes to sexual identity. No to the ideology of gender.” And then she roared out: “No to mass immigration! Yes to jobs for our [compatriots]! No to big international finance! No to the bureaucrats of Brussels!”

Ms Meloni, whose party is expected to come first in this weekend’s election, was once an extremist. She joined the youth movement of the neo-fascist Italian Social Movement (MSI) and at the age of 19 praised Italy’s Fascist dictator, Benito Mussolini. But then plenty of people who are now

moderate left-wingers belonged to Communist parties at the same age.

What is notable about Ms Meloni’s Eurosceptic harangue is that it was delivered barely three months ago: on June 12th, to a rally organised by Vox, a Spanish hard-right party. Two questions hang over Ms Meloni and her party, which is expected to form a coalition government with the hard-right Northern League and Silvio Berlusconi’s more moderate Forza Italia party. The first is what she truly believes. The second is whether, against a background of war in Europe, energy shortages, inflation and looming recession, she will have much scope to put her ideas into practice.

When Ms Meloni says her party has “handed fascism over to history” and that it “unambiguously condemns the suppres-

sion of democracy” in Italy in the 1920s, there is good reason to believe her. The Brothers, the defunct National Alliance from which they split, and indeed the MSI from which the National Alliance in turn stemmed have all played by the rules of democracy since the foundation of the Italian republic in 1946.

The extent of the Brothers’ dominance would depend on the size of the right’s majority and the share of votes and seats for each of the partners in the alliance. Given the idiosyncrasies of Italy’s electoral system, it is conceivable that a substantial plurality of votes could even translate into a two-thirds majority in parliament. That would, in theory, allow the right to change the constitution, introducing a presidential system, without a referendum. Not even their adversaries believe that is politically viable. But, warns Enrico Letta, the leader of the centre-left Democratic Party (PD), the biggest movement on Italy’s fractured left, “In a parliament in which [Ms Meloni] gets 40% of the seats, she will become uncontrollable.”

That Ms Meloni’s chief rival should claim she represents a threat is hardly surprising. But she and her populist allies in the League have also come in for criticism from the editor of a newspaper of the centre-right. “I think they could be very dangerous. But they know what is needed [so as] not to appear dangerous,” says Claudio Cerasa, the editor of *Il Foglio Quotidiano* and author of “The Chains of the Right”, a recent book that argues Italy’s radical right ➤

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is in thrall to conspiracy theories.

Others, though, disagree. “[Giorgia Meloni] is a conviction politician and she is certainly right-wing,” says Giovanni Orsina, who teaches political science at the LUISS university in Rome. “But part of that is a belief in the national interest, and that makes her a realist. She tends to see the world as it is.”

According to those who know her, Ms Meloni is aware of having reached the cusp of government without a wide circle of expert advisers. She has surrounded herself with a tight-knit group of confidants that includes her brother-in-law. But she knows she will need more than that. Mr Orsina expects that the most prominent posts in the new cabinet would go to people of recognised international standing. She can count on the services of Giulio Terzi di Sant’Agata, who became involved with the Brothers after serving as foreign minister in the non-party administration of Mario Monti of 2011-13. Italy’s representative at the European Central Bank (ECB), Fabio Panetta, as well as another former Bank of Italy executive, Luigi Buttiglione, are among those said to be in line for the crucial finance ministry. The outgoing Mario Draghi’s minister for ecological transition, Roberto Cingolani, is tipped to remain.

On Ukraine, Ms Meloni has taken a firm pro-NATO line, so the chances of immediate friction with America are remote, despite the friendly approach to Russia taken in the past by her leading allies. The relationship between a future hard-right government and the EU would be more complex. Mr Letta fears that, with the loss of Mr Draghi as prime minister, the EU “will lose an engine and acquire a brake”. Ms Meloni’s anti-federalist views align her more closely with Poland and Hungary than with France or Germany. On September 16th she sprang to the defence of Viktor Orbán’s government after the European Parliament deemed Hungary was not a full democracy. “Orban won the elections, several times by a sizeable margin with all [the other parties] ranged against him,” she said.

Not much of a welcome

Italy, GDP

% change on previous quarter



Italy, consumer prices

% change on a year earlier



Ten-year government-bond yields, %



Sources: Haver Analytics; Bloomberg

come under relentless pressure from Mr Salvini to show greater flexibility. “If you go into that bar over there, they won’t talk to you about the reform of the constitution,” he told your correspondent recently, pointing across a Rome square. “They’ll ask for help in paying their September electricity bill. I refuse to win this election and then have to hand out a million unemployment and furlough cheques.” Ms Meloni has started to waver, saying extra debt might need to be incurred “as a last resort”.

A second dimension of Italy’s economic relations with Europe concerns the European Commission. Italy stands to get around €200bn in grants and loans from the EU’s post-pandemic recovery fund, potentially the biggest injection of cash into the Italian economy since the Marshall Plan after the second world war. The Bank of Italy estimates that it could increase annual growth by an average of almost one percentage point a year over the next ten years. But that is contingent on Italy sticking to a daunting programme of reforms and investments drawn up by the Draghi government and approved by Brussels, intended to address the structural weaknesses of an economy that has seen almost no net growth in GDP per head since 2000.

Ms Meloni had already said that, as prime minister, she would seek changes to Italy’s national programme. Some adjustment would be reasonable. The programme was drawn up before inflation took off. But Veronica De Romanis, who teaches economics at Stanford University’s campus in Florence, says that, given Italy’s troubling debts, the commission is more likely to authorise a cut in the number of projects than an increase in funding. “In any case, a revision would take two months. So you lose time,” she says.

Ms Meloni’s aim may be to redirect as much spending as possible to averting the energy crunch on households and businesses. Italy will most likely add an energy chapter to its programme, as all countries have been encouraged to do under Brussels’s REPOWEREU plan to wean the continent off Russian energy. That chapter could include measures to save fuel and speed up the roll-out of renewables. The funding available is limited. But it could be sold as a victory for the next government.

A big question is whether her administration would press ahead with the reforms agreed with Brussels as part of the investment plan. Markets are doubtful; the premium investors demand for buying Italy’s 10-year bonds rather than their German equivalents has risen to more than 2.3%.

“It is key that [Italy’s recovery plan] remain focused on the stated objectives,” says Sergio Nicoletti Altamari, the central bank’s head of research. “The plan addresses some of the most serious vulnerabilities of the Italian economy.” Several of the re-

► forms Brussels is demanding aim to promote competition. But with a substantial following among small-business owners and the self-employed, the League is wary of too much liberalisation. More than once, Mr Draghi had to contend with resistance from Mr Salvini, some of whose objections were supported from the opposition benches by the Brothers.

The Brothers' economic creed is statist, corporatist and nationalist. They mistrust globalisation and their programme indeed calls for widespread renationalisation. In Ms Meloni's rhetoric, foreign direct investment is a threat and the capital markets are hotbeds of speculation. But it remains to be seen how much, if any, of the Brothers' economic programme could be enacted in a global context as challenging as the one that will confront the next government.

Both the government's fiscal management and its dealings with the commission over reform and investment will inform what the ECB can do to help. The bank has put together a new bond-buying programme to be activated in times of market stress. But it comes with strings attached: fiscal policies in line with the EU's rules, sustainable public debt and adherence to agreed reforms. Picking fights with the rest of the EU over reform or spending might cause the ECB to withdraw its support.

How Ms Meloni would respond to a full-blown economic crisis is unknowable. Some who have had dealings with her fear she might fall back on her underlying beliefs, and propose more radical social measures at home as a distraction.

There have been few signs so far, however, that Ms Meloni has much appetite for a culture war. The Brothers are against gay marriage and adoption. They oppose abortion, euthanasia and surrogacy. But their leader says she will keep same-sex civil unions, which fall short of full marriage, and Italy's existing abortion law. The Brothers' policy is to insist on the abortion law's vigorous enforcement. Passed in 1978, under a Christian Democrat government, it is officially cast as a law for the safeguarding of motherhood and the prevention of abortion. It requires family-planning clinics to look at possible alternatives to the termination of a pregnancy, offer pregnant women help in removing the motives for an abortion and urge them to take a seven-day pause for reflection. In practice, little of this is done. A government led by the Brothers could insist that it is.

The policy area that is shrouded in the deepest fog is the policy of a hard-right government on immigration. The Brothers' programme calls for a naval blockade of parts of the North African coast. It is unclear how that could be imposed, and whether it would be any more successful than the existing cordon maintained by Frontex, the EU's border-control agency.

"I think that the most important question about this election is not whether Giorgia [Meloni] is a Fascist," says Marcello Sorgi, the veteran political commentator of *La Stampa*, a daily. "It is why Italians are not interested in the question of whether she is a Fascist or not."

The two most common responses to that question offered by voters are that they have tried everything else and that Ms Meloni has at least been consistently true to her principles. But she and the Brothers have conveyed that impression by remaining doggedly in opposition, even refusing to join the widely respected Mr Draghi's government of national unity.

Being against has long been the trump card of Italian politics. No party or alliance has succeeded in getting re-elected since the collapse of the post-war political system in the early 1990s. Most recently, in 2018, this never-ending search for new saviours brought into office a party, the Five Star Movement, that was manifestly unprepared to govern.

The posters from which Ms Meloni looks out so reassuringly aim to dispel the fear that Italy's electorate is about to make the same mistake again. *Pronti?* Are the Brothers really prepared for the messy, compromise-necessitating business of running a country, rather than just criticising? It can only be hoped that they are. ■

Russia mobilises

Halfway measure

Vladimir Putin stops short of a full call-up of troops

FOR THE FIRST time since the start of Russia's war in Ukraine, a sense of emergency has returned to Moscow. For seven months Vladimir Putin had reassured Russians that all was going to plan. But in a speech on September 21st, after weeks of Ukrainian advances, he told them he needed more men. Russia, he said, was under attack from the entire West. It required "partial mobilisation" to defend both itself and the people of territories it had occupied in Ukraine, who were beginning to be absorbed into Russia. And he threatened to use nuclear weapons to defend Russia from what he termed the West's efforts to destroy it.

The choreography of Mr Putin's speech was rushed. On September 20th officials from Kremlin-installed governments in occupied Ukraine demanded that Russia annex them. Within hours Russia's parliament backed their appeal. The territories announced that referendums on annex-



Next in line

ation, postponed during Ukraine's counter-offensive, would be held from September 23rd-27th. Meanwhile the Duma passed legislation paving the way for partial mobilisation. Mr Putin's speech, announced for the evening, was delayed until the next morning without explanation.

Many had expected mobilisation in May, when Russian forces were advancing. Declaring it after Ukrainian forces had counter-attacked looked like failure. The need for conscription also clashed with the optimistic casualty figures presented after Mr Putin's speech by Sergei Shoigu, the defence minister. He claimed Russia had lost fewer than 6,000 men.

In fact, Russia's army has suffered grievous losses. To plug the holes, Mr Shoigu said 300,000 reservists would be mobilised. In the past reservists sent to fight in Ukraine were offered extra money and could decline; under the new decree they cannot. The decree also imposes a stop-loss policy, keeping serving soldiers on the job indefinitely. Previous recruitment efforts—including the use of mercenaries and convicts—have clearly fallen short.

Mr Shoigu explained that this was not a general mobilisation. Out of 25m people eligible, only 1% would be called up—those with prior military service and specialist skills, though the decree itself included none of those caveats. The promise of 300,000 new soldiers rests on shaky assumptions, argues Dara Massicot, an expert at RAND, a think-tank. Russia's recruitment system has fallen apart over the past decade, she says; draft-dodging is endemic. And even if enough men can be found, they do not amount to an effective military force.

Mr Putin promised the draftees additional training, but many of the officers ►

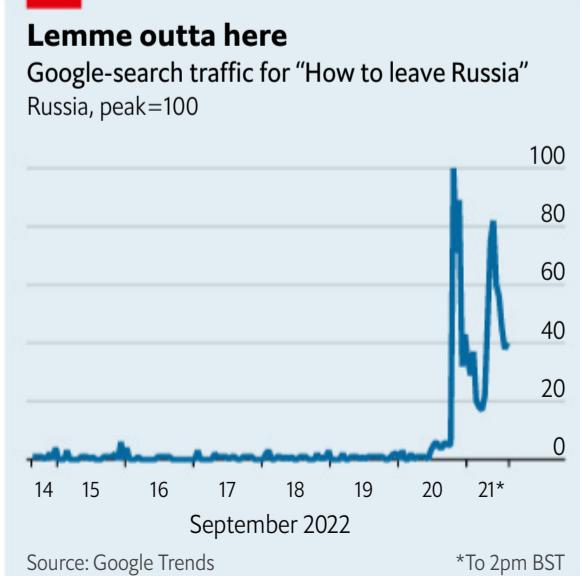
► who could train them are dead or on the front lines. Another constraint is equipment. Russia has lost at least 1,155 tanks so far. And because it has already recruited the most nationalistic or financially desperate veterans, those now dragooned are unlikely to be enthusiastic.

Even so, partial mobilisation will help Mr Putin's war effort. The situation might otherwise have become "catastrophic" in the winter, says Rob Lee of King's College London, as volunteers on short contracts left. Reservists can fill out depleted battalions, but the full impact will only be felt next year. That suggests Ukraine has a window of opportunity before Russia's army can recover. It will keep pressing on the west bank of the Dnieper river in Kherson province and advancing around the border of Donetsk and Luhansk in the east.

The so-called referendums which the Kremlin plans to stage in the provinces of Donetsk, Luhansk, Kherson and Zaporizhia, under the guns of Russian occupiers, will no doubt yield huge majorities for annexation. Since Mr Putin says he will use nuclear weapons to defend Russian territory, making occupied regions part of that territory implicitly extends the nuclear umbrella to them. He noted that this was "not a bluff".

But his speech exposed his problems. Most Russians acquiesced in the invasion on the understanding that it did not affect their own lives. Pollsters show a majority supporting the war, but only a militant minority backing mobilisation. Yet since Russia's defeats in the Kharkiv region, that minority has grown louder. Zealots on state television and social media also call for a formal declaration of war and for levelling Ukraine's infrastructure.

Meanwhile the war's costs have eroded backing among Mr Putin's quieter supporters. On September 18th Alla Pugacheva, a Soviet-era pop diva whose fame in Russia rivals that of the Beatles in the West, called for an end to a war in which "our boys [are] dying for illusory goals" and "which has turned our country into a pariah".



Mr Putin's growing vulnerability has forced him to side with the more blood-thirsty part of his electorate. Yet partial mobilisation has only partly satisfied them. Surveys by Levada, an independent pollster, show younger people are paying less attention to the war and even fewer are prepared to die in it. On September 20th Google registered a surge of searches for "how to leave Russia" (see chart). After Mr Putin spoke, tickets for direct flights out of Russia sold out in minutes.

Mobilisation, one of the most unpopular decisions of Mr Putin's presidency, risks bringing the war back home. After colleagues of Alexei Navalny, Russia's imprisoned opposition leader, called for protests, demonstrations broke out in Moscow and over 30 other cities. Around 1,300 people were arrested, and some were reportedly served draft notices. As Russia discovered in 1917, it can be risky to give arms to people who do not wish to fight. ■

Nagorno-Karabakh

The guns do the talking

Renewed fighting in the Caucasus shows Russia's waning influence

AZERBAIJAN MUST have reasoned that a new offensive against Armenia, which it beat in a war over the region of Nagorno-Karabakh two years ago, would force its neighbour to make new concessions.

Early signs suggested that the move had paid off. On September 14th, a day after Azerbaijan's army unleashed a barrage of artillery and drone strikes against Armenian positions, Armenia's prime minister, Nikol Pashinyan, said he was ready to pay a high price for peace. "We want to sign a document, for which we will be criticised, scolded and called traitors," he told parliament. "The people may even decide to remove us from power."

Crowds duly demanded Mr Pashinyan's resignation. Many Armenians assumed he meant Armenia was ready to recognise Azerbaijan's sovereignty over Karabakh. Azerbaijan recaptured large swathes of the territory, populated largely by Armenians and held for nearly three decades by Armenian separatists, in late 2020.

But the enclave's status remains unresolved. Azerbaijan wants Armenia to renounce its claims to Karabakh. Armenia has been in no rush to do so, and wants guarantees for the region's Armenians. Peace talks, brokered by the European Union, have made some headway, but a comprehensive settlement on Karabakh, border demarcation, and the construction of a

transport corridor between Azerbaijan and its own western enclave, Nakhchivan, has proved elusive.

Over 200 Armenian soldiers, as well as at least 79 troops from Azerbaijan, are believed to have died in the recent clashes, before a ceasefire took hold. Azerbaijan, whose autocratic government has spent billions of dollars on new weapons, including Turkish and Israeli drones, has a clear military advantage.

Its decision to let the guns do the talking instead of the negotiators may backfire, however. "It will be hard for Armenia's government to sell any peace deal at home because it will be seen as doing so under the threat of armed force," says Zaur Shiriayev of Crisis Group, a think-tank. Mr Pashinyan already seems to have cooled on the idea in the face of a domestic backlash, made worse by reports of atrocities committed by the advancing Azerbaijani forces. "No document has been signed and no document will be signed," he said only hours after his address to parliament.

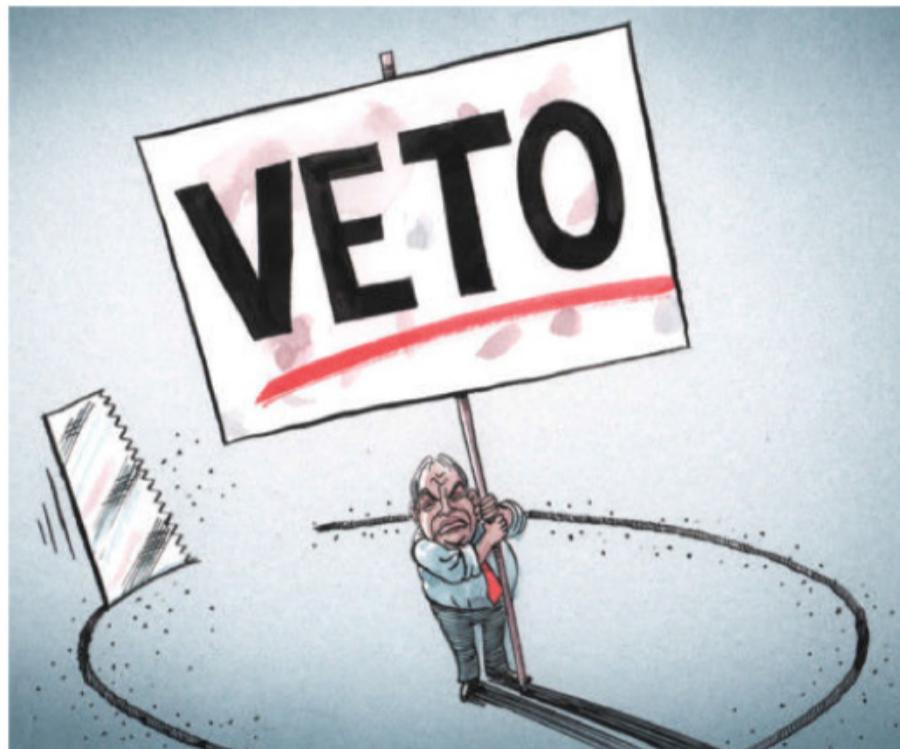
The violence has also exposed Russia's waning influence in the region. When Armenia responded to Azerbaijan's attack by invoking the mutual-defence clause of the Collective Security Treaty Organisation, a defensive bloc dominated by Moscow, Russia balked. The only response the bloc could muster was to send a fact-finding mission. Armenian officials could not hide their disappointment.

Still, Russia remains entrenched in the region. It sells arms to Azerbaijan and has a military base in Armenia. Russian troops patrol Armenia's border with Turkey. Some 2,000 Russian peacekeepers remain in Karabakh as part of the 2020 ceasefire. "There are no illusions in the region about Russia's power," says Mr Shiriayev. "No one wants to antagonise Russia." But Russia is also too overstretched in Ukraine to commit new resources to the Caucasus, says Thomas de Waal of Carnegie Europe, and neither America nor the EU is ready to step in. The result is a growing security vacuum. That does not bode well for peace. ■



Charlemagne | The Reverse Luxembourg

If national vetoes are to be allowed in Europe, a way must be found to stem their abuse



AT 344 PAGES in its English version, the Consolidated Version of The Treaty on the Functioning of the European Union displays, as one might expect, a degree of exhaustiveness. The bloc's constitution-in-all-but-name includes three pages of rules regulating the exports of a refinery in the Dutch Antilles. There is a mention of who gets to own summer houses in Denmark (only Danes). Somewhere in there are also bits on how EU laws are made, outlining the various powers of European institutions in Brussels as they marshal 27 member states towards ever-closer union.

But not included in the rulebook's 600-plus articles is a mention of an edict that arguably holds sway over all EU business. Some say it does not exist anymore, others that it never really did; Eurocrats speak of it in hushed tones, as if mindful not to wake a monster. The Luxembourg Compromise holds that any national government can single-handedly derail any EU measure if it feels its "vital interests" are threatened. According to the rules, in most instances if enough member states agree, they can impose their will on a recalcitrant few. In the real world, the compromise suggests, a strong enough squeal from any one national government is enough to stall even measures agreed by the other 26 and EU institutions, rules be damned. (The measure was crafted in 1966 to assuage Charles de Gaulle, so piqued was he that lesser Europeans had designs to impose their rules on the French.)

The compromise is rarely seen in the wild; if anything its use is obliquely threatened behind closed doors. Yet other such vetoes abound in Brussels. Most EU business now is agreed by a qualified majority of countries. But in several policy areas unanimity among member states is still needed. This includes anything relating to defence and foreign policy, enlargement, taxation and policing. Cynical politicians have used this to extract concessions from their fellow Europeans. Countries have blocked the EU accession of their neighbours to extract benefits in some local dispute; tiny Cyprus blocked sanctions on Belarus in 2020 because it wanted the EU to focus on Turkey. But the master of the noxious veto is undoubtedly Viktor Orban, Hungary's autocratic prime minister. Earlier this year he held up round after round of sanctions against Russia, and is now threatening to kibosh Europe's participation in a global corporate-tax deal. In both instances links can be drawn

between Hungary's veto and its ongoing fights with the EU on unrelated matters. An expert shakedown artist, Mr Orban has spotted an opportunity to profit and seized it.

The existence of any national vetoes enrages federalists who fret that selfish local politicians stand in the way of a functional European superstate. Those complaints can mostly be ignored. Vetoes are seldom a real problem. They often reflect legitimate gripes and accommodating them improves EU policies in the end. Abolishing them would cause too much power to seep away from national leaders, whose democratic legitimacy far outweighs that of little-known MEPs or commissioners. On September 20th a meeting of the bloc's Europe ministers looked at ways to veto-proof more of the EU's business by increasing the use of qualified-majority votes. But because the proposal to move away from unanimity itself requires unanimity, it is unlikely to go anywhere.

That leaves the EU with an enduring problem. Hungarian-style exploitation of vetoes is patently beyond the use that was intended for them. Thus a new rule is needed: call it the Reverse Luxembourg. The original Luxembourg Compromise holds that in situations where vetoes are usually forbidden, they can be revived in exceptional circumstances. The Reverse Luxembourg offers that in situations where vetoes are usually allowed, they should be barred in similarly rare circumstances. The Luxembourg Compromise protects against federalist overreach. The Reverse Luxembourg would protect Europe from diplomatic blackmail.

As with the original compromise, there is no need to codify the Reverse Luxembourg in any treaty. More efficient would be to punish the use of flagrantly abusive vetoes with cuts in EU money sent to countries that deploy them. Such threats work: Hungary is currently scrambling to update its anti-graft laws to avoid losing up to €7.5bn (\$7.4bn) of funding from Brussels. The EU regularly comes up with new spending programmes, for example the €750bn pandemic-relief fund set up last year. It is easy to devise such schemes for 26 countries instead of 27: similar workarounds were once deployed to get around Britain in its most cantankerous years as a member of the club. Hungary (along with Poland) is currently not receiving any of the pandemic cash, specifically because of its rule-of-law shortcomings. Spelling out that member states shall not use their veto to hijack the bloc's business could be made an additional criterion for receiving EU largesse.

Veto Corleone

The Reverse Luxembourg would solve another problem Europe will soon face: how to run a union of 35 or more, after enlargement to the likes of Serbia or Ukraine, without getting bogged down in a thicket of potential vetoes. Germany and France have hinted that more business would have to be done by qualified majority for them to agree to EU expansion. Eastern Europeans are keen on enlargement, but also want to keep the veto, particularly in matters of foreign policy, where they do not trust France or Germany. The Reverse Luxembourg is a neat compromise. It preserves legitimate vetoes, while keeping the EU manageable.

Sceptics will point out a veto that can be over-ridden is no veto at all. And who would decide if a veto was cynical? Why should Ireland be allowed to block a tax deal but not Hungary? Like pornography, veto abuse is a case of knowing it when you see it, and Europe has seen enough of late. The Luxembourg Compromise strikes fear into the heart of federalists precisely because nobody knows its precise contours. Devising a variant to keep cynical exploiters of EU rules in check would stem their undue influence. ■



The Labour Party

The smoked-salmon offensive

After a frosty decade, business leaders are warming to Labour

AS THE LABOUR PARTY gathers for its annual conference in Liverpool, attention will focus on the lecture hall, where Sir Keir Starmer will insist that the party he leads is ready for office. But a truer indicator of how British politics is changing will be found on the sidelines, at a small gathering of business leaders and the shadow cabinet on September 26th. Tickets for that event sold out in July.

