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America's next mining boom

Canada's assault on free speech

Who wins from a wage-price spiral?

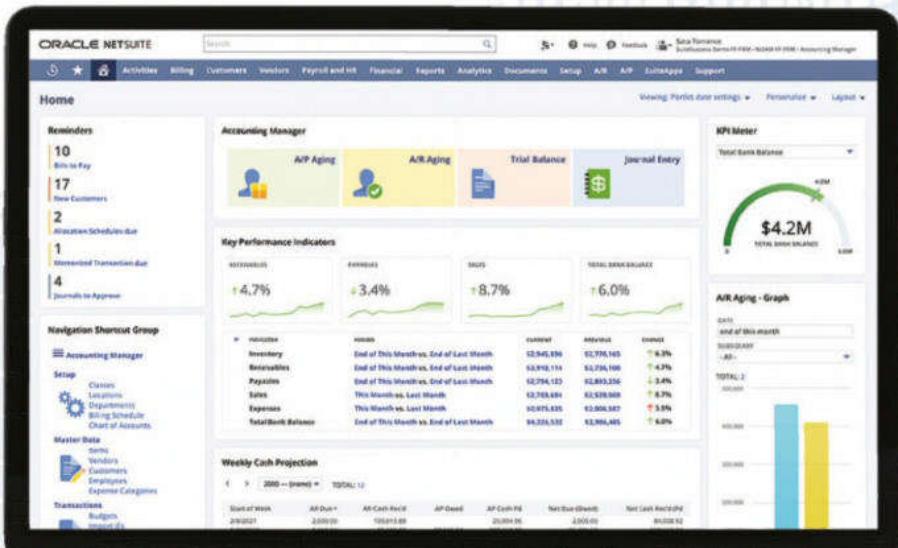
A Starship is born

FEBRUARY 19TH–25TH 2022

Putin's botched job

War or not, he has miscalculated





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On the cover

Whether he invades Ukraine or backs down, Russia's autocratic president has damaged his country: leader, page 7, and analysis, page 14. How the military build-up is monitored by open-source intelligence, page 17. Russia is building its own alternative to Western digital infrastructure. How far has it got? Page 48. A new history of sanctions has unsettling lessons for today: Free exchange, page 61

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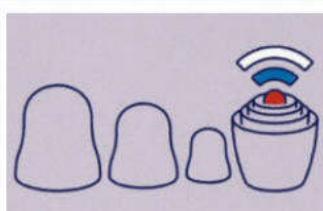
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 to take part in 'a severe contest between
 intelligence, which presses forward,
 and an unworthy, timid ignorance
 obstructing our progress.'

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Russia said it was pulling troops back from the border with Ukraine. Satellite footage showed it was hauling some back while pushing others forward. The White House warned that a Russian invasion of Ukraine was still on the cards. Vladimir Putin said diplomacy should continue. Russia's tame parliament passed a bill urging Mr Putin to recognise two breakaway statelets in eastern Ukraine. Since these statelets claim big chunks of Ukraine they do not control, this would give Mr Putin a pretext for war. He said he would not sign the bill yet. The Kremlin insisted, absurdly, that Ukraine was committing genocide against Russian-speakers. Hackers attacked Ukrainian banks and the defence ministry.

France, its European allies and Canada said they would withdraw their troops from **Mali**. They were protecting the capital from jihadists, but fell out with the government after two coups. Mali's ruling junta recently expelled the French ambassador and has invited Russian mercenaries into the country.

Valérie Pécresse, the centre-right presidential candidate of the Republicans in **France**, tried to relaunch her stalling campaign. But her big speech fell flat.

The EU's highest court ruled that the European Commission can withhold subsidies from countries that violate the rule of law. **Poland** offered to improve its behaviour. **Hungary** did not.

Britain's **Prince Andrew** reached an out-of-court settle-

ment with Virginia Giuffre, who had claimed he sexually assaulted her when she was 17. Queen Elizabeth's third child is unlikely ever to return to public duties.

The body that represents the interests of most of **London's** police officers said it had "no faith" in Sadiq Khan, the city's mayor, after his sacking of Cressida Dick as police commissioner. Botched handlings of peaceful protests, a failure to grapple with abuses by cops and a fiasco in investigating lockdown-breaching parties at the heart of government had made her position untenable.

The EU announced a €150bn (\$170bn) fund to invest in **African infrastructure**. The money is intended not only to promote development in Africa but also to offer an alternative to China's Belt and Road Initiative, which has funded roads, ports and railways across the continent.

Ethiopia lifted a state of emergency under which the security forces detained without charge thousands of people from the Tigrayan minority group. This may mean the government is preparing to start talks to end a conflict with rebels from Tigray.

France's foreign minister said an agreement restraining **Iran's** nuclear activities could be revived within days. The deal had largely collapsed in 2018 when Donald Trump pulled America out of it.

Naftali Bennett made the first visit by an **Israeli** prime minister to **Bahrain**, amid a thaw in relations between the Jewish state and Arab countries.

An illiberal Liberal

Justin Trudeau, Canada's Liberal prime minister, invoked a **never-used emergency law** to deal with protests against vaccine mandates. Critics said the government already has ample powers to stop people from blocking roads. Liberal lawmakers also mulled a bill to

allow individuals to file complaints against people they think are about to say something hateful.

Juan Orlando Hernández, an ex-president of **Honduras**, was arrested two weeks after leaving office. The United States has requested his extradition on drug charges. He is alleged to have said he would "stuff drugs up the gringos' noses". He denies all allegations.

Jair Bolsonaro, **Brazil's** populist president, met Vladimir Putin in Moscow. The trip was organised before the crisis over Ukraine. America first tried to dissuade him from going, then urged him to stress democratic principles in talks with Mr Putin. Instead, Mr Bolsonaro declared: "We are in solidarity with Russia."

More than a month's worth of rain fell in a day in **Petrópolis**, causing flooding and landslides that killed around 100 people. The Brazilian town is known for its links to the former monarchy, which kept its summer palace there.

New daily cases of covid, driven by the **Omicron variant**, surged to a record peak in South Korea. New Zealand and Singapore also reported record increases and cases are soaring in Malaysia and Indonesia. Japan posted its highest daily death toll. But infections appear to have ebbed in some parts of Asia, including India.

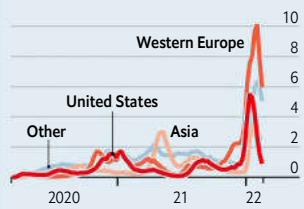
In **Hong Kong** Carrie Lam, the city's leader, said Omicron had "overwhelmed" the health-care system. This is despite a months-long zero-covid policy. Xi Jinping, China's president, ordered Hong Kong to "mobilise all possible forces and resources" to curtail cases.

The brother of Qandeel Baloch, a **Pakistani** social-media celebrity, was acquitted of her murder by an appeals court. He had confessed to the killing, saying her mildly suggestive videos brought shame on his family, and been sentenced to life imprisonment in 2019. The

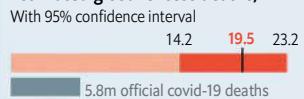
Coronavirus data

To 6am GMT February 17th 2022

Weekly confirmed cases by area, m



Estimated global excess deaths, m



Vaccine doses given per 100 people

By country-income group



Sources: Johns Hopkins University CSSE; Our World in Data; UN; World Bank; The Economist's excess-deaths model

→ For our latest coverage please visit economist.com/coronavirus

appeals court gave no reason for reversing his conviction.

Families of victims of the **Sandy Hook** massacre settled their case against Remington, the maker of the semi-automatic rifle used by the killer. The company agreed to pay out \$73m. In 2012 a young gunman opened fire at the school in Connecticut, murdering 20 small children and six adults. Gunmakers are not normally liable for what customers do with their products, but the families argued that Remington's marketing violated Connecticut's consumer-protection law.

No jab, no job

New York sacked more than 1,400 public-sector employees who refused to get vaccinated. The vast majority worked in the education department. Thousands of workers rushed to prove they had been jabbed before a deadline. Thousands more have sought an exemption from the vaccine.

Stockmarkets remained jittery amid the possibility of a Russian invasion of Ukraine. The S&P 500 dropped by almost 2% in a day and the Nasdaq by almost 5% over two days as America warned that a Russian invasion was imminent. The disquiet spread to European markets, where share prices of airlines, which would see flight schedules disrupted by no-fly conflict zones over eastern Europe, were hit particularly hard. Trading seesawed in reaction to the latest diplomatic moves.

Russia's belligerence also caused a spike in **oil prices**. A barrel of Brent crude hit close to \$97 a barrel, the highest in seven years. Energy markets are hypersensitive to any disruption in oil-and-gas flows from Russia. In America the White House said it was open to the idea of suspending the fuel tax on petrol until next year. With annual consumer-price inflation in America now at 7.5% the Democrats are looking at myriad ways to ease spiralling household costs.

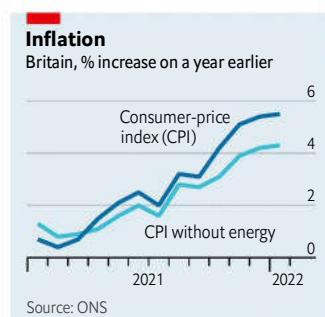
Investors were also on high alert for signs of the Federal Reserve quickening the pace of **interest-rate rises**. The minutes of the Fed's latest meeting showed it discussing a faster timetable. Goldman Sachs forecast that it will raise rates seven times this year.

Russia's central bank increased interest rates for the eighth consecutive time, lifting its key rate from 8.5% to 9.5%. Annual inflation is running at close to 9%. The rouble has weakened as markets weigh the effect of crippling sanctions if Russia invades Ukraine. The Bank of Russia says more rate rises are possible over coming months.

The lifting of a covid-19 state of emergency in September and resulting surge in consumer spending helped **Japan's economy** expand by 1.3% in the last three months of 2021 compared with the previous quarter, when it had shrunk by 0.7%. Japanese GDP grew by

1.7% for the whole of 2021. New restrictions, however, came into force at the start of this year with the outbreak of the Omicron variant.

Falling food prices, notably for pork, lay behind a drop in **China's** official consumer-inflation rate to 0.9% in January, year on year. Manufacturing costs also eased. The producer-price index rose by 9.1%. That was down from 10.3% in December, helped by a softening of coal and steel prices.



Britain's annual rate of **inflation** hit a new 30-year high, as consumer prices rose by 5.5% in the 12 months to January. Inflation is expected to rise to 7% in April when the regulator's price cap on energy tariffs increases. As in other countries, household-energy costs are soaring. Electricity bills rose by 19% in the year to January and gas bills by 28%.

A home from home

Airbnb reported record revenues for 2021, as pandemic restrictions eased. Although there were signs of its renters returning to cities, growth was stronger in bookings for overnight stays in non-urban areas. Airbnb's users are also staying in their rented abodes for longer. Long-term stays of 28 nights or more are the company's fastest-growing category by trip length, now accounting for a fifth of nights booked. This year has seen a surge of interest in summer travel.

Flutterwave raised \$250m in a round of fundraising, bringing its estimated value to \$3bn and making it Africa's most valuable startup. The fintech firm, based in Lagos but with headquarters in San Francisco, enables cross-border payments among businesses across Africa and wants to expand into the Middle East and Latin America.

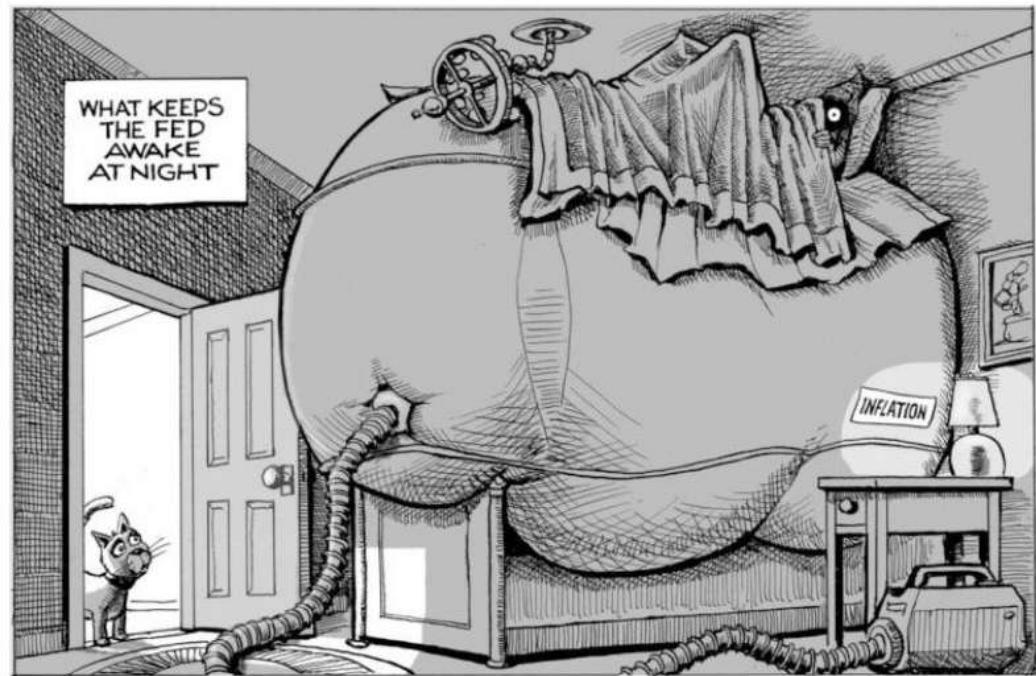
Another takeover was announced in the chip industry, as **Intel** agreed to pay \$5.4bn for **Tower Semiconductors**, an Israeli "foundry" company that makes chips and circuit boards for other firms, including Panasonic and Samsung, without designing

them. Intel is expanding its foundry business amid a global shortage of chips as part of a turnaround plan, which includes investing \$20bn in a new hub in Ohio.

Texas launched a lawsuit against Meta, **Facebook's** parent company, claiming that the use of facial-recognition on the social network resulted in "tens of millions of violations" of the state's privacy law. Meta pulled its facial-recognition system last year as the threat to its business from such lawsuits increased. Texas is seeking billions of dollars from Meta.

Market spirits

India's securities and exchange regulator fined a former head of the **Mumbai bourse** \$400,000 for sharing sensitive information with her guru. The regulator noted that Chitra Ramkrishna's unnamed yogi lived in the Himalayas, and that she had described him as having "spiritual powers" that did not require "physical co-ordinates and would manifest at will". That didn't stop her from allegedly emailing the mystical mountain man about confidential business plans. The regulator said she had been a "puppet in his hands".



Putin's botched job

Whether he invades Ukraine or backs down, Russia's autocratic president has harmed his country

THE NEWS, for a moment, seemed encouraging. In a stage-managed television appearance on February 14th Vladimir Putin grunted a terse "good" to the proposal of his foreign minister that, despite warnings by the West of an imminent invasion of Ukraine, diplomacy should continue. A day later Russia's defence ministry said that some of the 180,000 or so troops it has deployed at its borders with Ukraine are to be withdrawn to barracks, having completed their military exercises which, it has always maintained, is why they were there in the first place.

Officials, and the markets, breathed a small sigh of relief. Alas, open-source intelligence soon showed that, although a few units were moving, many more were preparing to fight (see Briefing). With the candour that has wrong-footed Mr Putin, many Western security officials accused him of lying, redoubling their warnings of a looming Russian invasion. Even if the troops pull back, this crisis is not yet over. And, whatever happens, war or no war, Mr Putin has damaged his country by engineering it.

Plenty of Western observers would dispute that judgment. Without firing a shot, they point out, Mr Putin has made himself the centre of global attention, proving that Russia matters once more. He has destabilised Ukraine and impressed on everyone that its future is his business. He may yet win concessions from NATO for avoiding war. And at home he has underlined his statesmanship and distracted from economic hardship and the repression of opposition figures such as Alexei Navalny, who was this week once again hauled before a judge.

Yet these gains are tactical. Even as Mr Putin has won them, in a longer-lasting and more strategic sense he has lost ground.

For one thing, although all eyes are on Mr Putin, he has galvanised his opponents. Led by Joe Biden, who once called Mr Putin "a killer" and surely loathes the man who tried to deny him the presidency, the West has agreed on a tougher package of threatened sanctions than in 2014, when Russia annexed Crimea. NATO, dismissed in 2019 by the French president as suffering "brain death", has found renewed purpose in protecting its Russia-facing flanks. Having always preferred to keep their distance, Sweden and Finland may even join the alliance. Germany, having unwisely backed the new Nord Stream 2 pipeline, has accepted that Russian gas is a liability it must deal with and that an invasion would kill off the project. If Mr Putin imagined that his threats would be met with Western mush, he has been disabused.

Ukraine has indeed suffered. But the crisis has also affirmed the popular sense among Ukrainians that their destiny lies with the West. True, Mr Putin has extracted assurances that Ukraine is not about to join NATO—but these were cheap, because membership was always remote. What matters more is that, having been neglected in recent years, Ukraine is enjoying the West's unprecedented diplomatic and military support. Those bonds, forged in crisis, will not suddenly dissolve if Russian forces pull back. Again, it is the opposite of what Mr Putin wanted.

It is also true that Mr Putin has put Europe's security on the agenda, including discussions over missiles and military exer-

cises. But such talks would be in everyone's interest, because they reduce the danger of conflict. If win-win negotiations count as victories for Mr Putin, let there be more of them.

Mr Putin's most intriguing loss is at home. Russia has attempted to build a fortress economy. It has boosted its reserves and reduced the share of them held in dollars. It has curtailed firms' dependency on foreign capital and worked hard to build up its "tech stack" (everything from chips to apps to the network itself: see Business section). It has also cosied up to China in the hope of finding an alternative buyer for the hydrocarbons that are still its principal source of foreign exchange.

Although these actions have lessened the potential harm from Western sanctions, they have not eliminated it. The EU still takes 27% of all Russian exports; China about half that. The Power of Siberia gas pipeline that runs towards China will, when completed in 2025, carry only a fifth of what now goes to Europe. In the event of a serious conflict, sanctions through the SWIFT banking-transactions network or on big Russian banks would cut off the financial system. Huawei-style import restrictions would cause huge difficulties for Russia's tech firms.

Mr Putin can either live with this interdependency or turn further towards China. Yet that would condemn Russia to being the junior partner of an unsentimental regime which sees it as a

diplomatic sidekick and a backward source of cheap commodities. That is a yoke Mr Putin would chafe under.

This alliance of autocrats would also have a psychological cost inside Russia (see Briefing). It would demonstrate Mr Putin's dependence on the *siloviki*, the security bosses who see in Ukraine's democracy and deepening ties with the West a threat to their own ability to control and loot Russia. It would be a further sign to the liberal capitalists and technocrats who are the other pillar of the Russian state that they had lost. More of the best and brightest would leave; others would give up. Stagnation and resentment would build into opposition likely to be met with heightened brutality.

And what if Mr Putin, mindful of all this, were to invade? That may yet be the terrible outcome of this crisis, as each side seeks to outmanoeuvre the other. Just this week the Russian State Duma urged Mr Putin to recognise the self-declared "republics" in the Donbas, which claim big chunks of Ukrainian territory they do not currently control—adding one more trigger that Mr Putin can pull whenever he chooses.

As well as devastating Ukraine, war would do far greater harm to Russia than the threat of war. The West would be more galvanised and more determined to turn its back on Russian gas; Ukraine would become a running sore, bleeding Russia of money and men; and Mr Putin would be a pariah. Russia itself would be blighted, in the short run by sanctions and later by still deeper autarky and repression.

Mr Putin has painted himself into a corner. He could lash out. Yet a retreat now, with his ambitions thwarted, may only lead to an attack later. By standing up to the threat he poses, the West has the best chance of deterring that fateful choice. ■



Inflation

The chicken and the peg

Workers have the most to lose from a wage-price spiral

THE WORLD economy keeps producing nasty inflation surprises. In January consumer prices grew by more than expected in America, Britain and the euro zone, and America's rate of annual producer-price inflation stayed close to 10%. Making matters worse, fears that Russia would invade Ukraine sent the oil price to over \$96 a barrel on February 14th, its highest since 2014. On both sides of the Atlantic financial markets have rapidly priced in more monetary tightening in 2022, as some central bankers have begun to worry in public that they face a test of their credibility.

Monetary policymakers are scouring labour markets for signs that high inflation is becoming baked into workers' wage demands, indicating the start of a wage-price spiral. They are in an awkward spot, because the idea that wages are rising too fast is politically toxic. In America annual wage growth of 5.7% is plainly inconsistent with the Federal Reserve's 2% inflation target. Yet President Joe Biden is celebrating rising pay while left-wing Democrats blame price rises on corporate greed. There is plenty of fuss elsewhere, too. Britain's government has said it does not support a call by Andrew Bailey, the governor of the Bank of England, for workers to rein in their pay demands. Christine Lagarde, head of the European Central Bank, says she hopes to see wages rise, even as her colleagues warn of the dangers of excessive pay growth.

In the popular imagination workers are often canny first movers in a wage-price spiral, rather than its victims. Rising pay pushes up costs for firms, which then increase prices to protect profits. In part this is based on the experience of the late 1960s and 1970s, when union bosses negotiated above-inflation pay increases for their members. In 1974, in Germany's infamous *Kluncker-Runde*, Heinz Kluncker, a combative unionist, won public-sector workers a budget-busting 11% pay rise.

In fact, high inflation often hurts workers. Over the past year

inflation has been higher than wage growth in every G7 country, despite widespread labour shortages. Unions are much less powerful today than they were in the 1970s and scholars typically find that prices lead wages, rather than vice versa. Even in the 1970s many workers suffered from the wage-price spiral. In that decade American wages grew only half as fast as workers' productivity, just as today wages are yet to catch up with such gains.

In Europe high inflation is mostly down to expensive energy. But in America it is the consequence of a tsunami of spending, the result of stimulus cheques and low interest rates, overwhelming the economy's capacity to expand production. Firms have raised prices not to pass on costs but to curb demand, sending profit margins soaring (see Finance & economics section).



As consumer-price inflation has risen to 7.5%, it is capital, not labour, which has had the upper hand, feeding claims that firms are profiteering. The outcome is perverse, not least because Jerome Powell, the Fed's chairman, has often said that the main justification for stimulus was to help workers and to reduce inequality.

It is pointless, however, to attempt to bully firms or workers into resisting market forces. Just ask Japan, where the government has for years tried to deal with below-target inflation by badgering firms to raise wages, without success. The correct response to an economy that is too hot or too cold is to adjust macroeconomic policy, not to interfere with wage- and price-setting.

It is important that the Fed raises interest rates quickly—and that European policymakers stay vigilant. The longer inflation is too high, the more painful it could be to bring it back down. The wage-price spirals of the 1970s were contained only after tight monetary policy induced a global downturn in which American unemployment peaked at nearly 11%. If central bankers once again have to induce recessions to restore their credibility on inflation, workers will pay the price for that, too. ■

Free speech

No, Canada

Justin Trudeau has handled vaccine protests atrociously

CANADA'S REPUTATION for impeccable politeness is taking a knock (see Americas section). In recent weeks crowds of lorry-drivers and other Canadians protesting against covid-19 restrictions have blocked public highways and camped outside parliament in Ottawa. Many wave placards reading "Fuck Trudeau", referring to their youthful prime minister, though the expletive often appears with a maple leaf as an asterisk. Nastier messages have cropped up, too. One or two protesters carried flags emblazoned with swastikas, perhaps to suggest, absurdly, that Canada's covid restrictions are akin to Nazism.

The freedom convoy, as the hundreds of lorry-drivers call

themselves, was sparked by the introduction of a covid vaccine mandate in January. This requires all truckers who enter Canada from the United States, as thousands of Canadian drivers do every day, either to be jabbed or to endure a two-week quarantine.

Although most Canadians think such rules are reasonable, the protesters have struck a chord with some. A vocal minority are fed up with burdensome pandemic restrictions. Many of the young, who have suffered job losses because of lockdowns designed to protect their elders, are especially grumpy. The truckers have received both verbal and monetary support from abroad. Donald Trump, Fox News and a cacophony of populists ►

▶ praise them. Well-wishers have crowdfunded their cause.

Faced with this ruckus, Canada's government should have drawn a clear distinction between harmful acts and obnoxious or foolish words. Peaceful protests are fine; blocking crucial highways so that others cannot go about their business is not. Some of the truckers shut down a bridge over which 25% of Canada's goods trade with the United States passes. The police took six days to remove them. Given that the protest blocked an estimated \$350m of trade each day, this was needlessly slow.

The truckers are wrong about the vaccine mandate at the border. Such rules are a reasonable precaution to slow the spread of a deadly and highly infectious disease. Canada's government is right to enforce them. But the truckers have every right to express their disagreement. A wise government would listen to them and respond politely, taking their complaints seriously and patiently explaining why covid restrictions, though onerous, are necessary for the time being.

Justin Trudeau has done the opposite. First, he refused to meet them. Then, seizing on the fact that a few of the protesters appear to be bigots, he attempted to put all of them outside the boundaries of reasonable debate by condemning "the anti-Semitism, Islamophobia, anti-black racism, homophobia and transphobia that we've seen on display in Ottawa over the past number of days". The police already have ample powers to quell disorder. Yet on February 14th Mr Trudeau invoked emergency powers under a 34-year-old law that had never been used before. It

would allow the government to declare protests illegal and freeze the bank accounts of protesters without a court order.

Meanwhile, his Liberal government is mulling two worrying changes to Canada's already illiberal hate-speech laws. One would allow Canada's Human Rights Tribunal to impose large fines on those it deems to have used hateful language. It has in the past taken an expansive view of what counts as hateful, and defendants would enjoy fewer safeguards than they do under criminal law. The other proposed change would let individuals file legal complaints against people pre-emptively, if they fear that they may be about to say something hateful.

These are both terrible ideas. *The Economist* has long argued that free speech should be restricted only under exceptional circumstances, such as when the speaker intends to incite physical violence. Canada's laws are already more restrictive than this, and the country's illiberal left would like them to be still more so. Academics have been suspended or disciplined for writing that Canada is "not racist" or for holding gender-critical views. The proposed amendments would give illiberal activists legal tools to harass conservative religious folk, traditional feminists and many more besides, simply for holding views that the left finds offensive. Worse, it would allow some to be gagged before they speak.

Canada is not yet a rancorous or bitterly divided society. If Mr Trudeau wants to keep it that way, he should stop trying to police Canadians' thoughts. ■

British politics

Factional dissipation

The malaise at the heart of the Conservatives

"YOU MAY only have lent us your vote. You may not think of yourself as a natural Tory." In his victory speech after the general election in 2019 Boris Johnson acknowledged that he owed his majority to a combination of first-time and long-term Conservative voters, brought together by a desire to end the battles over Brexit and fear of a far-left Labour government under Jeremy Corbyn. Mr Johnson offered unity not just to a divided country, but also to his own divided party, riven by civil war after the referendum. It is now clear that this unity was a façade.

The past few months have been torrid for the prime minister. First he tried a dirty parliamentary manoeuvre to protect Owen Paterson, an old friend and fellow MP, from punishment for his breaches of lobbying rules. Mr Johnson was then revealed to have attended a series of parties during covid-19 lockdowns. Police are now investigating; on February 11th his office confirmed that he was among those required to respond to official questioning. Tory MPs are struggling to muster the courage to call a vote of no confidence. They should: a disregard for the truth and a lack of application make Mr Johnson a poor prime minister. But he is a symptom of what ails the Conservative Party, not the cause. If Britain is to have the government it needs, getting rid of him will not be enough.

After 12 years in power, Conservative MPs have become careless of the law and addicted to protest and rebellion (see Britain section). Instead of governing, they posture and grandstand.

Their party used to have a reputation for weaving disparate ideological strands together in order to gain and wield power. Today what was once a broad church is bedevilled by schisms.

The Conservative scofflaws go beyond breaching the covid lockdowns that they themselves imposed. After fighting for a diamond-hard Brexit, the winners took victory as a mandate to ignore rules big and small. In 2019 Mr Johnson suspended Parliament to avoid inconvenient scrutiny of his Brexit plans; the courts concluded this was unlawful. Under his leadership the

ministerial code of conduct has become discretionary. His government's attitude towards the Northern Ireland protocol, a part of the exit deal it struck with the EU that it now finds troublesome, is to threaten to tear it up.

Rather than making peace after the EU referendum, the Brexiteers purged Remainers from government. That left it needlessly short of talent. Britain's first cabinet in decades to be independent of the EU has the sheen of newness. But underneath its Brexit surface, it is shopworn: entitled, undisciplined and complacent. It lacks fresh thinking and the fear of returning to impotent opposition. Even ministers indulge in the politics of gesture—threatening to defund the BBC for alleged breaches of impartiality rather than soberly reconsidering the licence fee; or proposing to send the Royal Navy to repel irregular migrants crossing the English Channel rather than co-operating with France to stop them setting off. ■



Just as the government sees office not as a responsibility but as a licence to do as it pleases, so Tory backbenchers lack discipline, loyalty and common purpose. A taste for rebellion is indulged by parliamentarians ranging from grandes (Theresa May, Mr Johnson's predecessor) to neophytes (an MP elected in December cast a vote against his own government's pandemic measures just two weeks later). The party has splintered into the sort of noisy infighting more familiar on the British left.

Although some rebellions have just cause, as in the vote against Mr Paterson, they mostly signal a failure of policymaking. On every important issue, from setting tax rates and encouraging regional development to combating climate change and containing covid, an alphabet soup of backbench clusters demand incompatible policies. Factions like the ultra-Brexit European Research Group and the anti-lockdown Covid Recovery Group act as an internal opposition; compromise in the ser-

vice of a functioning government is a lesser part of the job.

Governments everywhere are struggling with the effects of ageing populations and the pandemic's social, medical and financial aftershocks, even as the drums of war beat on Europe's eastern flank. For Britain, the rupture of Brexit poses an extra challenge—as well as some opportunities. A government with a 77-seat majority should be well-placed to benefit. But instead of picking a prime minister with the Conservative genius for welding together disparate parts, the party plumped for Mr Johnson, who wound them in duct tape.

A two-party political system requires competence from both sides. One reason the Conservatives gained that thumping majority in 2019 was the spectre of Mr Corbyn, who came close to destroying Labour. It is a tragedy for Britain that the Conservatives, who pride themselves on being the natural party of government, are now so poor at running the country. ■

Drug manufacturing

An injection of reality

To build a vaccine industry, Africa must embrace the private sector

THE GLOBAL vaccination drive has been both inspiring and depressing. Inspiring because a combination of ingenuity, private-sector endeavour and effective government action has led to 4.9bn people around the world receiving at least one jab in one of the largest mobilisations of medical resources in history. Depressing because 3bn people, mainly in poorer countries, have yet to receive a single shot and because the distribution of vaccines has been mired in autarky and bickering.

Of the world's regions, Africa has come out worst: it accounts for just 3.6% of global administered doses, partly because of hesitancy but mainly because it has struggled to get supplies and distribute them. Governments across the continent understandably want to escape from the back of the vaccine queue. Many of them, backed by supporters in the rich world, have focused on chastising pharmaceutical groups and arguing that intellectual property must be compulsorily licensed. That is a bad idea.

The pandemic has prompted a wave of investment in vaccines, which used to be shunned by some investors for being only intermittently profitable. Total global annual manufacturing capacity has risen from 5.7bn doses before the pandemic to 15.4bn, according to Bernstein, a financial firm, and based on current plans could reach 19bn. Capital spending at a panel of ten listed firms that make vaccines, among other things, is forecast to surge by 29% this year compared with 2019, according to Bloomberg data. This boom is welcome. But production sites are regional and therein lies a problem. In normal times vaccines are traded like any other medicine. In a pandemic, when contracts may be broken in the scramble for supplies, places with no factories may lose out.

Africa has 1.3bn people, 17% of the world's total, but less than 1% of its vaccine-making capacity. It is enjoying signs of growth. BioNTech, a pioneer in mRNA vaccines, plans a system of modular manufacturing in Africa (see Science & technology section), and Moderna, a competitor, may build plants there, too. The African Union wants to create five production hubs in the next de-

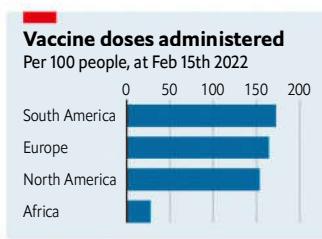
cade. Senegal's government is planning a \$200m covid-19 vaccine facility with the Pasteur Institute, a French non-profit agency. But these projects are unlikely to provide much capacity any time soon. For example, the first phase of the BioNTech project will supply only up to 60m doses a year.

Emerging economies are not doomed to be in a weak position. Together India and China have an annual capacity of over 3bn doses. To do better, African countries need to attract private capital that will boost output and ensure that vaccines reflect the latest global innovations, which are likely to have been created elsewhere. This is best provided by policies that accept the legitimacy of drug firms, intellectual property and the realities of the vaccine business.

What might these policies look like? Because the need for vaccines can be intermittent, a first step is to create dependable demand. Governments should guarantee to buy in bulk the products of new manufacturing plants for an extended period of, say, ten years. Western governments and non-profit organisations such as GAVI, a vaccine alliance, are keen to do more: they can help subsidise these commitments at scale.

A second step is efficient regulation to test and certify products. None of the continent's national regulators is considered "stringent" by the World Health Organisation, which means that drug firms have to seek approval in lots of countries, raising costs. A treaty to create a new African Medicines Agency, potentially licensing new formulations for the whole continent, has been ratified. It should become a reality.

Finally, African countries must respect intellectual-property rights. Today too much time is wasted discussing the evils of patents or creating local laws that let them be qualified or suspended. Yet if firms are obliged to surrender their innovations, they will invest less and provide less help in supplying much-needed manufacturing know-how to poorer countries. Covid has shown how invidious Africa's situation is: to escape it countries need to work with drug companies, not around them. ■



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Head of BIS Innovation Hub
Basel, Switzerland

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Peer pressure

I suspect you have not examined the evidence behind your statement that the quality-assurance system of scientific journals "generally works well" ("Handsome prints", February 5th). Peer review is the main assurance system for science journals, but remarkably, until about 40 years ago nobody had studied the process.

When studies did begin researchers found little or no evidence of effectiveness. They did find that peer review is slow, expensive, inefficient, poor at detecting errors or fraud, prone to bias and something of a lottery. It is also anti-innovation, in that truly original studies that win Nobel prizes are often rejected. We know too that journals are filled with statistical errors and studies where the conclusions are not supported by the methods and data. Drummond Rennie, one of the pioneers of peer-review research, summed up the evidence by saying, "If peer review were a drug it would not be allowed onto the market." Paradoxically peer review, which is at the heart of science, is faith-based, not evidence-based.

RICHARD SMITH
Former editor
British Medical Journal
London

A year after the coup

Thank you for reporting on the forgotten tragedy in Myanmar ("The enemy of my enemy", January 29th). Why have no Western countries formally recognised the country's parallel National Unity Government (NUG), formed by lawmakers who were deposed by the coup? In the current battle between authoritarianism and democracy, there is no more egregious example than Myanmar of where the former is failing dismally. Yet the West remains disgracefully hesitant. The NUG is imperfect and callow but it is also democratic, inclusive and decisively on the side of all Myanmar's people. Clear and brave recognition of its legitimacy would

send a strong message not just to the criminal Myanmar junta but to other bullies and tyrants globally.

RICHARD FOWLER
London

How to boost workers' pay

"All-consuming" (January 29th) defended the traditional focus of trustbusting on consumer welfare and discouraged attempts to broaden it to other areas, such as protecting workers. You were too hasty to discount the value of intervention in that area. There is growing empirical evidence that monopsony power over workers is very much a real phenomenon, significantly depressing their wages. For example, see Alan Manning's review of the literature in *Industrial and Labour Relations View* (June 2020). Indeed, evidence and theory are so well established by now that I can teach simple monopsony models in my introduction to economics class alongside monopoly models. Other forms of interventions, such as minimum wages, can help deal with monopsonies, and establishing clear criteria would not be easy. But antitrust law would be invaluable in correcting this market failure because of its focus on intervention.

PEDRO FRANCO DE CAMPOS
PINTO
Assistant professor
Musashi University
Tokyo

Marked for life

I wonder if any thought has gone into the consequences of a programme that aims to sequence the genomes of 200,000 babies ("Silver linings playbook", January 29th)? You highlighted the potential medical benefits that comes from an early diagnosis of rare diseases. What about the insurance implications? Such records identify a baby's predisposition to illness and would be a gold mine to insurance companies seeking to avoid future risk. When the babies become adults they may find they can't get insured or

must pay excessively high premiums on a range of policies from mortgages to travel.

The findings of such research may be treated as confidential. But once it became common practice insurers could ask a simple question: have you ever had your DNA checked? Failure to answer could mean a future claim is rejected, an unfair decision based on a medical issue that may not arise.

JOHN WALLS
Glasgow

Improving the Acropolis

Your article on Europe's historic monuments mentioned works carried out on the Acropolis ("Lockdown knock-down", January 29th). All projects carried out on the Acropolis are in full compliance with national law and international conventions. They come under the scientific supervision and responsibility of the Committee for the Conservation of the Acropolis Monuments. The bits that the ministry of culture is responsible for are evaluated by the international scientific community; members of staff are internationally considered to be among the most experienced and capable experts in monument restoration. The recent works on the Acropolis were the subject of an international conference in November 2021, during which the participants were able to inspect them in person. The conference confirmed that the works were carried out with absolute respect for the monuments and all other archaeological remains.

The slope elevator (unique in its class), the hydraulic works that regulate the run-off of rainwater and the new visitor pathways have finally made the Acropolis accessible and safe for all people. We have eliminated the risk of accidents. The view of the monuments is unobstructed. You placed disproportionate emphasis on the opposition's criticism of the paving material of the Acropolis routes. In fact, the works in question are primarily associated with the

repaving of the previous existing routes, with materials that are similar to the ones used in the restoration of the monuments themselves.

PANAGIOTIS PANAGOPOULOS
Press office
Ministry of Culture and Sports
Athens

Writing skills

I am pleased that vellum is still being made in Milton Keynes ("Going, going, not gone", January 22nd). The survival of the craft in Britain hung in the balance when Parliament decided to go high-tech setting down its acts. Instead of printing or writing on calf skin, as had been the practice for centuries, legislation was to be set for posterity on acid-free paper. The matter was debated in the Commons. Vellum's durability was praised, as it was still possible to view the death warrant for Charles I written on the parchment. Not wanting to support the industry the government countered: "In the event of a future royal death warrant or other matter, we might exceptionally violate the call of the leader of the opposition and import the material from France."

GERALD SMITH
Wellington, New Zealand

Defending Ottawa

Canada is another example of a country moving its capital city (The Economist explains, January 24th). Ottawa, originally known as Bytown, became the capital after that status rotated among Kingston, Montreal, Toronto and Quebec City. This was in part a geographic compromise, but also to provide defence from a potentially powerful and aggressive neighbour, the United States.