After a frosty decade, a fervent courtship is under way between the Labour Party and Britain's largest firms. Rachel Reeves, the shadow chancellor, has launched a charm offensive that has involved 250 meetings with chief executives, chairs and founders, according to an internal tally. Many have come away impressed. "I've been dealing with Labour in and out of government for a quarter of a century, and this is the most professional in terms of business engagement of any leadership since Tony Blair," says Miles Celic of TheCityUK, a lobby group for financial and professional-services firms. Labour's overtures in the 1990s were known as the "prawn cocktail offensive". These days it is dubbed the

smoked-salmon offensive, reflecting a preference for breakfast meetings.

For the party, it is an opportunity to shape new policies, tap potential donors and alter voters' perceptions. Businesses are often cautious about making political endorsements, but what they say to each other trickles down to the electorate. What began as mild curiosity about Sir Keir's leadership has turned into a scramble to get close to a party that seems likely to form Britain's next government. "People's ears pricked up as Boris Johnson started to disintegrate," says a lobbyist.

Ed Miliband, the party's leader from 2010-15, aspired to remodel British capitalism among German lines. One businessman says that visiting his office was like attending a seminar. Jeremy Corbyn, his successor until 2020, proposed nationalisations and higher taxes. Businesses that requested meetings were brushed off.

Ms Reeves is trying to cast her party as a pillar of stability. Mr Corbyn's manifesto has been replaced by pledges of ironclad fiscal discipline. Labour describes business as a solution to Britain's problems,

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rather than a problem to be solved. It has refused to support a wave of strikes and promises a rapprochement with the EU. The party supported the Financial Services and Markets Bill, which aims to make the City more competitive.

Business leaders who have met Ms Reeves's team credit their openness and seriousness. Calls are taken; emails are returned; draft speeches are shared. "They are being very clear about where they agree with us and disagree," says a bank executive. Jonathan Reynolds, the shadow business secretary, and Tulip Siddiq, a shadow Treasury minister, are also well-regarded. "There is a consistent epicentre in the shadow cabinet of eight or ten people who know the scripts," says another executive.

There is scepticism, too. The party is cash-strapped and thinly staffed, which leaves some large holes over fiddly questions such as online-privacy regulation. Big accountancy and law firms are again lending staff to the party, a practice that largely stopped under Mr Corbyn's tenure. That is a sign of rapprochement, but borrowed workers cannot make the party's policy choices on its behalf.

It helps Labour that businesses despair of the Conservative Party. Many people (including politicians) assume that firms want treats such as tax cuts and deregulation. They do—but they are more interested in a stable, predictable environment in which to invest. After 12 years in office and four radically different prime ministers, the Conservatives can hardly promise that. ►

Boris Johnson's tenure was especially shambolic. "For the last few years, we're just not sure what we're facing into with the government," laments one executive.

Liz Truss, who succeeded Mr Johnson on September 5th, has launched yet another Tory revolution. As *The Economist* went to press she was preparing to reverse rises in corporate and payroll taxes and is mulling relaxing rules on bankers' bonuses. Such measures will benefit firms. But they also reinforce a suspicion that policy is being driven by ideological reflexes. Ms Truss's tepid approach to net zero worries firms, who are under pressure from their customers and shareholders. As for the appointment of Jacob Rees-Mogg as business secretary, "I could think of a worse choice,

but you'd have to give me an hour," says the chairman of a large company.

The Conservative Party's historic closeness to business allows it to ruffle more feathers than Labour. In the 1980s Margaret Thatcher felt free to reject the compromise-seeking of the Confederation of British Industry in favour of the anti-union Institute of Directors. Mr Johnson inflicted a diamond-hard Brexit, knowing that businesses would still prefer him to Mr Corbyn.

Ms Truss is gambling that the Conservative Party's advantage holds. She has an epithet for those she sees as responsible for Britain's economic underperformance: "managerial". Oddly, business leaders sometimes apply the same term to Ms Reeves. They mean it as a compliment. ■

Royal ritual Elizabeth's journey

Britain buries its longest-reigning queen

A COFFIN IS A heavy weight on any shoulder but this one—English oak and lead-lined—looked heavier than most. Just before 11am on September 19th, eight soldiers with red coats and neatly trimmed necks lifted the coffin of Elizabeth II, crown on top, onto eight shoulders. Then they started to walk.

The queen's funeral offered many numbers: 96 tolls of Westminster Abbey's tenor bell; 2,000 people in its congregation; tens of thousands on the streets beyond; 26m watching live in Britain; millions more worldwide. One number that many wondered about was the weight of the coffin. But this was not given: queens must be measured in more regal units than kilograms.

Other things were also unknown—chiefly, what has just happened in Brit-

ain. History will be clear: an outpouring of grief by a traditionalist nation for its beloved monarch. But history is much muddier when it happens. In June a poll by YouGov found Britain was only mildly in favour of its monarchy. Speak to those in the gathering crowds and many were unclear why they had come except to say that she had done a good job, and that this was history.

Watching the soldiers walk—step-pause-step-pause—up the steps into the Abbey, their gait implied gravity. To bear a crown, either for a morning or a lifetime, is a job both burdensome and tense. As few knew better than the queen, a single slip can ruin everything. But there was no slip. Shortly after 4pm the coffin and crown were set down. Their job—and hers—was done.



Race and history

The aftermath

BRISTOL

The debate over history and images goes on

After protesters dumped a statue of Edward Colston in Bristol harbour in 2020, the city's Anglican cathedral hastily covered several stained-glass windows. Some commemorate the 17th-century merchant, who was a leader of the slave-trading Royal African Company. The cathedral also has a spectacular rose window dedicated to Thomas Daniel by his sons, who were awarded hefty compensation after slavery was abolished in 1834.

The extent to which Bristol's wealth and many of its finest buildings were built on the wretchedness of slaves is the thrust of a new exhibition at the cathedral. The first such effort in Bristol, it focuses on 200-odd burials of people who profited from the trade. Mandy Ford, the dean, says the exhibition shows that the horror was "in the warp and weft of the city". It also provides for the inclusion of names and stories of some slaves, like Thomas Gullen, who died a free man in Bristol in 1791.

Responses to the exhibition, which closes in October, will inform the cathedral's next steps. Visitors are asked whether it should create a permanent exhibition, remove memorials or commission new ones. Cathedral staff are discussing the same question with Bristol city council, Bristol University and black Bristolians.

The city has long had a radical streak. In 2011 it saw the largest Occupy protests outside London. Countering Colston, an activist group, has targeted the Society of Merchant Venturers, a group of business people of which Colston was a member. Earlier this year, its campaign prompted several pubs to boycott a Somerset cider-maker because its owner was a member of the society. That made some people angry. The efforts of the cathedral, whose exhibition was partly funded by the Merchant Venturers, may have a more lasting influence on how the city acknowledges its past.

Though the cathedral has received planning permission to remove the blocked-up windows, the glass company it would have used to replace them has gone out of business. That may prove "fortunate", reckons Reverend Ford. Feedback from visitors to the exhibition and wider conversations suggest most Bristolians want the windows to stay. But no decision has yet been made. "We want to welcome everyone here," she says. "How can we do that if we seem to be aggrandising those who captured and trafficked people?" ■

Bagehot | King Charles v Trussonomics

The new monarch and the new prime minister have wildly different ideas about growth



HARMONY: A NEW WAY of Looking At The World" is an arresting read. Published in 2010, the book by Prince Charles, now King Charles, is a peculiar work stretching from ecology to economics, via ancient philosophy and sacred geometry. At times Charles comes across as a regal Jordan Peterson, who researched symbolism before switching to life advice for teenage boys. In one section, the then heir to the throne discusses how often the shape of "the female organ of birth—the doorway or window between two worlds", as the future king delicately puts it, appears in art, architecture and nature.

But the sections on economic growth stick with the reader longer than Charles's Freudian analysis of the shape of an almond. Mankind is on a path to misery, expanding gross domestic product at the expense of the environment, argues Charles. An addiction to consumption leaves people stressed. GDP is a 20th-century measure in a 21st-century world. Unfortunately for the new king, a person who takes the opposite view now sits in Downing Street.

Liz Truss has made growth the be-all of her premiership. Boosting trend growth to 2.5% per year, as the government intends, may be a bloodless cry. But it is a loud one. Speaking at the United Nations in New York, Ms Truss hailed GDP as the route to power as well as prosperity, with democracies able to fend off the likes of Vladimir Putin only if they become richer. For Charles, economic growth is the problem. For the prime minister, it is the solution.

Some aspects of the Carolean view are reasonable. Boosting the economy while ignoring environmental harm would be bonkers. Charles notes that increases in GDP stop correlating with increased happiness above a certain level. Sometimes the problem is the messenger more than the message. Arguing that there is more to life than money is a platitude. It is, however, a strange sentiment from a man who lives in a palace.

Ms Truss takes a hard-nosed view of increasing wealth. Charles approvingly quotes Gandhi at his most trite: "Happiness is when what you think, what you say, and what you do are in harmony". By contrast, during the leadership campaign, Ms Truss said: "Happiness is a faster-growing private sector than public sector." The prime minister's line is unlikely to end up on a fridge magnet, but it is at least feasible.

Consumption is a cause of our ills, argues Charles: "Poverty, stress and ill health...seem reluctant to respond to the cure of yet more consumption." Economic growth has failed to alleviate these symptoms, he laments. Ms Truss sees consumption as the cure. It is such a fundamental aspect of her ideology that, even with the possibility of blackouts this winter, the government dares not ask people to turn down their thermostats and throw on jumpers. "Ever since I can remember, the environment has been presented as something worthy," complained Ms Truss in a speech she made while environment secretary in 2014. "Feel guilty about buying more stuff. Take fewer flights. It's all been about having less but it can—and should—be about having more." (It is a mark of the straitened times that keeping the heat on has replaced flying as an aspiration.)

Ms Truss is right that unless Britain boosts its lousy growth rate, decline will follow. But the unelected monarch is, unfortunately, with the people in opposing the measures that would do just that. Strict planning laws make it difficult to build, which is just the way voters want it. Ms Truss cheered as towers sprang up across Britain's cities; Charles led a popular backlash against them. Many voters like to say, as he did, that they are happy to give up on growth if it means a greener future.

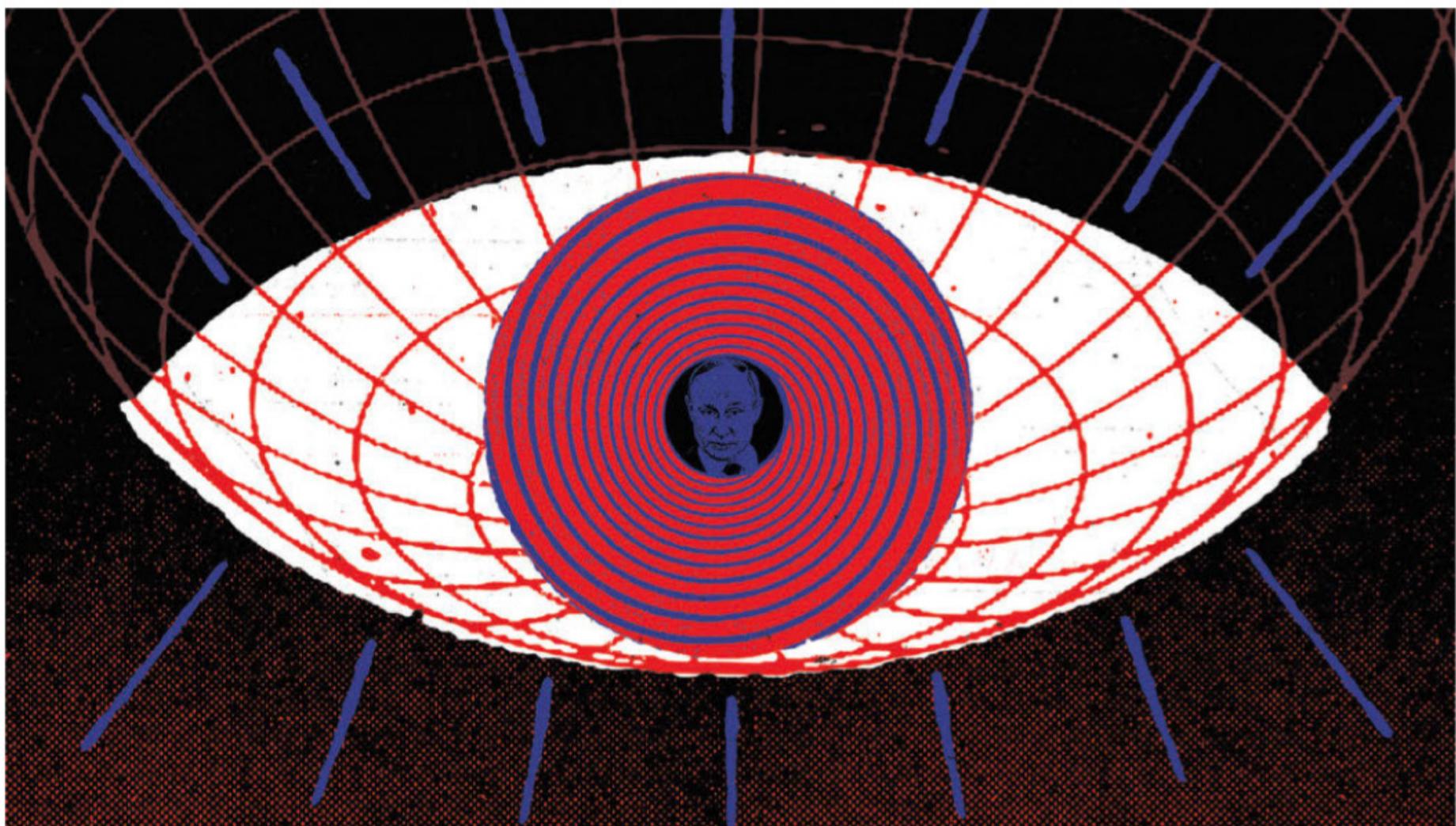
Politicians of all stripes console themselves with the notion that Britons voted to leave the EU in 2016 because they were misled by other, less upstanding politicians. "No one voted to be poorer," runs the refrain. A scarier possibility is that people knew perfectly well what they voted for. Brexit will create a smaller economy, but voters simply did not care. Palace-dwellers are not the only people who are insulated from economic shocks. Home-owning pensioners are pretty well protected, too.

It is little wonder that previous governments placed growth as a second-order issue to a higher purpose. Margaret Thatcher sold her radical reshaping of the state as something that went far beyond economics. "Economics are the method," she said. "The object is to change the heart and soul." Improved public services was the primary focus under Tony Blair's government, economic growth simply the means of paying for it. Under David Cameron, economic growth would be a happy consequence of cutting the deficit. For Ms Truss, growth is the only goal. It is unlikely to be an innately popular one.

Give me growth or give me death

Ms Truss professes to be unfussed about a backlash. "Not every measure will be popular," she said. "And there are always vested interests, people who oppose measures that increase economic growth." So corporation taxes will be cut, and a popular (though foolish) cap on bankers' bonuses will go. Plans to overhaul planning rules are mooted. Individually, each policy would turn a focus group into a lynch mob; doing all of them together is brave to the point of foolhardy. Ms Truss resembles a neoliberal kamikaze pilot, prepared to blow herself up for a righteous cause.

Criticism will not come from the new occupant of Buckingham Palace. Charles is wiser than that. A Prince of Wales has a limited right to sound off on topics such as the environment or the joys of organic marmalade, but a monarch must keep quiet. Charles has promised he will keep his views on economic growth, the curves of a Stradivarius and the merits of Thomas Malthus to himself. Some causes may miss his voice. But when it comes to growth-boosting reforms, Charles has no need to pipe up. Most likely, the voters will do it for him. ■



Russian propaganda

Peddling Putin's piffle

BUENOS AIRES, HANOI, JOHANNESBURG AND TOKYO

Russia is trying hard to persuade the global south to accept its version of events in Ukraine

ON SEPTEMBER 21st Vladimir Putin, Russia's president, announced the calling-up of perhaps 300,000 military reservists to fight in his sputtering war against Ukraine (see Europe). The 18m followers of the RT (formerly known as Russia Today) Spanish-language Facebook page were left in no doubt as to why. Framing his invasion of Ukraine as a war for national survival, Mr Putin, RT reported, had declared that the goal of the West was to "divide and destroy" Russia.

Other recent developments seem to have been curiously underplayed. News of Russia's retreat in north-eastern Ukraine earlier this month, in which Ukrainian forces have retaken thousands of square miles of territory, was hard to find. Headlines that dominated Western news outlets, about Russian soldiers abandoning their weapons and fleeing, were absent. Besides the mobilisation announcement itself, the only hint that Russia's invasion might not be going entirely according to plan was a few clips parroting the Russian defence ministry's announcement of a "regrouping" of Russian forces.

Instead, the Spanish-language edition of Russia's main overseas propaganda network focused on alternative angles to the fighting. Videos showed what were supposedly Ukrainian attacks on civilian targets in Russian-occupied territories. Others featured residents of those territories praising Russia's humanitarian aid. Articles detailed the Ukrainian government's alleged attacks on the nuclear plant in Zaporizhia and the American government's supposed efforts to encourage its citizens to send their own guns to Ukraine.

Russia's efforts to shape narratives and influence politics in Europe and America are well-known. But Mr Putin's propaganda machine has long targeted the developing world, too. RT launched first in English in 2005, then in Arabic channel in 2007. A Spanish-language channel followed in 2009, a full five years before the network opened in Britain or set up its German- and French-language editions. Sputnik, another Russian state media network that targets foreign audiences, is currently available in 30 languages, including Portuguese, Turkish and Vietnamese.

The official propaganda apparatus, along with shadowier covert disinformation campaigns, are the modern-day versions of tools that the Soviet intelligence services dubbed "active measures". The Kremlin is now actively using those tools to try to persuade the global south to see the war in Ukraine its way. The narratives share several common themes across all regions: Russia blames NATO expansion for causing the conflict, casts Ukraine as an American puppet, highlights Western failings, and spreads wild conspiracy theories, such as that America used Ukraine as a base to develop biological weapons.

Spinning a tale

Russia's propaganda is not monolithic. Instead, as it does in the West, it seeks to exploit existing divisions and tensions. To do so, it can draw on decades of experience, going back to the cold war, of running influence operations in the developing world. "Russia is very effective at building on sentiments that already exist," argues Jessica Brandt of the Brookings Institution, an American think-tank. "It's fertile ground and they're well-practised."

In Africa, Russian propaganda networks have pushed the line that Western sanctions, rather than Russia's blockade of the Black Sea, caused food prices to spike—part of a long pattern of Western disregard for the developing world. Russian outlets also highlighted reports of the mistreatment of African students trying to flee Ukraine immediately after the invasion. In ➤

► Latin America, Russian media tap into existing anti-imperialist and anti-American sentiment. In the Middle East, America's failed interventions in Iraq and Libya are held up as proof of Western hypocrisy. Europe's warm welcome of Ukrainian refugees is contrasted with the frostier welcome given to Syrians.

Ukraine and its Western backers fret that Russia is making inroads. "Russian propaganda today has an edge in the global south," argues Timothy Snyder of Yale University in an essay for *Foreign Affairs*. "In much of Africa, Russia is a known quantity, whereas Ukraine is not." A group of American senators raised alarm in July over the spread of Russia's Spanish-language disinformation on social media. European officials have ramped up outreach to Africa, fearful that Russia's perspective is taking hold. "This is part of a battle of narratives," Edgars Rinkevics, the Latvian foreign minister, told the *Washington Post* ahead of a rare visit to Egypt in June.

There are good reasons to worry. Fighting online disinformation is hard at the best of times. Big tech firms, most of which are based in America and serve their English-language users first, find it even trickier in other languages, reckons Tessa Knight, who studies disinformation in Africa at the Atlantic Council, an American think-tank. Academic research on disinformation is likewise mostly skewed towards the rich world, where governments have complained most loudly about the problem. "We're doing a lot of research on what's happening in English on Twitter," laments Ms Brandt.

Russia's early investments in building propaganda networks across the developing world appear to have paid off, at least in terms of engagement. Russian narratives are ubiquitous across social media in Latin America, says Andrew Gonzalez of Omelas, a digital-analysis firm. RT en Espanol's 18m followers are more than twice the original RT English version's (7.5m), and even outpace CNN's Spanish edition (14.6m). RT's Arabic edition is "really a powerhouse" on Facebook, says Joseph Bodnar of Alliance for Securing Democracy at the German Marshall Fund.

Russia's narrative is "out there" in Africa, Macky Sall, Senegal's president and the chair of the African Union, told European leaders in May. RT plans to open a bureau in South Africa. Russian propaganda has found fertile ground in parts of Franco-phone Africa, including the Sahel, where resentment of French military interventions and the effects of NATO's mission in Libya linger. In a poll of six African countries commissioned by *The Economist* earlier this year, support for Russia's invasion was strongest in Mali and Ivory Coast.

Yet much as on the physical front lines, Russia has faced setbacks in the informa-

tion war too. Following Mr Putin's invasion on February 24th, Western tech firms such as Google, Meta (the parent company of Facebook and Instagram) and Twitter cracked down on Russian state media accounts, blocking them or limiting the extent to which their content is shown to users. While such measures have been implemented more patchily in poorer countries than in the West, "platform restrictions have really nailed [the Russians]," says Mr Bodnar. Omelas reckons that, where Russian media outlets once garnered the most social-media engagement on Ukraine-related content in Spanish, now coverage from CNN, an American firm, does.

Tuning out

The resonance of Russia's messages also seems to be fading, argues Mr Gonzalez, whose firm employs artificial intelligence to try to analyse the emotional content of online posts. "Russia had more influence prior to the invasion than it does now." The invasion has even turned away some of Russia's own stars: Inna Afinogenova, the host of "Ahi Les Va", an RT en Espanol offering, quit the network in the spring. She announced on her own YouTube channel that "I don't agree with this war."

Russia's propagandists are trying to work around the new restrictions. State media channels have activated dormant social-media accounts and guided followers to less hostile platforms such as VK, a Russian Facebook clone, and Telegram, a messaging app. Sputnik's homepage now includes instructions on how to use VPNs to access its content in countries where its website is blocked. Researchers report the sudden appearance of large numbers of new Facebook pages and Twitter handles not transparently linked to the Russian government. In one such Vietnamese group, called "It's all within Vladimir Putin's calculus", the 90,000-odd members are treated to high-definition videos from RT, with added Vietnamese subtitles.

Russian diplomats have also ramped up their outreach online, taking advantage of

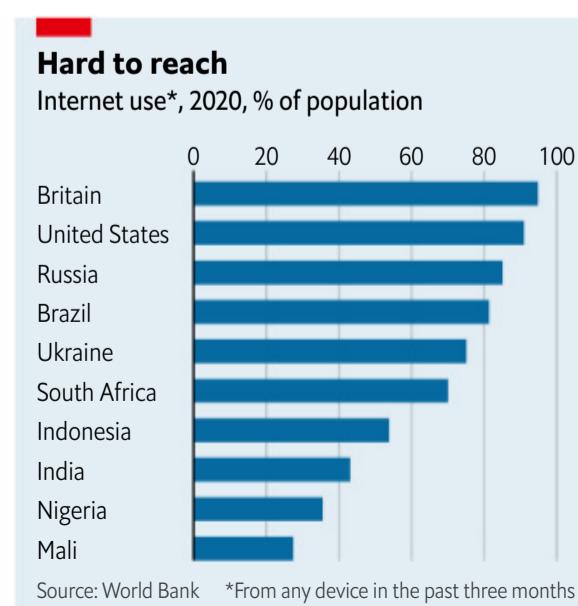
the fact that tech firms have been more hesitant to impose sanctions on government officials than state media. "They're really stepping in to fill the void in the global south," Mr Bodnar says. Russia's diplomatic staff dwarfs Ukraine's. "We must understand that the number of people working for the Russian Federation is ten times bigger than the number in the Ukraine embassy," says Liubov Abravilova, Ukraine's ambassador to South Africa. "We do not have equal forces, not only in Ukraine on the ground, but in our premises."

Local cutouts can spread messages cheaply and in ways that are hard to trace. Groups linked to Yevgeny Prigozhin, whose mercenary army, Wagner, has been used in the Central African Republic, Mozambique and Sudan, have in the past hired marketing firms and influencers to produce content. "They've figured out that the more local you can go the better," says Shelby Grossman of Stanford University's Internet Observatory. "Local people are going to be better able to create content that resonates than a random Russian dude who took a few years of Arabic." The sort of people that Lenin once called "useful idiots" abound. Duduzile Zuma, the daughter of former South African president Jacob Zuma, posted a tweet asking Mr Putin to send planes full of soldiers to Stellenbosch, a town synonymous with old, white money, to seize residents' wealth.

Russia's friends have helped too. "The Russian narrative can sweep far and wide, often because they have allies willing to promulgate those narratives," Mr Gonzalez says. TeleSur, Venezuela's state-owned channel, is full of pro-Russian propaganda. It broadcasts not only in Venezuela but also in Argentina, where it has been added to the basic national television service that reaches 83% of the population. Those in the Middle East who follow Iranian media "get a very different perspective" from those who get their news from elsewhere in the region, says Marc Owen Jones of Hamad Bin Khalifa University in Qatar. The state-run newspaper in Laos handed its op-ed pages over to the Russian ambassador, who rehashed Kremlin talking points about plans for the "denazification and demilitarisation of the Ukraine regime".

China's global propaganda network often pitches in to help, too. Co-operation between the two countries' spin doctors is less a formal process than "a game of shared improv", reckons Ms Brandt. Though China has been reluctant to repeat Mr Putin's claim that Ukraine should not exist as a state, it has been happy to riff off lines that place blame for the war on America and NATO.

Wild Russian theories about sinister Western "biolabs" in Ukraine have also been echoed widely. Independent Media, a South African group part-owned by two



► Chinese state firms, often engage in “information laundering” designed to make sentiment appear homegrown, says Herman Wasserman at the University of Cape Town. For instance, it will run a Chinese news-agency story on the biolab conspiracy, then get a left-wing student leader to write an article expressing concern about the supposed biolabs. Chinese news agencies will use that to write about how South Africans are worried, thus manufacturing a “story” out of nothing at all.

Russia’s intent is clear enough. What is less clear is whether those efforts have much impact. “There’s all the shouting and noise but is anyone listening?” asks Mr Jones. Isolating the influence of information campaigns is tricky, especially as the campaigns are designed to exploit pre-existing divisions. Russian propaganda outlets’ engagement figures seem to suggest a measure of influence. Shadowy online campaigns can help create the “illusion of grassroots support” which helps stories make the jump from social media into the mainstream sort, says Mr Jones.

Yet there are also plenty of reasons to be sceptical. For one thing, uneven internet penetration limits the reach of social media campaigns in many poor countries (see chart). And while eyeballs may be a “necessary precondition” for effectiveness, “high engagement doesn’t necessarily translate into effectiveness,” notes Ms Grossman. In Argentina, where RT en Espanol is beamed to most of the country, public opinion remains staunchly against the war: almost 80% of Argentines disagree with Russia’s invasion. Even a majority of Iranians now have unfavourable views of Russia, a reversal from just a year ago. In South Africa there is little evidence that the governing party’s sympathy for Russia is replicated among the general population.

Social media numbers often reflect

mere virality rather than an ability to shape minds. Two of Russia’s most popular Twitter accounts in recent months have been those of its embassies in Britain and Japan, according to the Alliance for Securing Democracy. Both have been willing to amplify wild conspiracy theories. Their posts and memes play well with Twitter’s users, notes Mr Bodnar. But social media is not real life, and neither seems to have had much success shaping their target country’s views or policies. Britain has emerged as one of Ukraine’s most committed backers; Japan has imposed sanctions on Russia. Less than 10% of the population in either country trust Mr Putin, according to the Pew Research Centre.

Full of sound and fury

Russia’s propagandists, like the country’s generals, also have a history of inflating their performance, which helps justify the gusher of roubles that flows to their organisations. An investigation by the Russian opposition leader Alexei Navalny’s Anti-Corruption Foundation in 2020 found suspicious patterns on RT’s YouTube channel suggesting that it had been buying fake views, rather than earning real ones. (RT denied the allegations and took Mr Navalny to court for reputational damage. “Law and decorum won’t allow us to spit in Navalny’s face, so we’re left to sue,” an RT spokesperson told RBK, a Russian news agency.) Researchers from the Stanford Internet Observatory discovered a suspicious and unnatural-looking pattern of “simultaneous spikes and plateaus in ‘likes’ across clusters of inauthentic pages” on Facebook and Instagram that were linked to Russian activity in Africa in 2019.

A better explanation for the stances of people in the global south, and their governments, may be their perceptions of what is in their national interest. Govern-

ments in Latin America, Africa and South-East Asia have avoided condemning Russia not because they buy tales of Ukrainian neo-Nazis, but because they want Russia’s guns, oil and grain. Traditions of nonalignment and resentment towards the West exist independently of Russian propaganda.

Local news coverage in Latin America, Africa and Asia already tends to focus on the war’s economic ripples, rather than human suffering in Ukraine itself. William Bird of Media Monitoring Africa, an NGO, argues that: “For the most part the war is framed through our politics.” In much of the world, interest in the war has also fallen off more steeply than in the West. According to the Computational Story Lab at the University of Vermont, mentions of “Ukraine” in Arabic on Twitter have dropped nearly 100 times since their peak in late February; by contrast, English-language mentions have dipped only 15 times.

And of course Russia is not alone in trying to push its perspective around the world. Earlier this summer both Twitter and Meta Platforms, Facebook and Instagram’s parent company, blocked a suite of accounts for “co-ordinated inauthentic behaviour”. Such bans have become relatively routine. What was unusual came after: researchers at the Stanford Internet Observatory determined that the web of accounts—on Twitter, Facebook, Instagram, and five other social-media platforms—had been promoting pro-Western narratives, posting in Russian, Arabic and Farsi. The researchers characterise it as “the most extensive case of covert Western influence operations...analysed by open-source researchers to date.”

Much of the content looks like a mirror of the stuff Mr Prigozhin’s troll factories put out. Accounts are created with fake but convincing-looking faces generated with artificial-intelligence algorithms. They post memes and funny videos, try to get hashtags trending and push online polls. “I’m not surprised it’s happening, but I am surprised by how banal the whole operation was,” Ms Grossman says. Stanford’s research suggests that, as with the Russian sort, the appeal of this sort of pro-Western propaganda is often limited. Most posts and tweets sparked few interactions, say the researchers; only about a fifth of the accounts had more than 1,000 followers. Ironically, two of the most-followed accounts were those that openly declared an association with America’s armed forces.

All this suggests that any Western governments tempted to fight half-baked Russian propaganda with half-baked propaganda of their own may be on to a losing strategy. For Russia, meanwhile, it reinforces the point that changing people’s minds is hard—especially when you are trying to persuade them to believe things that are manifestly untrue. ■





Digital advertising

Commercial brakes

SAN FRANCISCO AND SEATTLE

Google and Meta's \$300bn duopoly is under attack

FOR THE past decade there have been two universally acknowledged truths about digital advertising. First, the rapidly growing industry was largely impervious to the business cycle. Second, it was dominated by the duopoly of Google (in search ads) and Meta (in social media), which one jealous rival has compared to John Rockefeller's hold on oil in the late 19th century.

Both of these verities are now being challenged simultaneously. As China's economy slows and the West's slides towards a recession, companies everywhere are squeezing their marketing budgets. Until recently, that would have meant cutting non-digital ads but maintaining, or even raising, online spending. With most ad dollars now going online, that strategy is running out of road. Last quarter Meta reported its first-ever year-on-year decline in revenues. Snap, a smaller rival, is laying off a fifth of its workforce.

For Meta and for Google's corporate parent, Alphabet, the cyclical problem may not be the worst of it. They might once have hoped to offset the digital-ad pie's

slower growth by grabbing a larger slice of it. No longer. Although the two are together expected to rake in some \$300bn in revenues this year, sales of their four biggest rivals in the West will amount to almost a quarter as much. If that does not sound like a lot, it is nevertheless giving the incumbents reason to worry. Five years ago most of those rivals were scarcely in the ad business at all (see chart on next page). What is more, as digital advertising enters a period of transformation, the challengers look well-placed to increase their gains.

The noisiest newcomer to the digital-ad scene is TikTok. In the five years since its

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launch the short-video app has sucked ad dollars away from Facebook and Instagram, Meta's two biggest properties—so much so that the two social networks are reinventing themselves in the image of their Chinese-owned rival. TikTok's worldwide revenue will exceed \$11bn this year and will be double that by 2024, forecasts eMarketer, a firm of analysts.

The TikTok threat is well known—not least to Meta's boss, Mark Zuckerberg, who mentioned the “unique” competitor five times on a recent earnings call. But Meta and Google may have more to worry about closer to home, where a trio of American tech firms are loading ever more ads around their main businesses.

Chief among them is Amazon, forecast to take nearly 7% of worldwide digital-ad revenue this year, up from less than 1% just six years ago. The company started reporting details of its ad business only in February, when it revealed sales in 2021 of \$31bn. As Benedict Evans, a tech analyst, points out, that is roughly as much as the ad sales of the entire global newspaper industry. Amazon executives now talk of advertising as one of the company's three “engines”, alongside retail and cloud computing.

Next in line is Microsoft, expected to quietly take more than 2% of global sales this year—slightly more than TikTok. Its search engine, Bing, has only a small share of the search market, but that market is a gigantic one. Its social network, LinkedIn, is unglamorous but its business-to-busi-

ness ads let it monetise the time users spend on it at a rate roughly four times that of Facebook, estimates Andrew Lipsman of eMarketer. It generates more revenue than some medium-sized networks including Snap's Snapchat and Twitter.

The most surprising new adman is Apple. The iPhone-maker used to rail against intrusive digital advertising. Now it sells many ads of its own. As sales of smartphones plateau, the company is looking for new ways to capture revenue from the 1.8bn devices, from smartphones to smart earphones, it already has in circulation. So far it is only dabbling in ads and does not report sales figures. But Bloomberg reported recently that Apple's ad business was already generating sales of \$4bn a year, making it about as big an ad platform as Twitter. Apple executives believe there is much more to be had.

They may well be right. Changes are coming to the digital-advertising industry which will suit the big-tech challengers. Apple itself is in part responsible for what may be the most consequential development. Its rules on "app-tracking transparency" (ATT), introduced last year, have made it much harder for advertisers to follow users around the web and serve them ads based on their interests. The EU's Digital Services Act, unveiled earlier this year, takes steps in the same direction. America is mulling similar legislation of its own.

The crackdown on tracking has been especially hard on platforms that serve display ads, which target consumers on the basis of their interests, as opposed to things they have actively searched for. Meta, whose social networks specialise in such ads, said in February that ATT would knock \$10bn off its ad business this year. It is trying to develop other ways of divining consumers' interests. So are smaller platforms reliant on display ads, but their task is more difficult without Meta's deep pockets. Or at least that is how investors see it: Snap's market value has plummeted by 85%, or \$102bn, in the past 12 months.

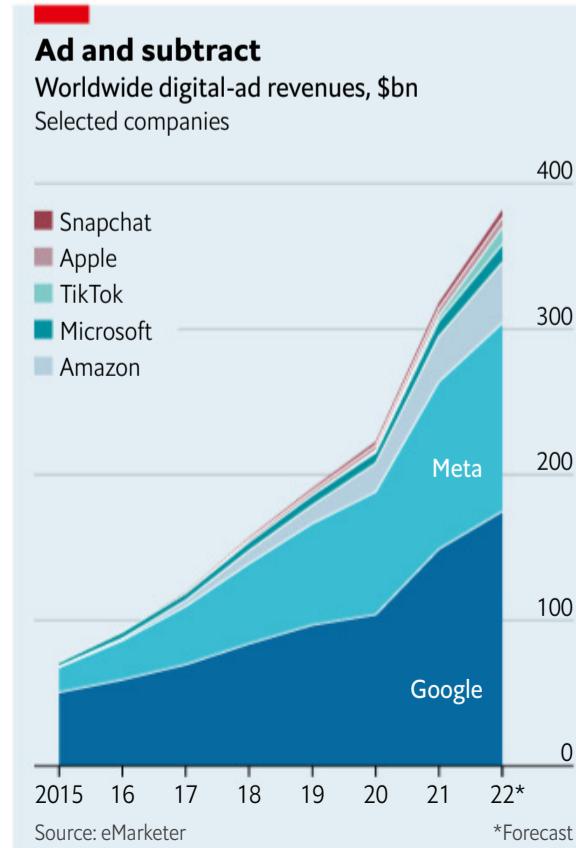
Amazon, Apple and Microsoft, by contrast, are insulated against anti-tracking initiatives. They rely mostly on "first party" data of their own. Amazon's ads are based on what users search for on its site: type "socks" into its search bar and you will see sponsored promotions for exactly that. Microsoft's Bing is similarly immune. LinkedIn is probably less so, though Microsoft could theoretically use data from Bing to fine-tune the ads shown to LinkedIn users (at the moment it does not, though it has looked into it). Ads on Apple's app store follow the same principle as Amazon: search for TikTok, say, and you may see an ad for a rival app like Pinterest. Apple is rumoured to be preparing to introduce ads on its Maps app, to promote local businesses. Through its move into payments it

could learn about customers' shopping habits. None of this would require tracking, since the behaviour all happens on Apple's platform.

The other big change coming to advertising is the migration of television-viewing from broadcast and cable to internet-connected TVs, capable of delivering targeted ads. Amazon has already shown ads alongside sport on its Prime Video streaming service. Apple has done the same on Apple TV+, and may yet launch an ad-supported subscription tier, as rivals such as Netflix and Disney+ soon will. Microsoft has no TV offering, but its acquisition earlier this year of Xandr, an ad-tech company, has given it a foothold in serving ads for other streamers. In July Netflix chose Microsoft to run its forthcoming ad business—to disappointment at Google, which had bid for the contract, and to some surprise at Microsoft itself.

Digital advertising is spreading into other markets where the new challengers are well positioned. Audio is undergoing a similar digitisation to video, as listening switches to streamed music and podcasting. This presents an opportunity for Amazon and Apple, both of which have audio-streaming services and make smart speakers. Both also have voice-activated assistants, Alexa and Siri, who could just as easily bark out promotions as take orders. Amazon sees Alexa as a future saleswoman as well as a servant.

Meanwhile, Microsoft's pending acquisition of Activision Blizzard, a video-gaming giant, will make it a powerful force in that fast-growing and increasingly ad-supported industry. Its Xbox console already shows some ads on the user's on-screen "dashboard" and will reportedly soon offer more help for developers to sell in-game



ads. Activision's units include King, the maker of "Candy Crush"; last year King generated revenue of \$2.6bn from ads and in-game purchases by its quarter of a billion players.

As digital ads work their way into ever more corners of the economy, "a new order is going to materialise," believes Mr Lipsman. He thinks that Amazon will overtake Meta in total advertising revenue, possibly within five years. Google is better placed to take advantage of the coming changes, with its healthy search ads and its vast YouTube video and audio services. Still, it will find things more competitive in future. The incumbent digital-ad duo might have hoped that, as ever more advertising went online, their empires would only expand. It looks instead as if new rivals will reach into their business. ■

Energy and conflict

On the offensive

SCHWEDT

Germany escalates its war with Russian fossil-fuel firms

AFTER A HOT and dry summer, the rain and chill in September brought some relief to parched Germans—but also a reminder of the looming winter. On September 16th Klaus Müller, boss of the Bundesnetzagentur (BNA), Germany's energy regulator, admitted that if it gets very cold "we will have a problem". He could not rule out the rationing of natural gas, which Germany's biggest supplier, Russia, has withheld as part of its war in Ukraine.

Germany's chancellor, Olaf Scholz, is doing all he can to avert this eventuality. In the past week his government has unveiled two radical measures as part of that effort. On September 21st the economy ministry announced the complete nationalisation of Uniper, Europe's biggest and most gas-addled power utility. More controversially, five days earlier the government said it was seizing control of stakes held in three German refineries by Rosneft, Russia's state-owned oil giant. The assets, PCK, Miro and Bayernoil, were placed under the trusteeship of the BNA.

This is not the first time since Vladimir Putin's tanks rolled into Ukraine in February that Germany has expropriated Russian assets. In April it did the same to gas-storage facilities operated in the country by Gazprom Germania, a subsidiary of Russia's national gas behemoth. The seizure of Rosneft's assets, in particular PCK, of which the Russian firm owned 54%, has proved quite a bit thornier.

Thousands of jobs hinge directly or in-

► directly on PCK in Schwedt, the biggest city in one of the country's poorest regions, Uckermark. That and the fact that PCK supplies 90% of Berlin's oil, diesel and aviation fuel were the main reasons why Germany was hesitant to sign up to the EU embargo on Russian oil when it was first proposed in late May. The embargo, which is set to take effect at the end of the year, would mean the refinery will no longer be able to accept Russian crude. Moreover, suppliers, insurers and banks afraid of being inadvertently caught up in the sanctions now refused to do business with it so long as Rosneft remained part-owner.

Rosneft is, predictably, furious. It called the German government's actions "illegal". More surprisingly, the decision to place PCK under trusteeship did not go down well in Schwedt, either. The city of around 30,000 sits atop Druzhba (Russian for "friendship"), the world's longest pipeline, which started pumping crude oil from central Russia to "fraternal socialist people" including Poland, Hungary and then-Czechoslovakia in the 1960s. Druzhba is why many families moved to Schwedt, a city almost entirely razed during the second world war by advancing Soviet troops.

Jens Koeppen, an opposition MP who represents Schwedt, says that the government is "knowingly sacrificing" a successful business in Schwedt. He argues that it is absurd to pretend that German energy supply in the next five years will be secure and affordable without imports from Russia.

The government, for its part, insists that PCK does not need Russia's crude to thrive. It has promised a €400m (\$395m) upgrade to the oil pipeline from Rostock, a port on the Baltic Sea, to Schwedt. It wants to invest another €825m in the next 15 years in and around PCK. That, it says, will keep it going until it can be sold to a new owner. Poland's state-run energy firm, Orlen, has already expressed an interest in acquiring Rosneft's seized stake. In the meantime, Mr Scholz's ministers are in talks with their Polish counterparts to get supplies for PCK through the Polish port of Gdansk.

Mr Koeppen is nevertheless not crazy to worry about PCK's near-term prospects. The Rostock pipeline can at present only supply 60% of PCK's crude-oil needs. Even the promised upgrade will increase that to only 75%—and only in two years' time, if all goes well. Getting oil from Gdansk is expensive, since the stuff is being shipped to Poland from Saudi Arabia. Another option is to import oil from Kazakhstan via Druzhba, but increasingly belligerent Russia will almost certainly not allow it.

All this means that PCK will run well below capacity as soon as Russian oil stops flowing, says Florian Thaler of OilX, a consultancy. Given Russia's recent setbacks in Ukraine and its heightened war footing, that could happen any day. ■



European business

Green-dustrialisation

BERLIN

Europe has a chance to decarbonise its heavy industry. It had better get a move on

SWEDISH STEEL is considered the world's toughest. It may soon become its greenest. In Boden, a town near the Arctic Circle, a startup called H2 Green Steel (H2GS) is erecting a €4bn (\$4bn) new mill, Europe's first in nearly half a century. It will be powered not by the usual coal or natural gas but by green hydrogen, produced on site by the region's abundant wind and hydropower. When fully built in a few years, it will employ up to 1,800 people and churn out 5m tonnes of steel annually.

The project matters far beyond sparsely populated northern Sweden. The consequences could be momentous for the continent's producers of steel and other basic materials, such as cement and chemicals, which between them directly contribute around 1% of the EU's GDP. It would ripple through the supply chains of firms, from carmakers to builders, which account for another 14% of EU output, according to Material Economics, a think-tank. It would boost Europe's energy independence, the importance of which has been laid bare by Russia's energy blackmail in response to Western sanctions against its war in Ukraine. And it would be a boon for the climate, since basic-materials industries spew out about a fifth of Europe's greenhouse-gas emissions. It could in short, thinks Ann Mettler of Breakthrough Energy, a venture-capital fund backed by Bill Gates, mark the rebirth of Europe's heavy industry for the post-fossil-fuel era.

Heavy industry has long seemed ir-

redeemably carbon-intensive. Reducing iron ore to make steel, heating limestone to produce cement and using steam to crack hydrocarbons into their component molecules all require a lot of energy. On top of that, the chemical processes involved give off lots of additional carbon dioxide. Cutting all those emissions, experts believed, was either technically unfeasible or prohibitively expensive.

Both the economics and the technology are at last looking more favourable. Europe is introducing tougher emissions targets, carbon prices are rising and consumers are showing a greater willingness to pay more for greener products. Several European countries have crafted strategies for hydrogen, the most promising replacement for fossil fuels in many industrial processes. Germany is launching the Hydrogen Intermediary Network Company (HINT.co for short), a global trading hub for hydrogen and hydrogen-derived products. Most important, low-carbon technologies are finally coming of age. The need for many companies to replenish their ageing assets offers a "fast-forward mechanism", says Per-Anders Enkvist of Material Economics.

Taken together, these developments are allowing industrial firms that have vowed to become carbon-neutral by 2050, which is to say many of them, to start putting money where their mouth is. Material Economics has identified 70 projects in Europe that are commercialising technologies to reduce carbon emissions in basic-►

► materials industries. Scarcely a week goes by without the unveiling of a new venture. Decarbonising industry has turned from mission impossible to "mission possible", says Adair Turner of the Energy Transitions Commission, a think-tank.

The steel industry is the furthest along. H2GS's mill in Boden is cleverly combining proven technologies at a big scale. The firm is building one of the world's largest electrolysis plants to produce hydrogen. The gas is then pumped into a reactor, where it powers a process called "direct reduction": under great heat, it snatches oxygen from

iron ore, producing nothing but water and sponge iron. This material, so called because its surface is riddled with holes, is then refined into steel using an electric-arc furnace, which dispenses with coking coal.

A half-hour drive south of Boden, HYBRIT—a joint venture between SSAB, a steelmaker, Vattenfall, a power utility, and LKAB, an iron-ore producer—is piloting a similar process. In July the board of Salzgitter, a German steel company, gave the nod to a €723m project called SALCOS that will swap its conventional blast furnaces for direct-reduction plants by 2033 (it will

use some natural gas until it can secure enough hydrogen). Other big European steel producers, including ArcelorMittal and Thyssenkrupp, have similar plans.

Cement-makers are heading in the same direction, albeit more slowly. Heating limestone generates about 60% of the sector's carbon emissions and a replacement technology, such as direct reduction in steelmaking, is lacking. So the industry is focusing on abating emissions after the fact, using carbon capture and storage (ccs). Many firms are experimenting with a heating process that replaces air with pure ►

Bartleby Choreography v candour

Behind the scenes at an all-hands meeting with the staff

SO THIS CHANNEL is just for the speakers to communicate on? Good. Right, how many of our treasured colleagues are on the call? Looks like we have enough to begin. And the sooner we start, the sooner we can get back to doing some proper work.

Good afternoon, everyone! Welcome to our monthly virtual town hall. As you know, "candour" is one of our core values. That is why I really look forward to these opportunities to hear from every member of our team around the world. Jeff, our CFO, will start by giving you an update about the state of the business and then we'll have a special presentation from Cynthia, our head of people, about psychological safety. Then questions. Jeff, over to you for the numbers.

Jeff, I know it's been a bad month but we don't need to see it written all over your face. Please can you look happier? Actually, forget it. You just look constipated.

Thank you so much, Jeff. He did not sugar-coat the numbers but facing up to reality is the first step to improvement. As I like to say, candour is a mixture of "can do" and some other letters. I am so grateful to everyone on the team for their hard work; I have no doubt that we will pull through this difficult period.

Now Cynthia is going to talk to us about psychological safety. This is so important to us that we decided last year to make it not just one of our core values, but two of them: "Psychological" and "Safety". I honestly think no other company in the world would do that.

While Cynthia talks, a quick reminder to ask questions. We have some that were submitted before this town hall but you can also use the Q&A channel, where I'll select the best ones. Please do participate: as I like to say, "voice is a choice."

OK, let's see what they are moaning about this month. Vivian, can you take a

note of everyone who brings up my pay? Unionisation: no. Court case: no way. "Why aren't the questions open for everyone to see?" I love that they still ask this one.

Thank you for that, Cynthia. Psychological safety means that we cannot move forward as a group if we do not question and challenge each other without fear of the consequences. I'm so proud of leading the way towards a culture that I like to think of as total PS.

What do you mean, the questions are open to everyone to see? People can tell what questions I am ignoring? How many times do I have to spell things out to you morons? Let's go to one of the questions we had agreed before. The do-gooding one.

As you know we ask people to submit questions in advance, and Ruth in procurement has asked a great one about our sustainability initiatives. These are uncertain times but we aren't backtracking on any of our commitments. As I like to say, there is a "plan" in "planet" and we are sticking to ours. Derek, I think you have a slide on this to share with our colleagues?

Everyone is now asking about the ones I

have skipped. Who decided to make the questions visible? Was it you, Vivian?

I can see a lot of questions coming in. It's so great to see such engagement from our team. But I want to answer one submitted beforehand from Fergal in finance, about the company's debt load. Remember, asking questions in advance is the best way for us to prepare the fullest possible responses. Jeff, this is very much your territory so why don't you take this one?

I can't just keep ignoring all these other questions. I'll have to take some of them.