PETER SEABY
Brampton, Canada



A grim look out

MOSCOW

Whatever Vladimir Putin does next, his willingness to threaten war has changed the nature of his regime irreversibly and to Russia's disadvantage

“THE BOSS never works to someone else’s timetable,” Margarita Simonyan, editor-in-chief of the propagandist television network RT, posted to a channel on Telegram, an encrypted messaging service on February 15th. She was responding to Western media reports that America expected Vladimir Putin, Russia’s president, to launch an invasion of Ukraine at 04:00 Moscow time the following morning. Ms Simonyan delighted in predicting that they would be wrong footed.

“We showed everyone what we wanted to show,” she continued, suggesting that the conclusions spooks, think-tankers, academics and journalists are drawing from the unprecedented availability of high-resolution satellite images of Russia’s build-up were open to careful stage management (see subsequent story). At the end of all the bragging, though, came the threat: Russian tanks could go back to the border as fast as they might be leaving it.

In “The 48 Laws of Power”, a bestselling self-help book by Robert Greene reported

to have a following among convicts, Law 17 encourages the reader to “Keep others in suspended terror: Cultivate an air of unpredictability”. It is a thuggish lesson in which Mr Putin has needed no tuition since his formative years in the KGB.

On February 15th, the day after Sergei Lavrov, Russia’s foreign minister, publicly told Mr Putin there was still scope for negotiations, in particular arms-control negotiations, with the West, Russia’s defence ministry announced it would pull back some troops from the Ukrainian border. Later that day the State Duma, Russia’s Kremlin-controlled parliament, called on the president to recognise the “people’s republics” of Donetsk and Luhansk, Russian-backed self-declared statelets in the Donbas region of Ukraine.

Some thought this was Mr Putin’s way

of declaring victory and backing down. Though the Duma’s motion had been introduced by the rump Communist Party, it had been overwhelmingly endorsed by representatives of Mr Putin’s United Russia, parliamentarians not noted for independence of spirit. By recognising the statelets—and thus their claims to the parts of the Ukrainian oblasts of Donetsk and Luhansk that they do not control (see map)—Russia would establish a formal territorial disagreement on which to pin its dispute with Ukraine. It would also in effect have annexed more of its territory; in practice it already controls the statelets, but now they would be allies where Russia could garrison its forces quite blatantly as a “defence” against purported, perhaps invented, aggressions. On February 17th Russian media reported fighting on the contact line in Donbas. Mr Putin’s flack said Ukraine’s “provocative actions” had intensified.

But at an afternoon press conference with the visiting German chancellor, Olaf Scholz, Mr Putin indicated that although he would take the parliamentary vote into account he was not minded to follow through on it—at least not yet. Though he continues to hold, ridiculously, that Ukraine is prosecuting “genocide” in Donbas, for now, he says, the best way of resolving that problem is for Ukraine to abide by the “Minsk accords” of 2014–15, which would require it to grant the rebellious statelets an as-yet-undefined autonomy within Uk- ►►

→ Also in this section

17 Watching the border

Russia—which many fear would make Ukraine very hard to govern as a unitary state. “We very much trust our partners will put the appropriate influence on the Kyiv government,” Mr Putin told Mr Scholz and the assembled journalists.

As to the mooted withdrawals, Western governments say they see no sign of them. Indeed, some Western security sources, convinced that Mr Putin underestimates the extent of Ukrainian resistance, continue to see a large-scale invasion as highly likely. And so the suspense continues.

More divisions than the pope

With what America says are now 150,000 troops in striking distance of the border between Russia and Ukraine and a further 30,000 in Belarus, Mr Putin enjoys what the wonks of war call escalation dominance: he can attack, he can pull back or, for a while at least, he can stay put, commanding the world’s attention. President Joe Biden, who called him a killer, has been on the phone several times. European leaders who previously refused to discuss security with him, have, in the words of Ms Simonyan, “formed a queue to admire Moscow in February”. Russia’s complaints about NATO missiles stationed in Poland and elsewhere are getting a hearing.

But while his perch in the catbird seat increases the unpredictability in the short term, it has also created a new and irreversible fact about the world: Mr Putin’s Russia has become the sort of country that might launch a large-scale war of aggression.

As many in Ukraine, not to mention Chechnya, Georgia and Syria, will bear witness, Mr Putin is by no means a pacifist. But for most of his time in office the idea of Russia engaging in a major war with a foreign power has been one its public and elites could safely ignore. In 2014 the annexation of Crimea was bloodless and the fomenting of conflict in Donbas under-

aken by deniable “little green men”. This year, though, he has looked set to wage an all-out war. And whatever happens over the next few days or weeks, that readiness will be a new reality; as long as Mr Putin remains in power, the possibility of a war launched to further that power will be a condition of his rule. That willingness is not just a frightening new reality for Ukraine and, indeed, NATO. It also terrifies many in Russia’s elite.

In the last decades of the Soviet Union, conventional war with the West was seen as unlikely; the leaders who followed Stalin remembered what the previous war had been like. In the post-Soviet era the whole idea stopped making any sense. Russians craved a Western lifestyle and believed that the only thing that had been standing between them and Western supermarkets had been the Communist Party. Democratic reforms were carried out in the name of the market economy and convergence with the West. When Mr Putin came to power in 2000, he was seen by Russians with money as a guarantor of consumerism and foreign travel. He enjoyed the support of the burgeoning middle class and the West alike.

From the late 2000s on, confrontation with the West, focused particularly on its deepening relationships with Russia’s formerly Soviet neighbours, became central to Mr Putin’s worldview and the ideology of his regime. In February 2007, at the Munich security conference, he made a combative speech challenging America’s dominance and asserting Russia’s resurgence. The following year, his army moved into Georgia, ostensibly to defend two enclaves, Abkhazia and South Ossetia, which had asked for Russian protection; the underlying reason was to warn the country off its moves towards joining NATO.

But this antagonism has not, for the most part, been a practical problem for the

Russian people. Those well enough off to afford it continued to enjoy the fruits of post-Soviet openness. They travelled abroad to such an extent that, before the pandemic, they had become the world’s sixth-largest spenders on international tourism. They imported luxuries, enjoyed a newly cosmopolitan Moscow and bought second homes in Europe ranging from bungalows in Bulgaria to palaces on the Côte d’Azur. The middle class grew accustomed to an open internet, comfortable infrastructure and ride-sharing apps.

The prospect of a bloody war—perhaps even an occupation—and subsequent pariah-dom puts all this in doubt. In recent conversations with *The Economist* businesspeople, diplomats, economists and government officials in Moscow revealed that they could barely fathom the ruinous consequences a war would bring to Russia—consequences which would go far beyond specific sanctions. Imports of high-tech desiderata would disappear (see Business section), firms would lose their value, access to much of the rest of the world would become fraught, any veneer of respectability would be stripped away.

Push comes to shove

This Russian elite has long believed that such dire consequences made a war of choice unthinkable for a calculating man like Mr Putin. They continue to treat an invasion as vastly more unlikely than Western governments seem to think it. But being forced to concede that it has edged into the realm of the thinkable has left them deeply unnerved.

Those speaking against the war in this way will rarely agree to do so publicly, and they will certainly not be consulted on the matter by Mr Putin. But their voices matter. Some are professionals and technocrats who have kept the economy on an even keel despite rampant corruption and rent-





The way it looks in Ukraine

seeking; they digitised and modernised the financial system, they revamped and modernised cities. Despite the sanctions imposed on Russia in 2014 after its annexation of Crimea and aggression against Ukraine they have reduced debt to just 20% of GDP, brought down inflation, built up \$620bn of reserves and constructed a “fortress economy”. Others are businesspeople who managed to survive and prosper despite a worsening economic climate and the predations of Mr Putin’s cronies. Many of these men and women are looking for escape routes.

Over the years most in the elite have made political and moral compromises. Some did not like the suppression of political freedom, but they did not object to it either. Participating in rent redistribution while privately grumbling about the regime seemed more sensible and profitable. And then there are high-level officials and Mr Putin’s cronies who have accumulated vast wealth in Russia and parked it in Swiss bank accounts and the London property market. If Mr Putin takes Russia to war, such people stand to lose much, even all, of what they have accumulated.

Their borderline panic is not an unlooked-for side-effect of Mr Putin’s belligerence; it is part of the point of it. Mr Putin’s willingness to shed blood is a threat not just to Ukraine. It is also a threat he wants taken on board at home. Where once his system worked by co-opting the elites, it is now based on their fear.

Whether it comes about or not, the threat of war strengthens the power Russia’s securocrats, the *siloviki*, hold over its other elites. Any increased difficulty in moving, or moving assets, abroad makes their power harder to shrug off. Heightened tensions allow them to clamp down with even less justification than usual on

any attitudes that can be deemed unpatriotic—such as criticisms of military spending or a plummeting exchange rate. With the country on a war footing it becomes easier to trip into treason. Part of the elite’s sense of increasing threat is that the worse things get for the country, the firmer the grip of the *siloviki* will become.

Their position is articulated by Nikolai Patrushev, who as head of the country’s security council has assumed the role of the chief ideologue among the former KGB men who dominate the Russian state. Russia is locked in a civilisational and geopolitical fight for its life, he argues. The West is trying to destroy it by “aggressively advancing neoliberal values that contradict our worldview”.

The unsustainable truth

The *siloviki* have been in the ascendant for some time. Their power went up a notch after the annexation of Crimea in 2014. Their sense of success bolstered, as one senior government official admits, by the elite’s efforts to keep Russia’s show on the road, their control increased further in the authoritarian turn the country took after the attempted assassination of Alexei Navalny, de facto leader of the opposition, in 2020. As any mayor or governor can testify, government meetings are attended by a prosecutor and a representative of the security services. This is increasingly thwarting efforts to get things done.

In 2007, at the start of his national political career, Mr Navalny framed his aspirations in terms of “a final battle between good and neutrality”. Ever since he has argued that it is the unwillingness of a conformist, compromised elite to join in that battle which has ensured the regime’s stability. The fact that repression is increasingly aimed at that elite itself is strength-

ening his point. So is the international response to the threats towards Ukraine. By treating a Russian invasion as a likely outcome and threatening serious reprisals the West has sent a powerful signal to the Russian elite.

In the past, many could plead ignorance or innocence. It was not they who shot down a civilian airliner over Ukraine in 2014, who beat up protesters, who poisoned Mr Navalny, who shut down human rights organisations. Faced with the prospect of Russia’s aggression leading to deaths by the thousand and national ignominy, though, they can no longer avoid responsibility. For some the risks of being held accountable for Mr Putin’s actions in case of a war now outweigh the benefits of serving the system. The elite’s “neutrality” has become harder to sustain—even as the rising power of the *siloviki* puts more pressure on them to do so.

Mr Putin’s gamble on creating a plausible threat of war without sliding into battle might bring him some short-lived gains. If he were to withdraw his troops in earnest, he might yet come out seemingly ahead. As Mr Navalny has observed, reaping rewards for not carrying through on threats is a protection-racketeer’s tactic in which Mr Putin has form. Meanwhile a focus on the international allows internal matters to go relatively unnoticed. Few outside Russia have paid attention to Mr Navalny being put on trial again.

But there has been a marked escalation in what he has had to threaten in order to get paid off with external acquiescence and internal suppression—if that is indeed what happens. In 2014 the annexation of Crimea proved capable of changing a domestic context increasingly shaped by protests on the street. This time the threat of a major war has been required. And a freaked-out elite kept in line only through fear will make matters a great deal worse at home. Russia is facing shortages of both unqualified and qualified labour; more and more young and entrepreneurial people see emigration as their only option. The anti-Moscow sentiment already rife in many regions is only likely to get stronger. And a country that still considers itself part of Europe has little love for a tactic which can but make it more dependent on China.

Mr Putin cannot revive growth, for that would require structural reforms that would destabilise politics. He cannot reverse the brain drain, because that would require taming his security services. He cannot deal with the demands of the young or the regions, because that would require him to quit. An isolated, bored and ageing leader, increasingly reliant on a small coterie of similar age and KGB background, he prefers geopolitical posturing and war games, where results are visible and instantly gratifying. He is reconciled to rul-►

▶ing by fear, not guile and the cultivation of common interests; if he understands Mr Greene's 17th Law of Power, he has failed to master the 18th: "Do not build fortresses to protect yourself—isolation is dangerous".

One of Ms Simonyan's recent barbs was the observation that, thanks to Russia's threats, "Kyiv's economy has been torn to shreds. A trivial matter, perhaps, but a gratifying one." In the absence of a full-scale attack, Mr Putin can continue to damage Ukraine with threats, cyber-attacks, perhaps

the disabling of some infrastructure.

But Ms Simonyan passes over the fact that the effects on Russia's economy have been noticeable, too, and that while Mr Putin clearly feels a need to show Russians that their neighbours will not be allowed a flourishing democracy, most of Russia sees no benefit from such a demonstration. They want what is good for them more than what is bad for the West. They do not want the perpetual prospect of war, nor the sort of state which that implies. ■

source intelligence, or OSINT, capabilities that have expanded hugely over the past decade, and that let them reach their own conclusions about what the world's armed forces are doing. Images and other data from commercial satellites, videos posted on social media, ship- and aircraft-tracking websites and other publicly available, if sometimes arcane, sources can reveal goings on in inaccessible places like Rechitsa in unprecedented detail, and sometimes nearly in real time. Russia's military build-up on the borders of Ukraine is a coming-out party for the possibilities OSINT now offers.

As Stephen Wood of Maxar notes, this is partly because the satellites in the private sector have improved "dramatically". His firm's satellites can take photographs that are sharp enough to make out objects as small as 30cm. The number of providers has jumped sharply, too. (*The Economist* has relied on both Maxar and Planet, a company in California, to monitor the Russian build-up over recent weeks.) But what has been especially powerful in this crisis is the combination of timely, accurate satellite pictures with the social-media posts that are pouring out of Russia.

Consider the case of the missing equipment at Rechitsa. The satellite imagery does not show where the weapons and vehicles have gone, only that they are missing. But there are other clues. Russian drivers are avid users of dashboard-mounted cameras. In recent weeks, these have cap- ►

Open-source intelligence

Watching the border

LOW EARTH ORBIT

The detail in which Russia's military build-up and manoeuvres around Ukraine have been observed is a portent of things to come

ON FEBRUARY 4TH one of the four satellites operated by Maxar, a company based in Colorado which photographs more than 3m square kilometres of the Earth every day, took pictures of a Russian military camp in Rechitsa, Belarus. Rows of military vehicles were laid out neatly over a thick carpet of snow less than 50km from the border with Ukraine. On February 14th a sister satellite took another picture of Rechitsa. The snow had gone; so, too, had most of the vehicles (see below).

Since the start of the cold war, America and its NATO allies have scrutinised Russian military deployments and movements using expensive and often exotic means of keeping tabs on other people's territory such as spy satellites and surveillance flights as well as human agents—means that nobody else could muster.

But civilian observers increasingly have their own tools. Journalists, academics, think-tankers, activists and amateur enthusiasts have access to a range of open-



Rechitsa, Belarus, was host to battalion tactical groups from Russia's 36th Combined Arms Army. By February 14th they had largely vanished. A TikTok video (right) suggested that they had not gone home. Source: Maxar, Henry Boyd of IISS

tered reams of footage of tanks and other equipment on the move by road and rail. Much of that is uploaded to TikTok, a Chinese app on which users can post short video clips (images of tanks being sped past the Russian borderlands are often set to thumping music).

One such video, uploaded on February 13th, shows a convoy of armoured vehicles, including a Shilka anti-aircraft system, on a road that runs south-east from the town of Mazyr to Naroulia. Two days later an open-source analyst who tweets under the name @danspiun, noticed that an emblem

on the Shilka, though indistinct, suggested the vehicles belonged to Russia's 5th Tank Brigade—one of the units previously seen arriving at Rechitsa. A glance at a map shows that Mazyr and Naroulia lie farther south, closer to the Ukrainian border. In other words, at least some of the units that left Rechitsa appear to have been moved not back to their bases, but into still more threatening positions. This fits with the statement by Ben Wallace, Britain's defence secretary, that Russian forces are moving from "holding areas" to "front-footed deployed areas".

Yelnya, a base 125km from Russia's border with Belarus, is normally home to the 144th Guards Motorised Rifle Division. In November last year it began to fill up with equipment from the 41st Combined Arms Army, a grouping that typically includes several divisions and is based more than 3,000km away in Siberia. By late January Yelnya was not only crammed with armour, but occupied by troops: satellite pictures showed that heating had melted the snow on roofs, and booted feet had turned the surrounding ground to muddy slush.

Then some moved on. At first, this was difficult to see because Yelnya, like much of Europe at this time of year, is often covered in clouds. But neither clouds nor darkness are a problem for synthetic-aperture radar (SAR) satellites that illuminate what they are looking at with radio waves.

The Sentinel-1 SAR satellites operated by the European Space Agency (ESA) take pictures of every spot on the continent every six days. The results are grainy and lower in resolution than pictures made using visible wavelengths by the likes of Maxar and Planet. But some man-made structures reflect radar waves particularly well. Images taken by Sentinel-1 from January 23rd to February 11th showed a hubbub of purple blobs—the colourised radar returns from equipment—fading away as Yelnya emptied out (see below left).

Where did the 41st Combined Arms Army's stuff go? Again, probably towards the Ukrainian border. One clip on TikTok showed armoured vehicles at a station in Bryansk, around 35km from Ukraine. Cross-referencing an eight-figure number emblazoned on the train with a website that tracks railway movements showed that the train originated in—you guessed it—Yelnya.

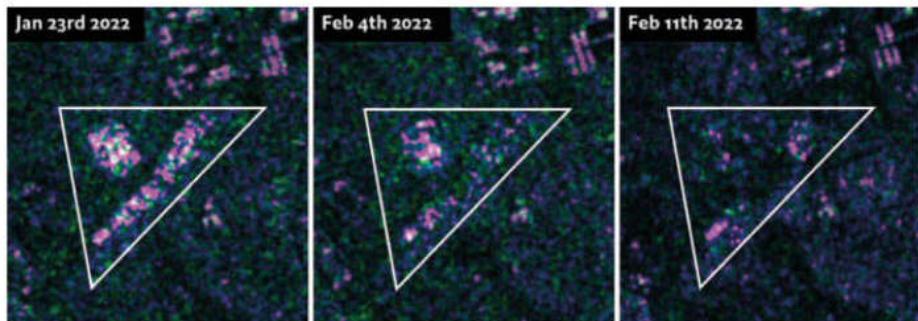
In recent days, the Russian army has moved equipment around at a frenzied pace, possibly to give the appearance of a withdrawal—something which the defence ministry said was under way on February 14th. Michael Kofman of CNA, an American think-tank, calls it a "deployment shell game" in which units are shuffled around confusingly "without altering the overall picture". Some troops are leaving Crimea, he says, but more are arriving in other places along the border.

And they are doing the sort of thing that armies do before wars. On February 14th another analyst scanning low-resolution satellite data noticed a change on the banks of the Pripyat river in Belarus, less than 6km from the Ukrainian border. It was, he surmised, preparatory work for a bridge. Pictures released on February 15th showed that a crossing had appeared. (This was not a complete shock—an obscure press release on February 11th had announced that a bridge was going up over the Pripyat, though it did not say when or ►►

→ The changing picture in Yelnya, Russia



The base fills up. A: What seem to be two battalions of infantry-fighting vehicles and howitzers. B: A battalion of the Uragan rocket-launcher system and what are probably main battle tanks. Sources: Planet (top and left), Maxar (right), Tom Bullock of Jane's



Troops moved out under the cover of cloud, beyond the view of normal optical satellite imagery. Synthetic-aperture radar captured the change. Source: ESA

► where.) Then on February 16th SAR images indicated the bridge had been taken down. Perhaps it was a drill.

Good OSINT requires constant searching for these sorts of hints—and knowing where to look. One answer is a practice known as “tipping and cueing”: clues gleaned from one sensor, often a lower-resolution one, are used to guide a sharper one that can see what’s what. The tipping is often done with low-resolution satellite pictures—cheaper and more plentiful than the high-resolution stuff—but there are more ingenious ways to do it, too.

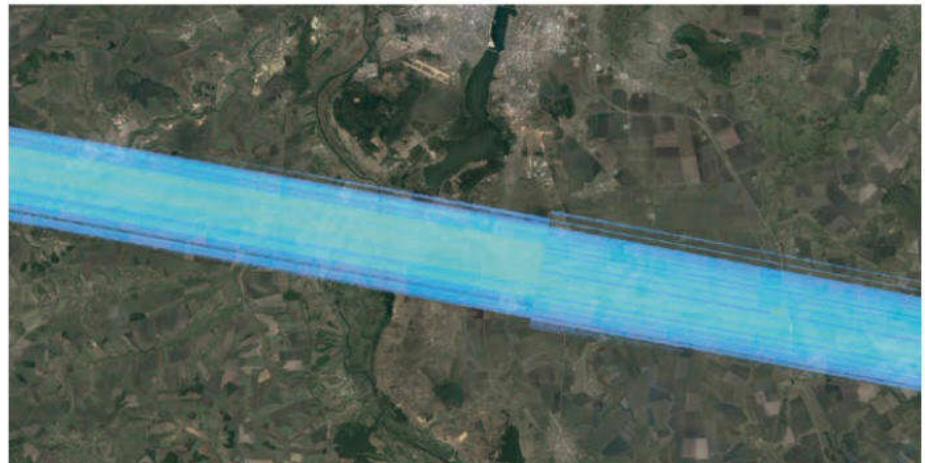
In recent years, analysts have noticed that some sorts of powerful military radar discombobulate the Sentinel-1 satellites’ radar, producing a distinctive interference pattern in their returns. Ollie Ballinger, a lecturer at University College London, built a tool called the Radar Interference Tracker which allows anyone to search for such interference. In September the tool detected interference likely coming from Pogonovo, a key Russian base close to the Ukrainian border, a discovery which suggested the possibility of air-defence systems there (see right).

For all the insight that it yields, OSINT is not a panacea. Satellites may be providing unprecedented volumes of data, but they can only image so much in a day—and high-resolution data are still scarce. Intelligence analysts have long known that overhead pictures, while very useful, never show everything. They also know that the amount that they do show can be bewitching—beguilingly concrete in a way that can mislead the inexperienced.

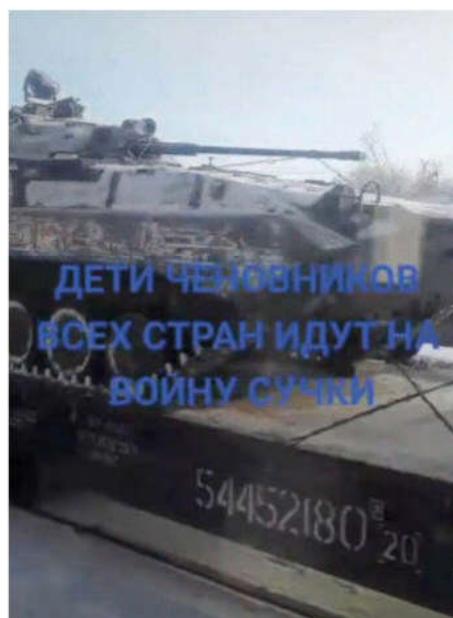
Modern armed forces appreciate the role that open sources have begun to play in crises, and can use this to their advantage. An army might, for instance, deliberately show a convoy of tanks headed in the opposite direction to their intended destination, in the knowledge that the ensuing TikTok footage will be dissected by researchers. The location signals broadcast by ships can be spoofed, placing them miles from their true locations.

“People seem to think that OSINT will present them with the full scale of the build-up,” writes Konrad Muzyka of Ruchan Consulting, whose research has formed the basis for *The Economist*’s maps of Russian deployments. “I am under no illusion. We are only seeing a fraction of what is really going on.” Even so, to see that fraction, and to see it by means which do not rely on the word and whim of governments, is a radical departure from the crises of the past. If war comes to Europe, it will be transparent as never before. ■

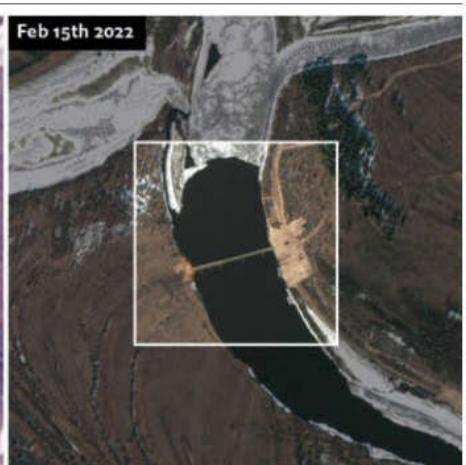
→ The full range of OSINT



Military radar produces a distinctive interference pattern in Sentinel-1 satellites’ radar. Here at Pogonovo, in Russia. Source: Ollie Ballinger, UCL/Google



Left: the 41st Combined Arms Army moving south from Yelnya, identified by the number on the train. Right: pontoon companies reportedly in Belarus. Source: TikTok



Left: Activity on the banks of the Pripyat river, near the Belarus-Ukraine border. Right: the bridge that appeared the next day. It has since disappeared. Source: Planet/Maxar



An interactive version of this article is available online. To see it, scan this QR code on a mobile device or go to economist.com/UkraineOSINT



America's next mining boom

Between a rock and a hard place

OROVADA, NEVADA

Is mining in the name of clean energy doomed to repeat past mistakes?

ABOUT 16M YEARS ago, a supervolcano that straddled the borders of what is now Oregon and Nevada erupted, forming the McDermitt Caldera. The volcanic activity pushed lithium-rich rock up near the Earth's surface, creating the largest known lithium deposit in the United States. Today, the same terrain around the Montana Mountains is carpeted with sagebrush, and coyotes are heard more often than people. But that may soon change. Lithium Americas, a Canadian company, has plans to build a mine and processing plant at Thacker Pass, near the southern tip of the caldera in Nevada. It would be America's biggest lithium mine.

Ranchers and farmers in nearby Orovada, a town of about 120 people, worry that the mine will threaten their water supply and air quality. Native American tribes in the region say they were not properly consulted before the Bureau of Land Management (BLM), a federal agency that manages America's vast public lands, decided to permit the project. Tribes also allege that a

massacre of their ancestors took place at Thacker Pass in 1865. Michon Eben, a history preservationist for the Reno-Sparks Indian Colony, says destroying the massacre site would be akin to desecrating a sacred place. Environmentalists fret about protecting the habitat of the imperilled sage grouse and wildlife migration routes. Protesters who camped at the site see the mine as a symbol of the ills of development.

The fight over Thacker Pass is not surprising. President Joe Biden wants half of all cars sold in 2030 to be electric, and to reach net-zero emissions by 2050. These

ambitious climate targets mean that battles over where and how to mine are coming to mineral-rich communities around the country. America is in need of cobalt, copper and lithium, among other things, which are used in batteries and other clean-energy technologies. As with past commodity booms, large deposits of many of these materials are found in America's western states (see map on next page).

America, of course, is not the only country racing to secure access to such materials. As countries pledge to go carbon-free, global demand for critical minerals is set to soar. The International Energy Agency, a forecaster, estimates that by 2040 demand for lithium could increase by more than 40 times relative to 2020. Demand for cobalt and nickel could grow by about 20 times in the same period.

Some environmentalists argue that the demand projections for lithium should be viewed sceptically as new kinds of batteries and storage are developed, and recycling technology improves. That may be true in the long term. But Venkat Srinivasan, who leads the Collaborative Centre for Energy Storage Science at Argonne National Laboratory near Chicago, says lithium will be hard to beat, for two reasons. First, because it takes about a decade to develop and scale up new technologies; and, second, because of the Biden administration's aggressive timeline for electric vehicles.

Beyond its green goals, America is also ➤

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intent on diversifying mineral supplies away from China, which—by virtue of its natural bounty and muscular industrial policy—has become a raw-materials juggernaut. The Biden administration's desire to reshore supply chains continues America's Trumpian retreat from globalisation. The covid-19 pandemic also revealed the pinch points in global networks, further spooking politicians and firms. The green transition has also turned the pursuit of critical minerals into a great-power competition not unlike the search for gold or oil in eras past. Mining for lithium, the Department of Energy (DoE) says, is not only a means of fighting climate change but also a matter of national security.

Go West, young miner

Westerners have seen all this before, and are wary of new mines for two reasons. First, Congress passed the General Mining Act of 1872 in the spirit of manifest destiny, giving prospectors the right to mine on land owned by the federal government. To this day, the law allows mining firms to extract minerals without paying any royalties. It was not until the 1960s and 1970s that lawmakers set environmental standards for mining on public lands. Charles Wilkinson, a legal scholar, christened the 1872 statute one of the "lords of yesterday", a group of laws that set the tone for more than a century of land use in the West.

The economic history of the American West is a story of boom and bust. When a commodity bubble burst, boomtowns were abandoned. The legacy of those busts still plagues the region. In 2020 the Government Accountability Office estimated that there could be at least 530,000 abandoned hardrock-mine features, such as tunnels or waste piles, on federal lands. At least 89,000 of those could pose a safety or environmental hazard. Most of America's abandoned hardrock mines are in 13 states west of the Mississippi River.

Today, mining companies have to study how their activities would affect the environment and clean up after themselves. "I know there's concerns about abandoned mines. But if you look when those mines opened and actually operated it was 50 or 100 years ago," says Jonathan Evans, the boss of Lithium Americas. Firms must operate differently now, he says. Residents of Orovada are less sanguine. "We're still not convinced that this is in our best interest," says Gina Amato, a local farmer. "We do very much feel that we are the sacrificial lamb for the greater good."

Second, talk of new mines on public land fuels a long-standing grievance among some westerners that so much of their states are owned by the federal government. Federal agencies own about 80% of Nevada, 65% of Utah and 46% of California. It is a similar story across the region.

Some would like to change that. Utah's Republican governor has advocated more local control over the state's public lands.

The green transition is not the only economic shift afoot. In recent decades, towns that were dependent on extractive activities have turned instead to outdoor recreation to help power their economies. Small cities in the Mountain West have boomed in part because they are close to wild places. This has come with costs such as high housing prices and overcrowded national parks. Still, marketing their mountains, canyons and even dark night skies seemed a way for parts of the West to put extraction in the rear-view mirror.

But some of these towns are sitting on materials needed for the clean-energy revolution. Moab, Utah, is now a mecca for hikers and off-road adrenalin junkies. Eastern Utah's red-sandstone desert is also home to massive deposits of uranium, which America may need if it succeeds in rejuvenating nuclear power. Reviving uranium mining would be considered sacrifice by the tourists who flock there and the locals who have watched the DoE spend more than a decade cleaning up leftover radioactive waste.

Is it possible to secure critical minerals while avoiding the mistakes of previous booms? America's debates over how to use its public lands, and to whom those lands belong, are notoriously unruly. Conservationists, energy companies, ranchers and tribal nations all feel some sense of ownership. Total harmony is unlikely. But there are ways to lessen the animosity.

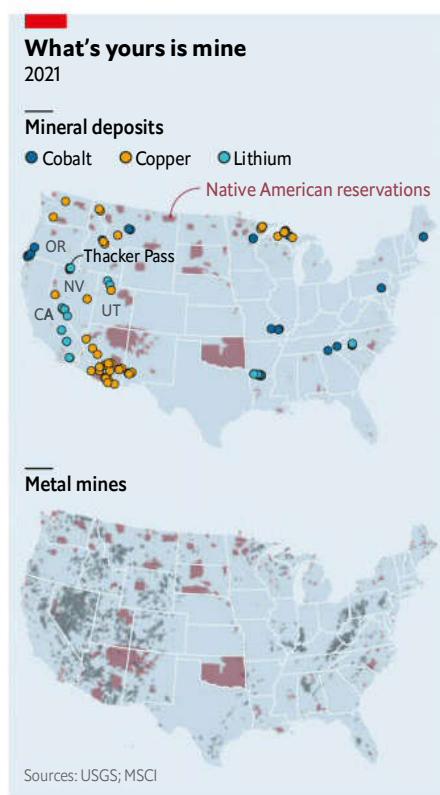
Start with environmental concerns. Mining is a dirty business, but development and conservation can coexist. In 2020 Stanford University helped broker a national agreement between the hydro-power industry and conservation groups to increase safety and efficiency at existing dams while removing dams that are harming the environment. The inspiration for the agreement was a similar plan in 2004 that fixed some dams on the Penobscot River in Maine and tore down others that blocked fish from migrating. Dan Reicher, a former assistant secretary of energy, now at Stanford, says Penobscot is a useful template for balancing energy needs with protecting the environment.

Many worry that permitting new development on land sacred to tribes will be yet another example of America's exploitation of indigenous peoples in pursuit of land and natural resources. MSCI, a consultancy, reckons that 97% of America's nickel reserves, 89% of copper, 79% of lithium and 68% of cobalt are found within 35 miles of Native American reservations.

The art of compromise

The BLM is supposed to consult tribes about policies that may affect them. Ms Eben, the historical preservationist, argues that the consultation process is broken. Often it consists of sending tribes a letter notifying them of a mining or drilling proposal. "Over the last five or ten years, the concept of collaboration in government-to-government negotiations has changed a lot," says Geoffrey Smith, an archaeologist at the University of Nevada, Reno. "No longer is a letter or a couple of letters sufficient." Before they were forced onto reservations many indigenous groups in the West were nomadic. This means that more tribes have ties to the land than the BLM has traditionally consulted with. Revising the consultation process by involving more tribes earlier might help avoid or resolve conflict.

The communities in which new mines are built would also like a seat at the table. Orovada's negotiations with Lithium Americas offer an example for other towns. Ms Amato helps run a group that meets regularly with the company. Its members do not trust the firm. Yet some are upbeat about the 300 jobs the mine will bring. There are other upsides to collaborating. Lithium Americas has offered to build the town a new school, one that will be farther away from a road that the firm will use to transport sulphur. Sitting in her truck outside a petrol station that doubles as Orovada's local watering hole, Ms Amato recalled one group member's response to the offer: "If all I'm going to get is a kick in the ass, because we're getting the mine regardless, then I may as well get a kick in the ass and a brand new school." ■





School politics

Going overboard

SCOTTSDALE, ARIZONA

Once mundane, school-board meetings have become battlegrounds

WHAT DO ICE-HOCKEY, reality-television shows and school-board meetings have in common? Lately people have been watching them for the fights. School-board meetings, once boring affairs, have turned into political cage-matches.

School boards are the governing body of local school systems. They usually consist of several unpaid elected officials. Before covid-19, elections typically had low turnout (often between 5% and 10%). Attendance at meetings tended to be sparse.

Loudoun County's board in Virginia was one of the first to get attention last summer. Videos show attendees screaming about critical race theory (CRT) and transgender policies. During one meeting a parent was arrested.

Commotion has spread across the country. In San Francisco the fight was intense but conventional, through a recall vote (see box). Elsewhere, board members have been threatened. Some have behaved badly themselves: four in California resigned last year after mocking parents on a public live-stream. In September the National School Boards Association called on the federal government to intervene, accusing parents of "domestic terrorism and hate crimes". Its letter sparked a backlash and an apology from the association.

The pandemic and its restrictions brought more families to meetings. Valerie Shannon in Scottsdale, near Phoenix, Arizona, began to attend school-board meetings when she noticed that her son was struggling academically during the pan-

Parent power
Total recall

SAN FRANCISCO
A successful school-board recall punishes left-wing excess

CAD IN HIS bright yellow campaign shirt, Kit Lam and his fellow supporters of the effort to recall three members of the San Francisco Board of Education fanned out across Chinatown. They were making a final election-day push, eagerly speaking in Mandarin and Cantonese to passers-by. "We are going to win today, and it won't be close," says Mr Lam. He soon proved his chops as a pundit as well as a campaigner. The three commissioners—Alison Collins, Gabriela López and Faauuga Moliga—were soundly defeated on February 15th. It is the city's first successful recall campaign since 1914.

San Francisco was an unlikely site for a school-board battle. It is a Democratic Party stronghold. Among America's 100 largest cities, it has the lowest population share of children. Some 30% of them are enrolled in private schools. The emphatic rejection of the board points to a deep discontent. This stemmed from the lackadaisical approach to reopening public schools amid the covid-19 pandemic, coupled with an excessive focus on symbolic racial-justice issues.

Siva Raj saw the toll that remote learning had inflicted on his children. "Our kids were falling further and further behind," says Mr Raj. Neither speeches, nor petitions, nor protests seemed to have any effect. In February Mr Raj and his partner, Autumn Looijen, began collecting signatures for a recall.

While students struggled, the board toyed with renaming 44 schools, some of which honoured infamous villains like Abraham Lincoln. It rejected a candidate for the parent advisory council because, as a gay, white male, he would not add sufficient racial diversity. Meanwhile, the city's racial-achievement gap only widened during the pandemic: African-Americans suffered higher rates of absenteeism and learning loss than others. With a \$125m schools-budget deficit

looming, San Francisco's mayor, London Breed, supported the recall. She will now appoint three replacements.

Many Asian-Americans were incensed by the decision to switch from merit-based admissions at the academically rigorous Lowell High School to a lottery. The board justified this change as necessary for racial justice. After the share of Asian-Americans in the subsequent freshman class at Lowell dropped from 50% to 42%, Ms López lauded the school's "most diverse student population arguably ever". "People in the community were just fed up," says Mr Lam, a Chinese-American parent of two. Precincts in predominantly Asian-American neighbourhoods voted for the recall by almost ten percentage points more than the city at large.

Opponents tried in vain to tar the recall as a right-wing takeover. "This was a revolution for competence," says Ms Looijen. It is a warning to radicals in school boards across America.

Parental approval required

demic. "None of us paid attention to the school board," she says. "We first started with, let's just get these schools reopened." Her interest then spread to other concerns.

In May 2021, a board meeting in Scottsdale was shut down after attendees refused to wear masks despite a mandate to do so indoors. In August there were protests outside a closed-door meeting to discuss the school district's mask mandate. A week later Charlie Kirk, a conservative activist with 1.7m Twitter followers, spoke up at a public

session of the board. "I am a new resident of Scottsdale," he said. "It kind of feels like I am living in San Francisco because of all of you and your self-righteous measures that you're putting to abuse the children of this wonderful state." Yet masks were mandated for pupils from August 2021 until January. An attempt to recall four of the five elected officials has failed.

In November an online dossier came to light, allegedly compiled by Mark Greenburg, whose son, Jann-Michael, was presi- ►

dent of the school board at the time. Reports have suggested it focused on nearly 50 parents who opposed school-board policies, and included photos of the parents and their children, social-security numbers, divorce decrees and other private information. (The Scottsdale Police Department has concluded that it included only publicly available information.)

At a meeting last month Ron Watkins, a QAnon conspiracy theorist and congressional candidate, shouted that "communist school boards are now indoctrinating our children with transsexual propaganda." Many parents dislike the diversions from school policies. Amy Bean, a conservative Scottsdale parent, spoke at the meeting about a passage in a novel assigned to her fourth-grade daughter that seems to imply that police officers are racist. "I actually want to get things done," she says. "I'm not here to make a scene."

In Chandler, 20 miles south of Scottsdale, Lindsay Love, a board member, says she has received racist messages and death threats. She is the only black member. The threats started when she joined the board, but some were in response to her support for racial justice and remote learning early in the pandemic. Others fear for their physical well-being. "I want to be more involved as a counterpoint to those messages," explains Laura Lawless, a parent in Chandler. "But I'm literally scared for my safety and the safety of my children."

Some boards are sacking teachers over CRT. The school board in Sullivan County, Tennessee, fired Matthew Hawn for assigning an essay by Ta-Nehisi Coates, a writer on race relations, and showing pupils a performance about the idea of white privilege. Boards are also banning books: McMinn County in Tennessee removed "Maus", a graphic novel about the Holocaust, from its middle-school curriculum.

School-board battles are nothing new, says Jonathan Collins, a professor of education at Brown University. But their intensity is unusual. Typically meetings cover pedestrian local matters, such as facilities upgrades or school budgets. Things began to change during the Trump administration and its "1776 Project", created in response to "The 1619 Project", a *New York Times* project that puts slavery and racial oppression at the core of American history. Now meetings focus on national issues, such as policies on handling transgender athletes and the teaching of CRT—which might not even occur in the local district.

Brandy Reese, a parent in Chandler, says that there is a stark contrast between board meetings now and those in past years. "It's amazing to me," she says. "It seems like a totally different place." Once mundane, school-board meetings have become political sideshows with real consequences for families and educators. ■

Post-office reform

Not yet signed, sealed or delivered

ELMORE, VERMONT

Long queues and late delivery are the least of the post office's problems

"YOU CAN come in here at eight o'clock at night to pick up mail," says Trevor Braun, bragging about the post office inside Elmore Store in rural Vermont. A recent Monday saw a steady stream of locals pop in to pick up their post, send packages and buy groceries. One customer excitedly tells Kate Gluckman, who runs the charming store with her husband, that "these are the shoes I told you about!" The shop and its post office have been at the centre of the small community, which still has a one-room schoolhouse, since they opened in the early 1800s. But that may soon change.

After the shop's longtime owner retired, the United States Postal Service (USPS) did not automatically renew the contract with the new owner. Although it does nearly everything a post office does, it is not staffed by a postal worker. It is called a "contract postal unit", which the USPS can shut with little notice.

Without the post office, many of the 900 residents would be virtually cut off from the world. Much of the area has no mobile-phone coverage. The post office is where many get their news. Small businesses, like the Elmore Sugarhouse and Elmore Mountain Bread, which use the post office to send maple syrup and bread, would be in a sticky mess. Locals would either have to drive to another town's post office, several miles away, or erect a mailbox at the end of their driveway, something many rural residents do. But some live far from the road. Locals got the state's congressional delegation, which includes Sen-

ator Bernie Sanders, a former presidential candidate, to fight to keep their post office. Contract negotiations are now under way.

It is not just Elmore's post office that is in jeopardy. The USPS has been in financial trouble for years. Shifts in the way people communicate and pay bills have meant fewer letters in the post. Banking is done electronically and people use social media, texts or email to send cards, notes and photos. Newspapers such as *The Economist* increasingly arrive on mobile devices. True, package volume is up because of e-commerce. But the losses are staggering.

On February 8th the USPS announced a \$1.3bn loss in its most recent quarterly results, compared with a \$288m loss for the same period in 2020. Its biggest financial burden is the requirement that it pre-fund retiree health benefits for current and former workers for 75 years, something no other agency has to do. And unlike other federal agencies, the USPS does not receive direct federal funding. It must rely on stamp sales and shipping revenue.

Congress is at last paying attention, though it is not considering radical steps such as privatisation. Earlier this month, with rare bipartisan support, the House passed a sweeping overhaul of the USPS. The legislation requires future retirees to enroll in Medicare and it drops the crippling pre-funding requirement. Those two measures should save the service nearly \$50bn over the next decade, according to the House Oversight Committee.

Elaine Kamarck of the Brookings Institution, a think-tank, says removing those burdens will free the postal service to fix its operating problems—and perhaps even to innovate, as it once did. For instance, it helped launch the aviation industry through airmail (Charles Lindbergh was an early postal pilot). And it established postal orders so that Union soldiers during the Civil War could send their wages home.

Chuck Schumer, the Democratic major- ►



The charm of a contract postal unit

ity leader, promised to bring the bill to the Senate floor quickly. The legislation has the backing of the postal unions, the postmaster general and online retailers such as Amazon. But on February 14th Rick Scott, a Republican senator from Florida, blocked the vote because of national-debt worries.

The USPS cannot afford to wait long for help. Nor can its customers, who include most small businesses and the Social Secu-

rity Administration, which mails 350m notices a year. About 7m Medicare recipients get at least one medicine through the post. Over 43% of voters cast their ballots by mail in 2020. Johnathan Hladik of the Centre for Rural Affairs, an advocacy group, puts it this way: "If you don't have some of those basic amenities like the ability to get dependable mail," small towns like Elmore simply "don't stand a chance". ■

Industrial policy

Hard-tech heartland

CHICAGO

Midwestern states aim to become tech hubs by playing to their strengths

THE ENTRANCE of MHub, a tech "incubator" in Chicago, resembles similar outfits elsewhere. There is a bar made from disused silicon chips, complete with a vintage arcade games machine, a foosball table and a pool table. Much like other tech incubators, there is also nobody around taking advantage of them, as covid-19 has reduced the appeal of socialising with lots of colleagues. To find out what is different about MHub, you have to go farther inside. At the back there is a fully equipped workshop. Three CNC milling machines, which cut aluminium into computer-designed shapes, hum away. There are devices which inject plastic into moulds; ones which print silicon chips; 3D printers; and a CT machine to scan prototypes. Unlike the toys in the games room, they are in use. Engineers scurry around clutching parts.

MHub, founded in 2017 in a building that once housed a Motorola design lab, is the world's first "hard tech" incubator, at least according to its CEO, Haven Allen. The business model works much like tech incubators elsewhere. Startups are invited to apply to join through a competition. The winners are given mentoring, two years of access to the space and \$75,000 in cash. MHub takes a chunk of equity, hoping to get its money back when the firms succeed. Unlike incubators elsewhere, however, which are devoted to finding brilliant app designers, at MHub only people with physical products to sell are considered. It is in Chicago so that successful applicants can "leverage" access to manufacturers across the Midwest, says Mr Allen.

MHub taps into the dreams of a lot of government types and business folk across the region that they might yet turn the rustbelt into something more glamorous—a "Silicon Heartland". The idea is that the Midwest has a huge amount of manufacturing expertise in an era when tech firms increasingly need it.



Start-up factory

"We know how to make things and make things happen in Michigan," says Garlin Gilchrist, the lieutenant-governor of Michigan, a former software engineer who returned from the West Coast. "We're just beginning to write our future," says Penny Pritzker, a Chicago-based billionaire who was commerce secretary under Barack Obama. But for much of the past 60 years, the Great Lakes economic region (which also includes Indiana, Ohio and Wisconsin) has struggled. The manufacturing industry, which still makes up 15-20% of GDP in most of those states, has grown more slowly than services.

Can "hard tech" really reverse that? There are some reasons to be hopeful. Last month Intel, a chipmaking giant, announced plans to invest \$20bn in a new factory near Columbus, Ohio, which the firm said could become "the largest silicon manufacturing location on the planet". General Motors has announced that it is investing \$7bn in Michigan in high-tech car

manufacturing, including a battery plant near Lansing. In Chicago, funding for start-ups more than doubled in 2021, to about \$7bn for the year.

According to Mark Muro of the Brookings Institution, a think-tank, a highly competitive manufacturing base could promote future growth for the region. "If it survived 25 years or more of hyper-globalisation and offshoring, what is left is pretty strong," he says. That sort of high-tech manufacturing—particularly of cars, but also of medical equipment and drugs—tends to require both engineering and software-development talent. As it happens, the region's universities already provide a ready supply of both. But in the past "a lot of that talent has wound up in Silicon Valley," Mr Muro says.

One of the reasons why growth has been so sustained in big, densely populated places like New York and the San Francisco Bay Area is that tech firms like to be near other tech firms, so as to be able to poach talent. The "agglomeration" benefits are such that they are willing to pay even the outsize salaries workers in such regions can demand. That in turn has sucked away workers and capital from the interior. But if tech firms are starting to make more physical stuff, they need to be closer to factories—which the coasts have relatively few of, and the Midwest has aplenty. The competition to become the world's leading internet software-developing region is "over, it's happened", says Chris Gladwin, a serial tech entrepreneur based in Chicago. But a new, wider boom may be starting.

Making sure it actually comes to the Midwest may take more than states are capable of doing on their own. To attract Intel, Ohio offered around \$2.1bn in incentives, including grants and tax breaks. GM's investment in Michigan came with around \$800m. But cash alone cannot create the conditions for sustained growth, says Brad Henderson of P33, a Chicago organisation which connects firms to universities. Subsidies may merely move around investment that would have happened anyway.

Instead, sparking a boom will require deep co-operation and federal investment. A package of \$250bn aimed at improving America's competitiveness with China by investing in high-tech manufacturing is working its way through Congress. To reverse decades of relative decline is a tall order. But Americans are buying more stuff, and supply-chain jams have caused shortages of everything from silicon chips to lumber. If the Midwest is to catch up, its boosters believe it needs to take its chances now, before they begin to fade again. ■

Correction Last week, in "Another exodus", we wrote that Congregation Shearith Israel sued Congregation Jeshuat Israel (cji) first. In fact, it was the reverse. And cji wanted to be the Touro Synagogue's trustee, not the owner. Sorry.

Lexington | The fight for Catholic America

Pope Francis is starting to get a grip on the world's fourth-biggest Catholic country



WHEN SHELTON FABRE became a bishop in New Orleans in 2007 he took as his motto a phrase from the prophet Isaiah: "Comfort my people". It was apposite to the city, still recovering from Hurricane Katrina, and to the priest himself. The 43-year-old had been drawn to the church by the comfort he and his family received from their parish priests during two calamities. Growing up in New Roads, a small town near Baton Rouge, Louisiana, he lost one of his brothers to a drowning accident and another, when Bishop Fabre was 18, to leukaemia. His surviving siblings and parents—a bricklayer and schoolteacher—were broken. "But the church was there for us, comforting us, and that's what I signed up to do," he recalls. "I won't say I've done it perfectly, but to the best of my ability I've tried to be there for people, to be with them in their communities, to bring them the comfort of Christ."

His vocation took him to parishes around Baton Rouge and the Louisiana State Penitentiary at Angola, one of America's biggest and most violent prisons, where he served as chaplain. His priority, he says, "was to give the people there hope". It was not the sort of path traditionally followed by Catholic bishops, let alone archbishops, to whose exalted ranks he was promoted this month. As in the upper echelons of any hierarchy, they tend to be ambitious careerists. But then Bishop Fabre says he never much wanted to be a bishop in the first place: "I was very happy being a priest." And his pastoral record and relative lack of interest in church politics are perfectly illustrative of how Pope Francis is trying to change the American Catholic church, whose 70m members make it by far the country's biggest religious group.

Its leadership is still dominated by the conservatives his two traditionalist predecessors, John Paul II and Benedict XVI, appointed. Yet the 13 American archbishops Francis has picked have begun to move it in a less confrontational and more rounded direction. Disappointingly to progressives, they, like the pope himself, are not markedly, or sometimes at all, more liberal on the sexual ethical issues that the old guard obsesses over. Bishop Fabre opposes same-sex marriage, for example. Yet he and other Francis appointees—again like the pope—tend to speak of such matters less righteously, less often and within a broader array of moral priorities than their culture-warring brethren.

They stress pastoralism—in the sense of responding to the needs of congregants as they arise—over advocacy. That in turn leads them to abhor inequality, environmental damage, poverty and poor health care as much as abortion. Bishop Fabre, only the second African-American archbishop, is better known for his work on combating racism, as the leader of a high-profile church review of the issue, than for his opposition to gay marriage. It is not coincidental that he has been appointed Archbishop of Louisville, Kentucky, which has a large African-American population and saw highly charged protests over the killing of Breonna Taylor, an unarmed black woman, by the police in 2020.

If left-wing American Catholics are disappointed by the Francis reset, the right is livid. According to a close observer of the country's Catholic bishops' conference, around a third its 260 active members are hostile to the pope. And they have powerful champions in, for example, Cardinal Raymond Burke, a former Archbishop of Louisville who lambasts, among other things, the pope's support for civil rights for gay couples and relatively relaxed view of divorcees receiving communion. He would also deny the Eucharist to Joe Biden and other Catholic politicians supportive of abortion rights. On the harder Catholic right, wilder spirits abound, from Bishop Joseph Strickland of Texas, a covid-19 anti-vaxxer and QAnon conspiracy disseminator who suggests it is impossible to be both Democratic and Catholic, to a legion of well-funded and often unhinged Catholic media entrepreneurs. They include the Alabama-based EWTN, a hotbed of pro-Trump, anti-Francis propaganda, which claims to be the "world's largest religious media network" with a global audience of over 250m.

Fighting for pre-1960s social mores was never going to be easy. Yet the anger on the Catholic right has been hugely exacerbated by four decades of reckless and ultimately fruitless activism under Francis's predecessors. Some date this development even farther back, to the 1950s, when Catholics began downplaying the church's distinctive stress on social justice in a bid to join the Christian mainstream from which they were previously excluded. Yet the politicking became far more pronounced in the late 1970s, when conservative Catholic activists made common cause with the wider religious right in denouncing moral relativism, abortion, gay rights and other supposed sins of modernity.

The failure of that movement, and the despondency it has wrought, is signalled by the moribund, aggrieved and Trump-addled state of white evangelicals today. Catholic America, anchored in its network of schools, charities and the growing Hispanic church, was always less committed to the culture war and has been less radicalised as a result. White evangelicals are the least likely religious group to be vaccinated against covid, Catholics are the likeliest. Yet the anger on the Catholic right, though ostensibly aimed at the pope, is fuelled by the same sense of cultural and political defeat weighing on white evangelicals.

More to life than sex

This makes Francis's attempt to draw the poison from the most divisive social issues, by lowering their profile rather than winning the argument over them, seem especially wise. Through the example of conscientious pastors such as Bishop Fabre, he aims to make the church less self-obsessed and more responsive to its congregants. And thereby, the pontiff must hope, also more relevant to their lives, even as organised religion retreats. Secular politicians might call this "meeting the voters where they are". They should also try it. ■



Canada

No truck with Trudeau

OTTAWA

The prime minister claims draconian emergency powers to suppress protests

CANADA'S MAPLE-LEAF flag is ubiquitous—draped over shoulders and unfurled from hockey sticks. The protesters who have converged on Ottawa, Canada's capital, to demand the end of covid-19 restrictions are brandishing it like stars-and-stripes-waving Americans. On weekdays their numbers dwindle to a thousand or so, though the clog of vehicles, from camper vans to 18-wheelers, parked outside parliament makes the crowd seem bigger. On weekends they are joined by many more, often groups of neighbours who form small convoys and bring their children. That's when bouncy castles go up and dance parties appear. At the slightest excuse people burst into "O Canada".

Some spout conspiracy theories and wave "Fuck Trudeau" signs, showing their contempt for the Liberal prime minister, Justin Trudeau. Early in the protests some demonstrators waved swastika images. At least one Confederate flag was seen. Other protesters, using tropes beloved by anti-vaxxers worldwide, have absurdly likened Mr Trudeau to a Nazi, and some prominent participants have links to far-right groups.

But there is more talk of love, freedom and unity. Éric Fontaine, a boat painter, has been coming every weekend with friends from a small town south of Montreal. "We are against discrimination—every kind of discrimination, including against people who don't want to get vaccinated," he says. William Ameni, a Congolese-Canadian, hands out food and Bibles with other members of his church. He was surprised to learn that some of the protesters were anti-immigrant. "As a minority personally I do not feel any hostility," he says.

Now in its third week, the "freedom convoy", which began as a protest against vaccine mandates for lorry-drivers entering from the United States, seems to be mellowing. But the government is toughening its response. On February 14th Mr Trudeau invoked the Emergencies Act for the first time in the law's 34-year history. It gives the federal government powers to

override other laws, seize authority from provincial and local governments and freeze the bank accounts of protesters without a court order. The day before, after Ontario's premier, Doug Ford, had declared a state of emergency, police cleared a blockade of the bridge linking Windsor, Ontario with Detroit, the conduit for a quarter of the goods trade between Canada and the United States.

After news broke of Mr Trudeau's plan to crack down, the truckers seemed unfazed. "We will hold the line," said Tamara Lich, a fundraiser and convoy spokeswoman, on the afternoon of February 14th. The next day Ottawa's chief of police resigned.

Whatever the future holds for the freedom convoy, it has already shaken Canada and rallied populists of the right in other countries. Donald Trump and Fox News anchors have exalted the protesters. Organisers have raised millions of dollars, a large proportion of it from American donors. Copy-cat convoys have been staged in France and Australia.

The city is theirs, for now

Canada once seemed immune to the raucous populism that in 2016 gave the world Mr Trump and Brexit. Now it seems to have become a superspreader. More than half of Canadians regard the convoy as a "fundamental attack" on democracy, according to Ipsos, a pollster.

Although Canada's strict public-health policies triggered the protest, its origins lie in older grievances. They are most potent ➤

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in Canada's western provinces, which have long felt alienated from the more populous and liberal centre. France's *gilets jaunes* (yellow-vest) protests in 2018 against high energy prices inspired a western Canadian movement in favour of oil pipelines and hostile to immigration. That gave rise to "united we roll", a lorry-led protest in 2019 against Mr Trudeau's environmental policies, which hurt Alberta's energy-based economy. The freedom convoy started out as its pandemic-themed successor. Ms Lich, who is described in the Canadian press as "the spark that lit the fire", was an activist for a party that advocates western Canadian secession as a last resort.

Tom Quiggin, who says he provides "protective intelligence" for the convoy, is the author of an anti-globalist novel called "The New Order of Fear". According to a tweet he posted, it depicts Mr Trudeau as "dead in his bed, strangled with a pair of halal socks". Canada Unity, the closest the convoy has to a presiding organisation, initially called for the replacement of the government by a committee that would revoke the vaccine mandate. It has since withdrawn the demand.

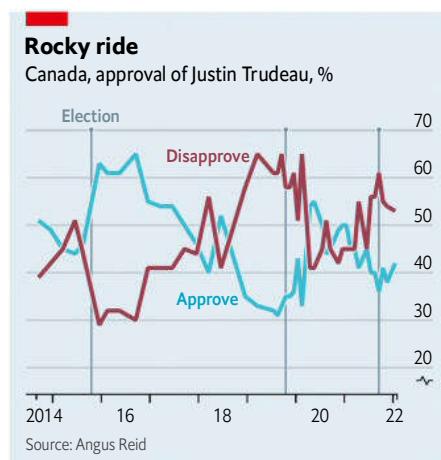
Stephanie Carvin at Carleton University in Ottawa believes the convoy is "an extremist movement at its heart". Nearly 60% of Canadians think it consists mainly of "anti-vaxxers and bigots intent on causing mayhem", according to Ipsos.

Hold on, they are not going home

But, like the Omicron variant, it may be mutating into a milder and perhaps more spreadable form. Canada Unity now "condemns all hate symbols" and calls on Canadians to "forget about their differences". That may widen the protest's appeal among the majority who now want covid restrictions to end. Despite their scepticism of the freedom convoy, 46% of Canadians think the protesters' "frustration is legitimate and worthy of our sympathy". That rises to 61% among 18- to 34-year-olds, and to 59% among those who vote for the Conservatives, the main opposition party.

That raises the fear that the convoy could act as a Trojan horse for the sort of Trumpian populism that polarises politics across the border. Richard Johnston, a political scientist, argues that, as in the United States, Canada's divides have been widening since the 1980s. People who identify with the Conservatives look a lot like Republicans; supporters of Mr Trudeau's Liberals resemble American Democrats. In opinion surveys, "it's very hard to see the border," says Mr Johnston.

When Mr Trudeau was first elected in 2015 he wanted to forestall a backlash against globalisation and immigration, then already occurring in other countries, by boosting the middle class "and those working hard to join it". He had some suc-



cess, especially in his first term. His government introduced a means-tested child benefit that reduced poverty and cut tax rates on the bottom of the income scale while raising them for the rich. Under Mr Trudeau Canada managed the pandemic better than many countries (thanks partly to provincial premiers, who make most of the public-health rules in their territories). Confirmed deaths from covid-19 are about a third of those in the United States, in proportion to population.

Yet many Canadians do not see Mr Trudeau as a healer (see chart). In 2018 his government set a national floor for the price of carbon and banned oil tankers from loading on part of the west coast, especially enraging oil-dependent Albertans. It has raised immigration targets from around 270,000 in 2015 to 411,000 this year, more than 1% of the population (in part to make up for a pandemic drop).

In his second term Mr Trudeau became more interested in identity than income, making protection of indigenous and gay people and other minorities his signature

theme. He seems to agree with leftists who think that causing offence is a greater crime than suppressing speech.

The censoriously illiberal left has made inroads into several Canadian institutions. Rima Azar, a tenured professor of psychology at Mount Allison University, was suspended last year for seven months after writing a blog post in which she argued that Canada was "not racist" and that Black Lives Matter was a "radical" organisation.

Mr Trudeau's government has expressed shock that racist symbols were displayed during the protest. It appears to be planning to reintroduce an "anti-hate" bill that could lead to the imprisonment of people who use racist speech. This could include a clause which would allow individuals to take other people to court if they fear that they may be about to say something which falls under the definition of "hate propaganda". They could also be charged for contemplating an offence "motivated by bias, prejudice or hate based on race, national or ethnic origin, language, colour, religion, sex, age, mental or physical disability, sexual orientation, gender identity or expression, or any other similar factor". Lovers of free speech are aghast at the potential scope of this law.

The pandemic has brought the sort of populist insurgency Mr Trudeau had hoped to forestall. Whether it moves beyond causing chaos to threatening institutions depends in part on how Canada's politicians react. For the Conservative Party the freedom convoy is both a threat and a temptation. The protesters "deserve respect", declared Candice Bergen, the party's interim leader, who has sported a "Make America Great Again" cap. Pierre Poilievre, the only declared candidate so far in the forthcoming party-leadership election, has said that the convoy represents "all those that our government and our media have insulted and left behind", a line that Mr Trump could have uttered.

The Conservatives are glancing nervously over their right shoulders at Maxime Bernier, a former Conservative minister who has been handing out "freedom pancakes" to the protesters. His People's Party of Canada, formed in 2018, advocates lower immigration and denies that climate change is dangerous. Although it won no seats in last year's election it took nearly 5% of the vote, and tripled its vote share.

But Canada's immunity to Trumpism and its mutations has not collapsed. Protectionism and immigrant-bashing, Mr Trump's most distinctive causes, cannot win elections in Canada. Trade is the equivalent of 60% of Canada's GDP compared with 23% in the United States. Elections are won and lost in greater Toronto and Vancouver's suburbs, which have racially diverse populations. The Conservatives' post-mortem on their loss last year in ►►



Loud and clear, and getting louder

part blamed the party's earlier resort to tactics like barring new Canadians from wearing niqabs when taking the citizenship oath, which offended Muslims. "That doesn't mean there isn't a backlash" against immigrants, says Mr Johnston. "It's lurking in the Conservative grassroots."

Those grassroots are more influential than they used to be, but have not yet seized control. Unlike in the United States, regional parties are not subsidiaries of national ones. Mr Ford is aligned with the national Conservatives but he belongs to the Progressive Conservative Party of Ontario.

The federal Conservatives cannot control regional legislatures as America's politicians do. Independent commissions draw the boundaries of electoral districts, avoiding the gerrymandering that contributes to polarisation in the United States. The share of fundamentalist Christians in the electorate is much smaller, which gives politicians less scope to mobilise voters passionately opposed to social change.

Few Canadians wish their politics were more like those of their southern neighbour. Two-thirds say their system of government is better, according to the Confederation of Tomorrow, an annual survey. Just 5% say the United States has a better system. In 1991 preferences were almost evenly divided.

The culprit for this immense shift in assessments of the two systems, the survey says, is America's increasingly polarised politics, culminating in Mr Trump's presidency. Mr Trump's endorsement of the convoy may therefore encourage Canadians to reject the sort of politics it represents. The anti-vaxx uprising is "a spasm", Mr Johnston thinks. "It's unsettling, it's embarrassing, but it's not existential." ■

Bello The mansion and the first son

Allegations about his offspring could undermine Mexico's president

"WHAT ARE we fighting for? To end corruption...The formula is simple but effective—to govern by example." So said Andrés Manuel López Obrador when he was campaigning for his country's presidency. He was right that Mexicans were fed up with the racketeering and scandals that had marred previous governments. Since coming to office in 2018, he has made personal austerity a symbol, abolishing the presidential guard, moving out of the spacious official residence and flying around the country in economy class. Largely as a result, his approval rating in opinion polls hovers at 60%.

That is why recent allegations concerning his eldest son, José Ramón López Beltrán, are potentially game-changing for the president. According to an investigation by Mexicans Against Corruption and Impunity, a watchdog, and Carlos Loret de Mola, a journalist, Mr López Beltrán and his wife lived for a year until July 2020 in a mansion in the suburbs of Houston owned by Keith Schilling, a former manager of Baker Hughes, an oil-services company. During that period Baker Hughes received business worth \$194m from Pemex, the state-owned oil giant into which the president has poured extra public money.

Mr López Obrador (or AMLO for short) insists that his son has no influence on the government and that "there is no proof of anything at all" against him. Mr Schilling, who left Baker Hughes in January 2020, told Bloomberg that he had no responsibility for his firm's work in Mexico and did not know that his tenant was the president's son. But Mr López Beltrán has yet to demonstrate that he paid the rent. And the photos of the capacious mansion with a home cinema, a large swimming pool and gardens

hardly convey austerity.

The first son, who has since moved to another mansion near Houston, said that he lives from his earnings as a lawyer for a property developer. The company is owned by the children of Daniel Chávez, a businessman close to AMLO. He is an adviser for one of the president's pet infrastructure projects, a tourist train that will run close to several of Mr Chávez's hotels in the Yucatan peninsula.

The president clearly senses danger. Since the news broke last month, at his hours-long morning news conferences he has followed the populist textbook of distracting attention by inventing enemies of the people. First he launched a rant against Spanish companies, saying that they had "plundered" Mexico during the three previous "neoliberal" governments and that he would "pause" relations with Spain until the end of his term in 2024. The next day he clarified that he was not breaking ties formally.

A week later he claimed that Mr Loret de Mola was "a corrupt mercenary" who earned 35m pesos (\$1.7m) in 2021. Al-

though the journalist said that the figure was inflated and included earnings from different years, the details listed by the president could only come from the tax agency. Their publication is a crime. Mr López Obrador claimed he was acting in the name of "transparency". Others saw intimidation in a country where five journalists have been killed so far this year and where extortion and kidnapping are shockingly common. The president is "furious" because he hasn't been able to shake off the scandal, said Mr Loret. "He's lost it."

The president insists he is carrying out a moral "transformation" of Mexico, and that his critics represent vested interests threatened by this. He has little else to show, apart from an increase in cash transfers to some poorer groups. His government's handling of the pandemic has been poor. The economy has been slow to recover from a slump in 2020, and violent crime remains rampant. Despite all this, most Mexicans still think that he is on their side and his critics are not.

Mexico's largely discredited opposition now senses an opportunity. "I think it's a turning point," says Martín Vivanco of Movimiento Ciudadano (Citizens Movement), a newish social-democratic party. "For the first time he's losing his monopoly of the public conversation." Some of the president's middle-class supporters peeled away in mid-term elections last year. He seems certain to win a self-engineered recall referendum on his rule in April. But local elections in six states in June may be a tougher test.

AMLO "governs through symbols," says Mr Vivanco. The risk for the president is that the Houston mansion becomes the new symbol of his rule. He will strain mightily to prevent that.





Afghanistan in crisis

The limits of aid

Humanitarian assistance is no substitute for a functioning economy

THE International Rescue Committee, a big NGO, helps displaced Afghans with cash, clean water and tents to shelter in. It provides sanitation. It funds dozens of clinics. It helps people find jobs and arranges training for development projects. All this aid does not come cheap. Vicki Aken, who runs its operation in Afghanistan, reckons she needs between \$1m and \$2m every week to keep it going. But ever since the Taliban took over the country in August, foreign banks have refused to transfer money to Kabul, the country's capital, fearing hefty fines, or worse, for breaching sanctions. Meanwhile, the Taliban, worried about running out of currency, have capped withdrawals from NGOs' local accounts at \$25,000 per month.

Instead, Ms Aken's organisation is relying on the *hawala* network, an informal money-transfer system that originated in India. Used for centuries by pilgrims, migrants and merchants all around the Islamic world, it operates on the basis of trust: an agent in one country receives cash and a counterpart in another disburses it, even

though no money actually crosses borders. Many other NGOs are doing the same. The surge in demand for *hawala* services has pushed fees up from around 2% early last year to between 4% and 13% today.

The withdrawal of American forces from Afghanistan six months ago was followed by another calamity: the withdrawal

of American and other Western funding from Afghanistan, and the freezing of the government's overseas assets. Until August foreign aid covered 75% of the state budget. Afghan banks could transact with those abroad. Businesses could obtain credit. All that stopped. The country's financial system ground to a halt.

That has caused a liquidity crisis that is crippling the Afghan economy. The state has no money to pay for essential imports such as food, medicine or electricity. A private sector that grew over the past two decades is crumbling without cash to pay salaries or suppliers. Many factories in Kandahar have shut because of electricity shortages. A businessman in Kabul says he does not have the foreign currency for materials for his plastics firm. He has slashed his workers' pay from around 450 afghanis (\$4.90) to 300 afghanis per day.

At least 500,000 people have lost their jobs since August, roughly 5% of the workforce. Teachers and doctors have gone months without pay. Withdrawals from individual accounts have been capped at 30,000 afghanis per week. The money that remains locked up is losing value fast. The afghani has dropped by around 12% against the dollar since mid-August. Qamarulbanat Quraishi, a 24-year-old in Kabul with seven sisters and five brothers, says she is trying to cut costs by skipping meals. "I don't think we can continue in this situation," she says. She has run out of savings.

The country is facing an escalating hu-

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► manitarian catastrophe. Aid agencies warn, loudly and repeatedly, of unimaginable misery. Almost the entire population could be living in abject poverty—under \$1.90 a day—by the middle of the year. Some 60% of the country is at risk of acute hunger. Already some families have been reduced to eating dry flour. People are selling body parts and children.

The rest of the world has not ignored the crisis. Donors committed \$1.8bn in humanitarian assistance in 2021. Last month the UN launched its largest-ever appeal for a single country, hoping to raise another \$4.4bn. Getting donors to stump up the cash is not the problem. The difficulty is getting the money into the country, as Ms Aken's example illustrates.

America and the UN have clarified that sanctions don't apply to humanitarian work. But risk-averse banks remain unwilling to transfer funds into Afghanistan. Some 85% of NGOs say withdrawal limits and the inability to transfer money are seriously hampering their work, according to a recent survey by the Norwegian Refugee Council, another big NGO (see chart on previous page). The council itself has resorted to buying basic items, including blankets and food, in Pakistan and bringing them over the border by road. Even the UN is struggling. It has taken to stuffing bank notes in planes and flying them in. That is expensive, and moving so much cash around the country is risky.

On February 11th President Joe Biden crushed hopes of a recovery. Of the \$9bn-odd of Afghanistan's central-bank reserves held abroad, \$7bn is in America (the rest is mostly in Europe). The White House said it would unfreeze that money, using half of it for aid and setting aside the other half pending judgment in cases involving the families of victims of the September 11th attacks, who are suing for compensation.

The decision has elicited criticism from all corners of Afghan society. The Taliban government has darkly threatened to "re-consider its policy" towards America if the executive order is not rescinded. Ordinary

Afghans have taken to the streets, making the reasonable point that the Afghan people had nothing to do with the 9/11 attackers, most of whom were Saudi (although the terrorist group behind the attacks was sheltered by the Taliban last time they were in power). Shah Mehrabi, a member of the Afghan central bank's board, describes the move as flagrantly unjust. Graeme Smith of the International Crisis Group, a think-tank, says the decision is akin to King Solomon literally cutting the baby in half.

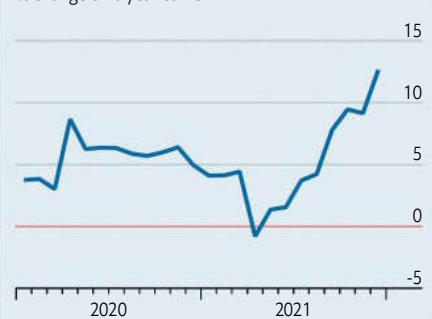
Whatever the Biden administration does with the money—apart from keeping it frozen or returning it to Afghanistan—it is in effect seizing Afghanistan's central-bank assets. Without funds to back its cur-

rency or repay commercial depositors of dollars, the bank and the banking system will lose what shreds of credibility were left. That could cause the sort of hyperinflation Germany saw in the 1920s and Zimbabwe in 2008-09, fears Khalid Payenda, Afghanistan's finance minister until August. Inflation is soaring (see chart).

That will only exacerbate the country's already grim situation. Humanitarian assistance is an expensive way to save people from indigence and, in any case, no amount of aid can replace a functioning economy. At some point global interest in Afghanistan will fade. "These aid levels aren't going to stay so high forever," says Ms Aken. What then? ■

Scaling new peaks

Afghanistan, consumer prices
% change on a year earlier



Japanese booze

Awamori? Go on then

YONAGUNI
Okinawa's distillers are trying to push up the local firewater

THE EYES water as your correspondent enters Sakimoto Distillery. Large vats of rice bubble over open flames, filling the air with boozy fumes. The solution will be distilled into *awamori*, a liquor native to the islands of Okinawa, the most southern and western of Japan's prefectures. Sakimoto Toshio, the distillery's boss, pours out a sample of the stuff, which with an alcohol content of 60% is about half as strong again as a typical spirit. Your correspondent's throat burns as it goes down.

Awamori was invented in Okinawa in the 15th century. It uses long-grain rice and, to stimulate fermentation, black *koji* mould, distinguishing it from *shochu*, a better-known Japanese spirit invented in nearby Kyushu, which uses white *koji* and short-grain rice or other starches. The punch it packs reflects local conditions: its strength helped preserve the drink on the hot, humid islands in the days before refrigeration. The throat-burning 60% variant emerged on Yonaguni, Japan's westernmost island, where Sakimoto is based. Known as *hanasake*, it is said to have started life as a disinfectant for medical use on ships, and later came to play a role in rituals such as funerals. When locals actually drink it, they usually cut it with ice and water and have it with roast pork.

Awamori has lately fallen on hard times. Two-thirds of the 45 members of Okinawa Awamori Distillers Association were in the red in 2020. Production volumes that year dipped by nearly 20%, the fourth straight year of decline. Younger Japanese are drinking less booze, and they prefer softer stuff or mixed drinks.

That has forced the industry to ex-



Goes straight to the head

periment. Japan's external trade organisation has sought to market *shochu* and *awamori* as premium drinks for discerning foreign tipplers, but few are biting (or sipping). Distillers have released flavoured *awamori* drinks, organised *awamori* festivals and enlisted influencers to appeal to younger consumers—with mixed results. Nakamura Shunki, a researcher at Okinawa's manufacturing promotion office, reckons it helps if the drink looks Instagrammable.

Mr Sakimoto has got the idea. He launched a collaboration with Rebun, Japan's northernmost island, which supplies mineral water to make a "limited edition" *awamori*. The "PR effect" of bringing together Japan's extreme north and west has helped sales, he says. Wisely, he also watered it down: its alcohol content is a more palatable 43%.

Public health

A million ways to die in the east

DELHI

The Omicron wave recedes from India, but not the risk of a premature death

LISTEN CAREFULLY and a gentle sound can be heard across India: a collective sigh of relief. The third wave of covid-19 to hit the country is ebbing fast. On February 15th Mumbai, where cases rose first, reported zero deaths for the first time in over a month. Unlike the second wave last year, which was fuelled by the Delta variant and killed over 2m people in just a few weeks, according to *The Economist's* estimates, the Omicron outbreak passed without enormous loss of life. Official numbers suggest its peak daily toll, in early February, was only a quarter of last year's.

Indians, like people around the world, are allowing themselves the hope that the worst of the pandemic may be over. Yet there remain a million more mundane ways to die in India, few of which attract the attention or resources of an exciting new disease.

Consider the fate of Pratikkumar Dubey of Ahmedabad, a big city in the prosperous state of Gujarat. On January 14th, a day celebrated as Makar Sankranti, a kite-flying festival marking the sun's passage into Capricorn, the 28-year-old was riding his motorbike down a busy street when the string from a fallen kite caught him in the throat. Known as *manja*, the twine is dusted with powdered glass for a fighting edge. Effective at cutting rival kite strings, it can also slash skin, which is why several states ban its use. Mr Dubey was one of four people killed in motorbike-*manja* encounters in India that day.

Or take the innocent chore of commuting. Before the pandemic, an average of nine people died every day on the suburban rail network in Mumbai, India's commercial capital. In normal times the heaving system moves 7.5m passengers daily. By way of comparison, the London Underground moves 5m commuters a day, of whom only two per year die in accidents.

On India's railways overall, the annual death toll of around 25,000 is about 25 times that of China, a country with a similar population and a busier rail network. Travelling by road is even riskier. Although the government puts the death count from traffic accidents at around 150,000 in a normal year, independent estimates suggest the true figure is closer to 220,000, three times the number in China. About a third of victims are motorbike riders.

India also offers more exotic exits. Tiger, elephant, lion and leopard attacks



claim perhaps 500 human lives in a bad year. Less advertised are the immensely greater risks of dying from rabies or from snake bites. Of the 300 snake species found in India, the 60 that are highly venomous do away with nearly 60,000 people every year, the highest per-capita rate in the world. The weather can be deadly, too. Lightning strikes kill over 140 times as many people in India—2,876 in 2019—as they do in America. Many victims are farmers wading in rice paddies. But last July a single bolt killed 16 youths taking selfies atop the ramparts of a fort.

India also suffers some deadly social ills. The overall murder rate is lower than America's. But an average of 92 Indians are killed each year after being accused of witchcraft. The country's suicide rate, at 12.9 per 100,000 people in 2019, is lower than average for countries in its income group (14.1) but high for its region (10.2) and above the global average (9), according to the World Health Organisation.

What is striking is that the rate for women (11.1) is among the highest in the world, reflecting a disturbing level of domestic misery. So-called "dowry deaths" remain common: women are killed or driven to suicide by in-laws who think the dowry they brought when they married was too small. The shocking number of Indians who die every year from falling into sewers—142 in 2020—has a telltale twist, too. Most victims are men at the bottom of the caste hierarchy, condemned to the drudgery of cleaning other people's waste.