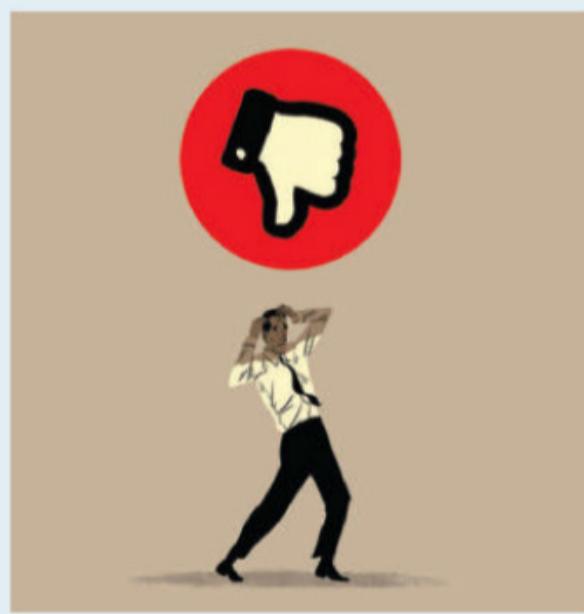
Thanks, Jeff. I see that some of you have asked a few questions about my payout last year. We pay competitively, which means paying as much as needed to get the best out of the best people. My interests are aligned with yours. If you do well, I do well. And if I do well, you may do well, too. Cynthia, can you talk a little about the compensation-benchmarking study we did last year?

Find a way to turn the Q&A channel off. Or start putting questions in there yourselves. Use fake names if you have to.

There is a lot of interest in the court case, which I obviously cannot talk about publicly. Suffice to say that we completely reject the allegations.

I also see plenty of questions about job losses. It is possible that we will need to do some restructuring of the business. I do not have anything to share with you on this right now but I cannot guarantee that jobs are safe (apart from psychologically, of course). That goes for all of us: you, me and every single person organising this very town hall.

Oh God. Someone is asking about what we did on the last night of the corporate retreat. How the hell did they find out about that? Vivian, stop the call. Now. Jeff, is that your real smile?



► oxygen, which produces CO₂ suitable for sequestration. Some are trying to use electricity rather than fossil fuels to heat the limestone. The most ambitious are developing new, lower-carbon types of cement.

HeidelbergCement, the world's fourth-largest manufacturer of the stuff, has launched half a dozen low-carbon projects in Europe. They include a CCS facility in the Norwegian city of Brevik and the world's first carbon-neutral cement plant on the Swedish island of Gotland. Ecocem, an Irish startup, is making cement that uses less clinker, the intermediate material derived from the heated limestone, and thus emits less carbon. Some companies are trying to retrieve cement from old concrete in demolished buildings.

The chemicals industry faces the biggest challenge. Although powering steam crackers with electricity instead of natural gas is straightforward in principle, it is no cakewalk in practice, given the limited supply of low-carbon electricity. Moreover, the chemicals business breathes hydrocarbons, from which many of its 30,000 or so products are derived.

Even so, it is not giving up. BASF, a chemicals colossus, is working with two rivals, SABIC and Linde, to develop an electrically heated steam cracker for its town-sized factory in Ludwigshafen. It wants to make its site in Antwerp net-zero by 2030. To achieve this goal, BASF recently bought part of a wind farm off the Dutch coast to provide it with carbon-free electricity. The company is, like its cement counterparts, also taking a serious look at recycling, in particular a process called pyrolysis, where plastic waste is burned in the absence of oxygen and split into its hydrocarbon components. Other firms are dreaming up different types of greener feedstocks. AFYREN, a French startup, is deriving chemical building blocks from agricultural by-products instead of petroleum.

A few dozen pilot projects—even large ones—do not amount to a green transition. The hard part is scaling them up. The necessary infrastructure is either a work in progress (clean-electricity generation) or scarcely exists (hydrogen production and distribution). Costs remain high: green steelworks are still two to three times more expensive to build than the conventional kind. Attracting workers can be difficult, especially to renewables-rich places which are often, like Boden, remote. And rivals in other countries aren't standing still; a couple of giant Indian conglomerates in particular are betting big on green hydrogen. Europe needs to hurry up if it is to maintain its lead, warns Frank Peter of Agora Energiewende, a think-tank.

All these are real obstacles. But they need not be insurmountable ones. To understand why, once again consider H2GS. It has convinced firms including BMW, a car-

maker, and two white-goods manufacturers, Electrolux and Miele, to sign contracts for 1.5m tonnes of green steel. That order book serves as collateral for banks to finance two-thirds of the project (with the rest coming from equity investments by backers including venture-capital firms and industrial giants such as Scania and Mercedes-Benz).

To attract hundreds of skilled workers and their families to remote Boden, meanwhile, it will help them find housing in a complex that will, if its architects have their way, resemble a snazzy resort. To secure the other important input, hydrogen, H2GS has teamed up with Iberdrola, a Spanish energy firm, to build a large factory in western Europe to produce the gas, with a view to supplying some of it to other industrial users.

H2GS's thinking is that if it can establish its steel and hydrogen platforms early, it can lock in important advantages ahead of competitors elsewhere. These include setting standards and grabbing a slice of potentially lucrative businesses such as software to control hydrogen- and steelmaking equipment. For Europe to become a green-industry superpower, its governments and industrial giants will need to display similar ingenuity and ambition. ■

Porsche's IPO

Speed merchants

STUTTGART

The German carmaker loosens ties with Volkswagen

THE POWERFUL rear-mounted engines of Porsche's long line of 911 sports cars made them small and fast. In a corner, though, they acted like a pendulum, leaving some less skilful drivers parked in roadside hedges. After an initial public offering (IPO) on September 29th, the luxury carmaker will also require nimble handling to ensure its strengths do not become a source of weakness.

In a nod to its most famous model, the IPO will comprise 911m shares. Only 114m, with no voting rights, will be sold to the public and big investors, including the Qatar Investment Authority. The rest will be held by VW, which has owned Porsche since 2012, and VW's largest shareholders, the Porsche (yes, the same one) and Piëch families. The listing could value Porsche at up to €75bn (\$74bn), instantly making it the world's fifth-largest carmaker by market value (see chart).

Investors are giddy at the prospect. Requests for shares reportedly exceeded the total €9.4bn offering within hours of the

IPO order book being opened up. For VW and Porsche it may seem an odd moment for such a bold manoeuvre. The car industry is facing uncertain times as supply chains creak and the global economy sputters. On September 19th Ford warned that profits in the third quarter might be less than half of the \$3bn that analysts had forecast; its share price dropped by more than 12%. In recent weeks Nio, Li Auto and XPeng, among China's most successful electric-vehicle (EV) startups, reported growing quarterly losses.

The spin-off strips VW of 100% ownership of a steady earner. In 2021 Porsche's 300,000 or so cars, out of VW's total of 8.6m, generated a quarter of the group's operating profit. The marque has managed to add practical vehicles such as SUVs (which now make up three in five Porsches sold) to its range without sacrificing the air of exclusivity. It has been able to keep prices high in a segment that is growing faster than the industry as a whole. Porsche's net margin of nearly 20% comfortably beats those of premium rivals. It also means more resources to pursue ambitious EV plans, according to which 80% of new Porsches will be battery-powered by 2030.

The structure of the IPO at least allows VW to retain a right to a slice of Porsche's future cashflows. For Porsche, the benefits of the arrangement are less evident. Maintaining ties was meant to let Porsche and VW share some development costs and engineering platforms, particularly in software. But Cariad, VW's digital unit, is struggling; software delays have already forced Porsche to put off the launch of its e-Macan small SUV by at least a year, to 2024.

Meanwhile, financial independence means that Porsche can no longer rely on VW's profits to bail it out should motorists ever fall out of love with its cars, or its margins be crimped by the arrival of competitors at the pricier end of the luxury segment (which Mercedes-Benz is already sizing up). Investors, fasten your seatbelts. ■

Zero to \$70bn

Biggest carmakers by market capitalisation, \$trn
September 21st 2022

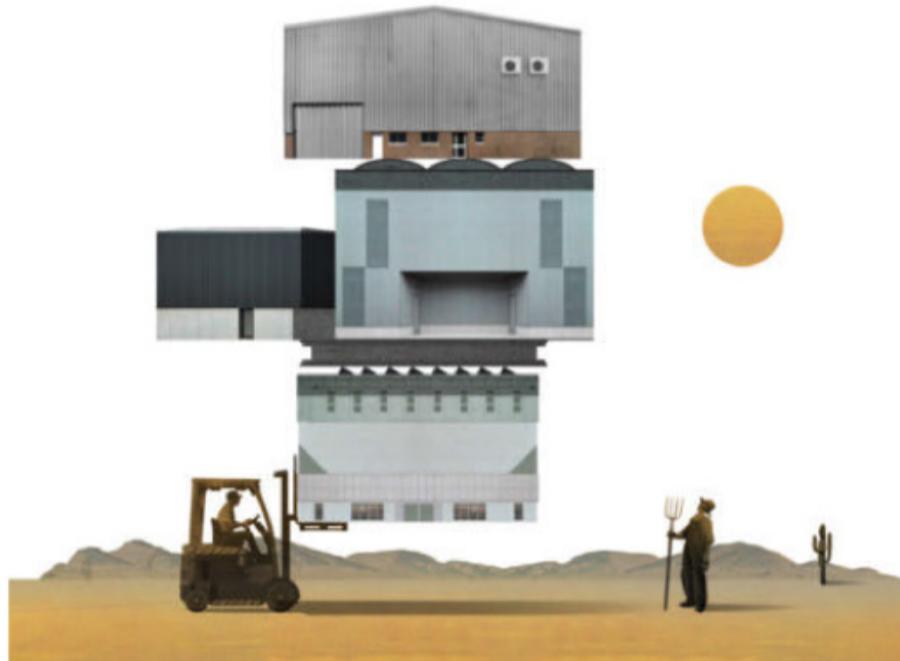


*Expected IPO value

Sources: Refinitiv Datastream; press reports

Schumpeter | The race for space

Forget the economic slowdown. Warehousing is still on a tear



WITH A STRAW hat, shades and a red chequered shirt, Randy Bekendam looks every inch the grizzled farmer—albeit in a Californian countercultural sort of way. The tomatoes, courgettes and King David apples he sells at this time of year have never seen a pesticide. Young families visit to pet his goats and learn about the merits of soil health. The 70-year-old is not shy about sharing his convictions, either. They run deep. The land he has leased for the past 34 years, called Amy's Farm, has been sold out from underneath him. Now, echoing Joni Mitchell, he is battling to stop the rural idyll from being paved over and turned into a warehouse.

His home city of Ontario, less than an hour's drive east of Los Angeles, is now almost as replete with windowless “logistics centres” as it once was with orange and lemon groves. From his ten-acre plot, he can see them bearing down on him. Across the road, a building the size of 100 American-football fields, or 5.3m square feet (492,000 square metres), is rising from the dirt of what used to be a dairy farm. A block away, Prologis, the world's biggest warehouse-builder, has nearly finished a five-floor facility on more than 4m square feet of land; the blue livery of Amazon, an e-commerce giant, already adorns its upper rim. Nearby, Amazon and FedEx, a package-handler, have more big boxes. Thundering down the country roads between them are 18-wheeler trucks. The dust they kick up smothers a man hawking *cocos fríos* (chilled coconuts) to the few Mexican farm hands left working the land. “Those big rigs go wherever they want,” Mr Bekendam mutters.

By chance your columnist visited Ontario on September 16th just after FedEx warned of gathering economic headwinds, jettisoned its earnings forecast and triggered a 21% fall in its share price. That swiftly spilled into concerns about the future of warehouse firms like Prologis, worth \$80bn. Its share price had already come off its highs this year after Amazon, its biggest customer, admitted that it had overbuilt.

You might think that the rising risk of recession, Amazon's retrenchment (though not in Ontario) and the clamour of those like Mr Bekendam fighting to halt warehouse construction would worry this booming industry. Not a bit of it. A visit to Southern California's Inland Empire, once called “the land of cheap dirt” and now the hottest warehouse market in the world, leaves little

doubt that the wheels will not fall off the juggernaut just yet.

Almost everything about the Inland Empire excites logistics nerds. The region, two-thirds the size of Connecticut, sits between two fabulously wealthy areas, Los Angeles and Orange County. It is roughly equidistant from America's two biggest ports, Los Angeles and Long Beach. It boasts air hubs for FedEx and Amazon, as well as a rail network. It is criss-crossed by freeways, sending goods shipped in from Asia across the country. And it has a growing population. CBRE, a property firm, says warehouse-building has been frenetic, reaching a record 39m square feet in the second quarter. As soon as buildings are completed, they fill up: the vacancy rate is 0.2%, lower than anywhere else on earth. Such is the clamour for space that rents have soared by 72% in the past 12 months.

It would seem logical for corporate renters to resist such eye-popping increases if they think consumer demand is peaking. But rents are still a relatively small part of logistics costs. James Breeze of CBRE reckons the transport of goods accounts for about half a typical company's supply-chain expenses. Warehouse rental is a mere 6%. At prime locations close to ports, such as the Inland Empire, it may be worth paying through the nose for warehouses if it cuts down on trucking costs.

Moreover, structural changes in the global economy are turbo-charging demand. The shift to e-commerce, though it has slowed since the height of the pandemic, requires much more warehouse space than physical retail: goods are shipped in individual packages, not on space-saving pallets, and returns pile up. Supply-chain chaos and geopolitical risks have increased the desire for extra storage space. Prologis reckons its customers want to hold about a tenth more “safety stock” as a buffer.

The Inland Empire also illustrates some of the growing pains, including the first signs of a public backlash. Environmentalists claim that local councils waved through planning applications during the pandemic with little scrutiny. A draft communiqué calling for a moratorium on warehouse construction in the Inland Empire, co-authored by Susan Phillips, director of the Robert Redford Conservancy at Pitzer College, describes a burgeoning public-health crisis, especially because of the pollutants emitted from diesel-guzzling trucks that pass schools and hospitals, and clog the freeways. This year air-quality authorities in Southern California began imposing a quasi-tax on warehouse landlords based on the “indirect” emissions from trucks that serve them. “They are definitely getting very anti-diesel,” says one logistics boss. John Husing, a local economist, derides the environmental pushback as “noblesse-oblige crap” by affluent members of the Inland Empire. More blue-collar communities welcome the decent jobs provided, he says. There are few other employment opportunities.

The school of hard NOx

Warehouse firms say they are starting to clean up their act. Amazon has ordered 100,000 delivery vans from Rivian, which makes electric ones. Prologis is building a separate business to provide charging stations for electric trucks. It intends to increase the generating capacity of solar panels on its bountiful roofs ten-fold within ten years. For many years yet, though, the industry is unlikely to be able to wean itself off diesel.

Mr Bekendam, or Farmer Randy as he is known, acknowledges that stopping the warehouse boom is an uphill struggle. But he fights on. At least he hopes the publicity he generates from his popular homestead will make developers think twice before bulldozing it. “No one wants to be guilty of paving Amy's Farm.” ■

**Dubai's boom**

Entrepotluck

DUBAI

As the last financial hub open to anyone, war and sanctions are good for business

SUMMER IS SLEEPY in Dubai, a time when locals and rich expats flee for cooler climes. For the emirate's property brokers, though, this one was anything but languid. Viewings were a race: show up a few hours late and that sea-view apartment may already be spoken for. One spent whole afternoons camped out in the lobbies of fancy buildings, with showings every half-hour. The United Arab Emirates (UAE), a seven-member federation that includes Dubai, is forecast to add 4,000 new millionaire residents this year, more than any other country. That is welcome news for a property market which contributes 8% of GDP—if not for brokers who want to be on a beach.

These are heady times for the Middle East's energy exporters. The Saudi economy is projected to grow by 7.6%, among the world's fastest rates. Smaller Gulf states will have windfalls to pay down debt and top up sovereign-wealth funds. Even dysfunctional countries like Iraq should run surpluses. But the UAE, and Dubai in

particular, does not only benefit from high energy prices. It also gains from the sanctions and geopolitical disruptions that helped send those prices soaring. The city's stockmarket has risen by 9% this year, compared with a 2% lift in Riyadh.

Even before Russia invaded Ukraine, Dubai was in a stronger position to grow as a financial hub with giant, established ri-

vals struggling. Hong Kong grows less attractive as it falls further into China's orbit. It has also suffered from covid-19 restrictions. Meanwhile, London has lost some of its shine since Brexit—and no longer welcomes Russian capital. Dubai is the last financial hub where just about anyone can do business with just about anyone else.

This is most obviously visible in the city's property market. Russians bought more than twice as many homes in Dubai in the first half of 2022 as they did in the whole of last year. Betterhomes, a property firm, says they were the fourth-largest group of buyers, up from ninth place in 2021. Banking restrictions are no obstacle: one real-estate broker is said to have installed an ATM in its office to facilitate cash transactions. Scores of Russian yachts are anchored in Emirati marinas, while oligarchs' private jets loiter at a previously little-used airport south of Dubai.

Firms, both local and multinational, are shifting their operations. Banks like Goldman Sachs and Bank of America have moved employees from Moscow to Dubai. Commodity firms are considering a move from Switzerland, which has joined EU sanctions on Russia. In Fujairah, on the east coast of the UAE, local companies are piling into the arbitrage business. They can buy Russian oil at a steep discount, refine it, then sell the finished products at market-price. All of this is made possible by the ➤

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► UAE's neutral stance on the war. Although a longtime Western ally, it has declined to join Western-led sanctions on Russia.

Dubai is not the only bolthole available. Some Russians have decamped to Turkey; the country's attractiveness is limited, however, by a crashing currency and surging inflation. The UAE offers no such worries. Its currency, the dirham, is pegged to the dollar and has not budged since 1997. Public debt is a manageable 32% of GDP; inflation is expected to peak at less than 4%. The banking system is trustworthy and well-capitalised. The income-tax rate is a hard-to-beat 0%. Scorching weather might be a shock, but Dubai offers all the amenities Russian émigrés would expect: designer brands in malls, renowned chefs in hotels, luxury homes with domestic help. Diners at a new restaurant in the financial district can order a baked potato stuffed with caviar for a mere 2,610 dirhams (\$710).

These attractions have already lured business from elsewhere. Dubai has made itself a financial hub that serves not just the Middle East but Asian and African markets. Indian businessmen, for example, find much to like. They enjoy tax breaks and better schools and hospitals. Lawyers can fly over in just three hours for international deals, a much shorter trip than to London or Singapore. Sovereign-wealth funds are a big source of cash for private-equity and venture-capital firms. One Indian bigwig says that half his friends in south Mumbai have bought flats in Dubai.

Along with licit business there is the dodgier sort, too, from Irish mobsters to Iranian traders looking to circumvent sanctions. Establishments that cater to the rich, like a penthouse lounge on an artificial island in the Gulf, can have a bar-scene-from-Star-Wars vibe, albeit with \$100 Wagyu steaks, \$1,600 bottles of Cristal and less jaunty music. The illicit gold trade alone was once estimated to be worth around \$4bn a year (though the government has taken some steps to clean it up).

Double-edged sword

Dubai's freewheeling political economy can cause tension. For much of the past decade it was Abu Dhabi, the UAE's less commercial capital, which set the tone on foreign policy. The Arab spring of 2010-11, and the chaos it unleashed, put the country on a war footing. The UAE joined the Saudi-led invasion of Yemen in 2015, and sent arms to an aspiring dictator in Libya. It also pushed for the embargo of Qatar in 2017, which saw four Arab states cut trade and travel ties with the irksome emirate.

Some of this was bad for business. Qataris used to buy lots of property in Dubai, either as an investment or as a second home in a more libertine city. The blockade cut them out of the property market. Earlier this year the Houthis in Yemen launched

several rounds of missiles and drones at Abu Dhabi, a worrying event in a country that depends on a reputation for stability.

Since 2019, though, the UAE has swung back towards the Dubai model. It withdrew troops from Yemen that summer and has cut its role in Libya. The blockade ended last year. This was pragmatism: neither war nor the blockade brought the hoped-for benefits. Thus hard-nosed foreign policy is out and economic diplomacy is in.

Take the sanctions-busting oil trade in Fujairah. Before they started importing Russian crude, firms there helped Iran sell its own oil. The commercial motive was straightforward: arbitrage is easy money. From the government's perspective, the trade also served a political purpose. The UAE was unnerved by an Iranian-sponsored attack in 2019 on Saudi oil facilities, which briefly shut down half the kingdom's output. Acting as a middleman makes the UAE useful to Iran, and perhaps reduces the risk of a similar attack.

In March the Financial Action Task Force, the world's main anti-money-laundering body, put the UAE on its "grey list" of problem countries. The listing has no formal consequences, and bankers say it has not changed the UAE's reputation: anyone doing business there is already aware of the risks. But Emirati officials were upset by their inclusion (and hope to be removed from the list by the end of 2023).

Financial institutions are investigating their newest clients. The government has told them not to deal with Russians who are under Western sanctions. "Banks want to future-proof their compliance," says one Dubai-based financial analyst. But there are still choices to be made. A Russian with \$1m in assets is probably not worth the headache. One with \$10m? Maybe.

A more serious worry is running afoul of American sanctions, which would be dreadful for a country with a big financial sector and dollar-linked currency. Yet America does not seem to want to look closely at the UAE. Every few months a group from the Treasury department flies out to chide the Emiratis. In June Wally Adeyemo, the deputy secretary, told bankers to be careful with Russian customers. Aside from a few token sanctions on small firms—mostly for dealings with Iran—America has done little more than talk, however. The UAE has convinced many Americans that it is an indispensable partner in the region. Forging diplomatic ties with Israel in 2020 was a masterstroke.

This leaves Dubai in an enviable position. Whether or not America and Iran reach a nuclear deal, it can serve as an economic lifeline for Iran, as it has for years. However the war in Ukraine progresses, it can now play much the same role for Russia. Sitting on the sidelines is making Dubai the world's resurgent entrepot. ■

The global economy

Factories, floored

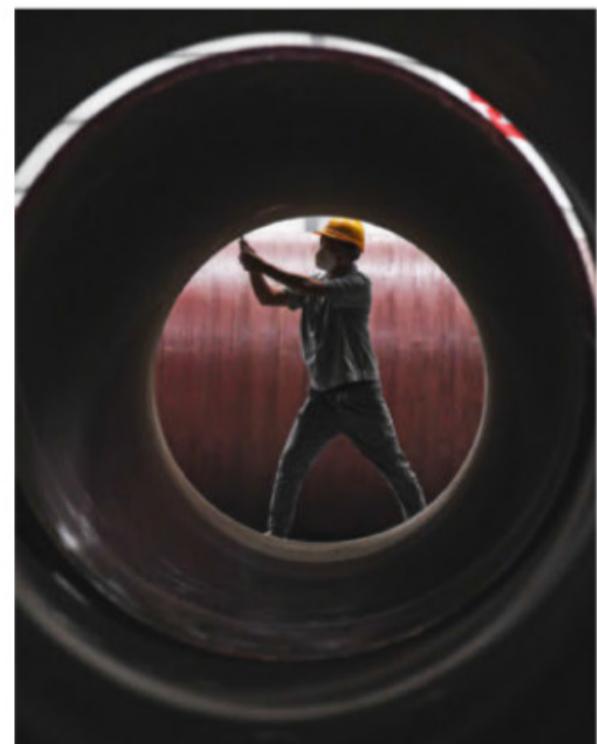
WASHINGTON, DC

A slowdown in manufacturing portends worse to come

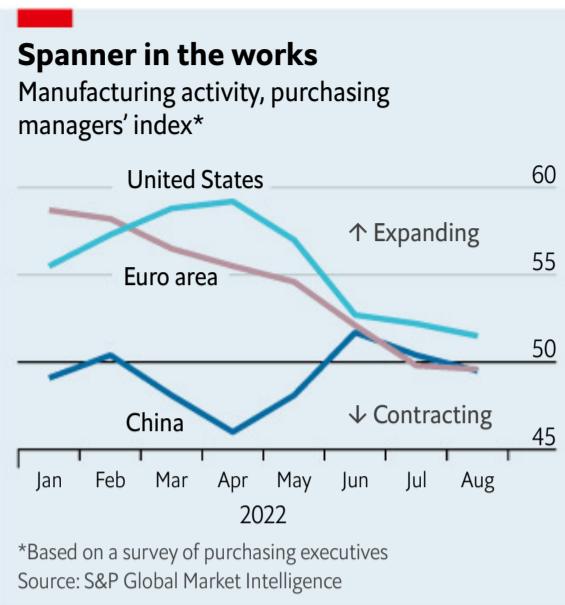
"**I**S A GLOBAL recession imminent?" asks a new report by the World Bank. The answer—that one very well might be—will not be a surprise to manufacturers. In August global manufacturing output shrank relative to the month before, and new orders fell for the second month in a row, according to JPMorgan Chase, a bank. As economic woes mount, worse could be ahead, for factories and the broader economy.

Last year industry enjoyed an epic boom. Consumers, bolstered by generous covid-19 relief, splashed out on goods, and the easing of lockdowns allowed factories to make up lost ground. The value of global manufacturing output leapt to more than \$16trn, representing the highest share of GDP in nearly two decades. Roaring industry powered a banner year for the world economy, with overall global output rising by 6.1%, the fastest pace on record, despite supply-chain problems.