As everywhere, the vast majority of the 10m Indians who die each year succumb to more ordinary ailments, the leading one being plain old heart trouble. Life expectancy in India today, at 69.6 years, is just three years short of the world average. But it is worth considering what that number might be if India's government were to pay as much attention to addressing, say, tuberculosis, which has killed some 2m people in the past five years, or air pollution, whose five-year death toll is estimated to exceed 8m, as it has to covid. ■

Turkmenistan

Cut-rate khanate

ALMATY

Gurbanguly Berdymukhamedov finds a worthy successor: his son

IT IS TRUE that he is two years past his country's official retirement age. But at 64 Gurbanguly Berdymukhamedov, Turkmenistan's president, is still a spring chicken by the standards of his contemporaries. Islam Karimov ruled Uzbekistan until his death at 78 in 2016. Nursultan Nazarbayev, the former president of Kazakhstan, was the same age before he made way, in 2019, for a younger leader. Vladimir Putin, Russia's 69-year-old president, shows no sign of slowing down.

So it was a shock when, in a speech on February 11th marking his 15th anniversary as president, Mr Berdymukhamedov announced the "difficult decision" he had made. It was time, he said, to give "young leaders" a chance, as long as they "have been brought up in a spiritual environment and in accordance with the demanding needs of modern times". A snap election will be held on March 12th.

The crushing of anything resembling an opposition, the suppression of even mild dissent, and the fact that the president won the last poll with 98% of the vote suggest that such youths might be hard to find. But the ruling party did not have far to search. It immediately nominated as its candidate Serdar Berdymukhamedov, the president's 40-year-old son. The stage has been set for Central Asia's first hereditary succession since the era of the Khans.

The younger Berdymukhamedov (pictured), an engineer by training, has long been groomed for the role. After stints in the foreign ministry and as a diplomat, he ►



Yes we Khan

▶ became a member of the rubber-stamp parliament in 2016. He rose swiftly to become a regional governor, before being propelled into the cabinet as minister for industry in 2020. Last year he was elevated to the position of deputy prime minister. Yet it was not until September that he gained a crucial qualification by turning 40, the minimum age for a president.

Serdar will have a full inbox once he takes over. The economy is in grim shape. Food shortages plague the country. The market value of the currency is six times lower than the official rate. And it is over-

reliant on gas for exports and China for trade. The heir apparent may struggle in less obvious ways, too. His father is a flamboyant leader, known for macho stunts that prop up his cult of personality. By contrast, Serdar is a wooden speaker who dislikes being in the public eye.

Helpfully, the outgoing president is not planning to retreat to a life of fishing and horse-breeding. He will retain the chairmanship of the upper house of parliament. Yet the reason for his retirement remains unclear; the only explanation offered was that he had lived longer than the Prophet

Muhammad (Turkmenistan is mostly Muslim). The true cause is probably ailing health: a long disappearance from public view in 2019 sparked speculation that he was being treated for a serious condition. The idea may be to allow Serdar time to consolidate power while his father is still around to protect him. In any case, the president has made it clear that the change represents continuity rather than reform. Or as he put it in his farewell speech, quoting a Turkmen proverb, "The traditions of the fathers are priceless, and whoever loves them loves the motherland!" ■

Banyan Littoral, but not serious enough

Asia's premier trade deal is growing, but first it must mature

WHEN DONALD TRUMP pulled America out of the 12-country Trans-Pacific Partnership (TPP) five years ago, analysts and economists busied themselves writing obituaries for what was to have been the world's biggest free-trade deal. The United States accounted for nearly two-thirds of the incipient bloc's GDP, and had done most of the diplomatic heavy lifting.

The obituaries were premature. Led by Japan, the remaining 11 members regrouped and in late 2018 got going as the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP). With Australia, Brunei, Canada, Chile, Malaysia, Mexico, New Zealand, Peru, Singapore and Vietnam as members, the grouping still accounts for nearly one-sixth of global GDP. Though the Regional and Comprehensive Economic Partnership (RCEP), which came into effect this year, is bigger, it holds to much lower standards. Signatories to RCEP have 20 years to eliminate 90% of their tariffs to each other. CPTPP insists, with a few exceptions, on zero tariffs from the start. Rules on openness to investment, environmental standards and protection of intellectual property make it one of the world's most rigorous trade pacts.

More countries now want in. First is Britain, seeking to persuade itself and others of global ambitions after Brexit. Admittedly, Britain's control of the Pitcairn Islands (population: 55) makes its territorial credentials as a Pacific power look skimpy. Still, adding the world's fifth-biggest economy would greatly boost CPTPP's size.

Not as much, though, as would adding the second-biggest. China submitted its application in September—a revealing irony given that America had once viewed the TPP as a counterweight to its

rise. China sits at the heart of global supply chains, which is why some CPTPP members, wishing to deepen trade and investment ties with it, support the bid.

That prospect discomfits those suspicious of Chinese motives. Its economic system seems incompatible with parts of the CPTPP, notably rules curtailing state-owned enterprises. It pursues mercantilist policies in some sectors. It either shuts out foreign tech firms or takes intellectual property from them. And it is a bully: it is boycotting much trade with Australia for petty reasons. In Australia, Canada and Japan, its application is unwelcome.

That is in contrast to the application by Taiwan, submitted six days after China's. Asia's open societies share affinities with democratic Taiwan. And from a trade perspective, the country's chipmakers are crucial to global tech.

China is vehemently opposed to Taiwan's joining. It claims the island as its own and reserves the right to invade. How to deal with the two applications is a hot potato that CPTPP representatives attempted to handle as they met under

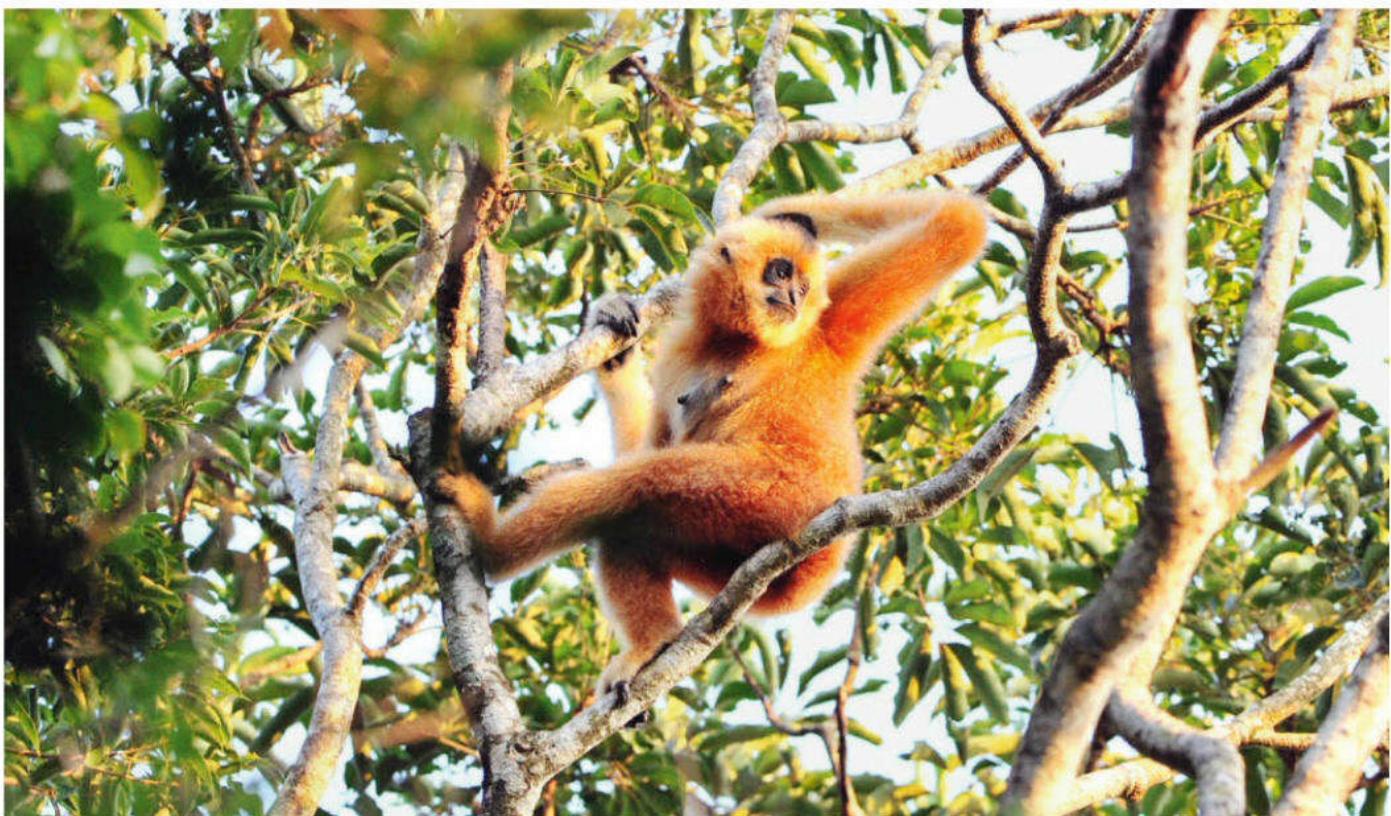
Singaporean auspices as *The Economist* went to press (Ecuador's bid for membership is less controversial). Singaporean officials are likely to advise their counterparts in China to sort out its differences with Japan and Australia first.

Yet kicking the potato down the road cannot work for ever. In Asia, trade trumps everything, and China's clout suggests that sooner or later it will get its way. Already, some of the region's officials are starting to claim that admitting China would be a way to curb its errant trade practices.

The trouble with that argument is that, even without new members, CPTPP lacks enforcement teeth. Deborah Elms of the Asian Trade Centre in Singapore, which works with governments and companies to fashion better trade deals, argues that the pact is weak when it comes to implementation. No one is really monitoring Vietnam's obligations to meet CPTPP standards on state enterprises, e-commerce and cross-border data flows. Nor has the deal's dispute-settlement mechanism ever been used—Asian governments are not in the habit of suing each other. Meanwhile, the brevity of the pact's language on accession suggests the founding members gave insufficient thought to admitting new ones—and South Korea, a tech and industrial giant, also wants to join.

Both political and technical challenges underscore the CPTPP's institutional shortcomings. Despite the complexity of its provisions, Ms Elms points out, few governments have officials working on the pact full-time. More striking, it lacks even a secretariat. Some of its supporters argue that CPTPP can take the lead from the WTO as the world's chief promoter of free trade. If it lacks even an office, that remains a bold assertion.



**Biodiversity**

Conservation conversation

SANYA

China is trying to become a champion of biodiversity. It has a lot of work to do

CHINA'S IMPRIMATUR on the "Kunming declaration" goes beyond its name. Signed by over 100 countries in October, the pledge set the tone for COP15, the largest UN biodiversity gathering in a decade. (First scheduled for 2020, it was delayed several times because of covid-19.) The conference, taking place in two parts, is being hosted by China for the first time. Its second meeting was scheduled for April but also looks likely to be postponed. The host city is the capital of Yunnan, a south-western province that is a showcase of the biodiversity that China needs to preserve, from steamy jungle to mountain glaciers.

As a forum in which China can demonstrate its green leadership credentials, COP15 has a special appeal. The country is alert to the importance of global norms on mitigating climate change. Even when in dispute on other matters, America and China have shown co-operation on limiting emissions. But, with a Senate that has a poor record for ratifying environmental treaties, America is not a party to the UN's convention on biodiversity, which was

signed into force by over 190 member states in 1993. That lets China run this show. The theme for Kunming is its home-grown idea of sustainable growth: "ecological civilisation".

The term was written into China's constitution in 2018, suggesting how central it now is in guiding development. The Kunming declaration is filled with other favourite greening concepts of the Communist Party, including the "two-mountains theory", attributed to President Xi Jinping. This states that "green mountains are gold mountains": that is, the environment can no longer be sacrificed for development.

For decades, China pursued single-minded economic growth, which allowed millions to lift themselves out of poverty. But pollution and over-exploitation damaged wildlife and habitats. The number of

China's terrestrial vertebrate species—a good indicator of biodiversity—has halved since 1970. More than one in five surviving species faces extinction. In the five decades to 2000 over half of the country's mangroves—essential breeding grounds for aquatic life—disappeared. Some 90% of grasslands are at varying stages of degradation or desertification, and almost half of wild-animal populations are in decline, decimated by the illegal trade in wildlife.

Yet, despite the ravages of urbanisation, China has much left to protect. It is home to 10% of the world's plant species, 14% of animal ones and 20% of fish. At the second meeting, delegates will set goals for 2030 to preserve global plant and animal life. The stakes are high. Signatories failed to meet any of the targets they set for themselves in 2010, when they last met, in Japan. In October Mr Xi launched the Kunming Biodiversity Fund, to which China has contributed 1.5bn yuan (\$230m). Li Shuo of Greenpeace, an NGO, says this larger commitment "could be the impetus others need" to spend more. Mr Xi also announced the formal opening of five national parks, spanning 230,000 sq km, home to over a quarter of China's terrestrial wildlife species. (America's 63 national parks cover 340,000 sq km.)

Still, China's broader commitment is far from clear. In 2020, in a speech to the UN General Assembly, Mr Xi unexpectedly committed the country to carbon neutrality by 2060. Then in September he an-

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nounced that the country would not finance new coal projects abroad. But for now, China remains the largest consumer of coal and emitter of carbon dioxide. Success in stemming deforestation is mitigated by its parallel rise as the world's largest importer of wood. Greenpeace called the Kunming declaration "a toothless tiger".

Keeping citizens happy is becoming a powerful incentive for China. They are vocal about more than polluted water and toxic air. The global debate about the origins of covid-19 has put a focus on the costs of destroying habitats and trading wildlife. In February 2020 China's legislature expanded the scope of its wildlife protection law to ban the consumption of almost all wild animals. In a report published in January, the World Economic Forum estimated that 65% of China's GDP, or \$9trn, is "at risk of disruption from nature loss".

No mangrove is an island

Perhaps no province so clearly illustrates that trade-off than the island of Hainan, a lush tourist hotspot off the southern coast. Last year its white sandy beaches and monstrous resorts drew 80m (almost entirely domestic) tourists. Some came for the newly opened Hainan Tropical Rainforest National Park, one of the five scenic areas announced by Mr Xi. Though covering just 4,400 sq km, the rainforest is home to nearly 20% of China's amphibian species and almost 40% of its bird species.

Hainan is China's smallest province, so it is hardly representative. But it is a useful case study, because it is straining under the excesses of tourism and development while trying to protect its environment. Those goals are usually in conflict. But local NGOs are hoping that, if managed well, tourism can be part of the solution. They have little choice: such pressures will only grow as Hainan transforms into a vast free-trade port, as called for in plans unveiled in 2020. The island wants its duty-free market to grow tenfold by 2025, to \$50bn.

In the 1950s, jungle was cleared for state farms producing rubber. At that time, there were about 2,000 Hainan gibbons in the area. By 1970 only around ten were left, and it is still the world's rarest primate (pictured on previous page). But now, Hainan is being praised for its rescue efforts, which include replanting the ape's favourite lychee and fig trees. In September the park announced that two babies had brought the population to 35.

Preservation extends beyond the park. At COP15, China aimed to become the first country to put 30% of its land and sea under protection by 2030. Hainan has already drawn a "red line" around 27% of its land and 35% of its coastal waters: any construction in these zones that harms the environment is banned. Land reclamation, shrimp ponds and sewage discharge have long

contributed to mangroves' disappearance. Now Hainan is halting such encroachment and replanting trees. National mangrove coverage increased by almost half between 2000 and 2019, to 30,000 hectares.

Local initiatives help. Blue Ribbon Ocean Conservation Association, a local NGO, patrols mangroves, clearing away invading species. Its data-collection methods on coastal walks have been adopted elsewhere. In Meilian, a pilot village, it has got fishermen to use nets with larger mesh.

Young visitors are starting to pay a premium for sustainable produce. They want to enjoy a nice environment, says Pu Bingmei of Blue Ribbon. More are joining in ocean-conservation activities on holiday, such as the beach clean-ups that her NGO organises. In late 2020 Hainan became the first province to ban single-use plastic.

The youngest mangrove forest is in Tongqi Bay. A wiry fisherman says he has been banned from farming whelks in shallow coastal pools. "Mangroves mean more fish, more shrimp, more whelks," he says, as if reciting. Ms Pu hopes that shoppers' cash will boost local-government funding for eco-projects. But, she says, "As tourism grows year by year, Hainan will forever need to find a new balance." ■

Nationality

Two passports, one problem

Foreign-born athletes have sparked a big debate

I'M AMERICAN WHEN I'm in the US, and I'm Chinese when I'm in China." So Eileen Gu, a gold-medal-winner for Team China at the Beijing Winter Olympics, replied when asked if she was still an American citizen. Ms Gu, born and raised in America, is a superstar in China. But many Chinese are puzzled. China does not recognise dual nationality. Questions about whether she holds two passports have fuelled debate about whether China should change its strict citizenship rules.

Ms Gu's case is not unusual at the Olympics, which end on February 20th. Zhu Yi, a figure-skater, was also born and raised in America. Most players in China's men's ice-hockey team are foreign-born. The International Olympic Committee says that Ms Gu acquired Chinese nationality in 2019 and that China's Olympic body produced a copy of her Chinese passport. But it is unclear whether she has renounced her American citizenship, or if China has allowed her not to. Like most rich countries, America allows dual nationality.

The issue has become important for

many people in China. Millions of Chinese have moved abroad and many have gained foreign citizenship; others have acquired it by making investments. By law, this results in automatic forfeiture of Chinese citizenship. But many people keep quiet about their foreign nationality to avoid having to give up their citizenship rights. Having a Chinese identity card—available only to citizens—makes living and working in China much easier.

China once regarded ethnic Chinese living abroad as its nationals. But this led to suspicion in other countries about their loyalties. In the 1950s the policy changed. In 1980 a new law banned dual citizenship. Media occasionally air suggestions that the ban be lifted. In 2018 Zhu Zhengfu, a prominent lawyer, said it was fuelling an exodus of talent. "Acquiring foreign nationality cannot be equated with being unpatriotic," he said.

But there are many Chinese who wonder about that. In 2009 there was anger over reports that several actors in a patriotic movie, "The Founding of a Republic", were China-born holders of foreign passports. People fume about pop stars and others whom they accuse of breaking the nationality law. Many express support for the current legislation. If China were to allow dual nationality, they argue, it would make it easier for people to make corrupt money in China and then disappear abroad with it.

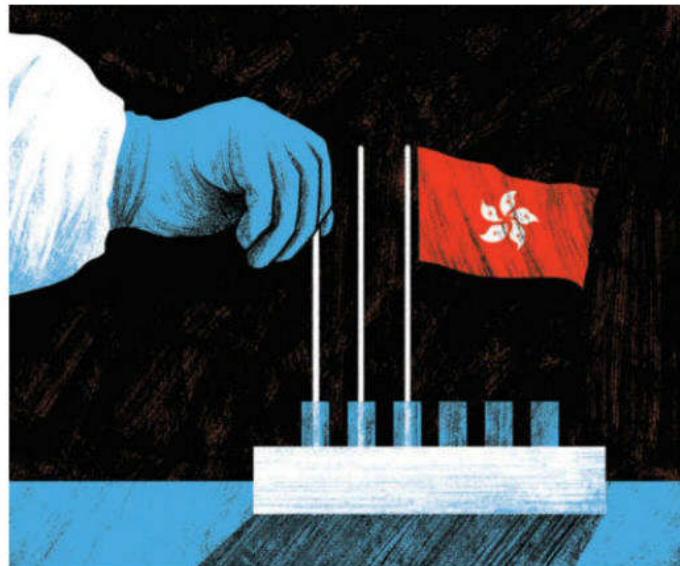
Some dual nationals trembled when, in 2017, China began taking the fingerprints of foreign passport-holders entering the country. There was speculation that this would make it easier to crack down: people's prints could be matched with ones linked to Chinese identity documents. In 2018 the Chinese embassy in London warned that those who had renewed their Chinese passports after securing foreign citizenship could be barred from China. But if there is any flexibility, it seems to apply mainly to ethnic-Chinese foreigners with a shot at gold. ■



Come on, Eileen, show us your passport(s)

Chaguan | “Zero covid” as a loyalty test

Hong Kong can open to the mainland or the world. Not both



HONG KONG is about to endure its worst three months since the covid-19 pandemic began. With new case numbers running at thousands per day and doubling every few days, the financial and trading hub of 7.5m people faces an outbreak that—if it happened in mainland China—would trigger a citywide lockdown, with millions of people told to stay home, if necessary for weeks.

Hong Kong will not close in the same way, its chief executive, Carrie Lam, assured the public on February 15th, even as she admitted that a fifth covid wave is overwhelming hospitals and quarantine sites. The central government, knowing that a lockdown cannot simply be imposed from the mainland, says that primary responsibility for pandemic control rests with Hong Kong. But Hong Kong's caution is making national leaders in Beijing restless. Also on February 15th official media reported President Xi Jinping's instruction that the territory use “all necessary measures” to control the outbreak (to illustrate Mr Xi's concern for residents, a state-owned Hong Kong tabloid depicted him beside a red Valentine's heart). A flurry of editorials from mainland commentators and scholars complains of Hong Kong officials who “worship” Western values and lack faith in China's “dynamic zero covid” strategy of crushing each outbreak. If epidemiologists' models are right, Hong Kong's latest surge will decline by summer. At that point, a broader political reckoning will follow.

Tian Feilong, of the semi-official Chinese Association of Hong Kong and Macau Studies, has written that the territory's civil servants and government leaders are failing the test set by party chiefs in Beijing, that Hong Kong must be governed by “patriots”. That same test was used last year to ban opposition candidates from running for elected office, even as a national-security law was used to jail dozens of democracy campaigners for their roles in anti-government protests. With overt opposition crushed, attention is turning to “soft resistance” among Hong Kong's administrators. Civil servants stand accused of nostalgia for British rule, and of secretly envying Western countries that choose to live with covid in the name of individual freedoms—a stance that Chinese experts excoriate as “social Darwinism” that leaves the weak to perish, in contrast with the Communist Party's stern but life-saving controls. Ominously, mainland commentators have ques-

tioned Mrs Lam's commitment to “dynamic zero covid”, grumbling about her use in late January of a dismissive Chinese phrase when noting that she was not the initiator of the strategy. A hand-picked committee must choose a new chief executive for Hong Kong in late March. National leaders have yet to signal whether they favour Mrs Lam for a second term. Her own plans are unclear.

Regina Ip, a pro-establishment member of Hong Kong's legislature and of the chief executive's cabinet, or Executive Council, calls it “undeniable that many senior officials are held hostage by Western ideas about the protection of fundamental rights and freedoms which they hold in awe but do not fully understand”. Mrs Ip backs sterner measures, with the mainland as a model. At the moment, she says, case numbers are soaring while Hong Kong's borders are mostly closed, leaving the territory “falling between two stools: neither as effective in controlling the spread of covid as mainland China, nor as open as our rival city, Singapore”.

Yet few believe that citywide lockdowns are possible in Hong Kong. Ren Yi, a Beijing-based blogger read by many of China's media and political elites, thinks that pro-establishment Hong Kong politicians are reluctant to tell national leaders that they cannot enforce full, mainland-style controls. Mr Ren, whose pen-name is Chairman Rabbit, does not welcome this reality. But he felt a duty to write a much-cited recent post about the power of Hong Kong's “deep state”, in order to “try to lower Beijing's expectations”.

Some differences are practical. Hong Kong lacks the hundreds of thousands of Communist Party members and public workers who stand guard outside closed housing estates, round up residents for mass testing and deliver food parcels to those trapped indoors, when mainland cities of similar size are sealed. Hong Kong's police force has fewer than 31,000 officers: not enough to lock 7.5m people indoors. With baffling complacency, during months without covid cases, Hong Kong failed to stock up on rapid tests or prepare sites to isolate those with mild symptoms before the fast-spreading Omicron variant hit. Authorities are now scrambling to requisition empty public housing and hotel rooms.

No law can force people to trust their rulers

Then there is Hong Kong's divided politics. Many residents deeply distrust both Mrs Lam and national leaders in Beijing. They would resist tools that drive compliance on the mainland, such as apps that allow officials to confine those suspected of proximity to covid cases by remotely turning their smartphone “health codes” from green to yellow or red, barring them from trains and shops.

Hong Kong is hardly laissez-faire about covid, having now banned outdoor gatherings of more than two people and locked down neighbourhoods for compulsory testing. Ben Cowling, a professor of epidemiology at the University of Hong Kong, worries about death rates in coming months, notably among the oldest, who have largely shunned covid vaccines. Once this wave passes he can imagine fresh attempts to eliminate the virus in Hong Kong, in order to try once more for an open border with the mainland. “I don't think Omicron is the end of zero covid,” he says.

Mainland scholars urge Hong Kong to accept pandemic help from the central government to boost national pride. They charge those seeking access to the outside world with elitism: opening to the mainland, they say, is what the masses want. China's top official in Hong Kong, Luo Huining, last month warned the city against “self-pity” over its role as an adjunct to China's overall development. Behind debates about public health, arguments about loyalty lurk. They will outlast even this relentless pandemic. ■



China and Africa

Chasing the dragon

JOHANNESBURG AND NAIROBI

How Chinese firms have dominated African infrastructure

WHEN IT COMES to building big things in Africa, China is unrivalled. Beijing-backed firms have redrawn the continent's transport map. Thanks to China's engineers and bankers you can hop on a train in Lagos to beat the traffic to Ibadan, drive across parts of eastern Congo in hours rather than days or fly into any one of dozens of recently spruced-up airports from Zanzibar to Zambia. Throw in everything else from skyscrapers and bridges to dams and three dozen-odd ports and it all adds up to rather a lot of mortar.

It was not always so. In 1990 American and European companies scooped up more than 85% of construction contracts on the continent. Chinese firms did not even get a mention. Now Western firms are struggling to win business in a fast-growing market. (The World Bank predicts that demand for infrastructure spending alone will be more than \$300bn a year by 2040.) Africa's population is growing faster than that of any other continent, and Africans are moving to cities faster than people elsewhere. Both these trends will drive demand. The dragon's share will be built by

Chinese firms, which in 2020 were responsible for 31% of all infrastructure projects in Africa with a value of \$50m or more, according to Deloitte, a consultancy. That was up from 12% in 2013. Western firms were directly responsible for just 12% or so (compared with 37% in 2013).

This remarkable turn of fortune for Western firms worries not only their shareholders but also their governments, which see China's growing economic might in Africa as strengthening its strategic and diplomatic clout. Its Belt and Road Initiative (BRI) finances ports, roads and other infrastructure, which makes Western generals anxious that China may open another naval base in Africa (it has one in Djibouti). Western governments also worry that Chinese investments in African

mines will give it a stranglehold over strategic minerals, such as the cobalt used in electric cars. Of late America has put competing with China at the core of its foreign policy. It and Europe have been trying to offer African countries financing alternatives to the BRI. At an EU-Africa summit on February 17th, European leaders were expected to outline plans to pour €150bn (\$170bn) into African infrastructure.

Western governments are also trying to herd their companies into investing more and building more in Africa. This is easier said than done. Some Western construction firms grumble that the odds are skewed against them from the outset, not least because China is such a big spender. Between 2007 and 2020 Chinese development banks provided \$23bn for African infrastructure, compared with \$9.1bn from all other development banks, according to the Centre for Global Development, a think-tank in Washington (see chart).

Chinese lenders are pluckier than their Western rivals. Sometimes this borders on recklessness. When Uhuru Kenyatta, Kenya's president, wanted \$4.7bn to build a new railway which the World Bank warned would never turn a profit, Chinese lenders backed it. The railway has since lost more than \$200m. Often, Chinese firms are tough negotiators. Several have struck resources-for-roads deals, such as those worth more than \$1.1bn in Ghana and Guinea, where the loans are backed by bauxite. A study by AidData, part of William & Mary university, found that Chinese lenders ►►

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▶ routinely impose unusually tough conditions to ensure they are repaid.

Western firms also complain that their own governments offer fewer sweeteners. Last year China said it would stump up its own cash to build smart new foreign ministries in Congo and Kenya. It has also picked up the tab for numerous other official buildings, from parliament complexes in Sierra Leone and Zimbabwe to presidential palaces in Burundi, Guinea-Bissau and Togo. Given such generosity, it is hardly surprising that some African governments are predisposed to favour Chinese firms. Western governments, by contrast, often spend aid on unglamorous and sometimes unpopular things like educating girls.

Most significantly, perhaps, Chinese firms have a reputation for building swiftly. Finance from Chinese development banks is quickly forthcoming, and some projects in Africa seem to be replicas of ones built in China, which presumably saves time on drawing up plans. (Stations along the new Chinese-built railway between Ethiopia and Djibouti, for example, look as if they were plucked from the Asian plain). Some of this speed may also come from cutting corners on things like environmental-impact assessments.

As a result, Chinese firms can usually deliver a big project within a single election cycle, thereby handing incumbent leaders a ribbon-cutting photo opportunity shortly before their people vote. Western firms are rarely as nimble. "It is hard for us to get up to the starting line," says an executive at a European engineering firm.

Chinese firms often win contracts for the simple reason that they are more competitive, according to a study by Brookings, an American think-tank, of international projects financed by the World Bank. Western firms grouse that some of the Chinese projects are shoddily built, and stories abound of roads that crumble after a few years. But another study of infrastructure projects funded by the World Bank, this time by the China-Africa Research Initiative at Johns Hopkins University, found no difference in the quality of work done by Chinese contractors and Western ones. The World Bank is, however, a stickler for clean bidding and high construction standards, so firms bidding on projects it funds may be on their best behaviour.

And in many cases Chinese firms are scooping up work because they have no competition—many Western firms stay away because they think Africa is too risky. It can, indeed, be hazardous. Property rights are frequently threadbare; fraud abounds. One Western manager describes trying to buy land only to discover, belatedly, that the people his consortium were negotiating with did not actually own it.

Such difficulties help explain why many infrastructure projects flop before the

first brick is laid. McKinsey, another consultancy, calculates that 80% of infrastructure projects in Africa never make it beyond the planning stages and only one in ten achieves financial closure.

Another huge deterrent is corruption. In the past Western firms often greased palms to win work in Africa—and elsewhere. A survey of more than 4,000 firms in 1999-2000 found that construction firms spent 1-2% of revenue on bribes, according to a World Bank paper by Charles Kenny. He also noted that in 2005 fully 40% of international construction firms said they had lost a contract in the previous year because a competitor had paid a bribe.

Nowadays anti-corruption laws in America and Britain are tougher, and are applied regardless of where the bribery occurs. Western firms are therefore more reluctant to pay bribes, though some still land in hot water. For example, Halliburton, an American firm, was fined in 2017 for violations in Angola and the World Bank has imposed sanctions on a subsidiary of Bouygues, a French construction firm, over irregularities on contracts.

Yet, grumbles a Western project manager, some officials in Africa are unmoved by these anti-corruption laws and still ask: "But where are the brown envelopes for the ministers? Where are the brown envelopes for the permanent secretaries?" The head of a Western mining company complains that his hands are tied in comparison with Chinese firms, which are able to operate without licences or even, in rebel-infested places such as the Central African Republic, the permission of the government, if they have paid off local warlords instead.

Some Western firms still try to compete for business. Not all have happy experiences. In 2017 Bechtel, a big American con-

struction firm, won a \$2.7bn contract to build what would have been Kenya's biggest-ever road project. Having agreed to pay up front for the road, the Kenyan government changed its mind and asked for a loan instead. When the American government declined, Kenya cooled on the idea.

A British company, GBM Engineering, secured by default a \$2bn contract to build Kenya's largest dam after five Chinese rivals, apparently unfamiliar with the idea of a competitive tender, failed to submit their bids on time. Six months later GBM's contract was cancelled amid allegations of Chinese pressure on the government board that awarded the tender. GBM won five appeals. All were blithely ignored. The case continues to meander through the courts and the dam, like Bechtel's highway, remains unbuilt.

Not every Western executive is crying into a cold beer at the local Sheraton, however. An increasing number of French firms are collaborating with Chinese entities, notes Thierry Pairault of the School for Advanced Studies in the Social Sciences, in Paris. At first relationships were informal, with French and Chinese firms working separately on the same project, often with the former doing the more complex parts.

More recently Franco-Chinese co-operation has become more formal. CMA CGM, a French logistics giant, has gone into partnerships with firms such as the China Harbour Engineering Company. In some cases French firms want Chinese partners because they can bring state-backed finance that is not on offer in Paris. But in other cases a formal collaboration emerges after years of working together informally. Deloitte found that in 2020 no less than 15% of all big infrastructure projects were being built by consortia, including those composed of Western and Chinese firms.

China's involvement in African infrastructure has not been an unalloyed good. In some cases it has left countries drowning in debt, fuelled domestic corruption or produced infrastructure that, like Kenya's railway, will never turn a profit. But long after the scandals have faded—and debts have been defaulted on—China's legacy will be the roads and ports that Africa so badly needs for economic growth.

Perhaps as important is that China is unwittingly crowding in Western money by stoking the geopolitical anxieties of Western leaders. Britain's government recently said its development arm would invest \$1bn in Kenyan infrastructure and that a British firm would build a new rail hub in central Nairobi. The G7 group of countries last year launched the Build Back Better World initiative, a shameless copy of China's BRI. All this should mean more opportunities for construction firms of all nationalities, whether Western, Chinese or, with a bit of luck, African, too. ■

Streets ahead

Finance for sub-Saharan African infrastructure from bilateral development finance institutions
Cumulative, 2007-20, \$bn



Source: Centre for Global Development

Jihadists in the Sahel

French leave

JACQUEVILLE AND PARIS

France and its allies are leaving Mali, but their fight is not done

WHEN THEY arrived in 2013 it was in a rush: 250 men from a base in Senegal; 950 from Chad; helicopters and men from Burkina Faso. With fast-moving columns of jihadists dashing south through Mali and poised to capture Bamako, the capital, within days, there was no time for a multinational force from the UN or ECO-WAS, the regional bloc. François Hollande, then French president, ordered his troops into Mali, urging them to "get it done".

And they did. Within hours they were attacking the jihadists; within weeks France was recapturing cities such as Timbuktu and Gao. Yet what had been planned as a brief intervention turned into a grinding nine-year struggle against jihadists affiliated to al-Qaeda and Islamic State. Now they are leaving, their mission incomplete. On February 17th, after meeting in Paris with European and African partners, France announced that "due to multiple obstructions" by the current Malian regime it would withdraw its roughly 2,400 troops from Mali. A European special-forces mission is withdrawing, too.

The immediate cause is a diplomatic breakdown between France (and its allies) and the junta that overthrew Mali's elected government in 2020, led a second coup last year and has since refused to hand power to civilians. The junta recently kicked out the French ambassador and Danish commandos, who were helping it fight the jihadists. Rubbing salt in the wound, it hired Russian mercenaries from Wagner Group.

Yet the roots of this withdrawal are deeper. France's campaign, which started so well, has been going badly. In 2020 more than 6,000 people were killed in conflict in Burkina Faso, Mali, and Niger, about seven times more than in 2016. About 3.5m have been forced from their homes.

France and the region's armies have won tactical victories—since January 2020 they have killed about 2,700 militants—but the jihadists continue to recruit and grow. Militants have since swept out of Mali and spread terror through Burkina Faso and Niger and are now striking south into coastal states such as Benin and Ivory Coast. Efforts to slow recruitment through economic development and improved governance have lagged. Insecurity has triggered a spate of coups with popular backing.

France's withdrawal from Mali casts a shadow over multinational efforts to stabilise it. The UN's mission, Minusma, has

Food labels

The champagne of Benin

How the sugarloaf pineapple joined the pantheon of posh nosh

WHAT HAM is to Parma, cheese is to Caerphilly and sparkling wine is to a certain region of France, the spiky-haired sugarloaf pineapple is to Benin. Last year this juicy delicacy was granted the west African country's first "geographical indication" (GI), a legal label that marks out products that come from a particular region.

Benin's move signals a wider trend. Other places have long sought special status for their fanciest fodder. France and Italy have roughly 6,000 GIs each. Africans want a slice of the action. It could be tasty. Sales of products given GI status by the EU are worth €75bn a year (\$83bn). On average foods with GI status command a 43% price premium, says a recent study. For wine, which makes up more than 50% of sales of EU-protected products, that rises to 300%.

Benin hopes that GIs will not only sweeten its pineapple exports—the fourth biggest in west Africa—but also make its sales of cashews, shea nuts and shea butter more fruitful. Higher prices could make a big difference in a country where 38% of people work on farms and 45% live on less than \$1.90 a day.

Others in the region hope to benefit, too. Cameroon's Penja pepper was the first African product to receive the coveted label in 2013. Sales of the sought-after peppercorn, which is grown in the volcanic soils of Mount Cameroon, helped stimulate a six-fold rise in local farmers' incomes. It now graces the plates of Michelin-starred chefs.

GIs have the potential to encourage farmers to band together to improve standards and earn higher prices. But a big challenge, says Michael Blakeney, a professor at the University of Western Australia, will be to make sure that the benefits of premium prices are passed on to farmers and are not captured by middlemen, who typically have more information about markets than small-scale farmers.

Moreover, competition is intensifying as more countries seek protected GIs for their own products. Penja pepper already has rivals from Cambodia and Indonesia. Benin's pineapples will have to battle against the likes of Huay Mon ones, which Thailand hopes to protect. Though surely a sugarloaf by any other name would not taste as sweet.



By their fruits, you will know them

some 12,000 blue-helmeted troops including contingents from Britain and Germany. French help will be less readily available when they come under attack. Some troop contributors may follow the French out.

France will continue to fight jihadists in the region, but its task will be all the more difficult as the militants carve out more havens in Mali. The burning question is whether Mali's neighbours can hold their

own. President Emmanuel Macron said that European forces would be re-centred on Niger. Countries in the Gulf of Guinea would get extra help too. They will need it. The coastal states are richer and have stronger armies, which means they have a better chance of holding back the jihadist tide. But the fact that they face this test is in itself a worrying defeat, for the region and for its Western allies. ■

Tunisia

"RoboCop" hits a rough patch

TUNIS

His critics are divided, but a deep recession threatens President Kais Saied's rule

ON THE CAMPAIGN trail in 2019, Kais Saied cemented the sobriquet "RoboCop" for his dour, mechanical demeanour. He has lived up to the nickname as president, methodically targeting Tunisia's democratic institutions. In July he suspended parliament and much of the constitution. He has shifted the country towards a presidential system: though he named a prime minister in September, she is a neophyte, her powers circumscribed.

Now he has trained his sights on the judiciary. On February 6th Mr Saied threatened to dissolve the Supreme Judicial Council, a constitutional panel that recommends nominees for judgeships and oversees their work. In the president's telling, it was hopelessly corrupt. "You cannot imagine the money that certain judges have been able to receive," he said.

Though exaggerated, his words struck a chord. Like so much in postrevolutionary Tunisia, judges are unpopular. Many see them as slow to prosecute corruption. The judges called his move an assault on their branch of government.

A week later Mr Saied replaced the council with a "temporary" alternative and arrogated the power to block judicial nominees and to remove judges for "misconduct". Said Benarbia, the regional director for the International Commission of Jurists, says the decree "ends any semblance of judicial independence".

Yet all of this has met a muted response. Perhaps 2,000 people protested against the council's closure—hardly the sort of mass demonstration that, in the past, brought crowds of activists to the capital. Few Tunisians seem bothered by the country's descent into one-man rule. The opposition, such as it is, comes mostly from the groups affected by Mr Saied's power grab: politicians and judges. But they are too divided to mount much of a challenge.

The most obvious criticism comes from Ennahda, the Islamist party that held a plurality in the now-suspended parliament. Mr Saied has been particularly harsh towards its members, blaming them for much of Tunisia's post-2011 dysfunction. Noureddine Bhiri, a former minister and vice-president of Ennahda, has been detained without charge since December.

But few other parties will join forces with Ennahda. Leftists dislike its Islamism and its free-market economics. Secular factions are happy to blame Ennahda for

the country's woes—and thus absolve themselves. Many politicians, even those who backed Mr Saied's power grab last summer, now describe it as a coup. If they are uneasy about his anti-democratic means, though, they are not altogether unhappy to see Islamists excluded from political life. The ideological schisms that have roiled Tunisia for a decade make it hard to mount a united front.

Civil-society groups are similarly split. No Tunisian president can govern without backing from the main trade union, the UGTT, which shared a Nobel peace prize in 2015 for helping to defuse an earlier political crisis. Aside from a few sharply worded statements, however, the UGTT has played little role over the past seven months. In part that is because its own leadership is divided, and fearful that a tough line against Mr Saied would jeopardise their own power.

Not many Tunisians are asking for a tougher line, anyway. Protest had been a regular feature of postrevolutionary life. Tax increases in 2018 sparked a week of nationwide demonstrations, some violent. Thousands of people protested in 2017 against a proposed law (which was later passed) granting amnesty to members and supporters of the *ancien régime*, the decades-long dictatorship led by Zine el-Abidine Ben Ali until his ouster in 2011.

Since July the streets have been comparatively quiet. "People need a really good reason to protest. It's dangerous," says Heythem Guesmi, an activist and veteran of the protests in 2017. Kais Saied hasn't

taken any decisions that have obviously harmed the young or the poor, he adds. Few will come out for the judges, who tend to look away when the police beat protesters. "Kais Saied is like a new purchase," he muses. "We're still in the trial period."

Polls, which can be unreliable in Tunisia, suggest that Mr Saied is losing support but is still popular. Insights TN, a local pollster, found a majority of respondents now think his actions were a coup and say they are "fearful" for democracy. Neither view had majority support last summer.

Emrhod Consulting, another research firm, found that 67% of the public was satisfied with the president's performance. That was a 15-point drop from August but still a number that would make most Tunisian politicians envious. His predecessor, Beji Caid Essebsi, was polling in the mid-30s at a similar point in his term. "People here don't really care about...technical ideas of democracy," says Henda Chennaoui, an activist. "They want change. They want land and jobs."

Frustration with a poor economy helped propel Mr Saied to victory in 2019. Yet his government has offered little to strengthen it. In 2020, slammed by covid-19, GDP slumped by almost 9% in what the IMF describes as Tunisia's worst recession since independence in 1956. Although rebounding, growth remains weak and unemployment stands at 18%.

Some wonder if Mr Saied has sown the seeds of his own downfall. As economic frustrations mount, his popularity will probably wane: the downside of one-man rule is that there is only one man to blame. If this leads to mass protest, a president who often speaks in dark tones about conspiracies may order a harsh response. The army, which has historically stayed out of politics, is said to be uneasy about the country's direction. Having dismantled so many of Tunisia's institutions, Mr Saied may find himself facing an angry public with few allies. ■



Defending a dream



France

The Pécresse file

SIGNY-L'ABBAYE

The centre-right presidential hopeful is in trouble, but she fights on

MMMM, A NICE baguette from the Ardennes!" declares Valérie Pécresse, tearing off a chunk of the warm crusty loaf she has just bought at a *boulangerie* and popping it into her mouth. The centre-right Republicans' presidential candidate, and head of the greater Paris region, has taken her campaign to the valleys and forests of north-eastern France on a recent weekday. In the village of Signy-l'Abbaye, no shop or café goes unvisited. As Mrs Pécresse breezes in and out, clutching her loaf, some locals seem bemused. The manager at Le Gibergeon restaurant confesses beforehand to having no idea who the visitor is, but is later charmed. "Oh yes, I recognised her from the telly," she says. "It would be good to have a female *présidente*."

After winning her party's primary in December, Mrs Pécresse recorded a poll bump that made her the most serious contender against President Emmanuel Macron at France's two-round election in April. Polls still suggest she would do about as well against the president in a run-off as would the nationalist-populist Marine Le Pen (though he is tipped to beat either),

and much better than the far-right Eric Zemmour. Yet Mrs Pécresse's first-round numbers have fallen, and her campaign has stalled. On February 13th, at a glitzy rally in Paris, she put in a wooden performance that was criticised even within her camp. The clear danger for Mrs Pécresse is that she will fail to make the run-off at all.

Out in the Ardennes, with its family-run dairy and cattle farms, locals list their troubles: the price of petrol, the distance to the nearest hospital. In and out the former budget minister goes, stopping for coffee in a café and a beer in a bar. A graduate, like Mr Macron, of the Ecole Nationale d'Administration, France's elite technocratic training college, Mrs Pécresse is well briefed, serious, and tough in debate. But she also knows how to listen. "She was

self-confident, very attentive and listened a lot," says a retired woman in the village. Later, at a town-hall meeting in an industrial warehouse 25 kilometres (16 miles) away, a participant says: "She's much nicer than she seems on the television."

Smart, tough and nice, however, may not be enough. Mrs Pécresse is running into two difficulties as she seeks to become France's first female president. The first is that, on stage, she does not light up a room. After a day campaigning in the Ardennes, she heads for a rally in the town of Charleville-Mézières, where Ms Le Pen topped first-round voting in 2017. A professional crowd-pumper chants "Valérie! Valérie!" as the candidate enters the hall. A mostly grey-haired audience tentatively joins in. At her Paris rally, packed with over 7,000 supporters, Mrs Pécresse gave a stilted performance. The next day she confessed to being "more at ease" in conversation.

The other is her political positioning. Mrs Pécresse instinctively belongs to the moderate, pro-European centre-right and was once seen as a potential recruit to Mr Macron's government. Yet she secured her nomination by defeating Eric Ciotti, a party right-winger, in the primary run-off. He embraces the "great replacement" theory—adopted as a slogan globally by white supremacists—that foreign populations threaten to replace the "indigenous" French. To try to keep this broad church together, Mrs Pécresse nods in Mr Ciotti's direction. At her Paris rally she deplored Mr Macron's "failure" to forbid athletes from ➤

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competing while wearing the Muslim headscarf, and referred, albeit ambiguously, to replacement theory.

Mrs Pécresse denies that she has hardened her line, arguing that she has always been proud of being on the right, and tracing her lineage to Jacques Chirac, a Gaullist former president and her mentor. She calls herself “two-thirds Merkel and one-third Thatcher”, and a feminist. “I know how to be firm, but also how to hold dialogue,” says Mrs Pécresse during a break on the Ardennes trail, dismissing Mr Macron as “Blairite”, a “left-wing liberal” and a “candidate of the cities”. Her project, she insists, bears “no similarity to Macron’s”.

Yet many centre-right voters are confused. They are drawn to Mrs Pécresse’s fiscally prudent vow to curb public spending, which has soared under Mr Macron during the pandemic, as well as to trim the 5.6m-strong French civil service by a net 150,000 jobs and raise the state retirement age from 62 to 65 years. But such voters are put off by her nationalist tone on the need to “stop uncontrolled immigration”, and by her attacks on Mr Macron’s broader economic management, which she calls “calamitous”. The economy last year grew at its fastest rate for half a century.

Amid these contradictions, Mrs Pécresse’s campaign is fraying. In recent days she has lost Eric Woerth, the Republicans’ former budget minister, who now backs Mr Macron, as does Natacha Bouchart, the Republicans’ mayor of Calais. At the other extreme, Guillaume Peltier, a former party vice-president, has quit for Mr Zemmour. Even Nicolas Sarkozy, the Republicans’ former president, has declined so far to offer public support for *la candidate*.

Perhaps voters just find it difficult to relate to Mrs Pécresse, who lives in Versailles and was privately educated in the swanky Paris suburb of Neuilly-sur-Seine. Her most rebellious moment was the time she spent, rather improbably, as a teenager in Soviet youth summer camps, after falling in love with Russian literature. To this day, she can speak the language. “I’ve always

been very intrepid,” she says.

The risk for Mrs Pécresse is that she now loses momentum. Mr Zemmour has crept past her in two new polls. When Mr Macron confirms his candidacy, which is expected any day now, the campaign dynamics may shift again. “There’s been a lot of criticism of Macron during the pandemic,” says a retired railway worker in Signy-l’Abbaye. “He’s arrogant, but he hasn’t managed things too badly.”

Mrs Pécresse, meanwhile, is off again on her campaign “à la Chirac”, a candidate who delighted in rural French life. Leaving the *boulangerie* in Signy-l’Abbaye, she asks the baker the secret of a good loaf. “You need patience, you need time for the flavour to develop,” he replies. Time which, for Mrs Pécresse, may be running out. ■

register, in case anything suspicious turns up. Citizens can sign up to help count the vote themselves, notes Attila Nagy, the office’s president, and all political parties can appoint members to district electoral commissions. A civic group called 20k22 is training 20,000 independent vote-counters. ODIHR, a European electoral watchdog, will send a large mission to scrutinise the campaign; it hopes to have 200 observers on election day.

Yet even if fears of cheating prove overblown, Fidesz will still have an unfair edge. It has granted voting rights to ethnic Hungarian minorities in neighbouring countries. They are allowed to vote by mail, and they mostly back Fidesz. Hungarians who emigrate, however—who tend to be highly educated and to vote against Fidesz—must vote in person at consulates abroad.

More important is the tilted media playing field. State broadcasters peddle Fidesz propaganda; the private media are almost entirely in the hands of Mr Orbán’s allies. On election day the government will stage a referendum asking voters leading questions, such as “Do you support the unrestricted exposure of underage children to sexually explicit media content that may affect their development?” (implying the opposition do). Meanwhile billboards in Budapest portray Peter Marki-Zay, the opposition’s prime ministerial candidate, as the “Mini-Me” of a reviled former leader.

For attention the opposition relies on social media and street campaigns, says Bernadett Szel, a liberal MP who lost her district in 2018 by a quarter of a percentage point. She got into parliament on her party’s proportional list, but winning her district would have given them one more seat. “We weren’t organised enough. Now we know it’s an unfair game.” ■

Hungary

An unfair game

BUDAPEST

The opposition fears April’s election is stacked against it

VIKTOR ORBÁN, Hungary’s prime minister and a hero to populists in Europe and America, faces a general election on April 3rd. Hungary’s complicated electoral system has grown more so during Mr Orbán’s 12-year tenure. This is no accident: the changes are designed to keep his Fidesz party in power.

In 2014 the share of MPs elected from single-member constituencies was raised to 106 out of the 199 seats in parliament. (The rest are elected by proportional representation.) Single-member districts tend to favour Fidesz, the biggest party—the more so as they have often been gerrymandered. In 2018 Fidesz won 91 of them. Overall, it translated just under half of the popular vote into a two-thirds majority in parliament, a supermajority that has allowed Mr Orbán and his cronies to change the constitution, pack the courts and channel billions of euros in EU aid to their allies.

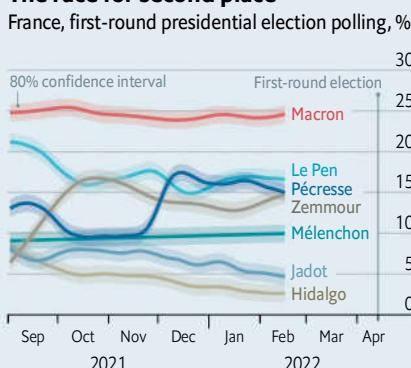
This year the entire opposition, from leftists to the hard right, has formed a single list to oppose Fidesz. Polls show the two sides roughly even. With the race tight, the opposition is now more worried than ever about electoral transparency. One concern is that in November the government changed the law to let voters register at any address where they receive official correspondence. This could potentially allow them to shift their registration to close districts, or even to vote twice.

The National Electoral Office calls such fears groundless. It is publishing weekly updates of the number of voters who re-



Painting Marki-Zay as evil and tiny

The race for second place



Source: *The Economist*'s French election model

Germany

Robert Habeck's odyssey

HALBERSTADT AND TIRSCHENREUTH

The new government's plans for wind power are dauntingly ambitious

WIND ENERGY is *Schmarrn* [non-sense],” exclaims Albert Köstler in his earthy Bavarian vernacular. He became hostile to wind power as mayor of the small town of Neualbenreuth, near Germany’s Czech border. Having reinvented itself as an attractive spa town, Neualbenreuth fought to prevent wind farms from spoiling the view for tourists. Now Mr Köstler’s scepticism has curdled into frustration with the pushy investors and *plemplem* (“crazy”) politicians who wish to stud the landscape with turbines. Bavaria’s vistas tend to inspire NIMBYISM in locals, admits Roland Grillmeier, chief administrator of the nearby Tirschenreuth district. But he shares their concerns.

On current form, Mr Köstler has little to worry about. Last year just eight turbines were erected in Bavaria, Germany’s largest state. Indeed, where vast subsidies and legal guarantees had once turned Germany into Europe’s wind-power heavyweight, construction of turbines has lately ground to a near-halt (see chart). In the first half of 2021 coal overtook wind as the leading electricity source in Germany.

That is set to change. Decarbonising German industry and energy is the guiding project of the three-party “traffic-light” coalition that took office in December. As part of its goal of turning Germany carbon-neutral by 2045, the government pledges that 80% of electricity will come from renewable sources by 2030, up from 42% today. Because demand will rise, that implies a 120-150% growth in renewables.

Wind is central to that effort. The government wants to have more than 100GW of onshore wind power installed by the end of the 2020s. Account for the removal of old turbines, and that means more than doubling the current capacity, of 56GW, in eight years. By law, 2% of German territory will be set aside for wind turbines. “The face of the country is going to change,” said Robert Habeck, the Green vice-chancellor, whose climate-and-economy ministry will push the rollout. Even lobbyists are taken aback by the scale of the ambition.

Hurdles lie ahead. In Germany’s federal system NIMBYS have the ear of state governments, nowhere more than in Bavaria, where since 2014 turbines have had to be placed a minimum distance of ten times their height from settlements. German industry is concentrated in southern states like Bavaria; but the northern coast is



windier. Rather than scrap the “10H” rule, Markus Söder, Bavaria’s pugnacious premier, thinks Germany should invest in more north-south grid capacity.

But the federal government says every state must do its bit. To press the point, Mr Habeck has embarked on an “ecological patriotism” tour of all 16, starting with a testy visit to Mr Söder in Munich. Because wind power brings revenue and rent, communities are often split. Mr Habeck says Germans should discuss his plans around their kitchen tables. Mr Grillmeier says he looks forward to a “thrilling” debate.

A second problem is the bureaucratic



Bird beware blade

tangles and skill shortages that clog infrastructure planning across Germany. Understaffed municipalities fearful of lawsuits are often ill-equipped to handle complex applications. Environmental checks run in circles. Even upgrading existing turbines often means a whole new approval process. The typical application takes four years, and their numbers will grow. The government vows to halve that period.

Then there is the red kite, an iconic bird of prey whose flight patterns leave it peculiarly vulnerable to death by turbine. On a chilly winter day Martin Kolbe, head of the Red Kite Centre in Halberstadt, a town in the eastern state of Saxony-Anhalt, points out a handful of the fork-tailed birds arcing gracefully over the bare trees. Birds are well protected in German law (to a fault, say wind groups). But studies still find a negative correlation between the numbers of wind turbines and red kites in a given area. Gory pictures of decapitated birds are a staple of anti-wind campaigns.

More turbines will mean more dead birds. That will intensify “green-on-green” tensions between climate activists and conservationists. The government wants to shift from a legal framework that protects individual creatures to one that preserves species numbers, and to tweak the relevant EU directives. It will also enshrine a “public interest” principle giving renewables priority over animal or landscape protection. National conservation groups accept that Germany needs wind power. But their local affiliates tend to be testier. Mr Kolbe, a measured sort, says some of his conservationist peers are deeply concerned. “This will be an extremely painful discussion,” says one observer.

For now Mr Habeck will treat Germany’s states as allies in his quest to get to 2%. But should some demur, the federal government could remove their powers to impose distance rules. Some expect it to convene a wind summit where state politicians will haggle over how to reach the national target. Lawsuits are likely, political bunfights certain. Yet ministers are quietly confident. “The politics of wind have changed,” says Patrick Graichen, one of Mr Habeck’s deputies. “A few years ago this was dominated by NIMBYS and protesters. Now German industry knows it needs cheap power, and the states are moving.”

Germany’s *Energiewende* (energy transition) has been full of wrong turns and expensive missteps like the closing of its nuclear plants. But if it can get this phase right, it could prove a model for other industrialised democracies weaning themselves off fossil fuels. Mr Habeck has not tried to sugarcoat the scale of the transition. Yet Mr Köstler, for one, will take some convincing. “If I was Söder I would have sent Habeck all the way back to Berlin,” he cries. “By bicycle!” ■

Charlemagne | A superhero sprouts in Brussels

A Polish climbdown signals a new era of EU power—if it chooses to use it



MOST GOOD superhero movies have a scene in which the protagonist discovers—often after some freakish accident—that he or she has developed amazing new powers. The first attempts to use these new powers are unsatisfactory. Shirts are accidentally torn to shreds and bedrooms covered in spider-web. Given time, however, the new abilities are tamed, then mastered. Audiences soon forget how the unlikely powers were acquired and enjoy the crusade, caped or otherwise, for justice and order.

Politicians who dream of being superheroes imagine being able to bend foes to their will. How easy life would be if troublemakers quietly fell into line. Look at Europe today, and a superpower may be sprouting. For years Poland has been needling the European Commission, which enforces the treaties binding the 27 member states of the EU together. Since coming to power in 2015 populists in Warsaw have neutered the judiciary and placed judges firmly under the thumb of the government. For a time the commission wimpishly spluttered about the vital role of the rule of law in Europe, even as its threats and ultimatums were gleefully defied. No longer. Twice this month the Polish authorities have offered to climb down, agreeing to reverse their judicial measures in much the manner the EU has demanded.

For a hint as to why Poland is suing for peace, look to high politics and lowbrow entertainment. The high politics is the sabre-rattling in Ukraine, Poland's neighbour. Periods of geopolitical tension are no time to alienate allies; Ukraine is a refugee crisis in the making for Poland. Perhaps mindful of Russian troops posted in next-door Belarus, President Andrzej Duda earlier this month suggested Poland "should close all disputes that exist as soon as possible". A long-running spat involving a Polish lignite mine spewing smog into the Czech Republic has been hastily settled. A media-ownership law America didn't like was also shelved.

The lowbrow bit is the story of the EU's budding superpowers. For years the commission has faced a gap in its authority. Countries that wanted to join the club could be made to commit to liberal democratic standards, such as free speech and independent courts. This gave the EU lots of leverage: follow the rules or you stay on the outside. But once the aspirants were allowed in, as Poland was in 2004 alongside several former communist-bloc

neighbours, the muscles in Brussels atrophied. There is a procedure to punish member states that flout the norms they had once signed up to, but it requires near-unanimity to impose. The biggest sanctions are a loss of voting rights in a bloc that prides itself on reaching consensus. That is less fearsome than, say, being able to strike down your enemies with lightning.

As with many superheroes, it was a freakish accident of nature that gave the EU its new powers. The turning point in its case was the pandemic. One of the bloc's responses to covid-19 was the Next Generation fund (NGEU), a €750bn (\$853bn) pot of grants and loans earmarked mainly for poorer countries. Poland has long been a recipient of vast EU largesse, as anyone who has driven on its fine new highways can attest. But withholding funds that member states can tap as part of the normal union budget is complicated. When it comes to NGEU, the commission has essentially full discretion as to whether Poland is a worthy recipient. So far, it has pointedly refused to dole out any cash, even as other countries are seeing their exchequers replenished with NGEU money. That is €36bn in loans and grants that Poland could tap if Brussels says so, enough to boost Polish GDP by around 2% in the coming years.

To make matters worse for Poland and the EU's other miscreants, on February 16th the EU's top court endorsed rules that allow the commission to withhold even old-fashioned European funds, such as those paid to boost poor regions, from members it thinks are flouting their rule-of-law obligations. That comes on top of the existing ability to levy fines on those breaking EU rules; in one such case against Poland penalties are now running at €1m a day.

Pole-axed

Like Peter Parker fumbling with his new web-weaving abilities, the Eurocracy needs time to adjust to these new powers. For it is not just rule-of-law violations that could be addressed. In the past Brussels railed against member states not abiding by euro-zone debt and deficit rules. The weighty rulings it produced had all the impact of a report issued by a think-tank: praised as obviously sensible, then swiftly forgotten. Now Eurocrats can ensure their recommendations are listened to, lest dollops of NGEU money be withheld. Pow!

There are limits to these newfound powers. Poland has made good use of European funds, so their withdrawal would be felt by voters and make the government less popular. It is therefore keen to mollify Brussels. By contrast Hungary has squandered EU cash on projects that benefit cronies of the prime minister, Viktor Orban. A squeeze would hurt them, but affect Hungarian voters rather less. So Mr Orban has more leeway to ignore Brussels's nagging about his serial rule-breaking. His government denounced this week's ruling as "politically motivated".

A more humdrum constraint is whether the EU wants to use these powers at all. Eurocrats wielding such awesome authority willy-nilly might raise questions about accountability; big member states such as Germany have long pushed for a soft approach on rule-breakers. Poland has power too, or thinks it does. It has threatened to derail the bloc's agenda. But that is mostly a hollow threat given that so much EU business is veto-proof these days.

The contours of the EU's victory against Polish judge-nobbling remain unclear. The populist government may struggle to muster a fractious parliament to endorse its climbdown. Critics deem the measures insufficient; the commission seems confident it can push for even more concessions. Poland may stay defiant. But the Eurocrats in Brussels look a lot more powerful than they did. ■



The Conservative Party

Old dudes

Even if the Tories switched leader, they would struggle to govern effectively

BORIS JOHNSON did not promise to be a great prime minister. He knew many in the Conservative Party loathed him. But he came into office in July 2019 after sweeping a Tory leadership contest with a simple offer: that only he could rescue the party from an existential crisis.

That spring the Brexit deal crafted by his predecessor, Theresa May, had been rejected three times by Parliament. The party had split, paralysing business in the House of Commons. Its vote share collapsed to single digits, cannibalised by the Brexit Party. The prospect of Jeremy Corbyn, Labour's far-left leader, governing at the head of an unwieldy coalition loomed.

What might follow seemed the stuff of Tory nightmares: nationalisations and tax raids; another referendum on Europe; perhaps one on Scottish independence, too. Mr Johnson's campaign slogan promised nothing more than short-term survival: Deliver Brexit, Unite the country, Defeat Corbyn. D.U.D.—perhaps not a perfect acronym for an election campaign, Mr John-

son joked in his acceptance speech. But easily improved with an E: "Dude! We are going to energise the country."

What he would give for some energy now. A series of parties in Downing Street during covid-19 lockdowns has crippled his premiership. He is being investigated by the Metropolitan Police. Labour has enjoyed poll leads since early December that, if replicated in a ballot tomorrow, would see it becoming the largest party in a hung parliament. Worse, polls show Mr Johnson trailing Mr Corbyn's successor, Sir Keir Starmer, as the more capable prime minister. It is the first time the Tories have been behind on this metric since 2008 (see chart

1 on next page). Mr Johnson has the worst approval ratings since John Major in 1994, according to polling from Ipsos.

Mr Johnson has sought to relaunch his government with a small reshuffle. He promises to tackle health-care backlogs. Tory MPs are weighing whether to oust him. Yet his party's problems will persist beyond the reboot. The disunity he promised to banish in 2019 will confront any successor. It is exhausted by 12 years in office, rebellious and riven by factions.

The Conservative Party has always been a broad coalition: from the landowners and urban middle classes of the Victorian era, to the wets, dries and "shits" (as some dubbed its authoritarian wing) of Margaret Thatcher's. But these competing causes and traditions were subordinated to the task of running the country. "The Conservatives have always prided themselves on being a party of government," wrote Andrew Gamble, a political scientist, in "The Conservative Nation" in 1974. Despite a Babel of conflicting voices, the party "is renowned for its unity and cohesion, the absence of factions in its ranks, and loyalty to its leaders". What he termed the "politics of power"—running the state—took precedence over the "politics of support"—pleasing the electorate.

Fifty years on the Conservative Party remains superb at winning elections. Mr Johnson did indeed save it from catastrophe: a new Brexit agreement was signed, ►►

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47 Bagehot: State shrinkflation

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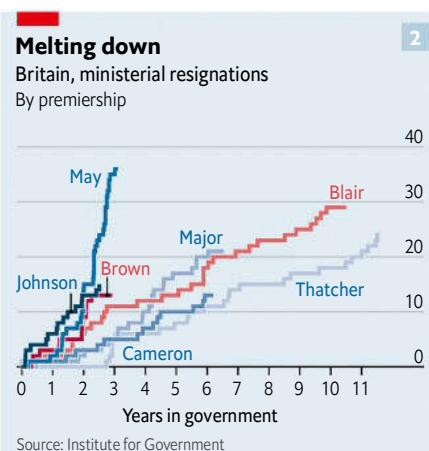
and unity enforced by suspending 21 Europhile MPs. At the election that followed, it won its largest majority in 30 years. With new northern voters came a new blue-collar doctrine. Public-sector investment was cranked up to the highest level since the 1970s, and liberal institutions such as the BBC and universities lined up for a kicking. By 2024 it will be 106 years since the granting of universal male suffrage; the Tories will have been in office for 68% of them. At the next election they will be seeking an unprecedented fifth term in office.

Yet the machine for government that Gamble described is misfiring. After three leaders, four general elections and a traumatic struggle over Brexit, ideological differences between MPs have widened, grievances festered and rebellions become a habit. Increasingly, ministers find protesting against unseen enemies preferable to delivering policy. The result is not total paralysis: 44 government bills received royal assent in the last session of parliament, including measures essential for life outside the EU. But the party's capacity to digest differences and coalesce around a reformist programme has degraded.

It's a real mean team

The twin threats of failing to deliver Brexit and losing to Mr Corbyn, which rallied the party around Mr Johnson, have disappeared. No Tory MP wants to enter opposition, but a Labour government no longer appears to them the catastrophe it once did. Sir Keir has jibed at Mr Corbyn's socialist platform, and Brexit is secure. Whisper it, says one senior Tory, but the union probably would be safe under Sir Keir too.

Instability runs from the top. "I can't think of any Number Ten which has imploded at this speed," says a former aide. Successful prime ministers keep top aides for up to a decade; Mr Johnson is now being assisted by his fourth chief of staff and fourth director of communications since 2019. An interim chief operating officer has been installed in Downing Street; Whitehall-watchers suspect a permanent candi-



date has been impossible to find.

Ministers have quit the government at a striking rate. The first two years of Mr Johnson's administration saw more resignations outside of reshuffles than in any since 1979 (see chart 2). Some ministers found it too radical: Mr Johnson's ruthless methods for delivering Brexit sparked a wave of exits. For others, it has not been radical enough. Johnny Mercer resigned as a defence minister over the government's inability to halt the prosecution of troops who had served in Northern Ireland. Lord Frost, the chief Brexit negotiator, quit lamenting Mr Johnson's failure to create a low-tax, light-regulation economy. Sleaze has taken a toll. Douglas Ross, a Scotland minister, quit in 2020 in protest at breaches of covid lockdowns by Dominic Cummings, then Mr Johnson's chief adviser. Lord Agnew, who oversaw Whitehall reform, resigned over lax checks on fraud.

Conservative MPs have been strikingly rebellious, notes Alice Lilly of the Institute for Government, a think-tank. Some 44% rebelled against the whip at least once in the over 400 parliamentary divisions since the general election (see chart 3). A hard core of 32 MPs has done so more than ten times. By contrast, in the 2015-16 session, under David Cameron, 18% of the party rebelled across 267 divisions. Under Mrs May, rebellions reflected a single deep cleavage over Brexit. Under Mr Johnson, they have been more varied, over everything from farm standards and building codes to free school meals and rules on trade with China.

They have been driven by former ministers, who regard Mr Johnson's operation as amateurish and have no interest in promotion. Mrs May led a rebellion of former ministers against cutting overseas aid. But the intake of 2019, built in Mr Johnson's populist image, has also proved unruly. In January one of its members, Christian Wakeford, defected to Labour. Louie French won a by-election in December 2021, and rebelled just two weeks later.

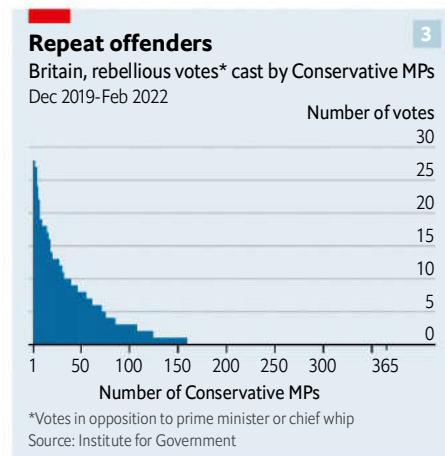
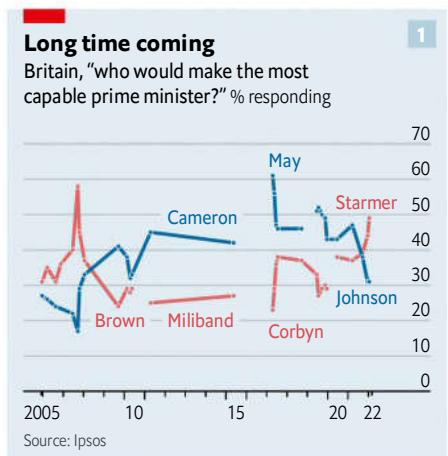
Meanwhile the Conservatives have Bal-

kanised into ginger groups that look more like the factionalism of the far left. The European Research Group of ultra-Brexiters, formed in 1993, demonstrated how a small number of MPs, organised through an internal system of officers, briefings and whips, could force the government to change course. It has an alphabet soup of imitators: the Covid Recovery Group (lockdown critics); China Research Group (Sino-sceptics); Northern Research Group (cash-hungry MPs for poor towns) and Common Sense Group (anti-woke warriors). Opponents on one issue become allies on the next. A split has opened with the Scottish Conservatives: its members of the Scottish Parliament overwhelmingly want Mr Johnson to resign over Partygate.

WhatsApp has helped rebels to organise, while social-media campaigns and the online publication of voting records heap pressure on MPs to dissent. The size of Mr Johnson's majority is a problem, reckons Philip Cowley, a political scientist at Queen Mary University of London: it is large enough to breed complacency at the top, but small enough to be wiped out with a moderate rebel effort.

Tories no longer agree on the most basic rules of politics, such as whether checks and balances are a vital part of a democratic system or an unacceptable restraint on an elected government. MPs split over Mr Johnson's aborted plan last November to exonerate an ally, Owen Paterson, who had been found guilty by a parliamentary committee of unethical lobbying. There is a cultural rift between those who prayed for Hillary Clinton and those who cheered for Donald Trump. Mr Johnson's misleading claim that Sir Keir, in his former role as director of public prosecutions, had failed to prosecute Jimmy Savile, a notorious paedophile, delighted only part of the party.

The environment is becoming another cause of cleavage. Backbenchers in the Net Zero Scrutiny Group are critical of the cost to households of climate-change mitigation. Lord Frost is campaigning to end the moratorium on shale-gas exploration. He ►►



► is opposed by Lord Goldsmith, an environmentalist close to the prime minister.

The deepest schism is over Mr Johnson's policy of "levelling up" poorer regions. The election in 2019 was followed by an uneasy compact between southern Tory incumbents, who prioritised tax cuts, and newly elected northern MPs, who demanded roads, railways and hospitals. It was fused by electoral logic and Mr Johnson's ready charm. "Everyone read into Boris their own ideological persuasion," says a former cabinet minister. As Mr Johnson's electoral appeal collapsed, so did the compact. The "levelling up" white paper, published on February 2nd, was too statist for the libertarians but too skinny for the big spenders. The tragedy of Mr Johnson, says another former cabinet minister, is that he had the instincts to build a new electoral coalition. "But what he lacks is an intellectually coherent idea of how you form a platform that can combine the various elements of the Conservative tradition, and keep them all on board."

Well I drunk a lot of wine

Donors are disillusioned, too. They dug deep to keep Mr Corbyn out of power: Tories raised £19.4m (\$26.3m) during the campaign of 2019, or 63% of all donations to political parties. John Armitage, a hedge-fund founder who has donated more than £3m to the party, recently gave £12,000 to Sir Keir's office, in the hope of supporting better opposition. Tory fundraising will be hampered by "the sense of sleaze, and winking, and lack of seriousness, and an inability to do anything", he says. "I was asked to donate to the Conservatives at the end of last year, and I said: 'Why would I do that?'" John Caudwell, the founder of Phones4U, a now-closed retailer, gave £500,000 in 2019, but is undecided whether to donate again. "I thought [Mr Corbyn] would kill the country," he says. A Thatcherite donor is considering backing an insurgent party in the hope of jolting Mr Johnson to the right. "I feel almost as depressed now as I did in the 70s," he says.

Mr Johnson came to office with radical ambitions. But Mr Cummings was central to those, and when he left, says a former minister, "it was like taking the spinal ganglia out of government". An overhaul of the planning regime was paused months ago. After Partygate Mr Johnson ceded power to backbenchers, inviting them to craft policy through a series of committees. An anti-obesity campaign and mandatory covid-19 vaccinations for health-care workers have been dropped. The promotions of Jacob Rees-Mogg, the "Brexit opportunities" minister, and Nadine Dorries, the culture secretary, look more like a demonstration of fealty to the party faithful than any expectation of serious policymaking. In Gamble's phrasing, the politics of support

has triumphed over the politics of power.

A leadership ballot will be triggered if 15% of Conservative MPs (that is, 54) submit a letter of no confidence in Mr Johnson. He would then need to win a majority of his MPs (that is, 181) to remain in office. Backbenchers must calculate whether their chance of holding their seats would increase if they ditched him, and whether the risks justify a divisive contest. That moment has not been reached: only 15 have publicly called for Mr Johnson to go, and they are drawn from different wings of the party. Still, a ballot may come if the police fine him, or if the party does awfully in local elections in May.

Downing Street would probably function better under a new leader. Rishi Sunak, the chancellor, would be "effectively presidential rather than parody presidential", says one admirer. Liz Truss, the foreign secretary, and Jeremy Hunt, a former health secretary, are in the running; both are more diligent administrators than Mr Johnson. A successor would probably wish to reassert the ministerial code that supposedly regulates the government's behaviour but has been neglected by Mr Johnson, and ditch some of the coarseness. (Mr Sunak disowned the remarks about Savile.) A short honeymoon would follow.

The unruliness and strategic dilemmas would remain, however. The front-runners' cvs would suggest a reversion to the low-tax, small-state conservatism that is gospel to party activists. Mr Sunak claims to be a fiscal disciplinarian; Ms Truss, to be a disciple of Thatcher. Running against Mr Johnson in 2019, Mr Hunt promised to slash corporation tax. But geography is destiny, and the 2019 intake accounts for more than a quarter of the parliamentary party. "I can't see Rishi backing off levelling up for one second," says a supporter. "If the party turns back now it will split between its old and new coalitions," says Will

Tanner of Onward, a think-tank that studies new Tory voters. A battle to offer Johnsonism without Johnson would ensue.

The root of Tory misery is in being, at heart, a small-state party in an increasingly big-state world. By the next election public debt will be 95% of GDP. The tax burden is already at its highest, as a share of GDP, since the 1950s, and is scheduled to rise further. A row over raising payroll taxes to fund health care is a foretaste of the decade to come: according to the Resolution Foundation, another think-tank, state spending will be 44% of GDP by 2030. The task, says Mr Tanner, is to find policies that satisfy both camps, delivering social reform for less money. That would take focus and imagination hitherto absent.

He can kick like a mule

Mr Johnson hangs on in part because Tory members still think him fit for the job by a margin of two to one, according to YouGov, a pollster. And divided as it is, the party cannot settle on a successor or a policy agenda to replace him. Doubts linger about Ms Truss's capacity for the top job, and about Mr Sunak's greenness. First elected in 2015 before a rapid promotion, he has never appeared on "Question Time", a rowdy television debate show that is a proving ground for ministers, notes a colleague. His views on criminal justice, education and much else are unclear. "He will have to develop a platform very, very quickly," says a former minister. Yet saying anything definite is risky in a party so fragmented.

Tory MPs are unhappy with Mr Johnson. But rid of the external terrors of 2019, grown tolerant of low standards and content to see difficult reforms parked, they may not be sufficiently miserable to remove him. He is too weak to rule its factions; they are too weak to oust him. An exhausted party can sustain an unsuitable prime minister for quite some time. ■



Bagehot | The shrinkflation state

The British state will soon cost more, yet provide less



SHINKFLATION IS A bane of the British shopper. For years, producers have quietly cut product sizes rather than raise prices. A multipack of Frazzles, a moreish bacon crisp, used to cost £1 (\$1.36) and contain eight bags. Now it contains six. Cadbury's Creme Eggs used to come by the half-dozen; now they come in fives. Quality Street, a chocolate box, weighed 1.2kg in 2009; today, just 650g. A box of Jaffa Cakes once contained a dozen biscuits; now just ten.

The logic of shrinkflation is that consumers are less likely to notice it than its alternative: higher prices. For years, the government has worked on the same principle. Taxpayers paid roughly the same, but state services withered. Now an era of price hikes in the form of tax rises has begun. In a nasty combination of inflation and shrinkflation, voters will be expected to pay more for less.

It will be an awkward shift. Since coming to power in 2010 the Conservatives have used shrinkflation just as retailers do. In the early austerity years the state shrank, but its cost did not. As a percentage of GDP, it fell from a peak after the financial crisis of 46% of GDP to 39%. Taxes stayed around their historic norm of about 32% of GDP. But citizens received fewer services.