A softening of demand was inevitable as life became normal, and spending shifted back from goods to services. But even service-sector activity looks disappointing of late, and manufacturing troubles reflect much bigger shocks. The most serious is the energy-price crunch caused by Russia's war in Ukraine. Industrial production in the euro zone fell by 2.4% in July against the year before. Firms have had to idle plants in the face of energy costs which render production uneconomical—a cold winter would bring even more pain. ►



Scraping the barrel

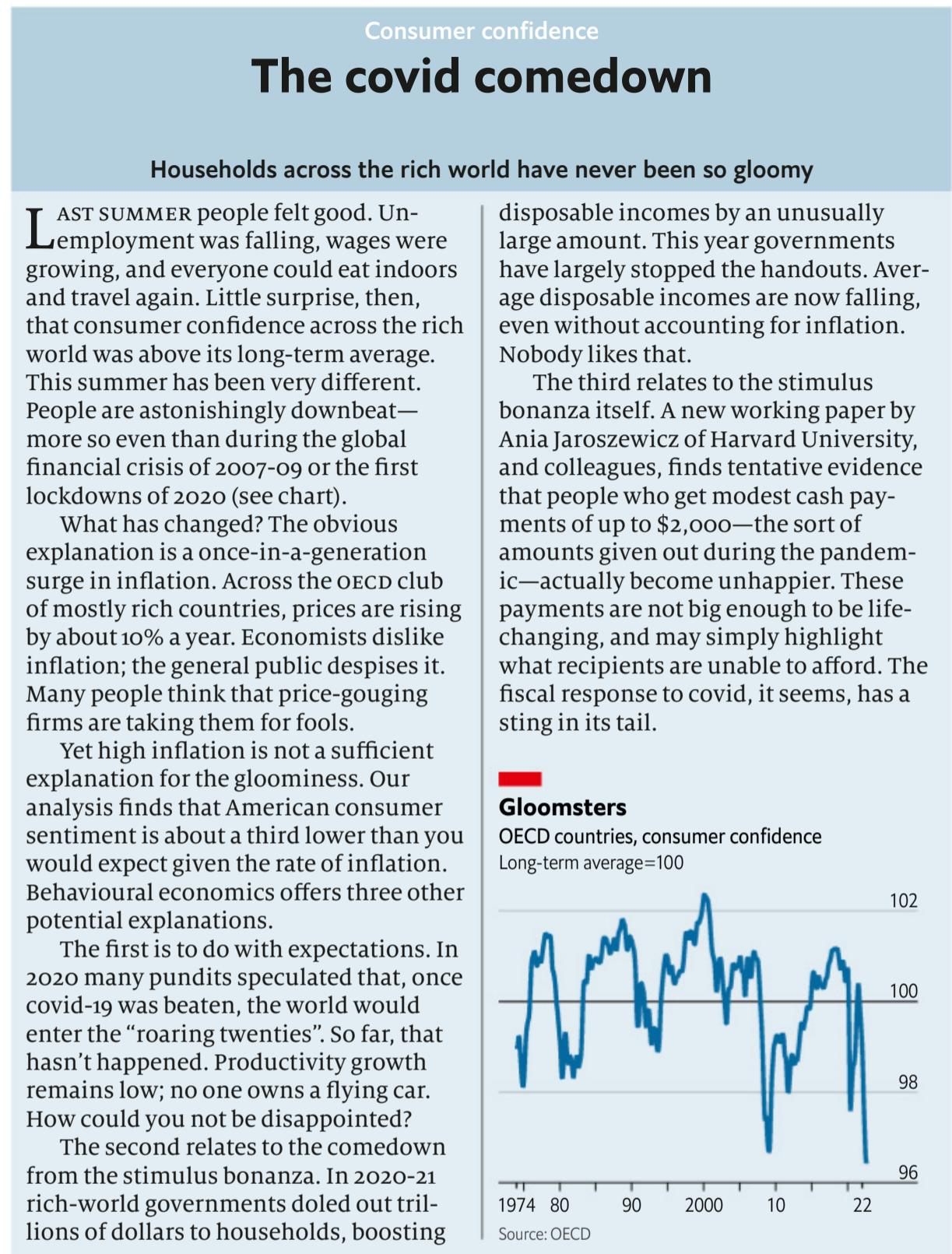


► The beleaguered Chinese economy is also a problem. Manufacturers struggling with “zero-covid” policies and a property-market bust were hit by an additional shock over the summer, as intense drought impeded shipping and dealt a blow to hydropower. Data from *Caixin*, a business publication, show that Chinese manufacturing sales shrank in August compared with the previous month. The performance of economies which typically export lots of goods and components to China also spells trouble. South Korean production swooned over the summer, for instance, as its exports to China tumbled.

The drag from high energy costs and a limping Chinese economy has been reinforced by tightening monetary policy. Surging demand for goods over the past two years overtaxed the capacity of factories, ships and ports, pushing inflation up. High prices have proven remarkably persistent—thanks in part to the shock of the war in Ukraine—so central banks are taking aggressive action. Such synchronous tightening has occurred rarely over the past half century, notes the World Bank, and resembles the positioning which triggered a global recession in 1982.

For now, manufacturers in India and South-East Asia have resisted global headwinds. That may reflect efforts to diversify supply chains away from China. During the first seven months of 2022, China's exports of goods to America were up by 18% compared with the year before. Exports from India were up by 30%, however, while those from Vietnam were up by 33%, Indonesia by 41% and Bangladesh by 50%. Yet their fortunes are ultimately roped to the world economy as a whole; if it continues to weaken, even relatively insulated places will find it difficult to avoid a slump.

A global recession is not a foregone conclusion. Manufacturing suffered in 2015-16 and in 2019, and in both cases the economy avoided a downturn. But in these periods, policy changed dramatically to prevent weakening growth from snowballing. In the middle of the decade, the Fed-



al Reserve raised rates far more slowly than it had led markets to expect—and China opened a fire hose of stimulus. In 2019, the Fed pivoted to rate cuts even as President Donald Trump's tax plan swelled American deficits, boosting the world economy.

There is little immediate hope for similar reversals. China is wedded to its zero-covid policies for now, meaning new stimulus would do little to boost growth (see Free exchange). Recently Fed officials have told markets they should expect American interest rates to rise higher and stay there for longer—even if this pushes the economy towards recession (see next story). Indeed, so long as American consumer spending remains robust, the Fed will probably feel that its inflation-fighting work is unfinished.

The safe bet is that conditions will get worse before they get better. But how much worse? The World Bank presents three sce-

narios for next year. The baseline is one consistent with the current consensus outlook for growth, of about 1.5% per person, but which is probably not consistent with central banks' desired fall in inflation—and which is thus almost certainly too optimistic. In a second, “sharp downturn” scenario, central banks have to work harder to arrest inflation but still fail to restore price stability, and growth decelerates to 0.8% per person. The third is one in which significant, synchronous monetary tightening induces a recession, such that global output shrinks by about 0.4% per person.

Either of the latter scenarios would be bitter for countries still recovering from the covid downturn. Debt loads around the world remain alarmingly high, and many countries' economies lag below their pre-pandemic trendline. Their leaders will be watching the slowdown in global manufacturing with considerable trepidation. ■

Bond yields

Shaken and stirred

WASHINGTON, DC

As America raises rates, global currency and debt markets reel

IN RECENT WEEKS, as the Federal Reserve prepared to intensify its fight against inflation, a noose has tightened around the neck of the global economy. On September 21st the Fed announced a 0.75 percentage-point interest-rate rise, its third in a row. The Fed's benchmark rate now stands at 3.325%, up three percentage points since the start of the year. While the rise was forecast, the central bank offered a surprise: new projections revealed that rates would probably rise to more than 4.5-4.75% at the end of 2023, higher than expected. The projections also suggested that unemployment would rise by at least 0.7 percentage points before the end of next year.

Markets sagged on the news, piling additional suffering on an already difficult month. Tighter American monetary policy squeezes economic activity almost everywhere else, by stifling risk appetites and pushing up the value of the dollar. Since the end of August, when Jerome Powell, the Fed chair, gave a speech at a central-banking conference in Wyoming spelling out his determination to whip inflation, financial markets have been battered. The value of the dollar has risen by about 2.5% over the past month alone, and by 16% since the start of the year.

The flow of capital towards America's fast-rising interest rates is proving increasingly difficult for other economies to handle. Falling currencies mean higher import prices, exacerbating inflation problems and forcing central banks to undertake their own whopping rate-rises. On September 20th the Swedish Riksbank lifted its benchmark rate by a full percentage point; the Bank of England may mirror the Fed's 0.75 percentage-point rise on September 22nd.

The result of tighter financial conditions and hawkish monetary policy has been an epic rise in global bond yields. In recent days America's ten-year yield has risen above 3.5%, back to levels last seen in the early 2010s. Over the past month alone, ten-year yields have risen by more than 0.6 percentage points in Germany and South Korea, and by nearly a full percentage point in Britain. After years in which interest rates plumbed historically low levels, falling currencies and soaring yields have come as a shock.

They also pose a threat. South Korea is furiously deploying reserves to prevent a chaotic fall in the won, and its government

has expressed interest in reopening a dollar swap line with the Fed. On September 22nd Japan intervened to prop up the yen for the first time since the late 1990s. In Britain, where the government has announced a big spending programme to shield people from energy prices, soaring gilt yields and sinking sterling have observers whispering that the economy may be at risk of losing the market's confidence.

Even if a market panic is avoided, the steady upward march in the cost of credit will chill private investment and tie the hands of governments which might have spent more to boost their economies. Unfortunately for policymakers elsewhere, the American economy continues to look hale, and its inflation figures are holding up. Mr Powell may thus decide that the Fed has more work to do, leaving the rest of the world to bear the pain. ■

Golden State economics

Tech curse

SAN FRANCISCO

Peter Thiel says California suffers from its biggest industry. Is he right?

SPEAKING RECENTLY at the National Conservatism Conference in Miami, Peter Thiel, an investor and intellectual, made a provocative argument. He suggested that California suffers from a "tech curse": a play on the "resource curse", the notion that countries with abundant natural resources often have weak economies and corrupt political systems. If data is the new oil, then California is the new Saudi Arabia—even, he said, if things aren't quite "as bad as Equatorial Guinea".

Mr Thiel made the Equatorial Guinea comparison with tongue firmly in cheek, but he was deadly serious about the tech-

curse theory. At first glance it seems plausible. California's tech industry has in recent years produced astonishing wealth. The state is also in many ways dysfunctional. Parts of downtown San Francisco resemble an open-air drug den. Many of the state's public schools seem keener on talking about social justice than teaching children. Each year, one in every 100 Californians, on net, leaves for another state.

Mr Thiel thinks that California's poverty and prosperity are two sides of the same coin, with state and local governments providing the link. Public-sector employees draw on tech's enormous tax revenues to overpay themselves and do no work, he says. The state's tech moguls in effect buy off politicians, ensuring, for example, that they enact super-restrictive planning regulations to keep house prices high.

It is in vogue to criticise both California and tech: doing both at the same time left the audience in raptures. There is also a grain of truth to what Mr Thiel says. But there are two big problems with his theory.

Take the benefits offered by California's tech industry first. Tech has, in fact, turned the state into a growth superstar, not a laggard. In the past five years, California's state-level GDP has grown by 18%, the fourth-fastest rate in the country and a better performance than either Florida or Texas (see chart). Even subtracting tech, California's growth was above average, according to our calculations. Less fashionable industries such as chemicals manufacturing have also done well in recent years.

Many of the proceeds of this growth have gone on enormous mansions in Atherton and Los Altos, but they have also trickled down to a greater extent than Mr Thiel appreciates. Just over a decade ago the median Californian household had an income 7% higher than the median American one. Now their income is 15% higher. The unemployment rate, relative to the national average, has fallen. So has poverty. And there is little to suggest that the decline in joblessness or poverty is caused by poor people leaving the state.

Mr Thiel also overstates tech's costs. It is true that some of California's politicians behave with nearly as much impunity as the Saudi elite. Yet anyone with a passing knowledge of Californian history knows that dirty dealing in politics long predates tech. San Francisco's politics today is tame in comparison with the 1970s.

It is similarly hard to blame tech for California's housing market. The ratio of California's average house price to America's is much lower than in the mid-2000s. Meanwhile, California's anti-building rules, the cause of sky-high prices, emerged with the environmentalist movement of the 1970s, not Mark Zuckerberg and Elon Musk. There is a lot to dislike about Big Tech, but it is not as malign as Mr Thiel believes. ■



Housing

Hot property

Institutional investors are snapping up family homes

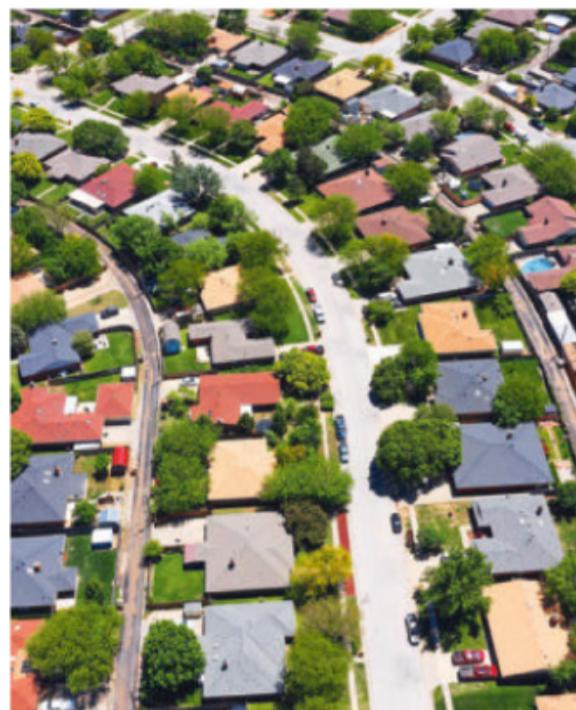
HOUSING IS THE world's biggest asset class. But until recently renting out family homes was a mom-and-pop cottage business, seen as uninvestable by Wall Street. When Blackstone, a private-equity giant, floated the idea of creating vast portfolios of homes after the global financial crisis of 2007-09, banks refused to lend to it. The firm ran the idea by Sam Zell, a property mogul who sold Blackstone his \$39bn office empire before the financial crisis. "No way," he retorted. For an investor routinely splurging on hotel chains and swanky office towers, the buy-to-let business seemed like small fry by comparison.

Blackstone went ahead despite Mr Zell's advice. A decade on from the first purchase in Phoenix, Arizona—an outlay worth \$100,000—the experiment has morphed into an institutional-grade asset class. Last year interest in the sector reached fever pitch. According to John Burns Real Estate Consulting, a research firm, big investors committed at least \$45bn to buying single-family homes in America, up from \$3bn the year before. Even as housing markets cool, investment is pouring in, with firms including Goldman Sachs and KKR following in Blackstone's footsteps.

It is easy to see why. Between 2016 and 2021, annual returns from family rentals (of 21%) have outperformed those of housing for old folk (7%), offices (5%), shopping malls (-1%) and even apartments (12%), according to Green Street, another research firm. In the past decade, the value of homes owned by institutions has doubled to \$4.7trn, a figure that towers over the estimated value of America's offices, at \$1.9trn.

Unlike mom-and-pop investors, who tend to own no more than a handful of homes, the biggest institutions hold tens of thousands, which are offered renovated and have around-the-clock maintenance. Invitation Homes, America's largest family landlord, says it spends an average of \$39,000 fixing up each one, kitting them out with new flooring, upgraded plumbing and the latest tech, such as video doorbells and smart locks.

These goodies are attracting richer tenants. Between 2010 and 2018, those with incomes of above \$75,000 accounted for three-quarters of the growth in renters. Covid-19 accelerated this, as bidding wars forced high-earners to rent. Invitation Homes says its residents now have an annual household income of above \$131,000,

**Blackstone's footprint**

nearly twice the country's median.

There is plenty of room for further expansion. In America, real-estate investment trusts (REITs) own just 1% of single-family rentals, compared with 5-10% of offices and warehouses, 15% of housing for old people and 50% of shopping malls. Big investors are also starting to build more, rather than just buying up existing stock. Last year, they built a record 7,705 family units, up from an average of 5,500 in 2015-20. By 2030, MetLife Investment Management, an asset manager, expects institutions to have amassed 7.6m homes, more than two-fifths of all family rentals.

The trend has also spread to Europe. Investors such as Aviva and Legal & General are building thousands of rental homes across Britain, which now has more than 73,000 "build to rent" properties. Institutional investors are also gobbling up property in Germany, Ireland, the Netherlands and the Nordic markets, which have higher shares of renters than other rich countries.

What's behind the explosive growth? One explanation is that ageing millennials offer a growing market. As they approach their late 30s and early 40s—a sweet spot for landlords—many want better schools for their children or space for pets, or finally have enough money to dump their housemates. In America, population growth in this age category will nearly double over the next five years. Ageing baby-boomers are also renting in higher numbers. In England, the proportion of those aged 55 to 64 who are renting has almost doubled since 2011.

Declining housing affordability helps. Those unable to buy homes have little choice but to rent, meaning landlords are confident of their ability to find and keep new tenants, especially for entry-level homes. In America, at least 420,000 starter homes were built each year in the 1970s. Last year, just 93,000 were. Thus rents con-

tinued to climb. Across the country, those for family homes rose by more than 13% in June compared with a year earlier. In Orlando, they were up by 23%. In Miami, by more than a third.

Despite rising rents, Wall Street landlords are not immune to economic uncertainty. Inflation means the cost of renovating and maintaining homes is rising. Invitation Homes says the amount it spent on these things rose by nearly 8% in the second quarter of this year. Construction costs have also risen, posing risk for investors building from scratch. Prices for building materials, including concrete, lumber and steel, have surged by 38% since the start of 2020. Interest-rate rises are another worry; as the market softens, investors are taking a more cautious approach. Home Partners of America, owned by Blackstone, announced in August that it would pause home purchases in 38 cities, markets that represent 5% of its activity.

Economic cycles are inevitable. Rents are unlikely to continue to climb at a record pace. Yet history suggests that residential rents are more resilient than those from other property types, especially in periods when supply is tight. From 1974 to 1985, another period of high inflation, rents actually increased by 7-12% a year, notes Jay Parsons, an economist at RealPage, a data firm. Even as homebuyer demand crashed during the global financial crisis, demand from residential tenants did not waver. Although the housing splurge of institutional investors may calm a bit, it is unlikely to cease. ■

Political share-trading

Capitol Markets

WASHINGTON, DC

New funds will allow average Americans to invest like politicians

WHERE ARE AMERICA'S greatest investors? Wall Street is the obvious place to look; after all, it is home to lots of hedge-fund managers who would claim the title. Other gurus reside in Greenwich, Connecticut; some have relocated to Palm Beach, Florida; and there is at least one contender in Omaha, Nebraska. Perhaps, though, the correct answer is Washington, DC.

Americans hate politicians-cum-stock-pickers. Famous examples include Paul Pelosi, husband of Nancy, the Democrat speaker of the House, and Richard Burr, a Republican senator. Some suspect their success is not solely attributable to their trading talents. An investigation by the *New York Times*, a newspaper, found that between 2019 and 2021 a third of congress-►

► people reported trades by themselves or a close family member—and half of these sat on committees where they might have gleaned pertinent information.

The public might soon be able to get in on the act, however. On September 15th Subversive Capital, an investment firm which seeks to “subvert the status quo”, announced it had filed for two new exchange-traded funds (ETFs) that will track trades by politicians. One, using the ticker “NANC” in homage to Ms Pelosi, will copy trades by Democrats and family members; another called “KRUZ”, a tribute to Ted Cruz, a Texas

senator, will mimic Republicans.

But there is a snag in the logic. It is not clear that politicians actually do all that well. Recent work by researchers at Dartmouth College finds no evidence of superior returns from 2012 to 2020. Politicians’ picks underperform the markets by 0.3% over a six-month period. The academics did, though, note that insider trades might be masked by other poor investments.

That is not the only problem with the idea. Under the Stop Trading on Congressional Knowledge Act (“STOCK Act”) members of Congress have to report any trade

worth over \$1,000, but only within 45 days. If politicians are trading on inside information, the returns of a fund operating on stale information will lag their portfolios.

Perhaps that is the point. Unusual Whales, a data firm which works for Subversive Capital, advocates a stock-trading ban. Politicians have been shamed into supporting the idea. On September 14th Ms Pelosi said Democrats would soon bring forward legislation. Even with the NANC ETF the public may never have been able to trade like Mr and Mrs Pelosi. But soon the powerbrokers may be out the game, too. ■

Buttonwood Madison Avenue's advice

Why it is time to rebrand your passive investment funds

GOODY MORNING, and thank you for the invitation to Hieroglyph Capital Partners. You asked us to demonstrate our marketing skills by choosing an aspect of your branding to review. Now, this may be eccentric, but we've picked your tracker funds. Hieroglyph's green-investment programme, its philanthropic work or its industry-leading quantitative analysts are all more obvious candidates for our attention. Tracker funds are dull, and deliberately so: they're just algorithms that let your investors replicate the performance of stockmarket indices as cheaply as possible.

Except for the choice of index, any one is just like all the others. But a non-descript product doesn't preclude a strong brand—it demands one. Think of airlines. Or perfume. Or lager. More importantly, the boring reasons for preferring passive funds to actively managed ones are getting harder to sell. Investors are happy to buy a low-cost fund that indiscriminately tracks the market's return when everything is heading in the right direction. But even if they know that virtually no active manager beats the market over the long-term, it gets harder to remember this when they're losing money. This year, a lot of them have lost a lot. They're starting to wonder if a good stockpicker could have sheltered them from the worst of it.

Convince investors to associate a fund with a compelling brand, rather than just its fact sheet and Key Investor Document, and you stand a better chance of retaining them. A successful brand has three components. It is distinct from its peers, and it is relevant to your clients and their investment goals. Crucially, it also has “proof points”, or evidence that it delivers on its promises. Which brings us to our three case studies: Hieroglyph's

S&P 500 fund, tracking the index of large American stocks; the Nikkei 225 fund, tracking Japanese firms; and the FTSE 100 fund, tracking the largest hundred companies listed in London.

The S&P 500 fund already stands out. Investors know that it is weighted heavily towards tech firms, and that in Apple, Amazon and Alphabet it contains the biggest corporate victors of the past few decades. That lets them think of it as both a safe play—betting on established winners—and as a punt on the future. But its relevance and proof points are looking shaky. Investors like the idea of risk-taking, innovative firms, but only when their share prices are going up. So far this year the S&P 500 is down 20%. That's not in line with anyone's investment goals.

The key is to play down the exciting, tech-driven, disruptive side of the S&P 500. Call it the “All American Fund” instead. The index captures four-fifths of America's stockmarket value, after all. That makes it a proxy for the world's biggest economy, one which is well-placed to weather a recession. Investors will be

looking for reassurance if the market keeps falling. Give it to them.

There is another fund that would benefit from a similar approach. Investors still associate Japanese stocks with deflation, weak corporate governance and the bubble of the 1980s. But today, inflation of just 3% makes Japan a safer bet than most economies. A weak yen ought to be good for its exporters, too. You could do worse than dusting off your Nikkei 225 fund and naming it the “Safe Haven Fund”.

The FTSE 100 fund is a thornier problem. Again, it stands out. The absence of tech firms and preponderance of “old economy” stocks—energy, mining and banks—is firmly lodged in investors' minds. At the start of this year, this seemed like a good thing. Tech looked frothy; soaring commodity prices and rising interest rates were going to help the dinosaurs roar. If Britain's economy and currency were shaky, no matter: most of the FTSE's earnings come from countries outside Britain.

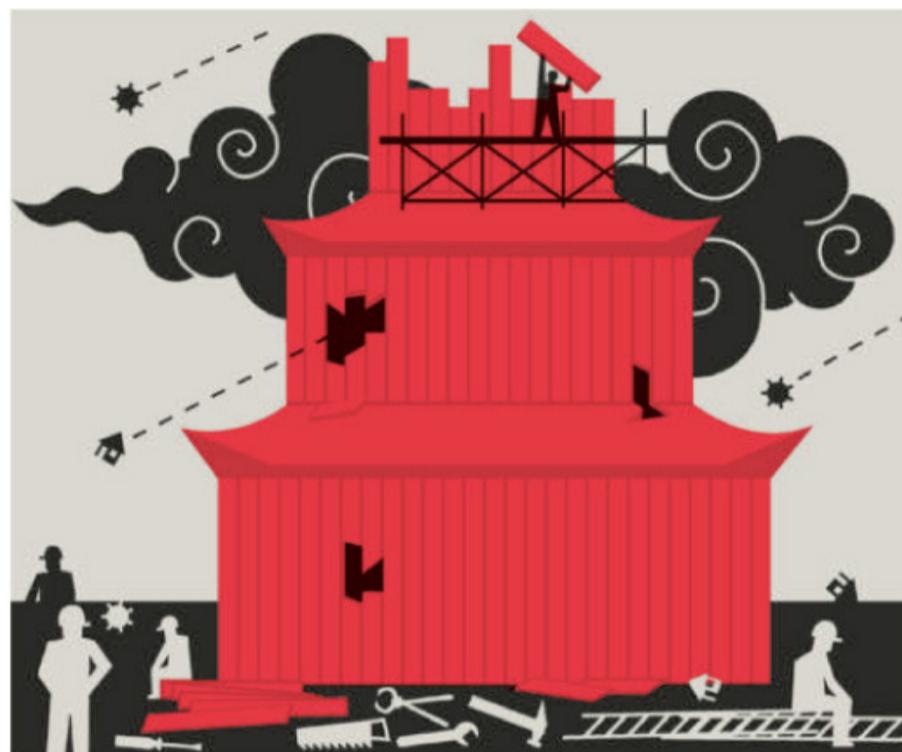
It hasn't worked out. Measured in dollars the FTSE 100 has fallen by 20% this year. To have dropped by the same as the S&P 500, after a decade of radically underperforming it, makes investors question whether London's flagship index is good for anything at all. One answer is supposed to be its dividend yield, but at 3.7% that's barely any better than Treasuries these days.