And, as when shoppers fail to notice the missing packet of Frazzles or couple of Jaffa cakes, voters did not care much at first. Weekly bin collections became fortnightly or monthly. Once-generous legal aid became miserly; in-work benefits fell; police solved fewer crimes. But eventually voters—and shoppers—start to feel perplexed. Was a box of Quality Street always so small? Were the police always so blasé about fraud? Moreover, shrinkflation cannot continue indefinitely. Just as people will not buy an empty packet of Frazzles, taxpayers will not pay for government services that are not provided at all. Eventually prices must rise—as the Conservatives are discovering. By 2026 the tax burden will be 36% of GDP, the highest since the post-war era, under Clement Attlee.

This will cause several problems. The first is one of expectations. Attlee's government promised a new Jerusalem: voters accepted higher taxes in return for a welfare state. Similarly, when New Labour governments raised taxes in the 2000s, they provided more in return. They increased national insurance, a payroll tax, in order to bring health-care spending in line with other European countries. Schools were rebuilt and renovated; rough sleeping

plunged; civic art, albeit sometimes of questionable quality, appeared in town squares.

Unfortunately, this time higher spending will at best stop things getting worse. Sajid Javid, the health secretary, admits that the health- and social-care systems will struggle even after a 2.5 percentage-point rise in national insurance. "Is that all we get for £12bn?" asked the *Daily Mail*, a newspaper that tends to see eye-to-eye with the Tories, when the plan to cut hospital waiting-lists was announced. British voters are often said to want American taxes and a European welfare state. Instead, they face paying European taxes for services as skimpy as those in America.

The second hitch is a mismatch between who pays and who benefits. The extra taxes are intended for services that largely benefit older voters. According to the Resolution Foundation, a think-tank, by 2032 an extra £100bn (in today's prices) will be spent annually on health care and pensions. This amounts to the bulk of the education budget today. By 2024 the NHS will account for 44% of the state's day-to-day spending, up from about 27% in 2000, says the Institute for Fiscal Studies, a think-tank. In relative terms, the rest of the state is shrinking. The British state will increasingly resemble a health-care system with nukes.

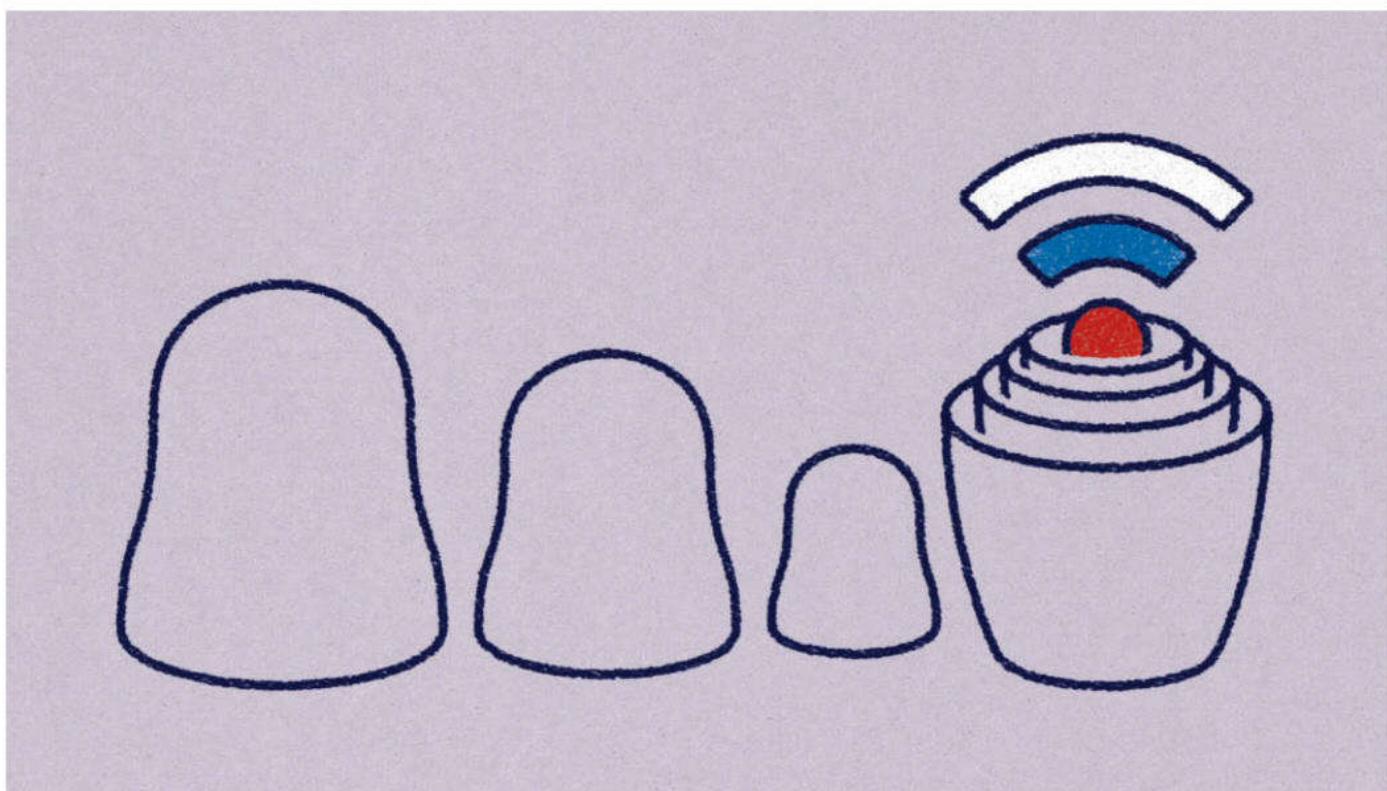
This is a poor deal for young people. The parts of the state they rely on, such as in-work benefits, are increasingly flimsy. Yet they will be paying more for services they do not use. Meanwhile, the tax system is changing to their detriment. Soon a pensioner with an annual income of £30,000 will pay a marginal rate of 20%; a 28-year-old graduate on the same salary will face a de facto marginal rate of 42.25%, once student-loan payments and the national-insurance increase are included.

A more expensive state is inevitable. Areas where the state still promises comprehensive support, such as health and social care or education, suffer from "Baumol's cost disease": they are labour-intensive, and hence become relatively pricier as wages rise to keep pace with sectors where productivity improves faster. Teachers' salaries may go up, but the number of children each can teach does not. Demography makes the situation worse. By 2030 there will be 4.4m over-80s, up from 3m at the moment. The state spends around £20,000 per year on each child of school age, but about £40,000 per year on each person in their late 80s.

Life is like a tub of Quality Street

A bigger state can be paid for in three ways. The first is economic growth. If that had continued after the financial crisis at the same pace as before, taxes would bring in about £200bn more annually than they do now, points out the Resolution Foundation. That is enough to cover the entire education and defence budgets, with change left over. Yet neither the Conservatives nor Labour show much appetite for doing what would be necessary. Policies that crush growth (such as leaving the EU) proved popular; those that might boost it (such as planning reform) did not. Too many voters are unwilling to accept the downsides of growth, such as more houses spoiling their view. Many may not feel the need. After all, the state has not shrunk for some.

The second option is a fairer tax system. Asset-rich pensioners could contribute more. Yet higher taxes for older voters are taboo for the same reason that restraining their benefits would be: pensioners vote. But unless the government can convince older voters to carry a larger share of the tax burden, or find ways of boosting growth, it is limited to a third option: cutting services further. Another bout of state shrinkflation looms. ■



Digital geopolitics

The Russian stack

BERLIN AND SAN FRANCISCO

Russia is building its own alternative to Western digital infrastructure. How far has it got?

Vladimir Putin, Russia's president, has portrayed his aggression on the Ukrainian border as pushing back against Western advances. For some time he has been doing much the same online. He has long referred to the internet as a "CIA project". His deep belief that the enemy within and the enemy without are in effect one and the same means that if Alexei Navalny, Mr Putin's foremost internal foe, uses YouTube—his video of the president's seaside palace was viewed more than 120m times—then YouTube and its corporate parent, Google, are enemies, too.

Faced with such "aggression", Mr Putin wants a Russian internet that is secure against external threat and internal opposition. He is trying to bring that about on a variety of fronts: through companies, the courts and technology itself.

In early December VK, one of Russia's online conglomerates, was taken over by two subsidiaries of Gazprom, the state-owned gas giant. In the same month a court in Moscow fined Alphabet, which owns Google, a record \$98m for its repeated failure to delete content the state deems

illegal. And Mr Putin's regime began using hardware it has required internet service providers (ISPs) to install to block Tor, a tool widely used in Russia to mask online activity. All three actions were part of the country's effort to assure itself of online independence by building what some scholars of geopolitics, borrowing from Silicon Valley, have begun calling a "stack". His efforts could serve as an inspiration, and a model, for tyrants elsewhere.

In technology, the stack is the sum of all the technologies and services on which a particular application relies, from silicon to operating system to network. In politics it means much the same, at the level of the state. The national stack is a sovereign digital space made up not only of software and

hardware (increasingly in the form of computing clouds) but also infrastructure for payments, establishing online identities and controlling the flow of information.

Benjamin Bratton, a political philosopher at the University of California, San Diego, sees the stack as a set of new dimensions for the state, piled up one on top of the other, each of them analogous to the territory defined by its physical borders. The default stack is largely American, because that is where the internet grew up. But other places are trying to differentiate their stacks, some seeing opportunity, some staving off perceived threats. The EU, with ambitions to become the world's super-regulator for all things digital, is putting together what it hopes will be a more open stack, less tied into proprietary technologies and monopolistic applications. India, Japan and Taiwan are all working on their own distinct digital scaffolds.

Most germane to an autocrat like Mr Putin is what has gone on in China. China built its internet with censorship in mind. The Great Firewall, a deep-rooted collection of sophisticated digital checkpoints, allows traffic to be filtered with comparative ease. The size of the Chinese market means that indigenous companies, which are open to various forms of control, can successfully fulfil all of their users' needs. And the state has the resources for a lot of both censorship and surveillance.

Mr Putin and other autocrats covet such power. But they cannot get it. It is not just that they lack China's combination of rigid ➤

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► state control, economic size, technological savoir-faire and stability of regime. They also failed to start 25 years ago. So they need ways to achieve what goals they can piecemeal, by retrofitting new controls, incentives and structures to an internet that has matured unsupervised and open to its Western begetters.

Russia's efforts, which began as purely reactive attempts to lessen perceived harm, are becoming more systematic. Three stand out: creating domestic technology, controlling the information that flows across it and, perhaps most important, building the foundational services that underpin the entire edifice.

Take the technology first—microprocessors, servers, software and the like. Although Russia has some notable firms in these areas—Baikal and Mikron in semiconductors, ABBYY and Kaspersky in software—for the most part companies and government agencies prefer Western wares. Russian companies' share of the semiconductor market was less than 1% of the global total in 2020 according to EMIS, a data provider. In servers and business software the situation is much the same.

The government has made moves to restart a chipmaking plant in Zelenograd near Moscow, the site of a failed Soviet attempt to create a Silicon Valley. But it will not operate at the cutting edge. So although an increasing number of chips are being designed in Russia, they are almost all made by Samsung and TSMC, a South Korean and a Taiwanese contract manufacturer. This could make the designs vulnerable to sanctions. An added problem is that they are often not up to snuff. Some experts have doubts about the capabilities of Russia's home-grown Elbrus processors, designed by a firm called the Moscow Centre of SPRAC Technologies.

For crucial applications such as mobile-phone networks Russia remains highly reliant on Western suppliers, such as Cisco, Ericsson and Nokia. Because this is seen as leaving Russia open to attacks from abroad, the industry ministry, supported by Rostec, a state-owned arms-and-technology giant, is pushing for next-generation 5G networks to be built with Russian-made equipment only. The country's telecoms industry does not seem up to the task. And there are internecine impediments. Russia's security elites, the *siloviki*, do not want to give up the wavelength bands best suited for 5G. But the only firm that could deliver cheap gear that works on alternative frequencies is Huawei, an allegedly state-linked Chinese electronics group which the *siloviki* distrust just as much as security hawks in the West do.

It is at the hardware level that Russia's stack is most vulnerable. Sanctions which might be raised if Russia were to invade Ukraine would probably see the country as

a whole treated as Huawei now is by America's government. Any chipmaker around the world that uses technology developed in America to design or make chips for Huawei needs an export licence from the Commerce Department in Washington—which is usually not forthcoming. If the same rules are applied to Russian firms, anyone selling to them without a licence could themselves risk becoming the target of sanctions. That would see the flow of chips into Russia slow to a trickle.

When it comes to software the Russian state is using its procurement power to amp up demand. Government institutions, from schools to ministries, have been encouraged to dump their American software, including Microsoft's Office package and Oracle's databases. It is also encouraging the creation of alternatives to foreign services for consumers, including TikTok, Wikipedia and YouTube.

From Russia, with likes

Here the push for indigenisation has a sturdier base on which to build. According to Groupm, the world's largest media buyer, Yandex, a Russian firm which splits the country's search market with Alphabet's Google, and VK, a social-media giant, together earned \$1.8bn from advertising last year, more than half of the overall market. VK's vKontakte and Odnoklassniki trade places with American apps (Facebook, Instagram) and Chinese ones (Likee, TikTok) on the top-ten downloads list (see chart 1).

This diverse system is obviously less vulnerable to sanctions—which are nothing like as appealing a source of leverage here as they are elsewhere in the stack. Making Alphabet and Meta stop offering YouTube and WhatsApp, respectively, in Russia would make it much harder for

America to launch its own sorties into Russian cyberspace. So would disabling Russia's internet at the deeper level of protocols and connectivity. All this may push Russians to use domestic offerings more, which would suit Mr Putin well.

As in China, Russia is seeing the rise of "super-apps", bundles of digital services where being local makes sense. Yandex is not just a search engine. It offers ride-hailing, food delivery, music-streaming, a digital assistant, cloud computing and, someday, self-driving cars. Sber, Russia's biggest lender, is eyeing a similar "ecosystem" of services, trying to turn the bank into a tech conglomerate. In the first half of 2021 alone it invested \$1bn in the effort, on the order of what biggish European banks spend on information technology (IT).

Structural changes in the IT industry are making some of this Russification easier. Take the cloud. Its data centres use cheap servers made of off-the-shelf parts and other easily procured commodity kit. Much of its software is open-source. Six of the ten biggest cloud-service providers in Russia are now Russian, according to Dmitry Gavrilov of IDC, a research firm. He says most successful ones are "moving away from proprietary technology" sold by Western firms (with the exception of chips). And as in the West, cloud computing has allowed specialised providers of online software to break through; in Russia this has included amocrm, Miro and New Cloud Technologies.

Import substitution is a slow process and success is by no means guaranteed. However, it can no longer be considered a "joke", in the words of Andrei Soldatov, editor of Agentura.ru, an online portal, and co-author of "The Red Web", a book about digital activism in Russia. "The government is making steady progress in dragging people into a domestic digital bubble," he recently wrote.

If technology is the first part of Russia's stack, the "sovereign internet" is the second. It is code for how a state controls the flow of information online. In 2019 the government amended several laws to gain more control of the domestic data flow. In particular, these require ISPs to install "technical equipment for counteracting threats to stability, security and functional integrity". This allows Roskomnadzor, Russia's internet watchdog, to have "middle boxes" slipped into the gap between the public internet and an ISP's customers. Using "deep packet inspection" (DPI), a technology used at some Western ISPs to clamp down on pornography, these devices are able to throttle or block traffic from specific sources (and have been deployed in the campaign against Tor). DPI kit sits in rooms with restricted access within the ISPs' facilities and is controlled directly from a command centre at Roskomnadzor. ►



This is a cheap but imperfect version of China's Great Firewall, says Roya Ensafi of Censored Planet, a project at the University of Michigan to measure internet censorship. It has improved Roskomnadzor's ability to block sites and interrupt the virtual private networks many use to camouflage internet usage. It also allows the regulator to block, as it did during protests in 2019, live-video streaming without taking down whole mobile-phone networks.

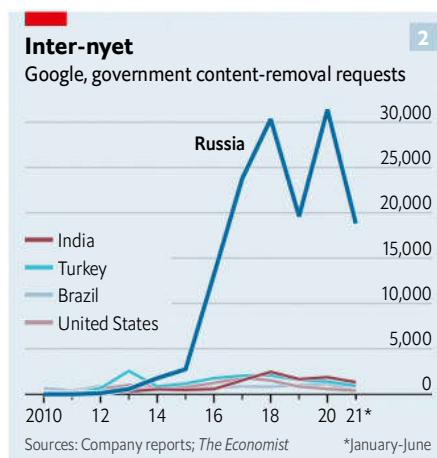
Complementing the firewall are rules that make life tougher for firms. In the past five years Google has fielded 20,000–30,000 content-removal requests annually from the government in Russia, more than in any other country (see chart 2). From this year 13 leading firms—including Apple, TikTok and Twitter—must employ at least some content moderators inside Russia. This gives the authorities bodies to bully should firms prove recalcitrant.

The ultimate goal may be to push foreign social media out of Russia altogether, creating a web of local content controllable through courts, corruption and loyal thugs. But this Chinese level of control would be technically tricky. The DPI boxes are unable to filter out all foreign traffic. It would also be unpopular: Russians are rather keen on YouTube and WhatsApp. And it would make life more difficult for Russian influence operations, such as those of the Internet Research Agency, to use Western sites to spread propaganda, both domestically and abroad.

A view to instill

"Russia is less about blocking and more about shaping the information environment," says Justin Sherman of the Atlantic Council, a think-tank. Strategically placed constraints, both online and offline, should suffice to guide the digital flow without hard barriers. Making foreign services less reliable will shift consumers towards domestic ones. Facing throttling, fines or worse, Western firms are likely to comply with government demands, as they did when leant on to remove apps Mr Navalny's supporters had designed to show voters which opposition candidates were best placed to win elections.

Russia's homegrown stack would still be incomplete without a third tier: the services that form the operating system of a digital state and thus provide its power. In its provision of both e-government and payment systems, Russia puts some Western countries to shame. Gosuslugi ("state services") is one of the most-visited websites and most-downloaded apps in Russia. It hosts a shockingly comprehensive list of offerings, from passport application to weapons registration. Even critics of the Kremlin are impressed, not least because Russia's offline bureaucracy is hopelessly inefficient and corrupt. Sergey Sanovich of



Princeton University observes that by leapfrogging into the virtual world, leaders in Moscow showed they could deliver, and got a better grasp of what agencies far from the capital are doing. Privacy concerns, which can be a barrier to online government, were not much of a worry.

The desire for control also motivated Russia's leap in payment systems. In the wake of its annexation of Crimea, sanctions required MasterCard and Visa, which used to process most payments in Russia, to ban several banks close to the regime. In response, Mr Putin decreed the creation of a "National Payment Card System", which was subsequently made mandatory for many transactions. Today it is considered one of the world's most advanced such schemes. Russian banks use it to exchange funds. The "Mir" card which piggybacks on it has a market share of more than 25%, says GlobalData, an analytics firm.

Other moves are less visible. A national version of the internet's domain name system, currently under construction, allows Russia's network to function if cut off from the rest of the world (and gives the authorities a new way to render some sites inaccessible). Some are still at early stages. A biometric identity system, much like India's Aadhaar, aims to make it easier for the state to keep track of citizens and collect data about them while offering new services. (Muscovites can now pay to take the city's metro just by showing their face.) A national data platform would collect all sorts of information, from tax to health records—and could boost Russia's efforts to catch up in artificial intelligence (AI).

These plans must be taken with a dollop of salt. "Russia's industrial policy seems that of a superpower, but in reality it is an economic minnow," points out Janis Kluge of the German Institute for International and Security Affairs, a think-tank. Even if it had the means, he says, it does not seem willing to spend what it takes. Mr Putin has said that national capabilities in AI will determine who becomes "the ruler of the world". But Russia is not making those ca-

pabilities a particularly high priority.

That said, as technology gets cheaper and more openly available, a country like Russia will be able to do ever more with only a modest effort. Stacks are modular; their layers can in principle be swapped out. You do not have to control all of them to get your way. In other words, Russia does not need the latest and smallest semiconductors, say, to build a serviceable edifice on top of what it has; and if it is hard to reach what is available elsewhere, serviceable may be good enough. The country's bureaucrats have shown that they are able to learn quickly and improvise around technologies they lack.

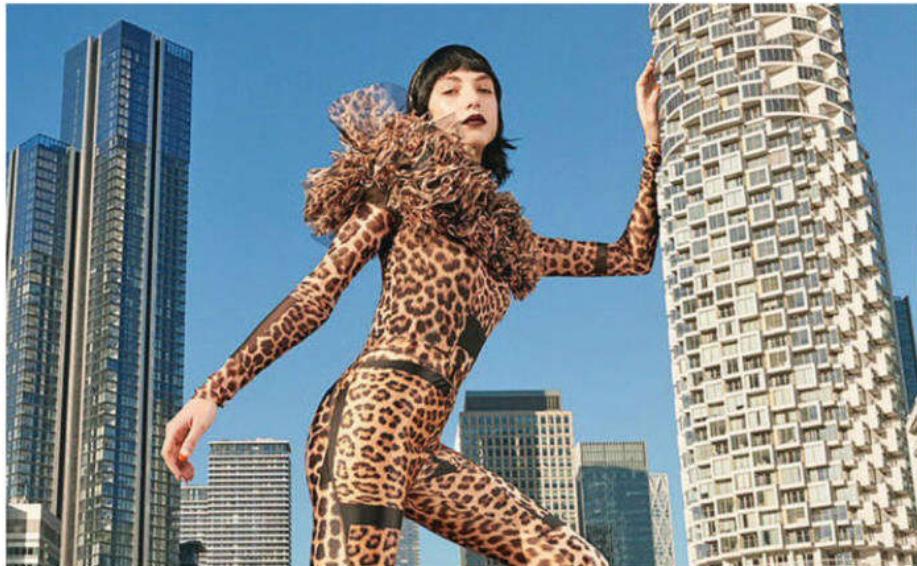
Others are watching Kremlin's progress. They include Iran (which requires censorship by software at ISPs), Kazakhstan (which may delegate some of its digital transformation to Sber) and Turkey (which demands the physical presence of foreign firms' content moderators). They may back Russia diplomatically as it promotes its digital ambitions. Jointly with China, Russia has stalled UN talks aimed at defining responsible state behaviour in cyberspace, instead insisting on "information sovereignty"—code for doing whatever it pleases. Now it wants a Russian, Rashid Ismailov, to take over as secretary-general of the International Telecommunication Union (ITU), which governs swathes of the telecoms world. Mr Ismailov's résumé includes stints as a deputy telecoms minister and Huawei executive.

Russia wants the ITU to replace the Internet Corporation for Assigned Names and Numbers as the overseer of the internet's address system. America and its allies will block this. But the idea appeals to countries desiring stack sovereignty, which may be enough to win Mr Ismailov the votes he needs to beat Doreen Bogdan-Martin, an ITU official from America, in October, when the new secretary-general will be chosen.

Try another day

If push comes to shove in Ukraine, the strength of Russia's stack against sanctions, and perhaps other forms of attack, will be tested. The costs could be high: capabilities would be lost and networks degraded. Russia may become more dependent on Chinese hardware and software, something its own elites fear (though this would hardly be a win for the West).

Whatever the upshot of such "stack-to-stack warfare", as Mr Bratton calls it, the Kremlin's efforts have shown would-be imitators that there is plenty of mileage in trying to take control of what layers of the internet you can, and of aligning yourself with likeminded regimes. New ways of embodying the state always enable new forms of influence and diplomacy—as well as of war. ■



The clothes business

The middle-market corset

BERLIN

After expanding in 2021, fast fashion may be squeezed again

AMERICAN CONSUMERS are feeling flush. On February 15th the Commerce Department reported that the country's shoppers spent 3.8% more in January than they had in December, unfazed by spiking inflation and covid-related uncertainty. That was the fastest monthly rise in nearly a year. Some of this splurge is going on new rags. Elsewhere, too, garment-sellers are booming. In Britain fashion was the only segment to see online sales grow last month, year on year, according to Capgemini, a consultancy. As catwalks and cocktail parties decamp from New York, which has just hosted its Fashion Week, to London, where another one is kicking off, the mood in the clothes business is as bright as the pastel-coloured dresses that are all the rage this season.

High-end labels like Christian Dior (owned by LVMH, a luxury colossus) or Gucci (part of Kering, a fellow French group) are relatively immune to economic turmoil. People who can afford their frocks may take a knock in a recession but seldom end up shirtless. The same cannot be said of less luxurious fashion houses. But they, too, have had a good run of late.

Ralph Lauren, a relatively upmarket American brand, opened 40 new shops in the third quarter last year alone, including a flagship store in Milan, as well as shops in Atlanta, Chicago, Detroit and Miami, often on those cities' swankiest shopping streets. Its boss, Patrice Louvet, thinks consumers will keep replenishing their ward-

robes and says his firm "is back on the offence". In the mass market, sales at Hennes & Mauritz (H&M), a fast-fashion giant, are back to pre-pandemic levels and profitability is better than it has been in years. Helena Helmersson, who took over as its chief executive in January 2020, just before covid-19 hit Europe, has proclaimed that she wants to double the Swedish group's sales by 2030 and reach an operating margin of above 10% within three years, up from less than 2% in 2020 and 7.7% in 2021.

Ms Helmersson and Mr Louvet reflect an optimism in the industry as it emerges from the disruptions caused by the pandemic. But they should go easy on the champagne during upcoming Fashion Weeks. Clothes companies, in particular

those catering more to the masses, face an assortment of challenges. Some of these, such as digitisation and sustainability, predate covid-19. The pandemic has only heaped on more, from supply-chain bottlenecks and sky-high shipping costs to worker shortages. On top of that, the caprices of the world's most populous autocracy mean that one false step can cost firms a fortune. H&M sales in China slumped last year after the company expressed concerns about allegations of forced labour in the Xinjiang region.

Fashion retailers' success last year was driven by unusual circumstances that will not last. Pent-up demand triggered a wave of "revenge buying" when shops reopened at last, in particular for "occasion wear" (jargon for pricey stuff). Shoppers' pockets were lined with infusions of government cash. And the pandemic was the final nail in the coffin for some weaker firms, reducing competition in the crowded market; Topshop, Laura Ashley and TM Lewin went under in Britain, and Ann Taylor, Brooks Brothers and J. Crew did in America.

Now that consumers are no longer receiving cheques from the government, and have anyway already spruced up their wardrobes, they may become more parsimonious. Unlike luxury brands' well-heeled customers, who might hardly notice that a handbag that cost \$5,000 in 2019 now goes for \$8,000 (as became true in November of Chanel's Classic Flap), those of mass-market brands may balk at higher price tags. Necessary investments in digitisation and sustainability—Ms Helmersson has launched a vegan collection and invested in Sellpy, a digital platform to trade second-hand clothes—will eat into the fast-fashion houses' profitability.

Younger models

As for competition, some passé brands may be gone but a few fresh faces look much more threatening to the mass-market giants' market share. Companies like Shein, a Chinese super-discounter, Britain's Asos or Germany's Zalando have greater digital nous than mostly offline H&M and Inditex, its Spanish arch-rival and owner of brands including Zara. They are also finding ways to appeal to young fashionistas. All this may be why analysts forecast a more modest increase in H&M sales than Ms Helmersson does, of around 50% by 2030, and less cushy margins. Its share price, like that of Inditex, is below where it was before the pandemic.

In its annual report on the state of the clothing business, McKinsey, a consultancy, predicts that discount and luxury fashion will continue to wow investors this year. The middle-market retailers may enjoy another season or two of revenge buying. After that, their prospects are looking more threadbare. ■



Education technology

Learnings growth

The pandemic has turbocharged the ed-tech business. Can it last?

BYJU'S WAS piling on users even before covid-19 closed classrooms around the world. India's most valuable private start-up was co-founded in 2011 by Byju Raveendran, a celebrity maths tutor whose classes have drawn crowds big enough to fill stadiums. By 2019 tens of millions of Indian children had signed up to use the firm's flagship product, an app that serves up online lessons intended to supplement regular schooling. That year Byju's began sponsoring India's national cricket team.

Since then India's schools have spent more time shut than open—and the fortunes of Byju's have only improved. The number of children whose parents pay for them to have full use of its app has more than doubled, to 7m. Late last year investors valued the firm at over \$20bn, a three-fold increase since pre-covid days. In January Bloomberg reported that Byju's may soon unveil plans to go public in New York, by merging with a blank-cheque company. The news agency had previously rumoured that such a deal could raise around \$4bn, valuing the firm at a cool \$48bn.

Byju's is the biggest of a clutch of young companies benefiting from breakneck growth in online learning. Venture capitalists (vc's) plonked around \$21bn into education technology companies in 2021, according to HolonIQ, a research firm (see chart). That was three times the amount raised in 2019 and 40 times more than a decade ago. Seventeen ed-tech startups became "unicorns" (private companies valued at more than \$1bn), three times as many as had passed that milestone during any previous year. Half a dozen of them went public. They included Coursera, a marketplace for online courses with a stock-market value of nearly \$3bn, and Duolingo, an app for language learners which is worth around \$4bn. HolonIQ has predicted that global ed-tech revenues could almost double from \$227bn that year to around \$400bn in 2025, a fifth higher than its pre-pandemic forecast.

Until recently ed-tech firms had rarely made investors sit up. Schools and universities control much of the \$6trn spent globally on education each year. They tend to be cash-strapped and conservative. In 2019 only about 3% of all education spending went on software or online teaching. Tory Patterson of Owl Ventures, who began investing in ed-tech firms in 2009, admits that speaking up for the sector has some-

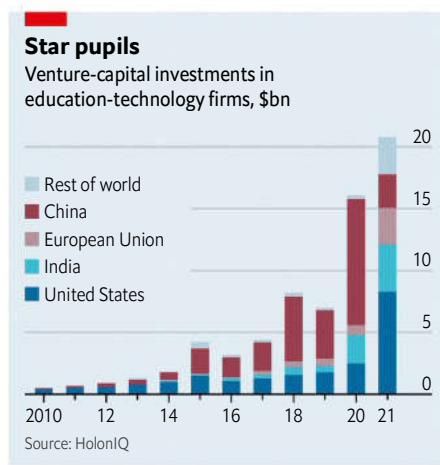


A tech-able moment

times won him "blank stares".

No more. The closure of school buildings and college campuses forced educators to try out new kit (especially in India and America, where disruptions to learning have been particularly drawn out). Governments have given children stacks of tablet computers and sped up efforts to improve broadband in schools. They have also given teachers extra cash to spend on tools they think will help pupils "catch up". Lawmakers in America have earmarked an extra \$200bn or so for schools since the pandemic started. That sum is equal to about one-quarter of what is spent on these institutions in a typical year.

For years many of the zippiest ed-tech firms have chosen not to sell to schools



and universities but to go direct to learners. This category of companies has also benefited during the pandemic. Parents in Asia have long been keen to pay for tutoring and other services (such as Byju's app) that might give their offspring an edge. Now families in Europe and America are also getting keen. Supervising remote learning has made parents everywhere more engaged in their children's education, more aware of how they are performing in comparison to classmates and in some cases more critical of what they are being taught. Companies that offer after-school lessons—such as Outschool, an American unicorn, and GoStudent, an Austrian one—are growing fast as a result.

Another type of outfit getting a boost from the pandemic are those that offer learning to adults. Workers furloughed during lockdowns commonly took online courses that they thought would improve their prospects. Remote working has made more roles plausible to more jobseekers, giving them more reason to reskill. At the same time, a flurry of job-switching in Britain and America has made big employers nervous. They are becoming more convinced that spending on staff training can help them hang on to workers and cut the cost of plugging holes. This is benefiting companies such as Coursera, which says selling subscriptions to corporate customers is its fastest-growing business. Up-and-coming firms include Guild, which helps blue-collar workers at giants such as Walmart and Disney gain new qualifications, and Better Up, an American company that helps professionals find coaching.

Ed-tech's pandemic report card is not without blemishes, however. In China, its single biggest market, the Communist Party declared last July that businesses could not typically make a profit from providing after-school tutoring to children in primary and middle schools. The regime has worried for years that huge demand for private education is widening inequalities and impoverishing the middle class. Even charitable tutoring could no longer take place during holidays and at weekends. Within days the share prices of New Oriental, TAL Education and Gaotu, the industry's three listed Chinese giants, had fallen by two-thirds, wiping out \$18bn in stock-market value. Since February 2021 their collective worth has shrivelled from more than \$100bn to less than \$10bn. China's most celebrated ed-tech unicorns, Yuanfudao and Zuoyebang, could be worth a fraction of their pre-crackdown valuations of \$15.5bn and \$10bn, respectively.

The Chinese experience has rattled investors, says Thomas Singlehurst of Citi-group, a bank. It blocked a possible exit route for Western startups, some of whose vc backers may have hoped to sell them to China's ed-tech titans. It may also inspire ➤

► tighter rules in next-door India, another potentially vast market where some parents accuse ed-tech firms of misleading ads and aggressive sales tactics. Last month India's education minister said the government was considering new regulation, though he gave no details. Since then at least 15 Indian ed-tech companies, including Byju's, have created a group promising to scribble new codes of conduct.

Western ed-tech firms are unlikely to face similar strictures. But they have their own challenges. In November Chegg, an American company that gives online help

to undergraduates, warned that lower-than-usual enrolment in American universities was affecting its revenue. Its market capitalisation, which soared to around \$14bn in early 2021, is back down to \$4bn, lower than it was before the pandemic. Shares in ed-tech companies that listed in America last year are mostly trading below offer price. Several, including Coursera and Duolingo, have yet to turn a profit.

Not straight As, then. But the industry's boosters think it has room to improve. An influx of users and money in the pandemic has given more firms the muscle to expand

abroad and to find ways of retaining users for longer, reckons Deborah Quazzo of GSV, a big educational investor. Take Byju's. It has spent at least \$2.8bn on a dozen acquisitions in an apparent attempt to string together services that will allow it to reach learners of all ages, from toddlers to career-changers. The deals are also helping it reach customers far beyond India. In 2021 it began offering online classes in coding and maths to children in America, Brazil, Britain, Indonesia and elsewhere. A big listing might teach ed-tech sceptics and Western rivals alike a lesson. ■

Bartleby Writing about leadership

How aspiring management gurus can stand out in a crowded field

THE SHEER amount of guff written about leadership, management and careers is staggering. Publishers spew out new business titles, some good, most not. Research papers proliferate, exploring everything from the impact of covid-19 on leadership in dental practices in England to the prevalence of psychopathy among sustainability managers. Blogs, newsletters, podcasts, social-media posts and columns (oh my God, the columns) add to the torrent of advice. It is hard for any would-be business guru to stand out in this ocean of effluent. That leaves a striking gap in the market—for a book on how to write a bestseller about leadership.

A publication of this sort could start by noting that the most useful writing about business leadership focuses on people who run actual companies and take actual decisions. But usefulness is a terribly old-fashioned path to success. This how-to guide would quickly move on, and point to three other approaches that can help budding authors grab the attention of readers.

The first is striking the right note of unreality. Two things are likely to be true of people searching for leadership advice: they have not made it, and they would like a shortcut to success. These readers do not want to hear that the route to the top is a Darwinian struggle that takes place over many years and that demands highly unusual attributes. They are after something that can be bought on Amazon and delivered the next day. They definitely do not want to be told that, by definition, only a few can succeed. If you are working on a book called "Loser: Why You Are Doomed to Disappointment", stop. (Actually, don't.)

The job of the wannabe guru is to make their readers think that unimagin-

able success is within their reach. If only they believed in themselves a bit more or picked up a few new habits—waking up stupidly early, say, or keeping a journal—wealth will surely follow.

This, incidentally, is why management mavens should embrace numbered lists (the fact that this is a numbered list is purely coincidental). Research done in 2011 found that drawing up plans to achieve goals can reduce the cognitive stress caused by unfinished tasks. By the same token the illusion that a finite number of steps will unlock success is itself deeply comforting.

The second bit of advice for a would-be leadership writer is to find uncontested ground. In the battle for attention, it can help to focus on something wholly unconnected to business and to argue that the subject has something to teach managers. That approach gives the aspiring guru a chance to write about a topic or person that will attract a wider readership. It also builds their reputation as someone who can connect dots even (perhaps especially) when there are no dots to join.



Some of these sources of leadership lessons are familiar: sports coaches and military commanders, Shackleton and Shakespeare, Trappist monks and Stoic philosophers. But authors limit themselves unnecessarily by narrowing the horizon to humans. An entire subgenre of internet posts offers leadership lessons from animals, for example. Keen to know how a giraffe would perform as CEO? So useless at managing projects that you are driven to wonder whether an elephant would do better? From inclusivity and lice to change management and dodos, only one thing mentioned in this paragraph is not made up.

Indeed, why draw the line at sentient beings? "Skin: Leadership Lessons from the World's Largest Organ" is a book idea crying out for an author. Skin constantly renews itself, as a thriving company should. It has a purpose. It is flexible. Sure, it has zero self-awareness, but look around: that is not an obvious bar to corporate success.

The third piece of advice is to pick the right title. Conveying a sense of urgency is vital: one-syllable words are the norm for a reason. A dollop of physicality—suggestiveness, even—can be helpful, perhaps because potential readers are so likely to be sagging behind a desk. And for all the emphasis on co-operation and purpose, it doesn't hurt to embrace zero-sum words about winning, victory and coming first. A title like "Love Bomb: Be Kind and Crush Your Rivals" makes for a nice blend of emotional intelligence and pent-up violence.

With the synopsis settled, all that remains is to unveil a name for this how-to-write-a-leadership-book book. "Bollocks: Three Ways to Write and Get Rich" will be in stores this autumn and is available for pre-order now.

Schumpeter | Cyber-rattling

Companies have a lot to fear from Russia's digital warmongering



NOTPETYA IS A nasty name for the world's vilest computer attack. Embedded in an innocuous piece of tax software, the virus, which the American government said had the Kremlin's fingerprints all over it, struck Ukraine in June 2017, knocking out federal agencies, transport systems, cash machines—even the radiation monitors at Chernobyl, the husk of a nuclear-power station.

It then went rogue, worming its way from the computers of multinational firms with local outposts in Ukraine to their global operations, causing collateral damage to victims ranging from Maersk, a huge shipping company, and Saint-Gobain, a French construction giant, to Mondelez International, owner of Cadbury chocolate. The total hit was put at \$10bn, making it the costliest such attack ever. One of the most expensive blows fell on Merck, a New Jersey-based drugmaker with a market value close to \$200bn, which lost 40,000 computers in the blink of an eye and was forced to halt manufacturing of its human-papillomavirus vaccine.

Merck sought to cover its cyber-losses with a \$1.4bn property-insurance claim. However, its insurers refused to pay, invoking a clause in the contract called war exclusion. This precludes coverage in the event of warlike action by governments or their agents. The matter ended up in a New Jersey court. Years later, as Russian troops and cyber-warriors are once again threatening Ukraine, a judgment in the case offers a timely reason to explore how much companies have learned since then about dealing with potentially catastrophic cyber-warfare. The short answer is: not enough.

The Merck judgment, made public last month, is potentially a landmark one. It tackles a question of great importance in the context of modern-day belligerence: is cyber-warfare war? Merck's insurers, including firms like Chubb, argued that there was ample evidence that NotPetya was an instrument of the Russian government and part of ongoing hostilities against Ukraine. In other words, it was an act of warlike behaviour covered by the war exclusion. The court, however, sidestepped the question of who was responsible for the assault. Instead, it said that insurers did nothing to change the language of their contracts to suggest that the war exclusion included cyber-attacks. It said it was reasonable for Merck to think that the exclusion applied only to "traditional" warfare, ie, tanks and troops, not worms, bugs and hackers.

It is not the final verdict. A similar war-exclusion case involving Mondelez and its insurers continues in an Illinois court. But though it marked a victory for Merck, it may be a Pyrrhic one for companies at large. That is because many insurers are now seeking to strengthen the language in policies the better to shield themselves from payouts related to state-sponsored cyber-mischief. If a NotPetya-like virus were to come from Russia's warmongering in Ukraine and burrow itself into the world's supply chains, insurers are keen to ensure they limit their exposure to it. The consequences of that for corporate victims could be severe.

The evidence suggests companies have a lot to fear. Last year a report by HP, a technology firm, said that state-sponsored attacks had doubled between 2017 and 2020, and that businesses were the most common targets. Increasingly, the state hackers' weapon of choice is malware inserted into the software or hardware of suppliers, which is particularly hard for companies up the value chain to detect. Unlike other cyber-criminals, who attack and move on, states have strategic patience, lots of resources and are above the law within their own borders. They cover their tracks well, too, so it can be particularly hard to attribute blame for an attack.

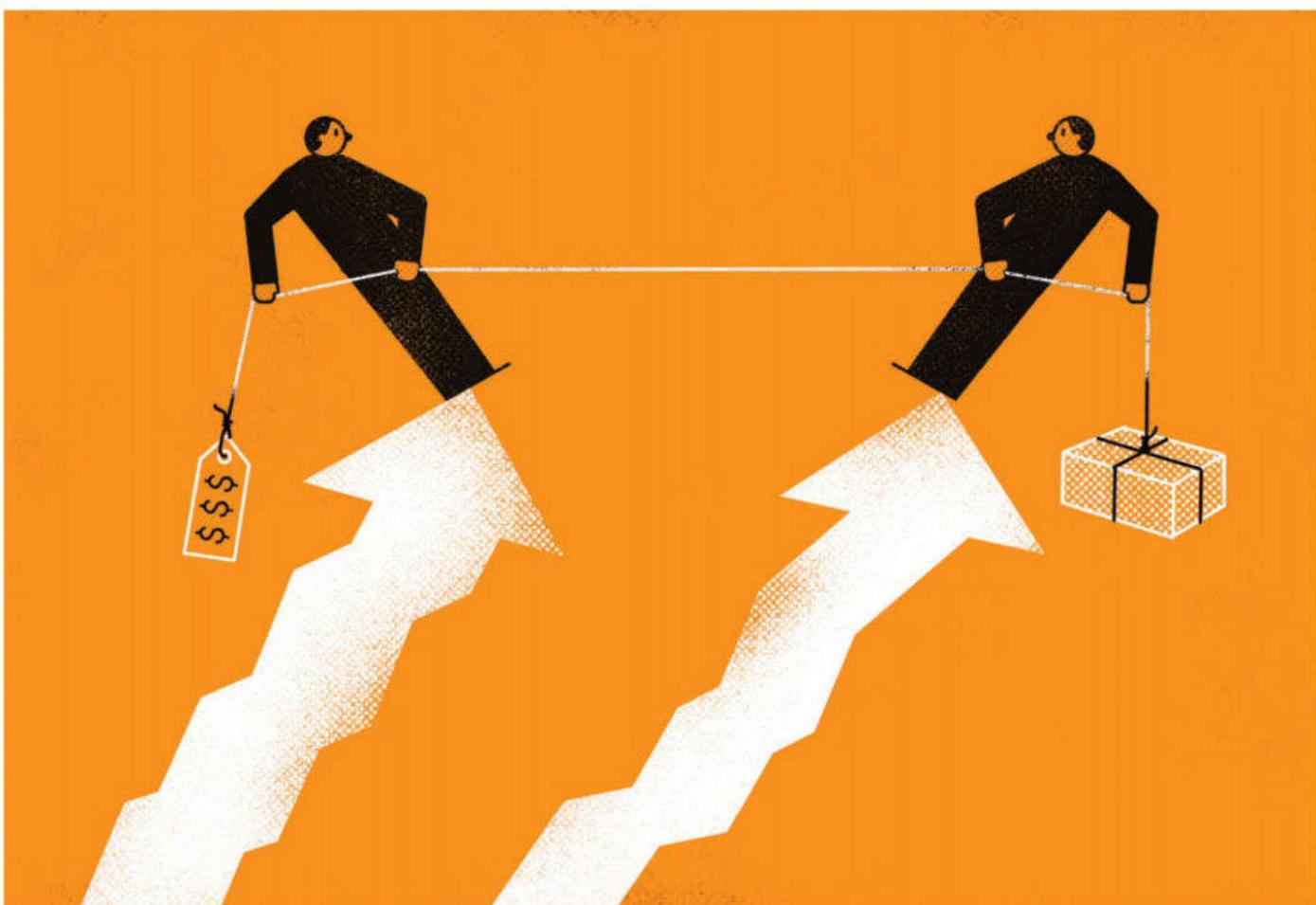
In the face of that, the insurance industry's caution is understandable. It is already facing a surge in ransomware claims from companies during the covid-19 pandemic, which is driving up the price of cyber-insurance. The NotPetya attack revealed the risk of "silent cyber", or unspecified cyber-risk hidden within insurance contracts. These could pose a systemic risk to the industry in the event of a large-scale, correlated attack. Partly in response to such threats, Lloyd's Market Association, an advisory group, recently issued four model clauses for excluding war coverage from cyber-insurance policies. They enable insurance companies to customise their exclusions more easily and give companies more clarity on which risks are covered and which aren't. But they appear to protect the insurers more than the insured.

It is still an evolving market. The Merck war-exclusion judgment relied on case law rendered before cyber was even a word. The cyber-insurance industry, though growing fast, is still small and immature. Eventually, the actuarial techniques for gauging cyber-risk will improve, and the insurance industry will get better at requiring clients to introduce the cyber-equivalent of fire alarms and sprinkler systems to minimise danger. For now, though, the risk of considerable confusion persists if something close to a cyber-war were to break out.

Self-isolation

So what should companies do? A well-known checklist of safety measures to implement includes things like two-factor authentication and swift software updates, which help keep hackers at bay. In light of the danger of infection along the supply chain, either from compromised hardware or software, firms should painstakingly assess their contingent exposures: factories or offices in far-flung locations, outsourced IT, cloud computing and even cybersecurity itself.

Corporate boards need to have a stronger grasp of the threat levels. As one former cyber-spoof says, they need not just gender and racial diversity but technological diversity, too, in order to grill the company's techies on cyber-defences. Furthermore, they need to recognise cyber-war as one of the growing number of geopolitical risks that firms face. Ensuring that any of a firm's contact points with Ukraine and Russia are not a vulnerability for the rest of its operations is the first of many steps they should take. ■

**Labour v capital**

The battle of the markups

SAN FRANCISCO

Companies are raising prices. Workers are demanding higher wages. Who is winning?

A GOOD COMPROMISE", the saying goes, "is when both parties are dissatisfied." Dissatisfaction rages in the post-lockdown economy. Households say that price-gouging companies are jacking up prices, contributing to an inflation rate across the rich world of 6.6% year on year. Companies bat such accusations aside, believing that they are the truly wronged party. They complain that staff have become work-shy ingrates who demand ever-higher wages. Earlier this month Andrew Bailey, the governor of the Bank of England, courted controversy by suggesting that workers should moderate their wage demands—even as he failed to tell companies not to raise their prices.

A "battle of the markups", between higher wages and higher shop prices, is under way. And there can only be one winner, all else being equal. Broadly speaking, eco-

nomic output must flow either to owners of capital, in the form of profits, dividends and rents, or to labour, as wages, salaries and perks. Economists refer to this as the "capital" or "labour" share of GDP. Which of the two has the upper hand in the post-lockdown economy?

The Economist has compiled a range of indicators to answer this question. First we calculate a high-frequency measure of

the capital-labour share across 30 mostly rich countries. In 2020 the aggregate labour share across this group soared (see chart 1 on next page). This was largely because firms continued to pay people's wages—helped, in large part, by government-stimulus programmes—even as GDP collapsed. Advantage, labour.

More recently, however, the battle seems to have shifted in favour of capital. Since reaching a peak in 2020 the rich-world labour share has fallen by 2.3 percentage points. Frustratingly, the data only go up to September 2021—and most economists anyway argue that labour's share is not a perfect gauge of economic fairness, since it is devilishly hard to measure. The evidence since then suggests that countries fall into one of three buckets, depending on how the battle of the markups is playing out.

In the first camp is Britain. There, underlying wage growth is in the region of 5% a year, unusually fast by rich-world standards. But corporations seem not to have a great deal of pricing power, meaning that they are struggling to fully offset higher costs in the form of higher prices. Digging into Britain's national accounts, we estimate that the nominal profit in pounds per unit of goods and services sold is only ►►

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▶ roughly as high as it was in early 2019, even as unit labour costs are rising by about 3% per year. Labour seems to be winning out at the expense of capital. Perhaps Mr Bailey has a point.

The second group consists of most other rich countries outside America. There, neither labour nor capital seems able to triumph. After correcting for pandemic-related distortions Japan's pay growth appears to be slowing to below 1% a year, suggest data from Goldman Sachs, a bank. Pay settlements in Italy and Spain are treading water, while wage growth in Australia, France and Germany remains well below where it was before the pandemic. Workers in these places are not really joining in with the inflationary party.

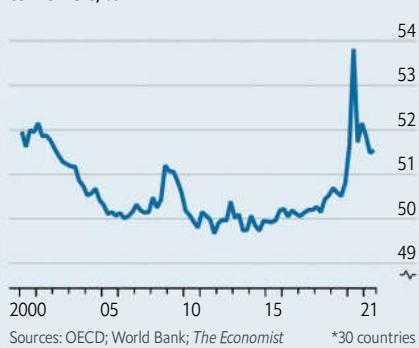
But businesses are not soaring either. In Europe pre-tax profit margins, as measured in the national accounts, have risen in recent months but remain below where they were just before the pandemic. In Japan the "recurring" profits before tax of large and medium-sized companies recently returned to pre-pandemic levels. The profits of smaller companies remain well below, however.

In the third group sits America. Here wage growth is rapid, at about 5% a year. But as shown in their most recent financial results, big listed American companies are doing a better job of protecting margins than analysts had expected. A series of unusually large stimulus payments may mean that households are able to absorb the higher prices that companies impose. In early February Amazon said it would increase the price of its Prime membership package by 17% in its home market—even as it chose not to announce price rises in other parts of the world.

Some firms are increasing their margins despite soaring costs. Tyson, an American meat producer, reported an 18% jump in the costs of its inputs in the most recent quarter compared with a year earlier, a 19.6% increase in its average selling prices, and a 40% rise in its adjusted operating profits. It says that rising meat prices

Workers of the world...

OECD countries*, share of GDP going to workers, %



Roaring back

United States, companies' costs and profits
2012 average=100



have not slowed demand.

An economy-wide measure of corporate margins is rising fast. Dario Perkins of TS Lombard, a financial-services firm, breaks down America's rise in unit prices since the start of the pandemic into companies' labour costs, non-labour costs and

profits. Wages are rising, but nonetheless markups are responsible for more than 70% of inflation since late 2019, he finds (see chart 2). In a recent report, analysts at Bank of America argue that greater pricing power helps explain why American equities have a higher price-earnings ratio than European ones.

Good, you're all unhappy

The story is not over yet. Some economists wonder if workers will before long demand even higher wages to compensate for higher prices in the shops. There is some evidence of this in America and Britain, where wage growth seems to be accelerating. Businesses' expectations for future wage settlements remain fairly conservative, though that could soon change. If wages do start to grow more quickly, the cycle of price rises and compensating wage demands might start up all over again. Before long the post-lockdown economy could look like the ultimate compromise—where nobody is satisfied. ■

Business districts

The true cost of empty offices

Commercial hubs have been hit hard by the pandemic. Is the answer more flats and festivals?

CITIES HAVE often bounced back from crises. From pandemics and earthquakes to floods and fires, the world's urban powerhouses have emerged stronger when faced with adversity. After the Great Fire of London destroyed most of the city in 1666 a raft of fire-safety regulations were ushered in. Builders swapped timber for brick or stone. Walls were made thicker. Streets became wider. When cholera tore through America in the 1850s New York and other cities introduced sewage systems and public parks. As the disease spread to Paris, authorities there too introduced radical public-health measures. Tree-lined boulevards were built, fountains were erected and slums were cleared.

Today's urban areas face a challenge of a different sort. With the mass return to office work still uncertain, the pandemic has sharpened debate about what the future holds for their commercial hubs. Key business districts such as Manhattan, the City of London, Tokyo's Marunouchi and La Défense in Paris have borne the brunt of the office exodus. Before lockdowns the 21 largest business districts in the world housed 4.5m workers and around a fifth of the headquarters of Fortune Global 500 companies, according to EY and the Urban Land Institute. When covid-19 emptied of-

fices around the world, most professional work shifted to home offices or kitchen tables. As the pandemic stretches into a third year, the fate of urban business districts remains unclear. Can they continue to attract investment and talent or will new work patterns jeopardise their commercial dominance?

On the face of it, things could have been worse for the owners of gleaming city office towers. Unlike the retail and hospitality sectors, office tenants have mostly continued to pay rent and analysts have retracted many of their worst projections. Leasing activity even picked up in cities like London towards the end of 2021.

The reality, however, is far from rosy. Home-working has hit demand for office space, with vacancy rates rising faster in business districts than anywhere else. Globally, unoccupied offices make up 12% of the total, up from 8% before covid. Across London 18% of offices are vacant. In New York the share is nearly 16%. More than one in five offices in San Francisco are empty. In Hong Kong, where downsizing has become common, net effective rent, which is adjusted for abatements or incentives, dropped by more than 7% in 2021 after falling by more than 17% in 2020.

Rather than lowering rents, landlords ►►

► are offering more freebies than ever to retain tenants or attract new ones. In Manhattan, cash gifts for tenants—typically used for kitting out new office space—have more than doubled since 2016. Across America, the average number of rent-free months has risen to its highest since 2013. Some property developers remain optimistic, betting that demand for office space will eventually bounce back. But with each new variant of covid-19, plans for a wide-scale return to the office have been delayed, and delayed again. And changing patterns of attendance look set to reduce the overall demand for space.

Financial markets reflect the darkening mood. Offices, particularly in business districts, are rapidly losing ground to better-performing areas of property such as warehouses and apartments. Having traditionally formed the core of commercial-property portfolios in America, offices accounted for less than a fifth of transactions in 2021. Globally, investors spent more on apartments for the first time. Foreign investment into offices also fell below the pre-pandemic average in countries such as America and Australia in 2021. By contrast, foreign investment in warehouses more than doubled in these markets.

Valuations mirror the uncertainty, too. Prices of buildings in business districts have taken a hit even as commercial-property prices have boomed in other parts of cities. In San Francisco's Financial District, for example, property prices have slumped by nearly a fifth since the end of 2019, according to the latest figures. Across the broader metropolitan area, they have increased by more than 5%. In Manhattan they have fallen by around 8% since the start of the pandemic. Asian cities have fared better. Office prices across Seoul, for instance, have risen by more than a third since the end of 2019. In Singapore they are



up by more than a tenth.

Most investors take a long-term view, so capital allocated to offices will be locked in for years. But sentiment is shifting away from cities with a large concentration of offices and towards smaller markets with a broader mix of buildings. A survey of investors with assets under management of more than \$50bn by CBRE, a property firm, showed a preference in 2021 for markets like Phoenix and Denver over New York and Chicago. The biggest business hubs will no doubt continue to attract large sums: London's offices are forecast to attract £60bn (\$8bn) of overseas capital over the next few years, according to Knight Frank. But deserted office blocks in dense commercial districts will continue to cast an ominous shadow.

Landlords insist concerns are overblown. Despite many buildings remaining stubbornly empty, they maintain that demand for the best space is holding up. True, some prime properties still attract plenty of suitors. Tenants are increasingly swapping ageing office blocks for modern, greener workplaces with better air-filtration systems and higher-quality amenities. But these high-end properties represent 20% or less of buildings in most cities. (They do, however, make up a disproportionate share of investment activity: in New York, just nine out of 69 office transactions accounted for 80% of the total amount invested in 2021.)

The gap between the best assets and the rest of the market will widen further. Refurbishments may rejuvenate some tired-looking buildings. For many older assets, however, inflation, shortages of labour and materials in the construction industry and the high cost of upgrading buildings to meet tougher environmental standards will make it harder to justify the expense.

The consequences for business districts could be far-reaching. The mass departure of bankers, lawyers and other professionals also hurts the cafes, restaurants and other small businesses that serve them. Many were already struggling with supply-chain disruptions, labour shortages and rising costs. Lockdowns cost Sydney's economy an estimated A\$250m (\$178m) a week and 40,000 jobs. Across New York City, more than a third of small businesses closed during lockdowns; before the pandemic the sector accounted for over half of private-sector jobs in the city.

Civic slide

Municipal finances, too, are exposed. Dormant offices mean shrinking tax revenues for cities which rely on them to fund public services. Empty offices also put pressure on transit systems. Reduced passenger numbers are projected to leave a £1.5bn hole in the finances of London's transport authority by 2024. New York's Metropolitan Transportation Authority, which runs the city's subway, is forecasting a \$1.4bn deficit in 2025 as federal aid is phased out.

Business districts are taking defensive measures. A common approach has been to make them more vibrant, a trend that was already under way before the pandemic. The City of London is proposing more "all-night cultural celebrations", traffic-free streets on weekends and at least 1,500 new apartments by 2030, while Canary Wharf has added bars, restaurants and pleasure boats to draw in younger crowds. Singapore's Urban Redevelopment Authority concedes it may need to rethink the mix of buildings in the downtown district, in addition to planning more cycle paths and pedestrianised streets. In America, skyscrapers are opening their doors to the public, offering new observation decks and Instagrammable art installations. Sydney has pedestrianised inner-city streets to use for al fresco dining. Paris, meanwhile, plans to turn car parks in La Défense into "last-mile" delivery hubs. As the world of work evolves, places of work are changing with it. ■



Where the streets have no name—and not a lot of office workers either

Global retail banking

The Citi that was never finished

NEW YORK

Citigroup's disposal of its international retail network marks the end of a remarkable experiment in finance

THE "DILLY-DALLYING", to use the term put forward by Jane Fraser soon after taking over Citigroup in early 2021, is almost over. Outside America and a few international centres, the distinctive blue branches that were once common features of big cities around the world will soon be vestiges of another era, much like black, yellow and red Kodak signs. The New York-based bank, which built a reputation over decades as a global consumer giant, is in retreat. From now on it will focus primarily on commercial banking and wealth management, serving large and medium-sized businesses and millionaires. The retail branches it retains will mostly be concentrated in a few domestic markets, such as New York and California.

A series of announcements have already been made: in August the sale of the Australian retail operations to National Australia Bank; in October the wind-down of those in South Korea; in December the sale of its Philippine business to Union-Bank of the Philippines; in January a disposal of Indonesian, Malaysian, Thai and Vietnamese branches to Singapore's United Overseas Bank (UOB), whose chief executive, Wee Ee Cheong, remarked that in a single deal his institution had added what it had taken "even Citi" half a century to build; and, also in January, the sale of Citi's consumer business in Taiwan to DBS, another Singaporean bank.

The remaining announcements are expected to come soon. One of the most important will be about India, where Citi has long had an outsized influence; Axis Bank, India's third-largest private-sector lender, is rumoured to be close to picking up the business for around \$2.5bn. Operations in China, Russia, Poland and Bahrain are still in play. Added to the disposal list recently has been the wholly owned Banamex, Mexico's third-largest bank. Delay would only erode whatever value remains in these operations as employees and customers look for a stable home.

Citi's retreat is not unique. HSBC, which came closest to having Citi-like global ambitions in retail banking, has pared back—though not as dramatically, at least in part because its core market, Hong Kong, is much smaller than Citi's. Australia's ANZ gave up on a pan-Asia strategy six years ago. Like Citi, these banks have kept offices around the world for corporate business, from lending to treasury services.



Fashions change in banking, too

As a result, it is tempting to view Citi's retreat as just another failed attempt at world domination in consumer banking. But it differs from past failures in two respects: the sheer ambition behind the initial expansion, and the legacy it leaves in retail-banking markets around the world.

Important to Reed

The expansion was premised on rethinking global finance, with a vast network serving everyone, everywhere, in every way. As with many ambitious plans, Citi's global push was in response to problems at home. In the 1970s, regulatory restraints resulted in a retail-branch network that was limited to New York City, unprofitable and unable to provide the funds Citi wanted for its lending business. While on holiday, John Reed, a senior executive, wrote a seven-page "memo from the beach" arguing that one option would be for Citi to dump retail banking altogether, a path later taken by Bankers Trust (now part of Deutsche Bank), Bank of New York and Boston's State Street, among other institutions. The other option was to go very big.

Mr Reed posited that rather than thinking about retail banking as deposits and loans, Citi should answer the expansive financial needs of families, whatever they may be. Through "success transfer", as the

bank dubbed it, solutions developed in one market could be rolled out in others, creating economies of scale where they would not exist in a self-contained local institution. The bank came up with a clever slogan to fit: "Citi Never Sleeps".

Years of heavy losses were incurred to create a new form of retail banking, components of which are now so familiar that it is hard to imagine they once didn't exist. These included ATMs (Citi was the first big American bank to introduce customer-friendly machines at scale), credit cards (of which it went on to become the world's largest issuer) and electronic payments (which it was one of the first to offer to retail customers).

Citi's reputation as a driving force in financial technology stretched into the 1990s, when more than a million customers received floppy disks biannually with software updates, enabling proto-internet banking. Aware of the identification challenge that existed in a transition from human contact in branches, the bank experimented with the retina-scanning technology that, along with facial recognition, is only now becoming common.

These innovations helped drive international expansion. Mr Reed became the bank's chief executive in 1984 and an ever-wider array of markets were opened, extending from Nigeria and Sweden to (via a Hong Kong acquisition) Thailand, as well as particularly swanky efforts in London and Geneva. The bank opened a representative office in Beijing, too. Augmenting the branches were call, processing and innovation centres in numerous places, including Silicon Valley, the Philippines and perhaps most importantly India, where they played a critical role in germinating the country's vibrant technology-outsourcing industry.

The bank's drive was a magnet for bright people. Alumni included a former prime minister and the current finance minister of Pakistan, a former central-bank governor of the Philippines and the future leaders of innumerable financial institutions, including the largest private-sector bank in India in terms of assets, HDFC Bank—whose market capitalisation alone is more than 90% of Citi's—and DBS, whose present chief executive came to the bank after being a star at Citi.

In many ways this reflected Citi's success but it also illustrated its vulnerability. "Success transfer" ultimately meant creating capable competitors. Local regulators created their own obstacles, limiting the rights of foreign banks to open branches or link international accounts, thereby undermining economies of scale. Technological innovation dimmed after Mr Reed's departure in 2000. Rivals, including those run by former Citibankers, copied Citi's innovations, sometimes improving on them ►►

▶ or offering them more cheaply.

Then came the global financial crisis in 2007. After incurring huge losses on over \$300bn of risky assets, Citi required a bailout—revealing that, in a pinch, it was an American, not global, institution. This was underscored by stringent new domestic regulations complicating, when not blocking, international transactions.

That began a long period of contraction. Early to go was the German retail operation, for \$7.7bn, then others in Turkey, Brazil, Egypt and over a dozen other countries. It was as if the United Nations of banking was being unwound. The Asian and Mexican operations remained, each in different ways offering much potential. But Ms Fraser, who joined the bank in 2004 and was less tied to the old strategy, concluded that the bank lacked the scale needed to compete in many of its markets.

A striking feature of the final reckoning has been how little the Asian operations really mattered to Citi's results. Their presence vastly exceeded their financial relevance: the Asian businesses that are being sold accounted for only 1.6% of group earnings in 2021. This helps explain the paucity of bidders. None of the businesses have been bought by Standard Chartered or HSBC, and their own far-reaching operations are now questioned. Years ago JPMorgan Chase's boss, Jamie Dimon, formerly of Citi, considered replicating its global network, only to conclude that building a retail business market by market wasn't viable. It is also striking that Chinese banks, the new Goliaths, have made barely any effort to build foreign retail operations.

Buyers of Citi's Asian assets, to the extent they have emerged, are fully or somewhat local. True, Singapore's DBS and UOB have been willing to acquire abroad, but Taiwan and Vietnam are hardly far-flung, especially for banks whose home market is small and serves as a hub for Asian finance. Local and regional consolidation would seem to be more reflective of the times.

Systemic rewards

As Ms Fraser pushes on with the dismantlement, there will doubtless be gnashing of teeth within an institution that looks to many outsiders like a shadow of its former self. It may be some consolation to current and former Citibankers that the technological components of Mr Reed's vision have been taken up both through interlinkages in the global financial system—ATMs and credit cards have long been ubiquitous—and through fintech operators such as Grab in Singapore, Ant Group in China and Wise in Britain, that enable electronic payments and remittances. Citi's experience, in short, suggests that the benefits of globalised finance can be more easily enjoyed by the system as a whole than by any single institution. ■



Prediction markets

Punting profits

An exchange makes progress with regulators as event-betting markets look to join the financial mainstream

THE LINE between investing and gambling has always been thin. This is especially true for prediction markets, where punters bet on events ranging from the banal ("will average gas prices be higher this week than last week?") to the light-hearted ("who will win best actress at the Oscars?"). Prediction markets have something of a cult following among finance types who rave about the value of putting a price on any event, anywhere in the world. Such prices capture insights into the likelihood of something happening by forcing betters to put money where their mouths are. But critics argue such markets will fail to grow beyond a niche group, reducing the value of their predictions in the process.

The debate has been reignited by a new "event contract" exchange—a market where traders can buy and sell contracts tied to event outcomes—run by Kalshi, a New York-based startup. The firm has made headlines because it earned approval to run America's first such exchange without regulatory limits on the scale of activity—a feat that has long eluded its predecessors. PredictIt, one of the most popular American prediction markets, operates as a non-profit research project limited to 5,000 betters for each event. The size of bets is capped too, at \$850 per person, per question. Kalshi overcame such hurdles by consulting American regulators for two years to earn their trust, says its boss, Tarek Mansour. He believes this could make event

contracts a real asset class, like options.

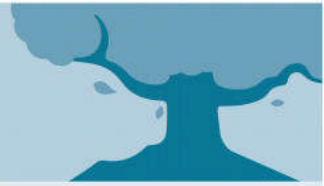
That may be why the startup has attracted so much interest. It counts big names from Sequoia Capital to Charles Schwab as backers. A former member of the Commodity Futures Trading Commission, Kalshi's regulator, has joined the firm's board.

Kalshi's timing is also opportunistic. Retail traders have ventured far beyond blue-chip stocks to assets such as options and cryptocurrencies. The firm sees event contracts as a natural extension of that curiosity. And Kalshi specifically looks for events ripped from headlines, says Luana Lopes Lara, one of its co-founders. For instance, it launched markets on US Supreme Court cases in December 2021.

In the longer run it hopes to attract more sophisticated investors. Why might they join a seemingly game-like platform? For one, they could make money off less-informed amateurs. They may also use it to hedge against risks. An investor with stock in the American construction industry, for instance, might have bet against President Joe Biden's infrastructure bill to cushion its losses if the bill had failed.

But there are several barriers to broader adoption. One is that there is a fundamental difference between betting on events and betting on stocks. Public companies generally engage in profitable projects, so shares tend to have positive returns; over a long enough period, investors would make money even if they picked stocks at ran-►

Buttonwood Behold the CrySPACtaur



Are financial crossbreeds monstrosities or labradoodles?

THE ANCIENTS knew the source of real terror. Lions, snakes and goats (apparently) are scary creatures to stumble across, but it is the combination of different bits of them that is the stuff of nightmares. The Chimera, with the head of a lion, the body of a goat and the tail of a snake, whose "breath came out in terrible blasts of burning flame", was a truly fearsome beast. Yet crossbreeds can also be cute and cuddly. Just think of labradoodles.

What about financial crossbreeds? Are they minotaurs or maitipoos? Finance has adapted and innovated at a frenetic pace over the past few years. In 2019 there were hardly any deals using special-purpose acquisition companies (SPACs), blank-cheque vehicles which take firms public via a merger. In 2021 they raised \$163bn of capital and agreed to take 267 firms public.

As recently as 2020 few people had heard of non-fungible tokens (NFTs), the cryptocurrency chits attached to pieces of digital media, such as a picture or video. But interest rocketed after Beeple, a digital artist, sold one for \$69m at auction at Christie's almost a year ago. Cryptocurrencies and associated trading platforms entered the mainstream. Institutional investors now chatter about including bitcoin in their portfolios. Coinbase, a cryptocurrency trading platform, went public in April 2021. It has a market capitalisation of \$45bn.

As these newfangled technologies and financial vehicles have grown in size and scope they have begun to mate. First, in July 2021, Circle, a Boston-based company which issues USDC tokens, a type of stablecoin pegged to the dollar, agreed to merge with Concord Acquisition, a SPAC founded by Bob Diamond, a one-time boss of Barclays, a bank, in a transaction

that valued Circle at \$4.5bn. Then in December 2021 Aries Acquisition, another SPAC, announced plans to merge with InfiniteWorld, a Miami-based NFT and metaverse-infrastructure platform valued at around \$700m.

Keeping up? There's more. Not to be outdone, on February 11th Binance, a cryptocurrency trading platform founded in China, announced it was making a \$200m investment in Forbes, a publisher and ranker of billionaires, ahead of Forbes going public via a merger with the modestly named Magnum Opus, another SPAC. Binance's rationale for backing the union, its boss helpfully explained, was that media is "an essential element" as cryptocurrencies, blockchain technology and "Web3", the supposed next generation of media and internet businesses where crypto-holders run social-media platforms, come of age.

What should an investor make of all this? It is tempting to dismiss these new beasts—call them CrySPACTaurs—as nonsense. There is nothing particularly cute or cuddly about the way SPACs typi-

cally treat their investors. In part thanks to the fat slice of shares grabbed by deal sponsors, investments in pre-merger SPACs have underperformed major stock indices by around 30 percentage points on average. Add in the risks typically associated with crypto-ventures and some punters may conclude that it looks more appealing to invest with the next Bernie Madoff.

That may also explain why these crossbreeds are yet to reach maturity. InfiniteWorld has not yet completed its merger with Aries. Circle and Concord have not tied the knot either, despite announcing their coupling around eight months ago. The Binance investment in Forbes, meanwhile, seems at least in part motivated by the prospect of the Forbes SPAC deal otherwise failing to come off. The \$200m infusion replaced those mulled by other outside investors, who appear to have got cold feet. Perhaps the Chimera and the CrySPACTaur are alike: not because they are both monsters, but because they are both seemingly mythical creatures.

Still, the prospect of facing the bright lights of public equity markets might be just what is needed to sort the puppies from the pigs. When quizzed about why the Circle SPAC transaction was taking longer than some others, Jeremy Allaire, Circle's chief executive, explained that to enter public markets "companies have to be in a position where they have to meet necessary regulatory, disclosure and accounting standards so that the public can invest. That is a good process." But it can take longer still for firms like Circle, which are "a very new kind of financial institution". Only when one of them actually goes public will it start to become clear whether CrySPACTaurs are beasts to fear or poohies to pet.



dom. That draws in more participants. In prediction markets, by contrast, the game is zero-sum, says Eric Zitzewitz, an economist from Dartmouth College. The pay-out of one trader is the loss of whoever takes the other side of the bet.

A bigger turn-off may be lack of liquidity. Sophisticated investors will be reluctant punters if they cannot make large trades with ease. In 2002 Deutsche Bank and Goldman Sachs, two banks, launched a market for trading event contracts—similar to what Kalshi now offers, though only open to large investors—on major macro-

economic data releases such as employment numbers. It closed some years later, most likely because investors who wanted to trade on such data stuck instead with bets on the entire stockmarket using options and share indices; traditional assets had much larger volumes and were therefore easier to trade. In many cases liquidity matters more than having a perfect hedge, says a trader at a large investment bank.

Looking abroad offers a clue to where volume might come from. Smarts, a popular betting exchange in Britain, where regulations are lighter than America, has

seen the most activity on major political events. The American presidential election in 2020 was its largest market to date, with more than £20m (\$27m) traded, says Matthew Shaddick of Smarts. Kalshi's political markets are also finding some success: its most popular to date was on whether Federal Reserve chair Jerome Powell would be replaced by December 2021. Markets on elections, however, have yet to be approved in America. Mr Mansour says Kalshi is "working with regulators" to change this. Perhaps prediction markets should open a market on their own success. ■

Free exchange | The wonks' weapons

A new history of sanctions has unsettling lessons for today



JUST AFTER the end of the first world war and the dissolution of Austria-Hungary, one observer noted that “every clock in Prague [was] gone, melted for the metals.” Another, in Vienna, saw children “wrapped in paper, for want of sheets and blankets”. At the time much of Europe was under strict economic sanctions, as western powers tried to hold the post-war peace and restrain communism. It was the first time that the “economic weapon”, the title of Nicholas Mulder’s new book, had been used, but by no means the last. By the 2010s a third of the world’s population lived under sanctions. Prominent among the current targets is Russia, which will face further sanctions if it invades Ukraine. Mr Mulder, of Cornell University, looks at sanctions over the three decades after the first world war—and reaches unsettling conclusions.

Economic war against civilians is a centuries-old phenomenon. During the Hundred Years’ War English troops launched countless brutal sieges against French garrisons, often starving them into submission. Blockades were an important part of the toolkit of the naval wars of the 18th century. Sanctions were and are different. Rather than being imposed by one country on another, they often involved groups of countries coming together to punish rogue states. The formation of the League of Nations in 1919-20 made co-ordinated action easier. And rather than being seen as an act of war, sanctions were often supposed to prevent it.

Sanctions were also the product of the first great wave of globalisation. In the 70 years to 1914 trade flows rose from 5% of global GDP to 14%, then an all-time high. With economies ever more integrated, like-minded governments had many points of leverage over renegades, whether by denying them the supply of crucial raw materials or by refusing to buy their goods.

The role of finance truly distinguished sanctions from previous economic warfare. In 1870-1914 annual capital flows averaged 4% of global GDP. The Allied powers controlled the world’s main financial centres. Economists, as well as traditional military types, thus helped design sanctions. They aimed to hit aggressor states where they were weakest: in their financing requirements.

Mr Mulder’s book is filled with anecdotes of how sanctions worked in practice. As signs of impending war grew in 1935, Italian companies such as Pirelli (tyres), Fiat (cars) and Montecatini

(chemicals) were denied financing for their import needs by the Bank of England. By August 1941 expansionist Japan was cut off from the rest of the world economy, having lost 90% of its foreign oil supply and 70% of its trade revenues. Enforcing sanctions required a great deal of effort in a world of increasing financial ingenuity. In the late 1910s Banco Holandés de la América del Sud, a Buenos Aires subsidiary of a Dutch bank, used five different names to undertake transactions for various Latin American subsidiaries of German banks.

William Arnold-Forster, a British administrator, argued that sanctions could “make our enemies unwilling that their children should be born”. Indeed, they could have horrific effects. Of the three main weapons targeting civilians during the period—air power, gas warfare and economic blockade—blockade was by far the deadliest, Mr Mulder argues. “Pens seem so much cleaner instruments than bayonets,” Arnold-Forster wryly noted.

Whether sanctions achieved their objectives was another matter. Small countries could be bullied into obedience, such as on two occasions in the 1920s, when the threat of sanctions stopped skirmishes in the Balkans from escalating into wider war. Bigger powers were tougher nuts to crack. Overall, “most economic sanctions have not worked”—the first lesson of Mr Mulder’s book. Most significantly, they did not stop Germany from choosing war.

Sanctions sometimes failed because of insufficient political will. For a long time American opinion had it that sanctions were fundamentally un-American, an anachronistic form of European-style imperialism. In other cases financial globalisation constrained, rather than widened, sanctioners’ room for manoeuvre. Britain refrained from imposing a severe financial blockade of Nazi Germany in the mid-1930s in part because British banks held huge amounts of German debt. In the event of sanctions the Reich would stop servicing this debt, and British financiers worried that the City would face a solvency crisis.

The second lesson of Mr Mulder’s book is that sanctions can have unintended consequences. By the 1930s global politics and economics had radically changed from the 1920s. The Great Depression had sent many governments down a protectionist route. Global trade was in a long slump. Fascism was on the march.

Doom loop

Sanctions, Mr Mulder shows, added fuel to the fire. Governments that believed themselves vulnerable to sanctions withdrew even further from the global economy, in order to secure strategic independence. In the 1930s Japan sought to develop a “yen bloc”, an economic zone including Korea and Taiwan, so as to reduce dependence on the Allied powers. In the mid-1930s Germany gunned for “raw-materials freedom”, in part via the construction of massive capacity for the synthetic production of oil. (Anyone witnessing Russia’s efforts in recent years to wean itself off Western finance may conclude that nothing much has changed.) It also necessitated conquest. “I need Ukraine”, said Adolf Hitler in 1939, “so that they cannot again starve us out like in the last war.”

In that sense the international search for effective sanctions and the ultra-nationalist search for autarky “became locked in an escalatory spiral”. Sanctions did not work in a deglobalising world, and contributed to its continued fracturing, in turn setting the stage for the second world war. Mr Mulder is too careful a historian to labour the parallels between what happened in the inter-war period and today, when geopolitics is once again fractious and globalisation is in retreat. But the lessons are sobering. ■

The
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Rocket science

Ad astra, on the cheap

SpaceX hopes its monstrous, dirt-cheap Starship will revolutionise space travel

WHEN IT COMES to size and spectacle, the peak of the Space Age passed in 1973, with the final flight of the Saturn v rocket that had carried the Apollo astronauts to the moon. Taller than the Statue of Liberty, the Saturn v could lug 140 tonnes into orbit. Its first flight, in 1967, provoked Walter Cronkite, an American news anchor reporting far from the pad, to exclaim: "My God, our building's shaking here!" as ceiling tiles fell around him. Half a century later, nothing as powerful has reached orbit since (see chart 1 on next page).