Rather than rebranding, we'd advise taking this fund out of the spotlight. A brand can't deliver unless the product can. As for relevance, the value of the entire index is less than that of Apple. Stop marketing it to your clients and you send them a message about Hieroglyph's own brand: that you don't try to sell investors things they don't need.



Free exchange | Not like China

The country's rulers seem uncharacteristically resigned to slow growth



IN 2011 THE *American Economic Review* published an influential article entitled “Growing like China”. Its authors, including Zheng Song of the Chinese University of Hong Kong, tried to explain the country’s distinctive pace and pattern of development. The title was as well received as the argument, echoed in a variety of papers such as “Innovating like China”, “Investing like China” and “Internationalising like China”.

This year, however, the country is not growing like China at all. Thanks to its deep property slump and the government’s “zero-covid” policy, which entails lockdowns in response to every outbreak of the virus, the economy is now forecast to grow by less than 3% in 2022, according to banks such as Nomura, Morgan Stanley and UBS. That is far below the official target of 5.5%.

China’s currency is also weakening. On September 16th it took more than seven yuan to buy a dollar for the first time since July 2020. A gap has opened up between the GDP path envisaged for China at the start of this year and the grimmer one that now seems probable. China’s GDP in 2023 could be more than \$2trn below the level forecast in January, reckons Goldman Sachs, another bank.

It is not like China to settle for such underperformance. In the past, economists have marvelled at its ability to stimulate spending when necessary, so as to meet its growth targets and adequately employ its busy workforce and workshops. Even after the global financial crisis in 2008, China’s GDP quickly caught up to where it would have been had the crisis never happened. Impressed by this result, Yi Wen of the Federal Reserve Bank of St Louis and Jing Wu of Tsinghua University wrote another “like China” paper, entitled “Withstanding the Great Recession like China”.

The country’s resilience, the authors argued, rested on the unconventional bust-busting tools that it had at its disposal. China, like other countries, eased monetary policy when the global financial crisis struck. But in other countries, companies and consumers remained reluctant to borrow even at rock-bottom interest rates. As a result, monetary easing did not translate into a big expansion of credit. In China, by contrast, state-owned enterprises and local-government financing vehicles (which invest in infrastructure and other civic projects) borrowed eagerly from China’s banks at the government’s behest. Other countries pushed on a

string. China had other strings to pull.

Why, then, is China notwithstanding this year’s slowdown as it did in the past? Its fiscal deficit, broadly defined to include off-budget borrowing, will increase this year. But only by about 3% of GDP, according to Goldman Sachs. The fiscal swing was more like 4% of GDP in the two years from 2008 to 2010. And it was even larger in response to China’s property slowdown in 2015. Tax breaks for firms account for a big share of this year’s stimulus, compared with the negligible role they played in 2008-09. That could be more efficient, if companies know better than the government how to spend the money. But it may be less effective, if firms choose not to spend it at all.

Local governments and their financing vehicles, which led the stimulus efforts in 2008, are not now so bold. The property slump has hurt land sales, which accounted for about a third of their revenues last year. And the signs of financial strain are not confined to the ledger books. To plug budgetary holes, 80 out of 111 cities tracked by *Southern Weekly*, a mainland newspaper, increased the amount they collected in fines last year. Yulin, a city in Shaanxi province, imposed a fine of 66,000 yuan (\$9,500) on a grocer for selling 2.5kg of subpar celery. An indebted state-owned bus company in Lanzhou, the capital of Gansu province, floated an ingenious idea to pay the overdue salaries of some of its staff. Unable to apply for additional loans itself, it suggested the employees themselves take out loans, which the company pledged to repay.

The lack of avid borrowers is blunting China’s monetary policy, much as it did in other big economies after the global financial crisis. China has cut a variety of interest rates, including its first reduction in the benchmark deposit rate since 2015. Yet faster growth in the money supply has not so far translated into an equivalent acceleration of credit.

In principle, the central government could do more itself to revive growth. It could increase spending or help bridge the financial gaps suffered by lower levels of government. It has allowed local authorities to issue another 500bn yuan of “special bonds” (which are supposed to be repaid with revenues from the infrastructure projects they finance). But that is both less than many analysts expected and less than required.

China’s leaders may be seeking to avoid the past’s mistakes, even if it means also forgoing the past’s successes. Xi Jinping, China’s president, and Li Keqiang, its prime minister, came into office in 2013, several years after the financial crash, when the unwelcome after-effects of China’s stimulus efforts were keenly felt. Torrential spending by the many arms of the state left behind excess capacity, a skewed pattern of production and heavy debts. Mr Li has repeatedly promised not to resort to “flood-like” stimulus, a veiled reference to the past.

From hero to zero

There is a simpler explanation for the change of approach, too. Mr Xi has become deeply invested in maintaining a “zero-covid” regime, which he portrays as proof of China’s superior social model. Local governments are under pressure to keep a lid on infections; a preoccupation that would distract them from an all-out effort to boost public investment, even if the financing were available. In addition, the ever-present threat of lockdowns has crushed the confidence of consumers and entrepreneurs. Thus any additional government outlays would be less effective in stimulating private spending. Other countries may outpace the country’s economy this year. But no one fights covid-19 like China. ■

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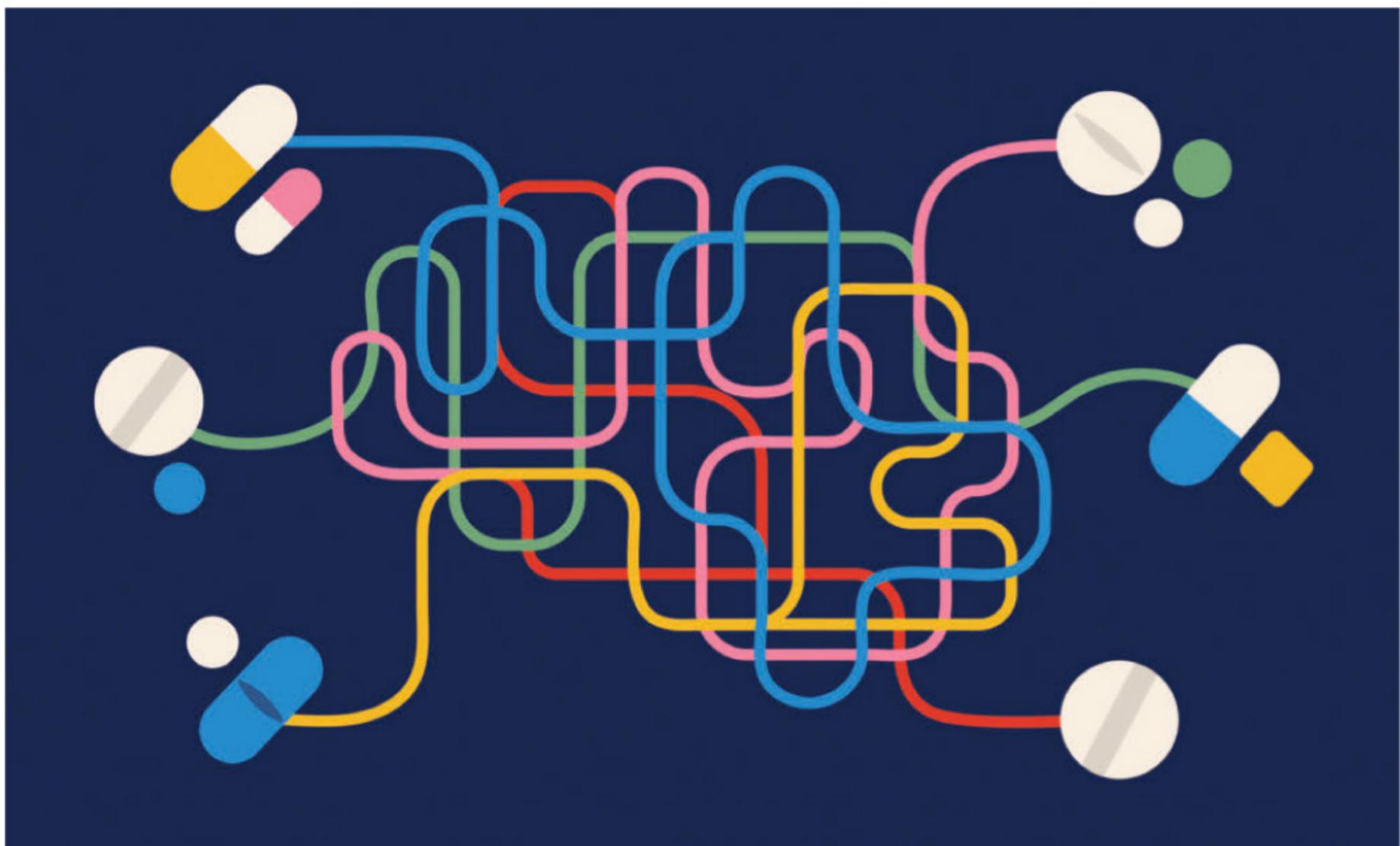
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Neurology

Pain, pain, go away

Most analgesics are either opioids or anti-inflammatories. Better ones are needed

THE MOMENT you pick up the red-hot saucepan, nerve endings in your skin will register the sudden, potentially traumatic spike in temperature. Heat-sensitive proteins on those nerve endings will respond by changing their shape, allowing sodium and calcium ions to flood into the skin's nerve cells. Once enough charge has accumulated, electrical signals will fire along a relay of nerve fibres until they reach the spinal cord and, eventually, the brain. There, different regions will be notified: the sensory cortex, for example, will locate the injury; the limbic system will assess its severity. This entire sequence will take a split second (or less); its subjective sensation—sharp, searing pain.

The immune system, meanwhile, will kick off inflammation in the skin that is in contact with the hot saucepan. This not only reddens the affected area and makes it sensitive to touch, but also amplifies the pain signals travelling to the brain. Once the brain has registered the pain and worked out a defence—in this case to im-

mediately drop the hot saucepan onto the floor—it will then send its own signals back to the fingertips, attempting to damp down the unpleasant feelings of pain and allow the healing process to start.

Pills, thrills and bellyaches

After the initial shock is over, you might consider taking some painkillers to deal with your throbbing hand. These drugs do one of two things: reduce the pain signal heading up to the brain, or increase the calming signals coming the other way.

Suppressing inflammation is a good way to achieve the first of these—painkillers such as aspirin, ibuprofen and celecoxib all belong to a family of non-steroidal

anti-inflammatory drugs (NSAIDs). Boosting the brain's attempts to reduce the sensation of pain, meanwhile, is the domain of drugs known as opioids. These mimic the effects of molecules such as beta-endorphin, normally produced by the body in response to any of a number of sensations from pain to exercise. Opioid drugs can be naturally occurring, such as morphine or codeine, or synthetic, such as fentanyl or methadone.

Both anti-inflammatory drugs and opioids are effective. They also come with significant drawbacks. Anti-inflammatory drugs can cause ulcers. Opioids can cause breathing difficulties that can become fatal. They can also become addictive and the body can build up tolerance to them, thus requiring ever higher doses to achieve the same analgesic effects. (In America, the over-prescription of opioids has led to a public-health crisis, with more than 68,000 fatal overdoses in 2020 alone.)

Both classes of drugs are well established (the oldest recorded use of opioids dates to 2100BC), and newcomers struggle to enter the field—only 2% of painkillers are thought to make the journey from preliminary trials to approval, compared with 10% for other compounds. “The field has really been stagnant in terms of development,” says Karim Ladha, an anaesthetist at the University of Toronto.

New types of painkillers are needed and the Food and Drug Administration (FDA), ➤

→ Also in this section

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America's pharmaceutical regulator, is keen to shake things up. In February, it released draft guidance to encourage the development of non-opioid analgesics, including the suggestion that such products could be eligible for expedited review.

If at first you don't succeed...

The research field is littered with the bodies of former challengers. One direction long thought promising involved the suppression of nerve growth factor (NGF). This is produced throughout the body at times of inflammation and makes the body more sensitive to pain by, among other things, increasing the conductivity of nerve fibres.

One candidate drug aiming to suppress NGF was a monoclonal antibody called tanezumab, owned by Pfizer, an American pharmaceutical firm. The drug went through multiple clinical trials and patients with osteoarthritis experienced greater reduction in pain after injection with the drug than for a placebo, NSAIDs and opioids. Nevertheless, the FDA rejected tanezumab in March 2021, owing to risks that its use might desensitise the patients to joint damage and thereby accelerate the spread of their disease.

A further potential avenue for pain relief has been the suppression of reactive oxygen species (ROS) in the blood. These are highly reactive molecules, such as hydrogen peroxide, that contain oxygen and which can disrupt the normal functioning of cells. Also produced during inflammation, they can increase the nervous system's sensitivity to pain and reduce the thresholds required for pain receptors to become active. High levels of ROS are thought to be responsible for the persistence of pain, making them a good target for drugs in this area. One such drug is ACP-044, made by Acadia Pharmaceuticals, based in California. It failed to achieve satisfactory results in a phase-2 clinical trial, however, for acute pain for patients who had just undergone a bunionectomy, a procedure that involves the removal of enlarged bone regions in the foot. It has therefore been scrapped.

A more promising pain-relief candidate from Vertex Pharmaceuticals, a firm based in Boston, Massachusetts, works by limiting the flow of sodium ions into nerve cells. It thereby suppresses the signals of pain that these cells can send on to the brain. There are nine sodium channels known to exist in nerve cells in various parts of the body and three of them— $\text{Na}_v1.7$, $\text{Na}_v1.8$ and $\text{Na}_v1.9$ —are thought to play the most significant roles in the transmission of pain. Blocking sodium ion channels is not a new idea but the similarities between the various channels has made the strategy impractical. Lidocaine, for example, targets them all indiscriminately, frequently leaving patients dizzy.

Even worse side effects are possible.

Vertex claims to have got around this limitation with a product called vx-548 that, it says, targets only the $\text{Na}_v1.8$ channel. This small-molecule drug completed its phase-2 clinical trials in March. The trials involved offering a regimen of pills to about 300 patients experiencing pain after undergoing one of two surgical operations—either a bunionectomy or an abdominoplasty (more commonly known as a tummy tuck).

The results were promising. On the 11-point scale the researchers used to quantify pain, vx-548 achieved an improvement of between one and three points—a level the company describes as clinically meaningful. In July Vertex received the green light from the FDA to proceed with phase-3 trials with their drug, in which more patients will be given vx-548, and for a wider range of pain causes. Results could emerge within the next two years.

Vertex's success, and indeed the existing FDA guidance, is primarily geared at limiting acute pain, which is defined as a response to damage that lasts less than six months. If it goes on for longer, then it is referred to as chronic. This form of pain is the iceberg below the waterline, affecting 20% of adults and causing hundreds of millions around the world to suffer until the end of their lives. Because opioid use is particularly addictive over the long term, solutions for those with chronic pain are especially thin on the ground. Vertex hopes its offerings will also work on chronic pain and even Acadia hopes to refocus its candidate drugs for pain in the same direction.

The challenge both companies face, however, is that the physiological mechanisms for long-term pain remain elusive. Most acute pain is nociceptive, which is to say nerves transmit information from the site of injury to the brain. Chronic pain, by contrast, is more often either neuropathic—the result of nerve damage causing the pain-transmitting mechanisms to misfire,

as in the case of carpal tunnel syndrome or a prolapsed disc; or it can be nociplastic—when the nervous system, for reasons unknown, augments the signals that it transmits to the brain. When it comes to fully understanding these forms of pain, says Andreas Goebel at the Pain Research Institute at the University of Liverpool, modern medicine is still in the stone age.

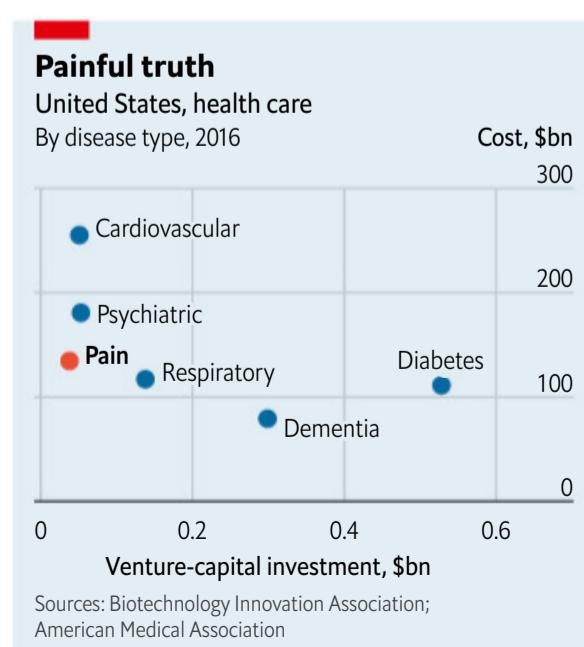
More effective, perhaps, might be to stop prioritising the search for a causal understanding, and favour empirical results. Shane Cronin, a biologist at Harvard Medical School, is part of a team of researchers that has spent more than a decade identifying a correlation between chronic pain and levels of a naturally occurring molecule in the body known as tetrahydrobiopterin. This is found throughout the body, is involved in the production of hormones such as adrenalin and dopamine, and appears to boost the immune system's responses. Though the precise connection between tetrahydrobiopterin and pain is still unclear, Dr Cronin and colleagues are nonetheless looking for ways to reduce its levels in the body. In work published last month in *Science Translational Medicine*, they trawled through a list of 1,000 existing FDA-approved drugs, in order to identify those that might do so. After testing the impact of these drugs on mouse neurons, they identified one candidate—fluphenazine, previously prescribed for schizophrenia—that successfully inhibited not only tetrahydrobiopterin but pain too.

...try, try again

Other approaches seek to improve existing classes of pain medication. Researchers at Wake Forest School of Medicine in North Carolina, for example, have carried out preliminary trials of a drug called AT-121, which has been called an opioid stripped of its addictive properties. It works by targeting opioid receptors in the body that do not seem to have the reinforcing effects in the brain's reward circuitry that are the usual causes of addiction.

Tests in monkeys showed that primates could be distracted from the discomfort of a tail dipped in hot water by a dose of AT-121 that was 100 times smaller than that amount of morphine required for the same analgesic effect. The monkeys were also in no rush to give themselves more of the drug, suggesting that its addictive properties could be low.

"To feel pain is a good thing," says Dr Cronin. "We need it to survive." Therein lies the needle that all novel forms of analgesia must thread—shutting down enough of the body's alarm system to prevent it from overreacting (or reacting without cause in the case of some chronic pain), but without snipping the wires that, among other things, keep people safe from dangerous, red-hot saucepans. ■



Environment

Crickets in a coal mine

A novel way to track the changing health of an ecosystem

CANARIES ARE more sensitive to carbon monoxide than people are. Thus they were routinely taken into mines as men went about their work of extracting coal. Odourless and deadly, carbon monoxide could quickly poison many miners before they even knew what was happening. The canary resolved this problem. If it stopped singing and dropped dead from its perch, this was an indicator that carbon monoxide levels were rising and that evacuation was in order. Now ecologists think they have found a "canary" that could function as a similar indicator of impending disaster for tropical ecosystems—the cricket.

As the planet warms, it is becoming ever more important to know which ecosystems are facing radical change and which ones are not. One technique involves finding species that are sensitive to ecosystem change in a given area, but this is tough work. Many of the best indicator species are small and hard to find. Spotting when their populations are just starting to change requires highly skilled specialists to spend a lot of time and resources conducting monitoring operations.

Amandine Gasc, an ecologist at the French Research Institute for Development in New Caledonia, located in the south-west Pacific Ocean, hypothesised that crickets might be able to help. Crickets are tiny, present in large numbers and, most importantly, noisy. The chirps of individual species are identifiably different and researchers had previously wondered if ecosystems might be monitored by listening to how the sounds of their crickets change over time. But could crickets actually serve as an indicator species?

Dr Gasc and her colleagues investigated cricket populations on the island of Grand Terre in New Caledonia (pictured), where multiple ecosystems often exist in close proximity. They collected crickets at 12 sampling sites. Four were healthy forest sites, four were shrubland areas, of the sort that are often created when people chop down forests, and four were shrubland areas that were turning into forest again. They listened for insects in square zones that were ten metres on each side and ran ten 30-minute collection sessions (five in the day and five at night) at each site.

Writing in *Biotropica*, Dr Gasc described how each ecosystem had, in effect, a distinct "cricket fingerprint". Species richness varied considerably between the different

environments, with healthy forest typically having 20 cricket species present, transitioning forest having 15 species, on average, and shrubland having just 7 species. Each type of environment also harboured its own unique mix of species. Of the 20 cricket species found in the healthy forest, 12 were unique to that habitat alone, 2 of the 15 species found in transitioning forest were unique to this habitat and 3 of the 7 shrubland species were unique to it.

In essence, just by looking at the crickets found in a given location and without any examination of the other surrounding flora and fauna, the team found that it was possible to determine whether they were looking at shrubland, forest or shrubland that was transitioning into forest.

To work out whether these cricket fingerprints would translate into a unique collective soundscape, Dr Gasc's team narrowed its analysis to look only at species of crickets that made iconic chirps. Each habitat, they found, contained cricket species that generated their own identifiable chirps. This suggests that setting up audio recorders in forests that pick up cricket calls ought to be an easy, cheap and accurate way to detect early stages of change in tropical ecosystems.

While such a system would not be of much use in tropical forests that are abruptly, and obviously, destroyed by human logging activity, audio recording systems could listen for changes in the symphony of cricket calls in forests that are starting to be fragmented by roads or becoming infiltrated by invasive species. Indeed, just as coalminers once knew that trouble was brewing if they heard a canary's song abruptly stop, ecologists could eventually tell that ecosystem change is beginning to take place in a forest when they hear the chirps of key cricket species suddenly go silent. ■



Listen for health

Taxonomy

Namely offensive

The way new species are named is problematic

BIEGE, BLIND and distinctly overwhelming, Hitler cowers in the remote caves of Slovenia. This is not the Führer, but a tiny carabid beetle, named *Anopthalmus hitleri*, or "eyeless hitler", by Oskar Scheibel, a German entomologist, in 1937. The translucent bug (pictured on next page) has little to fear in its natural habitat, except Nazi memorabilia enthusiasts who collect it illegally. The beetle fetches over £1,000 on the black market. Even in death the bug is pillaged—the Bavarian State Collection of Zoology had almost all of its *A. hitleri* specimens stolen. "It's an innocent insect," says Mirjana Roksandic, an anthropologist at the University of Winnipeg in Canada. "Why not end this illegal trade by changing its name?"

Scientists have, for decades, called for *Anopthalmus hitleri* to be renamed something less offensive. But zoological nomenclature abides by a code of priority to the first taxonomist to describe a species. Whether it's *Nannaria swiftae* (Taylor Swift's millipede) or *Leninia stellans* (Lenin's six-metre ichthyosaur), once a name is given it must stick.

As the statues of history's antagonists fall and their portraits and names are removed from the world's great buildings, researchers are wondering whether or not the names should nevertheless live on in the world of taxonomy. Academics such as Dr Roksandic are calling to erase names that honour colonial figures, and in some cases to restore indigenous ones.

Species have a precise two-part scientific name (often Latin, but they can be any language) that is understandable across the world. *Homo sapiens* or *Canis lupus*, in which the "sapiens" and "lupus" are the species epithets and "Homo" and "Canis" the genus, are recorded throughout history in a way that is fixed and easy to follow. These rules were formalised by Carl Linnaeus, a Swedish botanist, in 1753. The International Commission on Zoological Nomenclature (ICZN) enforces the rules today. Thomas Pape, ICZN's president, says his organisation serves the "stability and universality" of nomenclature, which involves "mandating scientific naming rules but not ethical arguments". On the *hitleri* beetle, Dr Pape says: "It was not offensive when it was proposed, and it may not be offensive 100 years from now."

This rigid stance also applies to naming humans. In 2021 Dr Roksandic suggested ➤



Say my name?

▶ renaming an ancient human species found in Zambia, *Homo rhodesiensis*, to *Homo bodoensis*. Writing in *Evolutionary Anthropology*, Dr Roksandic has urged taxonomists to drop the “rhodesiensis” that was associated with the colonial state of Rhodesia and its human-rights abuses.

“One option would be to informally change its vernacular name,” says Patrice Bouchard, vice-president of the ICZN. There is precedent for this—the Entomological Society of America decided in recent years that it would no longer use the common name for *Lymantria dispar*, “gypsy moth”, because it was deemed derogatory to the Romani people.

There is another wrinkle to the problem—the ICZN’s code, which was last updated in 1999, requires new species names to be published in scientific literature, but not necessarily peer-reviewed journals. Though this increases access to the field for amateur taxonomists who can find and name new species, it also has a dark side—a type of scientific misbehaviour known as “taxonomic vandalism”. By scouring preprints and other publications, vandals take evidence collected by others and publish their own names for hitherto-untitled species.

Sergei Mosyakin, director of the Institute of Botany at the National Academy of Sciences of Ukraine, suggests taxonomic histories “cannot be undone” and “shall not be erased”. Many problems could be avoided, he thinks, if researchers stopped naming species after people “quite unconnected with natural science”. This perhaps goes too far, since the thrill of having a new species named after famous people probably generates some interest in what might otherwise be ignored by the public. But perhaps taxonomists could think again about names that are political, out of touch or just plain offensive. ■

Manufacturing

Buzzing builders

Teams of flying robots can make 3D objects

CERTAIN CREATURES—namely, wasps and bees—have evolved to be adept flying builders. To assemble a hive or nest, worker insects team up to deposit wax, raw wood pulp or their own saliva to the specification of a complex design that ends up being many times their size. This process takes months, many times longer than the average lifespan of all but the queen. The insects must adjust as they go—building plans can change, imperfect materials can deform or break, workers can die.

It is these insect building teams that inspired Mirko Kovac, a roboticist at Imperial College London, to develop a way to improve the flexibility of 3D printing. A typical 3D printer is limited by the range of its nozzle, and can only make objects smaller than itself. Dr Kovac’s team has removed these constraints by giving the printer nozzle wings.

Writing in the latest edition of *Nature*, Dr Kovac describes a system of flying robots that is composed of two types of multi-rotor drones: builders and scanners. The builders carry the 3D-printing nozzle. The scanners are robots equipped with cameras that are responsible for monitoring the progress of the builders.

The building process alternates between builders and scanners, layer by layer, printing and adjusting, until a structure is complete. First, a builder hovers over its area of operation and begins to release a jet of the building material as it manoeuvres along its flight path. The choice of material is important—it must be lightweight enough for the drones to carry but sturdy enough to hold the subsequent layers that will be built on top. Dr Kovac’s team experimented with two materials. One was a low-density polyurethane foam, which can expand up to 25 times as it dries and can be used as insulation in buildings. The other material they tested, which was sturdier and more precise, was a mixture made from cement.

Once the builder robot has sprayed a layer of material, the scanner robot flies over and inspects the progress. The system then computes the next layer that the builder should make, while also correcting for any errors that might have been discovered in what has already been built. These could be errors made by the builder-drones or imperfections in the expansion of the building material. At this point, people can also in-

tervene in the process, supervising and correcting course where necessary.

The researchers tested the system’s capabilities by building both a large cylinder made of foam (72 layers and 2 metres tall) and a small cylinder made of the cement mixture (28 layers, 18cm). The tasks were not simple. Making circles on top of other circles would not have worked, because the perfect alignment required would have been impractical to achieve. Instead, the builder robot deposited squiggly circles that interleaved with the layers above and below, to ensure maximum stability.

Dr Kovac’s robots passed the test with flying colours—the cylinders were built to within 5mm of the width and height of the planned structures, which is up to snuff as far as British building codes are concerned. While these robots have been shown to be capable of manufacturing, Dr Kovac says their bread and butter will probably be, initially, in repair.

Because the flying robots can, in theory, operate anywhere, they could fix things in dangerous or otherwise inaccessible places. Dr Kovac says that his robots could be used to spot and seal leaks in oil or gas pipelines, repair leaky insulation or fix cracks on tall buildings. These robots could be deployed more quickly, cheaply and with less risk to humans. Thinking more long term, Dr Kovac even sees a potential future for his construction robots, building on the surfaces of the Moon or Mars.



3D printing...now with wings



Rugby in South Africa

Try, the beloved country

PAARL AND ZWIDE

South Africa is a country of many nations. Rugby brings them together, if only for 80 minutes

PERHAPS IT IS the beer that has flowed since early morning, or the sugary food on sale at the kiosks, but as kick-off approaches in Paarl, the crowd is nearing a delirious crescendo. Every year the town in the South African winelands hosts what may be the biggest game of school rugby in the world. Along the main road, trees are wrapped in the blues and white of Paarl Boys' High School or the green, gold and maroon of Paarl Gimnasium, local teams locked in a historic rivalry.

Not that anyone is on the streets. They are all in Faure stadium, watching school bands crank out fight songs for rows of pupils to bellow in unison, a scene that suggests Italian football "ultras" conducting a glee club. Then come the cheerleaders, parachutists billowing with school colours and, finally, a rugby match (pictured). The vibe is reminiscent of high-school football in the American South. But the scene is quintessentially South African.

"Rugby is part of our culture," says Hendrik Swart, a parent. "It's rugby and biltong

and *braai* and close-knit family." Rugby has long been associated with Afrikaners, white South Africans of Dutch and Huguenot descent, who embraced the sport after it was brought to what was then the Cape Colony by English public-school types. Near the stadium in Paarl is a giant abstract monument to the Afrikaans language.

Under white rule, both rugby and the national team, known as the Springboks, were symbols of white South Africa's resistance to change. As Nelson Mandela put it, rugby was "the application of apartheid in the sports field". In his autobiography,

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"Rise", Siya Kolisi, the Springboks' current captain—and the first black player to be granted that honour—writes: "For so long, the Springbok emblem of a leaping antelope represented only a small part of the country and reflected how that part felt about themselves: that rugby was a sport for real men, white Afrikaners."

Such attitudes are largely consigned to the past. In 2019 Mr Kolisi captained the most diverse rugby team in South African history to victory in the World Cup. But the sport is still a symbol: of a country where racial progress is real but uneven, where change at the top is clearer than at the bottom, yet which still yearns to realise the tarnished dream of the rainbow nation.

The Robben Island league

If outsiders think of South Africa and rugby, they tend to recall the World Cup of 1995, held in the country a year after Mandela became its first black president. The master politician embraced the Springboks as part of a bid to woo recalcitrant whites. At the final Mandela famously wore the green-and-gold team jersey and joined the victorious captain, Francois Pienaar, on the field.

Black South Africans rallied to the team; Mandela was praised by Afrikaners who once deemed him a terrorist. "This was one of the final blows to exclusive right-wing Afrikaner nationalism," wrote Frederik van Zyl Slabbert, a politician and acad-

► emic, after the final. "I saw and heard one of the pot-bellied brigade whisper through his tears: 'That is my president'."

The redemptive story of 1995 was memorably told by John Carlin in his book, "Playing the Enemy", and less memorably depicted in "Invictus", in which Morgan Freeman seems to think Mandela spoke just like the narrator of "The Shawshank Redemption". It was a genuinely pivotal moment. But it has occluded the role that rugby had already played for generations in black and mixed-race communities. In fact, rugby was not a white sport belatedly embraced by non-whites, but a sport enjoyed by all races—only separately.

"We didn't see it as a white sport," says Temba Ludwaba. "It was ours." Under apartheid, when rugby was run on racially demarcated lines, Mr Ludwaba played for top black teams. Some trace their origins to the late 19th century, when British colonialists taught the game to Xhosas of the Eastern Cape as part of a supposedly "civilising" mission. (The Xhosa word for "rugby", *umbhoxo*, means "a thing which is not round".) When men went to work on farms and in mines, they took the sport with them. Robben Island, where Mandela was imprisoned, had a rugby league.

"Eastern Cape is the mecca of black rugby," affirms Zola Yeye, who played for township teams and later joined the Springboks' coaching staff. When *The Economist* visited, Mr Yeye had invited Mr Ludwaba and another rugby legend, Lucky Mange, to his butchery in New Brighton, a township on the outskirts of Port Elizabeth. Out back, meat roasted on an open fire; photos of the men's playing days were on display out front. Did they resent being barred from playing for the Springboks?

Yes and no, says Mr Mange. They wanted to show that they were as good, if not better, than Afrikaners; at the same time, for political reasons, they supported South Africa's sporting opponents. Black rugby was "tough", like that played by whites, "but with flair", says Mr Yeye. It also gave structure to young men's lives. "There were roles, there were rules, there was trust," writes Mr Kolisi, who grew up in Zwide, a neighbouring township.

Mr Kolisi was born on the last day before apartheid laws were rescinded in 1991 and was brought up by his grandmother. Too poor to have toys, he pretended that a brick was a car: "I could have ended up a *tsotsi* [gangster] but it was rugby that saved me." He played games at Dan Qege stadium, the historic home of township rugby, which also hosted the funerals of anti-apartheid heroes. "Rugby at the time was a catalyst for social cohesion in the township," remembers Dan Ngcape, who used to run a black rugby association.

These days the stadium is dilapidated. On a recent Friday the field was overgrown

and strewn with weeds. The changing rooms had been ransacked. Truant teenagers lined the pockmarked concrete stands, getting drunk and smoking drugs.

For Mbulelo Gidane, who once captained the African Bombers team that played here, the scene was symbolic of the enduring poverty in South African townships. "All facilities in the township have been destroyed," he says. "The community is not guarding its own." He blames himself as a local leader of the African National Congress (ANC). "We failed our people," he sighs, looking out at the field. "We must accept that." Such contrition from a member of the ruling party is vanishingly rare.

Ex-players are immensely proud of the likes of Mr Kolisi. At the same time they lament the decline of township rugby, noting that the black players who achieve stardom are plucked from state schools by the elite private ones that groom future professionals. Mr Kolisi was recruited by Grey High School, where for the first time he wore socks and had enough to eat. "There is no way that black schools can produce Springboks," says Mr Ngcape. This, he suggests, is emblematic of what has happened more broadly since 1994. A black elite has emerged but, for the black majority, there are too few opportunities.

Out of many, 15

Racial "transformation" is a thorny subject in South Africa, including when it comes to rugby. After the Hollywood ending in 1995, the sport was slow to change. In 1997 a Springboks coach was sacked after he was taped using a racial slur. A few years later (in contested circumstances), a white player refused to room with a mixed-race one.

The ANC put increasing pressure on the authorities to pick black and mixed-race players. In 2005 the minister for sport said that winning was less important than the team's racial composition. Black players, for their part, resented being seen as "quo-



Lucky Mange's memories

ta players". "There were times that I felt I was in the team just because of my skin colour," Mr Kolisi has said. "And I hated it."

When Rassie Erasmus became coach of the Springboks in 2018 he talked openly with the squad about how their team had to look like the rest of South Africa. Yet he stressed that there was enough talent, recalls Mr Kolisi, "for us to be competitive and transformed all at once". He would showcase equality of opportunity, not diversity for diversity's sake.

Mr Kolisi's first game as captain of the national team (under Mr Erasmus's stewardship) was a euphoric moment. Fans from the Eastern Cape travelled by minibus to Johannesburg, singing African spirituals. Springbok games are broadcast simultaneously in English, Afrikaans and Xhosa. As Mr Kolisi recalls, that day the Xhosa commentary, voiced by Kaunda Ntunja, resembled a sermon by a revivalist preacher:

Siya is the first black player in history to captain the national team...Siya is our grandson, our son, our nephew, our younger brother...A cement truck with no reverse gear! Let the teams battle each other!

At first Mr Erasmus stressed that the team could only inspire the country if it was winning games. But in 2019, when South Africa reached the World Cup final in Japan, he talked about what victory by this particular team might mean to those struggling back home. In "Chasing the Sun", a fly-on-the-wall documentary, he tells the squad: "Rugby is not pressure. Pressure is not having a job, losing a child..." He tells his captain: "You are fighting, Siya, for the next lightie [child] in Zwide to not suffer like you suffered."

Cheesy? Maybe. But Mr Erasmus, now South Africa's director of rugby, and his team tap into profound feelings. South Africa is a patriotic country, yet one in which tensions are high and trust is low. Anything that awakens the dormant dreams of reconciliation and progress is cherished—and can unleash scrumloads of pent-up emotion. At the same time, the Springboks embody South Africans' desire to be known for their wide-ranging achievements, not just the stereotypes of corruption, economic decline and high crime.

Back in Paarl the players—several of them non-white—are taking to the field, future Springboks almost certainly among them. The grandfather of one says that it has been tough for him to adapt. "You need to be ten times better [as a non-white player] to get a chance." Yet that is not the universal view. Rabbie Leslie, whose son comes from a township near Mr Kolisi's, says he is proud "to be able to give my child the opportunities I did not have, for him to be part of this tradition". Might he play for the Boks one day? "I hope so. They make me proud to be South African." ■



HOME
ENTERTAINMENT



Acts of witness

Unquiet ghosts

The Soviet invasion of Afghanistan echoes in the war in Ukraine

THE CONSCRIPTS came mostly from the far reaches of Russia. Some were told they were being sent to help with the harvest, only to be thrown into a war zone. They lived in fear of the local population, and of the enemy, whom they called "ghosts". "We killed wherever we could," one said. "We killed wherever we wanted." Their rations and equipment were outdated, often by decades. As she began to suture an elderly woman's wounds, an army nurse saw the thread between her fingers turn to powder. It had been sitting in a Soviet warehouse since 1945.

These stories might almost have come from Ukraine, now the graveyard of tens of thousands of invading Russian soldiers and conscripts from the "people's republics" of Luhansk and Donetsk. But they are from a different war and another era. More than three decades ago, Svetlana Alexievich, a Belarusian journalist, tracked down and interviewed scores of soldiers who survived the Soviet invasion of Afghanistan that began in 1979, and the mothers and wives of some who did not. The dead, who were brought home in zinc coffins, inspired her book's title, "Zinky Boys" (sometimes translated as "Boys in Zinc").

Ms Alexievich is a rare author who removes herself from her pages and puts the testimonies of her subjects, recorded, transcribed and edited, centre stage. "I strive desperately (from book to book)", she wrote in the introduction to "Zinky Boys", "to do one and the same thing—reduce history to the human being". She eschews tidy narratives, elegant descriptions and flashy turns of phrase. Only the weary, disembodied voices remain. Thousands speak through her six books, the most recent of which, "Second-hand Time", helped win her a Nobel prize in 2015. Her work is an unequalled oral history of the Soviet Union and its collapse.

Some 15,000 Soviet soldiers died in Afghanistan in a conflict that lasted a decade. Many more Russians are thought to have perished in Ukraine in seven months. Scenes in "Zinky Boys" are a reminder of how little has changed. Mothers and wives from forsaken towns mourn the dead. Official lies and slogans are meant to drown out their grief. Young men and women are broken by war.

Their atrocities haunt them for years. Hardened soldiers steal the uniforms of newly arrived conscripts. A dying man begs a friend not to tell his mother what he has seen on and off the battlefield. "Our children will grow up and deny their fathers ever fought here," another despair. Russian troops who invaded Ukraine will go home with similar stories.

Few of their compatriots will want to hear them. Even fewer will think of recording or writing them down. Because of "Zinky Boys", Ms Alexievich was dragged through the courts in the 1990s, accused of defamation and desecrating the soldiers' honour. Prison awaits anyone who writes a similar book in Russia today; it may be decades before ordinary Russians come to terms with the crimes committed in their name in Ukraine. The voices of the Afghanistan veterans, curated by Ms Alexievich, may help show the way. ■

Social control in China

Perfect vision

Surveillance State. By Josh Chin and Liza Lin. St Martin's Press; 320 pages; \$29.99 and £22.99

IN THE MAOIST era, the Chinese Communist Party used dossiers containing information on each person's family background, education, political activities and job history to determine their treatment by the state. For critics of the government, these *dang'an* were, in the words of Tsering Woeser, a Tibetan poet, akin to "an invisible monster stalking you".

In "Surveillance State", Josh Chin and Liza Lin of the *Wall Street Journal* chart the replacement of the *dang'an* by a more comprehensive and powerful monitoring system. This new system has facilitated mass oppression and human-rights abuses—yet at the same time, the authors argue, it has improved the lives of some.

The explosion in surveillance technology, from facial-recognition cameras to the monitoring of social media, has given the Chinese state more insight than ever into citizens' lives. For groups the party views as suspect, such as the Uyghurs, it is oppressive. "Surveillance State" opens and closes with haunting testimony from Tahir Hamut Izgil, a Uyghur poet whose blood, voice, irises and face were catalogued by police as his friends disappeared into the gulag. It describes the physical web of surveillance that spread around Mr Izgil and his wife in Urumqi, capital of Xinjiang, in 2017: clusters of cameras "clinging like malevolent barnacles" to lampposts; police armed with smartphone scanners.

But while surveillance technology is used to terrorise people in China's far west, on the east coast it has benefited others. In Hangzhou, the home city of Alibaba, one of China's tech giants, the company's "City Brain" project revolutionised traffic control. As Mr Chin and Ms Lin describe, Alibaba developed an artificial-intelligence system that could spot traffic accidents and optimise the sequence of traffic lights to ease the flow of vehicles, particularly ambulances. Within two years of the project's launch in 2016, Hangzhou dropped from fifth to 57th on the list of China's most congested cities.

This acknowledgment of the upside of 21st-century surveillance in China distinguishes the book from much that is written on the subject. So does its awareness of the technology's blind spots: several accounts of stunning feats of surveillance in state-►

► run media turned out, on closer inspection, to be “embellished or fabricated entirely”. “Surveillance State” also looks beyond China’s borders, exploring the use of Chinese technology to stifle dissent in Uganda, and at the way Chinese-style methods have been employed by American police and prosecutors.

In winning prose, Mr Chin and Ms Lin make a nuanced argument. The party uses this technology to control and censor people. But in the absence of fair elections or a free press, surveillance is also a tool for gauging public opinion. As Meng Tian-guang, a political scientist, tells the authors, the government has tried to devise systems capable of “automatically detecting signs of negative shifts in social-media conversation”, intelligence that can then contribute to decision-making.

Covid-19 has been the ultimate test of these systems. Across the world, concerns about privacy were superseded by the data requirements of public-health authorities. In China, where the outside world is depicted as a plague-ridden disaster zone, the price of “zero covid” has been zero privacy. In its impact on public tolerance for state snooping, Mr Chin and Ms Lin liken the pandemic to the terrorist attacks of September 11th 2001.

Yet already there are signs, especially in cities, that the Chinese are wearying of the strict pandemic controls that surveillance has enabled. “Surveillance State” is an engrossing account of how, and why, the technology has become so pervasive. ■

British culture

Yesterday never dies

Love and Let Die. By John Higgs. Pegasus Books; 400 pages; \$28.95. W&N; £22

“**L**OVE ME DO”, the Beatles’ debut single, was released in Britain on October 5th 1962—on the same day as “Dr No” (pictured), the first James Bond film. Six decades on, Paul McCartney recently headlined the Glastonbury festival. And after Daniel Craig’s final turn as Bond, speculation abounds as to who might be the next man—or woman—to play 007.

In “Love and Let Die”, John Higgs cleverly uses these two coeval phenomena to recount the cultural history of post-imperial Britain. The Bond books and films, he argues, at once celebrate jet-set modernity and cleave to attitudes—to women, to class, to non-British people—that are long past their sell-by date. The Beatles, too,



He thought he was a loner

clung to tradition, from the “faux Victoria-na” of “Sgt. Pepper” to the gentle nostalgia of songs such as “Penny Lane”, even as the band embraced new ideas about sex and drugs and spirituality.

They have more in common than you might think. In “Goldfinger”, Bond warns a paramour against “listening to the Beatles without earmuffs”. Nevertheless, after watching that film, Mr McCartney bought an Aston Martin just like 007’s; some years later he co-wrote the theme tune for “Live and Let Die”. During the filming of “On Her Majesty’s Secret Service”, meanwhile, the movie’s one-off Bond, George Lazenby, spent all his downtime trying to learn the chords for “Hey Jude”. In 1981 Ringo Starr married the heroine of “The Spy Who Loved Me”, Barbara Bach. (Forty years on, the pair are still together.)

Yet in Mr Higgs’s telling, the two British icons also embody contrasting attitudes to life and politics. He teases out this conceit with a critic’s attention to detail. The titular villain of “Goldfinger” is in love with money, he notes; contemporaneously, the Beatles disparaged wealth in their single “Can’t Buy Me Love”. In the same Bond film, the hat belonging to Oddjob, a grisly assassin, “was a lethal weapon to be feared”. In the Beatles film “A Hard Day’s Night”, a similar hat is “a sign of pompous authority that needed to be mocked”.

It is the imagination, Mr Higgs argues, which best tells “the story of our internal lives”. Still, he accepts that, for many people, culture is trivia. Power—military, monarchical or monetary—is the lens through which history is normally understood. And with good reason: the world of realpolitik has generally been impervious to both Bond’s patriotic derring-do and the Beatles’ love-ins. This February, for instance, António Guterres, the UN’s secretary-general, invoked John Lennon in imploring Vladimir Putin to “give peace a chance”. Mr Putin was neither shaken nor stirred. ■

Romanticism in Germany

Brothers in art

Magnificent Rebels. By Andrea Wulf. Knopf; 512 pages; \$35. John Murray; £25

AT A FOUR-DAY house party in a corner of the Duchy of Saxe-Weimar in 1799, the guests indulged in “vertiginous bouncing between poetry, art, science, philosophy and religion”, as Andrea Wulf puts it in her group biography of what she calls the “Jena Set”. The relatively free-thinking regime at Jena’s university, and the proximity of Goethe and Schiller, brought to the town a gang of young German intellectuals who played an outsize part in the movement that came to be known as Romanticism.

Two brothers and their partners were at the centre of this circle: August Schlegel, a translator, writer and critic, and his wife, Caroline; and August’s younger brother, Friedrich, also a writer and critic, and his partner, Dorothea, who was a daughter of the so-called “Jewish Socrates”, Moses Mendelssohn. The women were more than helpmates; they wrote some of what appeared under the brothers’ names.

Caroline, in particular, was a dynamo. She had been imprisoned by the Prussians when she was 29 because of her links to French revolutionaries. Later she married August and moved to Jena; after divorcing him she married a philosopher-prodigy, Friedrich Schelling, who was younger than some of his students and whose university lectures sparked something akin to Beatlemania. Novalis, a poet, called Caroline the heart of the group.

The Jena Set’s favourite themes included the unity of man and nature, the value of imagination and the need to “poeticise” the sciences, as Novalis put it. Schelling told his students that the works of artists and poets, not scientific treatises, provided the best way to comprehend nature. According to Ms Wulf, the mainspring of the Jena Set’s ideas was a concept of the “Ich”, or self, developed by Johann Gottlieb Fichte, a philosopher who taught in Jena from 1794 to 1799.

It was never clear quite what Fichte meant by his “Ich”. His writing was dense, as Ms Wulf’s quotation of it illustrates: “the non-Ich can be posited only in so far as an Ich is posited in the Ich (in the identical consciousness), to which it (the non-Ich) can be opposed...” Heinrich Heine joked about a widespread misconception that “the Fichtean self was the self of Johann Gottlieb Fichte”, who “denied the existence of anything else”. What, mused Heine, ►

Johnson Posh in translation

When and whether royal names are translated is a parable of European history

THE WEEKEND after Queen Elizabeth II died, the continental European press was much taken with the arrangements for the royal transition. But readers of the *Diari de Girona*—which explained in Catalan the change in titles of the former Prince of Wales and his wife—might have been a bit baffled. They would have encountered a few familiar people: Elisabet II was the late queen, and the former Príncep Carles is her son. But who is this Llitera of which the paper spoke? Readers on Twitter figured it out: a *llitera* is a stretcher or a bunk-bed in Catalan, or a translation of the Spanish *camilla*, little bed. The paper quickly restored the new queen consort's name to Camilla.

Countries have differed on whether and when to translate the names of the royal family. The Spanish-language media have gone for Carlos, but left Camilla alone. Outlets disagree on what to do with the others; Prince Guillermo's wife may be Catalina, or she may be Kate. Guillermo's brother is sometimes Henrique, sometimes Harry (perhaps because he is not expected to be king, or perhaps because Harry, unlike Henry, has no obvious translation). His wife, though, is just Meghan, for which there is no Spanish equivalent. The Portuguese papers tend to translate, while Brazilian ones leave Elizabeth and Charles alone. Russian media, following a Germanising tradition, went with Karl.

In France, Germany and elsewhere, the media have largely left the royal names in their English originals. But these countries have their own quirks. In Germany, the departed monarch was rarely *die Königin*. She was *die Queen*. If that seems odd, remember that in English the last monarch of Germany was the kaiser, rather than the emperor. (Kaiser is merely a German spelling of Caesar, just

as “tsar” is a Russification of it.)

It used to be common to translate all manner of names. Scholars like Copernicus often published under Latinised names during the Renaissance (in Poland, where he was born, he was Kopernik). Translating the names of people who moved countries continued for centuries. Chopin's friends didn't call him Frédéric at the pub in Warsaw; he was born Fryderyk before moving to France. Meanwhile Spain has several places named after the French writer Julio Verne, and 19th-century Spaniards got their communism from Carlos Marx. They heard about José Stalin and Adolfo Hitler into the 20th century.

The translation of names seems to belong to another era, when Europe thought of itself as “Christendom”. Translation was easy, since virtually everyone bore the name of an early saint or biblical figure, which had equivalents in most languages. Germanic names made their way across the continent with conquests by Goths, Franks and the like. Names such as Henry and Robert soon had equivalents across most of Europe too.



But today, the likes of the Royal Spanish Academy say only popes, saints, other religious figures and, yes, monarchs and their family members should be translated. That holy company is a tell: if monarchs no longer tout the divine right to rule, they (like the saints and the pope) are still a class quite apart from their subjects. Not that it is impossible to join the club, as Catalina Middleton has found out. But the odd pairing of Kate's ordinary English surname and her translated given name captures how out-of-date translating people's names is in 2022.

Charles I of Spain, who as Charles V reigned as Holy Roman Emperor, was born in what is now Belgium and spent much of his life fighting around Europe. He is rumoured to have said: “I speak Spanish to God, Italian to women, French to men, and German to my horse.” The quote is unauthenticated, but it is not preposterous. The Habsburg emperor's biography recalls a time when the royals belonged to Europe as a whole as much as to any one country.

But that age is over. Perhaps it is time to give up translating monarchs' names altogether, as out of step with the rhythm of modern nationalism. The head of the house formerly known as Saxe-Coburg-Gotha now belongs to Britain and other Commonwealth realms, not to Germany, Russia or Portugal. To call him a name he would hardly recognise seems less courteous than it might once have done. For their part, the Germans seem divided on whether to call him *Der King* or *Der König*. The second option makes more sense; titles translate even when names don't.

So those foreigners who wish to hail the new king should practise: *Da zdravstvuet korol Charlz! Es lebe König Charles!* *Viva el rey Charles!*

► would Mrs Fichte have made of that?

Keeping track of this cast and their ideas can be a challenge. Not only does it include the Schlegels, a Schelling, a Schiller and a Schleiermacher, but nearly half the male characters are called Friedrich. Yet from this ungainly material Ms Wulf somehow spins a lively yarn—as if Iris Murdoch had set a novel during an especially muddy phase of German metaphysics. Her prodigious research lets her conjure the bygone streets of Jena, with its seven bookshops, 41 butchers and 16 wig-makers, and the romances, rows, alliances

and sorrows of its inhabitants.

People no longer “talk about Fichte's self-determined Ich”, she writes, “because we have internalised it”. Happily, this is not the case. Rousseau has a stronger claim to have carved the modern conception of the self, not simply because he came first—he died when the Jena Set were children—but also because readers understood what he wrote. Yet Ms Wulf says nothing about Rousseau's influential picture of the introspective free spirit that feels at one with nature and at odds with society. She mentions Rousseau only in passing, to note his

ideas about childhood, his political concept of the general will and his defence of male supremacy.

A century ago Anglophone intellectuals were more aware of German ideas than they are today. Ms Wulf is to be thanked for bringing some neglected thinkers vividly to life. But she tries to swing the pendulum too far. She claims that the Jena Set “changed our world...irrevocably”. Yet much of the credit she awards them would in a less parochial account be more liberally distributed—not just to Rousseau but to Montaigne, Descartes and Locke. ■

Economic data

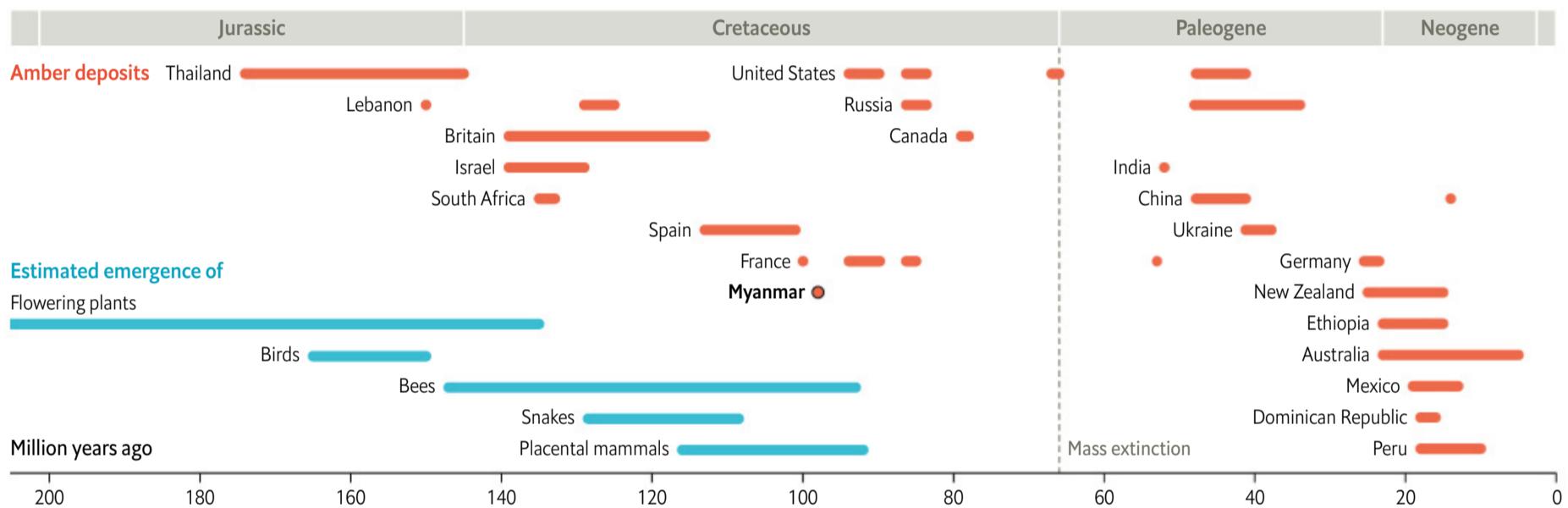
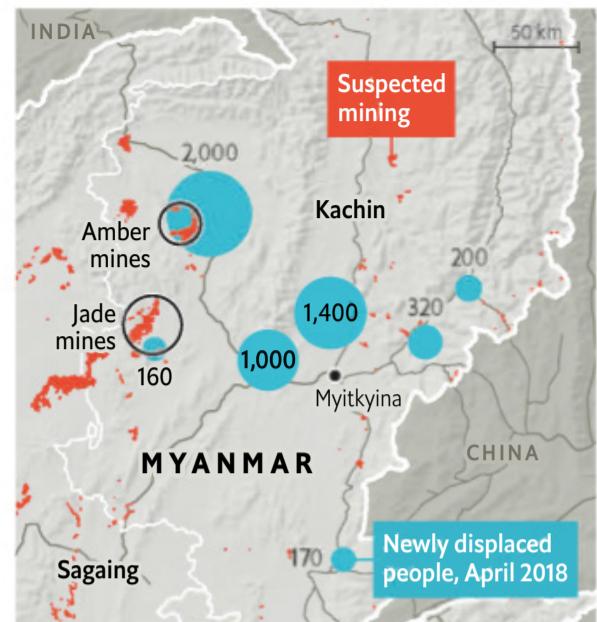
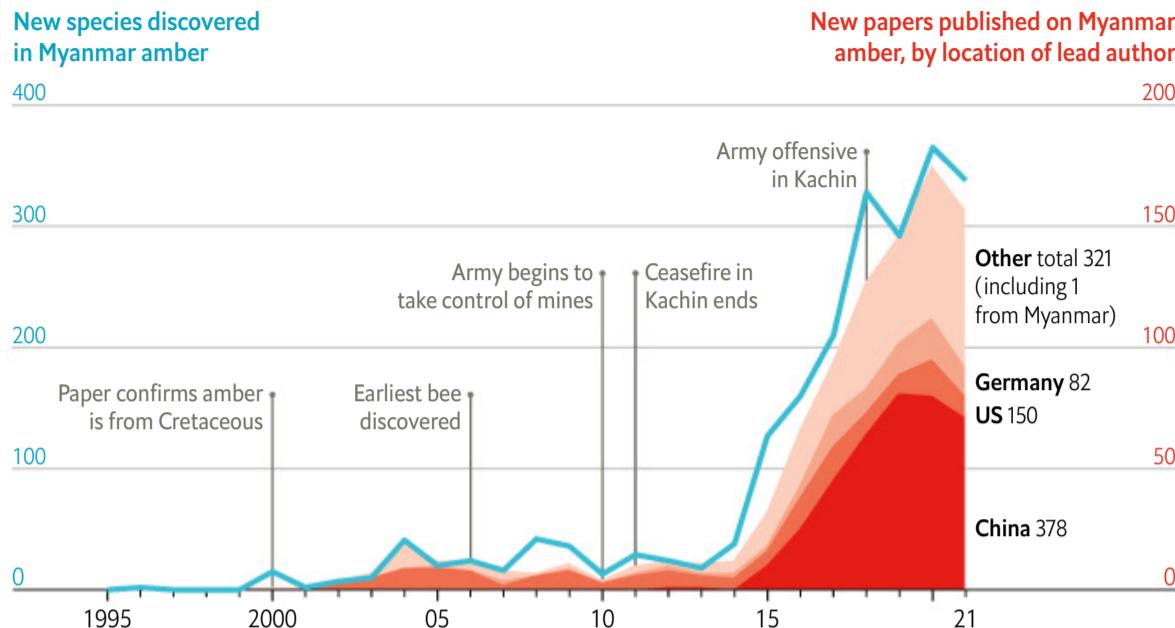
	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago latest	quarter*	2022†	% change on year ago latest	2022†	%		% of GDP, 2022†		% of GDP, 2022†		10-yr gov't bonds latest,%	change on year ago, bp	per \$ Sep 21st	% change on year ago
United States	1.7	Q2	-0.6	1.5	8.3 Aug	7.9	3.7 Aug	-3.7	-3.9	3.5	218	-			
China	0.4	Q2	-10.0	3.6	2.5 Aug	2.4	5.3 Aug‡§	2.2	-6.2	2.4 §§	-30.0	7.05	-8.5		
Japan	1.6	Q2	3.5	1.8	3.0 Aug	2.1	2.6 Jul	1.8	-6.1	nil	-8.0	144	-24.2		
Britain	2.9	Q2	-0.3	3.3	9.9 Aug	8.6	3.6 Jun††	-5.2	-6.8	3.3	246	0.88	-17.1		
Canada	4.6	Q2	3.3	3.2	7.0 Aug	7.0	5.4 Aug	1.2	-3.6	3.0	181	1.34	-4.5		
Euro area	4.1	Q2	3.1	2.8	9.1 Aug	8.1	6.6 Jul	1.4	-4.4	1.9	220	1.01	-15.8		
Austria	6.0	Q2	11.5	3.7	9.3 Aug	8.9	4.6 Jul	-0.9	-4.7	2.5	259	1.01	-15.8		
Belgium	3.3	Q2	0.8	2.3	9.9 Aug	9.6	5.9 Jul	-1.2	-5.1	2.5	253	1.01	-15.8		
France	4.2	Q2	2.2	2.4	5.9 Aug	6.2	7.5 Jul	-1.9	-6.1	2.4	230	1.01	-15.8		
Germany	1.7	Q2	0.6	1.0	7.9 Aug	8.3	2.9 Jul	3.5	-3.2	1.9	220	1.01	-15.8		
Greece	7.8	Q2	5.0	5.0	11.4 Aug	9.5	11.4 Jul	-6.6	-5.3	4.5	371	1.01	-15.8		
Italy	4.7	Q2	4.6	3.0	8.4 Aug	7.2	7.9 Jul	0.3	-6.1	4.1	342	1.01	-15.8		
Netherlands	5.3	Q2	10.9	4.5	12.0 Aug	13.1	3.8 Aug	8.4	-2.2	2.2	240	1.01	-15.8		
Spain	6.3	Q2	4.6	4.2	10.5 Aug	9.2	12.6 Jul	0.4	-5.4	3.0	266	1.01	-15.8		
Czech Republic	3.6	Q2	1.9	2.2	17.2 Aug	16.7	2.3 Jul‡	-3.6	-5.7	4.7	272	24.9	-13.1		
Denmark	3.3	Q2	3.7	2.1	8.9 Aug	8.2	2.7 Jul	8.3	0.8	2.3	228	7.53	-15.8		
Norway	3.9	Q2	2.9	2.2	6.5 Aug	6.2	3.2 Jun‡‡	17.3	11.3	1.4	76.0	10.3	-15.6		
Poland	4.9	Q2	-8.1	3.2	16.1 Aug	14.3	4.9 Aug§	-3.7	-3.7	6.1	416	4.83	-18.4		
Russia	-4.1	Q2	na	-6.2	14.3 Aug	15.2	3.9 Jul§	11.9	-3.7	9.9	265	61.4	19.3		
Sweden	4.1	Q2	3.6	2.2	9.8 Aug	7.3	6.6 Aug§	3.0	-0.2	2.1	185	11.0	-21.2		
Switzerland	2.4	Q2	1.1	2.2	3.5 Aug	3.4	2.1 Aug	7.0	-1.1	1.2	142	0.97	-5.2		
Turkey	7.6	Q2	8.5	4.1	80.2 Aug	75.4	10.6 Jul§	-5.9	-3.7	11.3	-530	18.3	-52.9		
Australia	3.6	Q2	3.6	3.2	6.1 Q2	6.0	3.5 Aug	1.9	-2.6	3.7	241	1.50	-8.0		
Hong Kong	-1.3	Q2	4.1	0.5	1.9 Jul	2.3	4.1 Aug‡‡	1.2	-6.8	3.4	226	7.85	-0.8		
India	13.5	Q2	9.5	6.9	7.0 Aug	7.0	8.3 Aug	-1.5	-6.6	7.2	111	80.0	-8.0		
Indonesia	5.4	Q2	na	5.1	4.7 Aug	4.9	5.8 Q1§	1.2	-3.8	7.2	96.0	14,998	-5.1		
Malaysia	8.9	Q2	na	6.0	4.4 Jul	3.1	3.7 Jul§	1.6	-6.1	4.2	86.0	4.55	-8.1		
Pakistan	6.2	2022**	na	6.2	27.3 Aug	18.5	6.3 2021	-5.0	-7.0	12.7 †††	293	240	-29.8		
Philippines	7.4	Q2	-0.4	6.7	6.3 Aug	4.9	5.2 Q3§	-3.8	-7.7	6.9	257	58.0	-13.5		
Singapore	4.4	Q2	-1.0	3.5	7.0 Jul	5.7	2.1 Q2	18.9	-1.0	3.2	178	1.42	-4.9		
South Korea	3.0	Q2	3.0	2.6	5.7 Aug	5.1	2.1 Aug§	2.0	-3.3	3.9	183	1,394	-15.7		
Taiwan	3.0	Q2	-7.0	2.9	2.7 Aug	3.3	3.7 Jul	14.0	-1.2	1.4	99.0	31.4	-11.9		
Thailand	2.5	Q2	2.7	2.8	7.9 Aug	6.0	1.5 Dec§	-0.5	-5.0	2.9	131	37.1	-10.1		
Argentina	6.9	Q2	4.2	4.6	78.5 Aug	70.8	6.9 Q2§	-0.6	-4.5	na	na	145	-32.0		
Brazil	3.2	Q2	5.0	2.2	8.7 Aug	9.7	9.1 Jul§‡	-0.7	-6.2	11.8	103	5.18	2.7		
Chile	5.4	Q2	nil	2.0	14.1 Aug	11.5	7.9 Jul§‡	-7.1	-1.7	6.5	139	945	-16.8		
Colombia	12.6	Q2	6.0	6.6	10.8 Aug	9.8	11.0 Jul§	-5.1	-4.7	12.4	505	4,402	-12.6		
Mexico	2.0	Q2	3.7	2.2	8.7 Aug	8.0	3.2 Jul	-1.1	-2.4	9.3	215	20.0	0.8		
Peru	3.3	Q2	2.3	2.6	8.4 Aug	7.8	7.7 Aug§	-3.7	-2.1	8.3	198	3.90	5.4		
Egypt	5.4	Q1	na	6.2	14.6 Aug	12.5	7.2 Q2§	-4.9	-6.5	na	na	19.5	-19.4		
Israel	4.8	Q2	6.8	5.7	4.6 Aug	4.4	3.4 Jul	2.7	-0.5	3.2	213	3.46	-7.2		
Saudi Arabia	3.2	2021	na	7.6	3.0 Aug	2.5	6.0 Q1	14.4	9.3	na	na	3.76	-0.3		
South Africa	0.2	Q2	-2.9	1.9	7.9 Aug	6.9	33.9 Q2§	-1.2	-6.2	10.5	144	17.7	-16.1		

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 21st	% change on:			index Sep 21st	% change on:			Dec 31st 2021
		one week	Dec 31st 2021	one week		one week	Dec 31st	one week	
United States S&P 500	3,789.9	-4.0	-20.5		40,965.6	-2.3	-8.1		
United States NAScomp	11,220.2	-4.3	-28.3		3,261.8	0.1	4.4		
China Shanghai Comp	3,117.2	-3.7	-14.4		2,347.2	-2.7	-21.2		
China Shenzhen Comp	2,004.3	-4.6	-20.8		14,424.5	-1.6	-20.8		
Japan Nikkei 225	27,313.1	-1.8	-5.1		1,633.5	-1.4	-1.5		
Japan Topix	1,920.8	-1.4	-3.6		146,980.1	0.2	76.0		
Britain FTSE 100	7,237.6	-0.5	-2.0		111,935.9	1.3	6.8		
Canada S&P TSX	19,184.5	-2.7	-9.6		46,992.5	0.5	-11.8		
Euro area EURO STOXX 50	3,491.9	-2.1	-18.8		9,955.9	-2.3	-16.4		
France CAC 40	6,031.3	-3.1	-15.7		1,992.9	-1.1	-3.9		
Germany DAX*	12,767.2	-2.0	-19.6		11,461.1	-3.6	1.1		
Italy FTSE/MIB	22,035.8	-1.7	-19.4		66,208.7	-2.6	-10.2		
Netherlands AEX	669.8	-1.6	-16.1		2,516.6	-3.9	-22.1		
Spain IBEX 35	7,872.2	-2.3	-9.7		932.1	-3.2	-24.3		
Poland WIG	49,477.6	-1.6	-28.6						
Russia RTS, \$ terms	1,106.8	-13.7	-30.6						
Switzerland SMI	10,429.4	-3.0	-19.0						
Turkey BIST	3,245.8	-5.8	74.7						
Australia All Ord.	6,921.4	-2.1	-11.0						
Hong Kong Hang Seng	18,444.6	-2.1	-21.2						
India BSE	5								

→ Amber from northern Myanmar is a rich source of scientific insights—and ethical quandaries



Sources: "Ethics, law, and politics in palaeontological research: The case of Myanmar amber", by E. Dunne et al., *Communications Biology*, 2022, working paper; Kachin Development Networking Group; Andrew Ross, National Museums Scotland; press reports

Fossil feuds

Research on amber from a war-torn part of Myanmar is surging

SCIENTISTS' CURIOSITY may be limitless, but ethical rules restrict their methods. Medical research requires informed consent, and human embryos can be studied only until they are a few weeks old.

Such rules apply to dead matter as well. Some journals reject studies on fossils of dubious provenance. But some palaeontologists publish papers in permissive journals on fossils from countries with loose rules or weak enforcement. This yields benefits for science, but may come at a cost to people in the fossils' countries of origin.

In recent years, this trade-off has become acute in Myanmar. The northern state of Kachin is a remarkable source of amber (hardened tree resin) with animals trapped inside. The deposits date from the

mid-Cretaceous, around 100m years ago, and contain not just insects but also vertebrates such as snakes. In contrast, amber from the Baltic or Caribbean is less clear, less rich or younger.

A separatist group in Kachin has fought the national army there since the 1960s. Both sides are thought to have profited from mining and illicit sales of amber. In 2019 fact-finders from the UN reported that government soldiers were forcing miners to work and subjecting them to violence.

Recently demand in China for amber from Myanmar has surged—largely because China's own mines have dried up and partly because an anti-corruption push reduced the appetite for jade, a rival gem associated with bribes. From 2009 to 2015, amber exports to China rose from a trickle to perhaps over 100 tonnes per year, worth some \$1bn. Most is used in jewellery, but researchers also scour markets to scoop up stones containing fossils.

This amber sits in a legal grey area. In 2015 Myanmar began requiring authorisation for exports of fossils. But in 2019 it classified amber as an exportable gem-

stone, without any carve-out for fossils.

As supply has surged, so has research. A forthcoming paper in *Communications Biology* finds that 113 papers were published per year in 2015-21 about amber from Myanmar, compared with eight in 1999-2014. According to Andrew Ross of National Museums Scotland, 365 new species were found in amber from Kachin in 2020. Just 342 were identified from 1916 to 2013.

Are such discoveries ethically justifiable? Myanmar has become a pariah state, committing atrocities against minorities, democrats and others. Generals have seized power and tried to crush dissent (unsuccessfully). Two journals have banned papers on amber from Myanmar, and some others require documentation.

However, any effort to restrict such research must be broad to be effective. Most of the new scholarship on this amber comes from China: of 865 papers published since the start of 2015, 417 had Chinese lead authors. Unless Chinese journals, universities and museums join in, palaeontology may continue to rely on amber obtained from Myanmar's grim, army-run mines. ■



The “Are we alone?” equation

Frank Drake, pioneer of the search for extraterrestrial intelligence, died on September 2nd, aged 92

IT WAS NOT something Frank Drake set out to do, but it seemed pretty useful. In 1961 he was drawing up a list of topics for a conference he had convened at the National Radio Astronomy Observatory at Green Bank, West Virginia. This would gather in every scientist in the world who cared about intelligent life elsewhere in the universe; about 12 people, by his reckoning. One of them was researching what dolphins said to each other. His own question went somewhat further: whether there were civilisations beyond our solar system, and what they might be trying to say.

He had done his first search for extraterrestrial intelligence (later called SETI) the year before. That enterprise was still widely ridiculed as a hunt for little green men, Martian canal-builders and UFOS, and not reputable research. (Perhaps unwisely, he called it Project Ozma, after the daughter of the King of Oz.) So he kept it secret, and the conference informal, to avoid public mockery. But SETI for him was an expression of serious scientific intent.

He was excellently placed to embark on it. As a radio astronomer, he spent his days controlling the 26-metre telescope at Green Bank, observing and recording in pen and ink (no computers then) the data that reached Earth from the radio part of the electromagnetic spectrum. That finer, sharper tool allowed him to find the radiation belts of Jupiter, to analyse the atmosphere of Venus and to map the centre of the Milky Way, obscured to visible light by clouds of dust. From time to time he also pointed the telescope at two stars, Tau Ceti and Epsilon Eridani, which he thought most likely to be habitable and sending radio signals.

He felt no need to justify that fascination. Ever since Sunday school, to which he was sent by his strict Baptist parents, he had been struck by how naturally people assumed that their own civilisation was the only one worth knowing. He resolved then, at eight, not to think that way. At the Chicago Museum of Science and Industry, a favourite haunt, he learned that the Sun was merely an

average star among billions. He felt then, and every time he gazed at a clear night sky, that intelligent life could not be a fluke that had appeared only on Earth. Since it had happened at all, why not elsewhere?

It would do no harm, he thought, to give his researches the dignity of an equation, and that day in 1961 one came quite naturally:

$$N = R^* \times f_p \times n_e \times f_l \times f_i \times f_c \times L$$

As he opened the meeting, he wrote it on the blackboard. N was the number of detectable, intelligent civilisations in the Milky Way galaxy; to get that figure, you just multiplied the factors together. R^* was the average rate of formation of stars in our galaxy: between one and ten a year, he thought. After that, f_p was the fraction of stars that had planets, and most stars had them. Next, n_e was the average number of those planets that could potentially support life (Earth, Mars and Venus in his estimation); f_l the fraction of those on which life had actually developed; f_i the fraction of those on which that life was intelligent; and f_c the fraction of those that had produced a technology detectable from space, like the radio-wave transmitters he was using himself.

This was not really an equation, but a thinking tool. People called it pure speculation, but each phenomenon had taken place in the universe at least once. It became so famous that it featured on t-shirts, right next to Einstein's $E=mc^2$. Of course, most of the terms had no known values. But the truly troublesome one was the last, L , which was the average length of time a civilisation might be detectable. That was quite impossible to say. The figure he usually threw out was 10,000 years.

Despite the imponderables, he and his colleagues started searching. On the very first day of the experiment a regular pulse, eight times a second, was detected from Epsilon Eridani—but it turned out to be rogue radar from a passing aircraft. More than 100 other initially intriguing signals were seen, but all were probably artefacts. NASA had set up some funds for SETI from the 1970s, but no proper programme until the 1990s, by which time Congress was losing patience. In 1993 it turned off the tap. When Dr Drake was asked why nothing had been found, he replied: “We haven’t tried hard enough.” They had observed only a few thousand stars, when they should have observed 10m, and they needed two antennae on opposite sides of the Earth to look in all directions all the time. It could be done, but only with a pile of money.

If faraway intelligences did not get in touch, they might perhaps be nudged to respond to messages. In 1974 he sent the first interstellar message from the Arecibo Observatory in Puerto Rico towards M13, a globular star cluster 25,000 light-years away. In simple binary coding, it described where the message was from and what humans were like. He also collaborated with Carl Sagan, then America’s best-known astronomer, to attach plaques to the Pioneer spacecraft and images and audio recordings to the Voyager craft, describing Earth and earthlings. Photographs of Earth-life sent on Voyager included one of him, or someone very like him, eating a sandwich in a manic fashion. He was never that keen, however, on sending things. Earth had been lit up like a beacon with radio transmitters for decades. If other civilisations wanted to make contact, they knew where to direct their signals.

Other scientists might have been depressed by the lack of progress. It did not speed up even when new telescopes could produce reams of data in seconds, rather than months. But he was not cast down. His work had become part of an entirely new field of interdisciplinary research, astrobiology. Besides, his star-gazing on Tau Ceti and Epsilon Eridani was like buying two tickets for the lottery. To discover intelligent life beyond the solar system would alter humankind’s perception of itself profoundly, and not only by curbing its arrogance. It would potentially teach earthlings new technologies, new ways of seeing and—he especially liked this thought—new sources of joy. It would be the biggest jackpot imaginable. And someone, somewhere, had to win it. ■

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JOURNEY BEYOND TIME

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