Not far from Boca Chica, a Texan hamlet a couple of miles from the Mexican border, SpaceX, a rocketry firm founded by Elon Musk, is developing a machine that it hopes will change that. Built from gleaming stainless steel, with its nose adorned with fins and ten metres taller than even the Saturn v, Starship looks like something from the cover of a 1950s pulp science-fiction magazine. Its planned payload of up to 150 tonnes means that five Starship flights could put more stuff into space than the rest of the world managed with 135 rocket launches in 2021. Its upper stage contains more pressurised volume than the Interna-

national Space Station, which took a decade, dozens of launches and perhaps \$100bn to assemble.

But it is not just the size that matters. When a Saturn v took off to send men to the Moon, the only bit of the 2,800 tonnes of hardware which came back was a cramped five-tonne capsule with three men inside. Each new mission meant a new Saturn v. With Starship, the idea is that all the hardware will come back: the massive booster stage almost immediately, the second, orbital stage after fulfilling whatever mission it had been sent on.

At a press event on February 10th to show off an assembled rocket Mr Musk reiterated his reasons for founding SpaceX: to buy humanity an insurance policy against existential risks by establishing a colony on Mars. Starship is designed to transport the million tonnes of supplies he thinks is needed for that job—roughly 100 times more mass than has been launched

since the start of the Space Age. To that end, it is designed to be not only the biggest rocket ever built, but also the cheapest. Existing rockets cost tens to hundreds of millions of dollars per launch (the Saturn v may have cost over \$1bn in today's money). Despite Starship's size, SpaceX hopes to cut that to the low millions.

Mars colonies, if they ever come, remain a long way off. But Starship's unprecedented combination of size and frugality could upset the economics of the space business closer to Earth, too. An industry used to shaving grams of mass and cramming complicated payloads into small cargo bays will see those restrictions lifted. Some scientists are already imagining extravagant space missions that would make full use of the rocket's huge capacity. NASA intends to use it to land astronauts on the Moon; America's soldiers are eyeing it up, too. And Starship is vital to the future of SpaceX itself, which was valued recently at more than \$100bn (see chart 2).

But first the rocket needs to fly. A series of test flights of Starship's upper stage (which, in isolation, is rather confusingly also called "Starship") have ended in crash-landings and explosions. A successful flight came on May 5th last year, when an upper stage flew 10km into the air before landing safely back on its pad. A full-fledged orbital test of the two-stage form of the rocket, with one Starship upper stage sitting atop a Super Heavy booster, had been due in January.

That orbital flight, though, needs approval from regulators, who were deluged ➤

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► with thousands of public comments. Officials have promised a decision within weeks. But broader environmental issues could yet force the firm to suspend work at Boca Chica entirely. An internal memo leaked last year revealed serious problems with the Raptor engines intended to power Starship. In his press conference, Mr Musk left himself a fair amount of wriggle room. An orbital flight, he said, might come in "a couple of months"—though it could also slip to the end of the year.

Zero gravitas

Something like Starship has been in development at SpaceX for over a decade, under names such as MCT (Mars Colonial Transporter), ITS (Interplanetary Transport System), and BFR (Big Fucking Rocket). Earlier versions were huger still: the ITS had a 300-tonne payload at one point. But all versions had one thing in common: they are designed to be entirely reusable.

SpaceX already flies partially reusable rockets: the first stages of its Falcon 9 machines fly back to Earth under their own power. Once refurbished and refuelled, they can fly again, spreading their construction cost over many launches. But their second stages, which end up much higher and moving at orbital speeds, remain expendable.

With Starship, SpaceX plans to recover both parts. Its Super Heavy first stage, like the Falcon 9's, is designed to fly back to the ground shortly after launch. SpaceX plans to catch it in mid-air with a pair of robotic "chopsticks" attached to the launch tower from which it took off.

Recovering the upper stage requires more drama. Starship will fall belly-first from space, relying on atmospheric drag to shed most of its speed. It will use its stubby fins for control, "rather like how skydivers use their hands and feet", says Scott Manley, a physicist and programmer who runs a popular rocketry-focused YouTube channel. When it is within a few hundred metres of the ground it will flip itself upright, relight some of its engines and make a rocket-powered landing of its own.

Several test flights have practised this flipping manoeuvre already, though not after a descent from orbit. Mr Musk (whose bold visions sometimes work, and sometimes do not) hopes that each Super Heavy booster could be ready to fly again within an hour. Since the rocket's upper stages would have to complete at least one orbit before returning to Earth, he hopes they might one day manage three flights a day. (The minimum re-use time for a Falcon first stage is about a month.)

Starship's Raptor engines are also designed with reusability in mind, says Mr Manley. They use a sophisticated, highly efficient design pioneered—but never flown—in the Soviet Union in the 1960s.

Somewhat unusually, they run on methane rather than kerosene, a more-commonly used rocket fuel. Methane produces very little soot, which helps keep the engine's internals clean—another boon for an engine intended to fly again and again. And both methane and the oxygen necessary to burn it can be made from Mars's thin carbon-dioxide atmosphere with the help of some straightforward industrial chemistry. SpaceX hopes that could, one day, allow Mars-bound Starships to refuel for a return trip to Earth.

But high-level design decisions are not the only reason Starship is cheap. SpaceX has an iterative, rapid-fire, startup-style culture very different from that of older aerospace firms (hence all the crash-landings and explosions). Mr Musk's development philosophy is that "if things are not failing, you aren't innovating enough." In a speech in November to America's National Academies of Sciences, Engineering and Medicine he spoke of running a dozen test flights in 2022. The firm mixes high-tech, bespoke design in some areas (such as the Raptor engines) with a make-do-and-mend attitude elsewhere (some Super Heavy prototypes have fins controlled by electric motors taken from cars made by Tesla, another of Mr Musk's businesses).

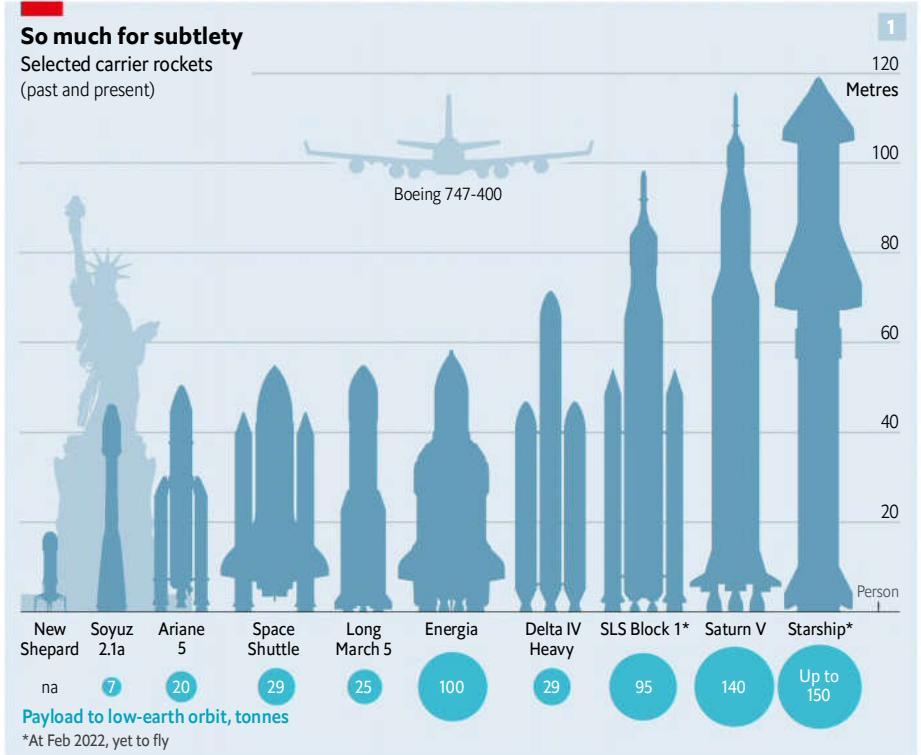
One good example is the rocket's stainless-steel construction. Starship was originally going to be built from high-tech carbon-fibre composites, which are both very strong and very light. But in 2019, despite having produced several big components, SpaceX went back to the drawing board. Carbon composites, it turns out, have sev-

eral disadvantages. They are porous, fiddly to work with, and need to be cured in an autoclave—not easy when making rocket-body segments that are nine metres across. And, at around \$130 per kilogram, composites are expensive.

Stainless steel, by contrast, is strong but heavy and therefore not an obvious choice for rocket-building. Some steel alloys, though, get significantly stronger as they cool down, meaning less is required for a given strength. And since Starship uses cryogenic propellant, cooling is in abundant supply. Steel is tougher, too, which can save weight elsewhere. SpaceX hopes to get away with applying a heat shield to only the windward part of the upper stage, which feels the full force of re-entry heating, leaving the leeward side as bare metal and saving mass. Stainless steel does not need painting, which reduces weight. It is much easier to work with, and costs mere dollars per kilogram. For a company that intends to mass-produce its rocket, says Simon Potter at BryceTech, a firm of space-industry analysts, that matters.

That may sound like a risky approach when it comes to something as unforgiving as rocket science. But it has served SpaceX well so far. It has pulled off 111 Falcon 9 launches in a row without failure, making it one of the most reliable rockets ever flown. Some Falcon 9 first stages have already been launched ten times.

A cheap, big, reusable rocket has been a dream of space cadets for decades. On paper, at least, Starship fulfils it. "You almost get to a point where launch costs would go away entirely as a consideration," says Mr ►



Potter. Mr Musk has talked of eventually building a fleet of Starships. If each were indeed launching several times a day, that would give SpaceX the ability to lug a million tonnes of stuff into orbit each year. BryceTech reckons that, in 2021, the world managed 750 tonnes. What you might do with all that capacity (other than supplying a future Mars colony) is another question.

Jonathan McDowell, an astrophysicist and rocket enthusiast at the Harvard-Smithsonian Centre for Astrophysics, notes that Starship's colossal size might go unused in the commercial-satellite market, at least for the foreseeable future. "There just isn't currently a market for large numbers of enormous payloads," he says. SpaceX's Falcon Heavy, with a payload capacity of 64 tonnes, is the most powerful rocket currently flying. Its first launch was in 2018, but it has only flown twice since.

The satellite industry might adapt, in time. In any case, Mr Musk has indicated that Starship, thanks to its cheapness, will replace SpaceX's smaller Falcon rockets, which already have a market share of around 50%. If he sticks to that plan, then early commercial launches of Starship could fly with their holds mostly empty.

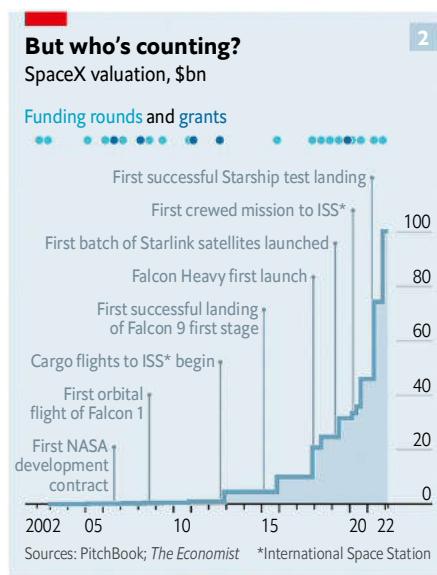
Congenital optimist

One medium-term option might be space tourism, says Mr Potter. Existing rockets from Blue Origin or Virgin Galactic can already carry a handful of thrillseekers into space—though not to orbit. Starship could take perhaps 100 people on an orbital trip, or a smaller number even further and in greater luxury.

On February 14th Jared Isaacman, an American billionaire who has already flown into orbit with SpaceX announced that he had ordered three further flights from the firm. The first two will use SpaceX's existing Falcon rockets—but the third, said Mr Isaacman, should mark Starship's first crewed flight. Meanwhile Yusaku Maezawa, a Japanese billionaire, has contracted with SpaceX to send himself and up to a dozen companions on a six-day jaunt around the Moon and back.

Jennifer Heldmann, a planetary scientist at NASA's Ames Research Centre who has written a paper about what Starship could do for science, is more excited. Starship's upper stage is designed to be refuelled in orbit, with extra fuel brought up in the cargo bay of other Starships. A full refill would require several extra flights. But the pay-off, says Dr Heldmann, would be the ability to deposit 100 tonnes or more of cargo on the surface of almost any body in the solar system. (The *Perseverance* rover that landed on Mars last year had a total mass, with its lander, of about four tonnes.)

Cheap launches might not be immediately revolutionary. Science missions are expensive, and even pricey launches make



up only a small chunk of the overall budget. But Dr Heldmann points out that Starship would enable much more ambitious missions, getting scientists more bang for their buck. One option, she says, would be to fly larger quantities of cheaper kit. "All that payload capacity means you could use off-the-shelf components rather than having to custom-make and miniaturise things," she says.

Another option would simply be to go big. *Perseverance*, which cost \$2.7bn, carries a drill that can excavate a few inches of Martian regolith. Starship, says Dr Heldmann, could carry a full-sized drilling rig that could bore kilometres deep.

And it could also open up access to the outer planets, which have historically been tricky to send missions to. In recent years the watery moons of Saturn and Jupiter have overtaken Mars as the most promising places to search for alien life. One group of scientists has drawn up a plan to use Starship to explore Neptune, which has been visited just once before, in 1989, when the American *Voyager 2* probe zoomed by on its way out of the solar system. Such a space craft could weigh tens of tonnes, compared with just 722kg for *Voyager 2*.

America's government is another potential customer. The country's newly minted Space Force is looking into Starship for its Rocket Cargo programme, which is designed to explore whether the rocket could be used to deliver equipment rapidly to anywhere on the planet. And with space a vital part of warfighting, America's armed forces would welcome the ability to replenish shot-down satellites quickly and cheaply.

NASA, meanwhile, has chosen a modified version of Starship's upper stage to ferry astronauts to the lunar surface as part of its ambitious Artemis programme. Most of Artemis is designed to use the Space Launch System (SLS), another jumbo-sized

rocket that NASA is developing as a successor to the Space Shuttle. But the SLS has a lower cargo capacity than Starship does, and a launch cost projected at \$2bn a time. If Starship works, NASA could come under pressure to scrap the SLS entirely.

SpaceX, for its part, knows exactly what it wants to do with Starship, even before it starts thinking about Mars. Its Starlink project aims to use swarms of thousands of low-flying satellites to beam high-speed internet to anywhere on Earth's surface. Gwynne Shotwell, SpaceX's chief executive, has noted that the global telecommunications market is worth perhaps \$1tn a year. SpaceX thinks it might reasonably aspire to about 3-4% of it.

Because low-flying satellites can see only a small portion of the Earth's surface, Starlink requires enormous numbers of them. The firm already has about 1,655 in orbit, about a third of the total number of active satellites in space. It has permission from American regulators to fly 12,000, and is trying to obtain a licence for 30,000.

But first, SpaceX has to make the rocket work. In his press conference Mr Musk was at pains to play down the probability of the orbital test—when it happens—going smoothly. Even if it did, plenty more testing would be needed before the rocket would be ready to fly real cargo.

Regulatory battles may be looming, too. The firm's Boca Chica facility was built on the understanding that it would be used for the Falcon Heavy, a much smaller rocket than Starship. Explosions from failed flight tests have scattered debris over a wide area, says Mr Manley, while road closures annoy locals. Environmental regulators are reportedly unhappy, and pushing for a full review of the firm's licence. Mr Musk has said that, in the worst case scenario, SpaceX would have to move Starship development to Cape Canaveral in Florida, which would delay things for months.

Nervous energy

Even then, Starship's capabilities could go unused. The true size of the market for Starlink remains unknown. As for his grandest ambition, it is not at all clear how many people would volunteer to live on Mars. The sales pitch, said Mr Musk, is that "it's going to be cramped, dangerous, difficult, very hard work [and] you might die."

Despite the technical challenges ahead, it would take a bold person to bet against SpaceX. In 2008, after the first three launches of its tiny Falcon 1 rocket had failed, the firm almost went under. But the fourth launch worked. The Falcon 9's impressive failure-free run was preceded by more than a dozen unsuccessful attempts to land its first stage. Mr Musk, for his part, is confident. "[Starship] will work," he said. "There'll be a few bumps along the road, but it'll work." ■

Drug manufacturing

Cloning vaccine factories

BioNTech wants to use shipping containers as standardised vaccine factories to expand capacity worldwide

AT THE HEART of its site in Marburg, Germany, BioNTech is putting the finishing touches on a new kind of factory. The drug company has spent eight months reworking its manufacturing processes to produce its mRNA covid-19 vaccine inside a set of standard shipping containers. By creating a modular approach to drug manufacturing, Ugur Sahin, BioNTech's boss, says he aims to transform medicine production around the world.

The work is analogous to software developers rewriting their code to run on different kinds of computer—porting a game from Microsoft's Xbox so that it will run on a Sony PlayStation, for example. Biological porting involves tweaking the 50,000 steps that comprise the manufacturing process of the mRNA vaccine from one environment, BioNTech's existing production lines around the world, so that they work in another, a series of connected, standard metal shipping containers. The firm plans to send its containerised mRNA factories—which it calls Biontainers—to parts of the world which lack their own vaccine-manufacturing capabilities. The first will arrive in an African country, not yet named, towards the end of 2022.

BioNTech has turned to containers as a reliable, repeatable way to achieve “good manufacturing practice” (GMP), a pharmaceutical-industry term for the minimum standards required of a manufacturer as part of their authorisation to sell products. GMP standards exist in order to ensure a consistently high quality of manufacturing output, which in turn protects consumers from badly made drugs. Validating new GMP facilities is a long, slow process. Mr Sahin's aim is to remove, to some extent, local factors from the equation that governs where vaccines can be produced, with a modular GMP facility that can be installed and run anywhere in the world.

All manufacturing operations consist of a series of steps that are known in their entirety only to the collection of engineers who carry out the work, a sort of industrial recipe. This knowledge about the production process includes everything from the settings of dials on every device to the temperatures, pressures and timings at which chemical reactions should run. These variables are precise to the extent that they can change depending on the weather. The transfer of this recipe to new production facilities presents perhaps the greatest

bottleneck to increasing vaccine production. Even when pharmaceutical companies were transferring this knowledge internally, during the height of the pandemic, it took around eight months to increase their own vaccine-production capacity.

Mr Sahin wants his shipping containers to speed things up. His idea is that after the process knowledge has been successfully ported into the standardised environment of the shipping container once, that facility can then be quickly cloned into other containers. Updates to the production method or tweaks to the recipe of the vaccine itself could be transmitted digitally to any containers in the network. “This”, says Mr Sahin, “is the future of manufacturing not only for Africa, but worldwide.”

Faster, more productive

After eight months of work to get its first container factory off the ground in Marburg, BioNTech's approach will be put to the test later this year. By the end of June, Mr Sahin says, the site at its partner country in Africa will be prepared for the arrival of the containers—BioNTech is in discussions with South Africa, Rwanda and Senegal. He expects the containers, the interiors of which will have been set up to the letter in Germany, to have arrived by the end of 2022. Each set of 12 containers will need four or five operators and be capable of producing some 40m-60m doses every year. BioNTech hopes the facility will cost

“significantly less” than a traditional vaccine manufacturing factory of equivalent output, which comes with a price tag of at least \$170m.

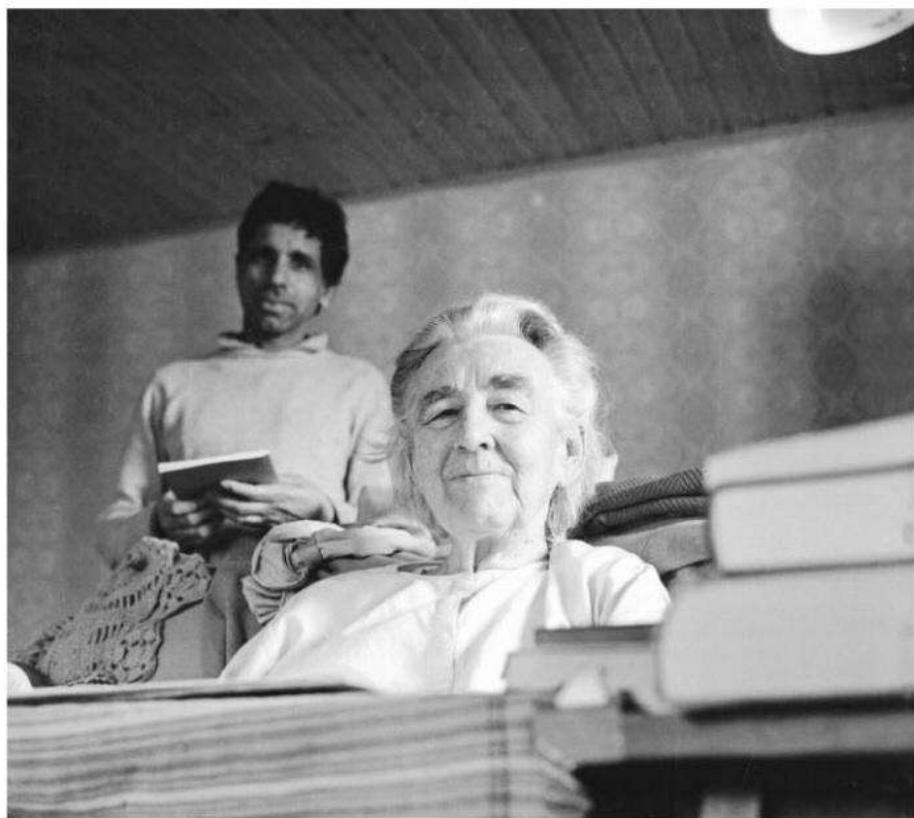
The validation and quality-control work will carry on through 2023, as will hiring and training local operators. In parallel, there will be conversations with regulators about the new containerised production process. Mr Sahin says BioNTech is already talking to the African Union, a regional bloc, the Africa Centres for Disease Control and Prevention and national regulators. He hopes that the German and European GMP standards to which the container factories have been built will be acceptable. If they are, then vaccine production will start at the end of 2023.

Although BioNTech's plan will not see any production facilities in operation for almost two years, it also plans for the Biontainers to have utility beyond the pandemic and the production of covid-19 vaccines. Mr Sahin says the production system could be used to make other vaccines and drugs, for example, against malaria or tuberculosis. In July last year BioNTech announced its aim “to develop a well-tolerated and highly effective malaria vaccine and implement sustainable vaccine supply solutions on the African continent”.

There may yet be pitfalls in BioNTech's plan. Containers may prove to offer a less uniform manufacturing environment than Mr Sahin hopes. Regulators may spot issues. Countries around the world may not accept medicines produced in facilities which, although geographically local, are operationally under a foreign company's control. But the principle of reducing the cost of copying process knowledge is sound. If it works, Mr Sahin is likely not just to boost manufacturing capacity on the African continent, but to change the way drugs are made everywhere. ■



Boxes of delights



India's past and present

A magnificent seven

The history of India's independence heroes is bound up with the politics of today

HOW DO POLITICAL winds affect the writing of history? In India those in power have long pressed publishers to pay most heed to their favoured historical figures. For much of the past century, as the Congress party dominated public life, writers lavished attention on the independence heroes who were drawn from its ranks, Mahatma Gandhi and Jawaharlal Nehru foremost among them.

In contrast, figures of similar importance to the independence movement who were (or became) rivals of Congress were given shorter shrift. The Bengali firebrand Subhas Chandra Bose was not forgotten, but he was far from celebrated in the same fashion as the *Congresswallahs*. (Admittedly, he had hurt his own reputation by rushing into exile to ally with the Nazis and Japanese during the war.) Another anti-British campaigner, who despised Congress as much as he opposed imperialists, was Vinayak Savarkar. He was long shunned by historians, in part because of his close association with a gang of men who murdered Gandhi in 1948.

Rebels Against The Raj. By Ramachandra Guha. Knopf; 496 pages; \$35. William Collins; £25

Of late the winds have shifted in India. Congress now looks flattened as a political force. Strong regional politicians have established rival power bases; nationally it is the Hindu nationalist Bharatiya Janata Party (BJP) that breezes through one election after another. In turn, different historical characters are attracting sympathetic attention from writers. Bose has been revived as a pre-eminent figurehead of Bengali regional pride, for example. As for Savarkar: the prime minister Narendra Modi extols him. As the creator of Hindutva (the Hindu-first movement) roughly a century ago, Savarkar and his illiberal ideas arguably shaped the majoritarian views of modern BJP leaders as much as anyone.

For a distinguished historian who champions the appealing idea of India as tolerant, humane and welcoming to adherents of all religions or none, this is a dispiriting moment. Ramachandra Guha has already written several acutely observed books on Gandhi's life (among other topics). His latest work, "Rebels Against The Raj", is a study of India in the build-up to its independence, the 75th anniversary of which falls this year. In it, Mr Guha makes clear his distress at India's souring mood.

He warns of the current drift towards national and religious parochialism. "The rise of nativism and xenophobia", he writes, "has been both immense and intense." India's leaders once stood for inclusion, universal rights and liberal democracy, but today's leitmotif is to "proclaim with pride that you are Hindu". Politicians crow about throwing off a millennium of foreign rule (meaning Muslim Mughals, then British imperialists) and India's growing might, while suggesting they have nothing to learn from the rest of the world.

Mr Guha's new book challenges such thinking with a reminder of how many outsiders held (and hold) deep affection for India and its democratic cause. He introduces a remarkable cast of seven foreign activists who struggled for India's freedom from the 1910s onwards. They were British, Irish and American, and included political campaigners, journalists, a reformed communist, a social worker and a teacher. All suffered for their principles and were imprisoned by the British.

Nor were they alone. Other foreigners, Mr Guha points out, played a big part in India's drive for independence, including ►►

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► C.F. Andrews, a priest and social reformer who urged Britain to grant India its freedom. But Mr Guha sets aside those he terms “bridge-builders” between Britain and India (among them some who wished for a kindlier form of imperial rule). His interest is in the outright renegades, who proved themselves utterly, joyously disloyal to Britain’s imperial project.

The author is intrigued by the motivation of people who make sacrifices for others in distant places, or for groups distinct from their own, whether socially, racially or economically. He likens his renegades to the thousands of foreign volunteers who fought against fascism in the Spanish civil war of the 1930s. He finds another parallel in individuals who choose to turn against immoral regimes, such as idealistic white South Africans who resisted apartheid. At times, he rightly observes, disloyalty is a trait much to be admired.

Rebels with a cause

The stories of his seven subjects—four men and three women—are deftly intertwined. The most compelling is Annie Besant, who came to India in middle age in 1892, an orator already known for campaigning for “home rule” in Ireland. She became a proponent of theosophy (an esoteric religious movement) and for a while outdid Gandhi in the affections of the Indian public as she called for freedom. She pushed for women’s rights, and votes, and helped found Banaras Hindu University, still one of the most prominent in India. Her efforts deeply unsettled British rulers who were unsure how to shut her up.

Meanwhile, Madelaine Slade (pictured on previous page), a former concert pianist from Britain’s home counties, devoted her long life to Gandhi, living in ashrams and traipsing across rural India. She took an Indian name, Mira Behn, and probably had her greatest impact by pleading the cause of Indian independence to the American public and in the White House. The other five include Benjamin Horniman, a battling newspaper editor who promoted a free press both before and after independence, and Samuel Stokes, who campaigned against the use of forced, unpaid labour (a disturbingly common practice both before and under British rule).

Mr Guha does not overstate the role of these foreigners. He sums up his group as “active conscience-keepers”, who remained true to their rebellious ways even after independence—readily criticising their friends, the new rulers of India, just as they had opposed misrule by the British. His account does not change the broad narrative of how Indians won freedom for themselves. Its real point is as much about the future as the past—an argument for the tolerant, outward-looking country India could once again become. ■

Life on Earth

Creatures of the deep past

Otherlands. By Thomas Halliday. Random House; 416 pages; \$28.99. Allen Lane; £20

THE DEEP past is a foreign country; it helps to pack a guidebook. “Otherlands” is just such a Baedeker. In this bracingly ambitious book, Thomas Halliday, a palaeobiologist, rewinds the story of life on Earth—from the mammoth steppe of the last Ice Age to the dawn of multicellular creatures over 500m years ago.

Like the time traveller in H.G. Wells’s “The Time Machine”, readers risk chronological whiplash as chapters hopscotch deeper into the past, skipping millennia at the turn of a page. Like that literary odyssey, this is a journey from the familiar to the bewilderingly strange. At times in Earth’s history, east Africa groaned under ice sheets kilometres thick. Antarctica, meanwhile, was once a steamy tropical jungle through which swaggered penguins built like rugby players. Massive reefs of glass sponges grew beneath late Jurassic seas, ghostlike thickets of translucent silicon marching for miles into the darkness.

An outlandish bestiary stalks through “Otherlands”, which Mr Halliday evokes with a naturalist’s eye. Early hominins, he says, scavenged at kill sites with otters the size of lions—perhaps the first species driven to extinction by the ancestors of modern humans. Other animals prompt science-fiction horror. *Omnidens* (“all tooth”), the apex predator of the Cambrian seas, might have been dreamed up by the artist H.R. Giger. The giant worm sucked prey into its digestive system past six spirals of

jagged teeth. Its closest analogy, Mr Halliday notes, is the “sarlacc” from “Star Wars”.

This deep-time perspective marginalises human beings. Maps at the start of each chapter convey the globe’s mutability as the familiar outlines of the continents warp and blur, shuttling like chequers on a board. The Ediacaran period, for instance, is so distant in time that even its night sky was different: “Many of the stars we are familiar with are yet to be born.”

Written in lush, occasionally overripe prose, Mr Halliday’s approach is immersive. He relies on “trace fossils”—in other words, fossil records of behaviour, rather than biological remains, a footprint rather than a thigh bone. In this way lost worlds are preserved, and “a startling wing-flap...is made solid and lasting”. Mythology and folklore preserve such traces too. Maori stories commemorate New Zealand’s Haast’s eagle, a monstrous raptor with a three-metre wingspan that was capable of snatching a child. Myths of the one-eyed Cyclops arose from the nasal openings in the skulls of dwarf elephants, which once roamed the islands of the Mediterranean.

The long view of “Otherlands” offers both hope and trepidation. Life is already diversifying in response to human-induced climate change: after 200m years, glass sponge reefs have returned, thriving in oxygen-depleted seas. In 2016 a bacterium was discovered near a plastic-recycling facility in Japan, “the first known life form ...to be entirely plastivorous”. But the remote past also furnishes warnings.

The global warming of the Eocene period anticipated conditions that might obtain by the end of this century—the Antarctic forested with temperate woodland and sea levels rising by ten metres, swamping the homes of a billion people. “Change, eventually, is inevitable,” Mr Halliday says. At the same time, humankind’s future requires “sacrifice, an act of permanence”. It will not be cheap. ■



Fantastic beasts and when to find them

The story of PayPal

Making the mafia

The Founders. By Jimmy Soni.
Simon & Schuster; 496 pages; \$30.
Atlantic Books; £18.99

IT IS HARDLY a tech giant. PayPal, a digital-payments firm, has a market capitalisation of \$135bn, compared with Amazon's \$1.6trn and Apple's \$2.8trn. Yet it holds a unique position in Silicon Valley mythology. A startling number of PayPal's co-founders and honchos have gone on to corporate greatness, earning themselves the nickname the "PayPal mafia".

The top job at the firm was held by both Elon Musk, boss of Tesla and one of the world's richest men, and Peter Thiel, a veteran venture capitalist and co-founder of Palantir Technologies, a data-analytics firm. Reid Hoffman, co-founder of LinkedIn, held various senior roles. Three PayPal alumni later created YouTube; others co-founded Yelp, a popular review website, and Yammer, a social network. Former employees landed senior jobs at Google, Apple and Facebook, as well as at some of the valley's biggest venture-capital firms. Together they form "one of the most powerful and successful networks ever created", argues Jimmy Soni in "The Founders".

His well-researched book chronicles PayPal's birth and transformation from a scrappy startup to a profitable business which, in 2002, was bought by eBay for \$1.5bn. The origin story starts with two other companies: Confinity, co-founded by Mr Thiel, which planned to build software to beam money between PalmPilots, then must-have devices for businessfolk; and X.com, co-founded by Mr Musk, which was meant, as he put it, to be "the Amazon of financial services", offering internet users everything from mortgages to credit cards to insurance. Both found success with features that let customers transfer money using email. Initially rivals, the firms merged. PayPal was the result.

The story of its rise is gripping. PayPal was born during the internet boom of the late 1990s, when money poured into Silicon Valley. The fierce competition fomented by the investment in turn generated intense pressure; all-nighters were common. PayPal burned through dangerous amounts of cash to attract new customers. It was sued repeatedly and subject to fraud. Splits among the top brass caused commotions: two chief executives were ousted in coups in a six-month spell. Mr Soni's text is peppered with colourful quotations from

Mr Thiel ("I need people here I can scream at") and Mr Musk ("This is like gambling one hundred million smackeroos").

All this gives a taste of the chaos of startup life. Business models were improvised on the fly. Shortly before Confinity's launch, Mr Thiel told journalists that his new product would be free. That was news to his engineers, who quickly removed fees from the website. Experimentation led to grave mistakes. For almost a month a loophole in X.com's security allowed villains to steal from banks using only account and routing numbers, both of which were printed on cheques.

What the book lacks is a clinching answer as to why the PayPal gang have been so successful. Lots of theories are offered, including the wildness of the PayPal roller-coaster and the outsider status of many of those involved (nine of the ten founders of the two original firms were foreign-born). None of these explanations is convincing; most apply to other tech startups.

Even so, this is an engrossing glimpse of the PayPal mafia's riotous early days. Many former employees object to that nickname now, on the grounds that it insinuates something sinister. A quip by John Malloy, a former board member, better captures the book's tone: "Calling us a mafia is to insult mafias. A mafia is far better organised than we were." ■

Debut fiction

Love and other demons

When We Were Birds. By Ayanna Lloyd Banwo. Doubleday; 304 pages; \$27.00. Hamish Hamilton; £14.99

THIS LUMINOUS story is powered and steered by two characters from different walks of life who have different attitudes to death. Set in fictitious locales of Ayanna Lloyd Banwo's native Trinidad, her debut novel tells of the separate struggles and twinned destinies of Emmanuel Darwin and Yejide St Bernard. What looks set to be a simple tale of boy meets girl soon develops into a thoroughly original and emotionally rich examination of love, grief and inheritance.

Darwin (as the character prefers to be called) leaves his home in the country and hitches a ride to Port Angeles to start work as a gravedigger at the Fidelis Cemetery. His mother, a devout Rastafarian who has taught him to keep a distance from death, is appalled at his choice of job: "Not in no dead yard and not in that dead city." But in



The graveyard shift

the absence of other opportunities, Darwin is forced to turn his back on her and take his chances in a place that can reputedly "swallow a man whole".

Meanwhile, on her family's estate in Morne Marie, Yejide waits for Petronella, her ailing mother, to gasp her last breath. When she dies, Yejide inherits a mysterious legacy that has been passed down through generations of St Bernard women—the ability to anticipate death and commune with spirits. "I feel the dead calling," she later says, "and I see death coming before it reach."

Darwin meets Yejide when she turns up at Fidelis to make burial arrangements for her mother. They sense a special connection and an intimate relationship blossoms. But privately each is plagued by a pressing individual concern. Darwin discovers that his colleagues at the cemetery are embroiled in shady business and that his life is in danger. Yejide is visited by Petronella's restless ghost, which urges her to escape her fate and make her own life: "Take your man, take yourself and run." But can the pair run far enough?

Several recent novels have included memorable scenes in graveyards, among them "The Ministry of Utmost Happiness" by Arundhati Roy and George Saunders's sublime, Booker-prizewinning "Lincoln in the Bardo". As in those books, the "dead yard" in "When We Were Birds" is full of life. Ms Lloyd Banwo ensures that the scenes it hosts are packed with drama, colour and tension, particularly in her gripping finale.

In other hands, the flights of fancy in Yejide's story might have clashed with the grounded realism of Darwin's. Here they blend into a heady mix. The rhythms of Ms Lloyd Banwo's narrative voice help keep the reader rapt. Like the corbeaux—vultures which, in the author's invented mythology, escort dead souls to the afterlife—her novel takes flight and soars. ■

World in a dish

Closer to the bone

In the fickle world of restaurants, sticking to a vision takes guts

IT IS NEARLY 30 years since St John opened in a former smokehouse, just to the north of the City of London. Back then, the restaurant felt daringly stark: white-washed walls and concrete floors, drinks specials on chalkboards, a high-ceilinged dining room with white tablecloths and wooden chairs, no music. After the pastel-coloured 1980s, it seemed to smack of the mortuary or the operating theatre. Today the decor is reassuringly unaltered.

So is the food. St John's menu changes daily, but its style is constant—what Fergus Henderson, its co-founder, calls "a kind of British cooking". It became famous in the early noughties, when the late Anthony Bourdain, an American chef, author and television presenter, rhapsodised over its roast bone marrow salad. That is the only dish that almost never leaves the menu, for good reason: it is a symphony of unctuousness (marrow), brightness (a parsley, caper and shallot salad), salinity (a mound of grey sea salt) and crunch (toast), which the diner composes himself. Marrow and other offal favoured by Mr Henderson began appearing on menus of fashionable restaurants from Seattle to Melbourne.

The offal fad competed with one for molecular gastronomy, with its spheres of olive juice, then gave way to farm-to-table cooking, which painstakingly detailed the provenance of every radish in a salad. Eventually came the narrative-driven cooking of today, in which each dish has its culturally appropriate origin story. The marrow is still on the menu at St John.

Yet while the offal grabs the headlines,

Mr Henderson's kind of British cooking ultimately rests on bold, unfussy simplicity. It is a cold-weather translation of Italian country cooking, with high-quality meat and vegetables simply prepared. The menu is laconic ("Snails and Oakleaf"), flavours strong and balanced, presentation a flourish above plain. Mr Henderson now has Parkinson's disease and no longer cooks, but the restaurant hews to his vision.

In a mercurial industry, that is rare. Far too many posh metropolitan restaurants share a dreary, trendy predictability, supplying the same gently upbeat music, the same mixture of vaguely Italianate and East Asian dishes, and excessively busy cocktails with poetic or suggestive names. There is nothing inherently wrong with that. Everyone wants to succeed, and these things sell. Castigating restaurateurs for offering them is as silly as berating directors for making superhero films. But while predictable restaurants and superhero movies can be successful, and sometimes even good, they cannot be truly great.

Not every singular vision succeeds, or is worth pursuing in the first place. Stubbornness and greatness are not the same thing. But—as every would-be novelist turned lawyer or sculptor turned dentist knows—such dreams are all too easy to abandon out of fear of failure. And more than most businesses, restaurants tend to fail. To open one that goes against the grain is a risk. To find that same restaurant little changed, still packed with diners and still delicious after more than a quarter of a century is a quiet cause for joy. ■



Artisanal pottery

Glaze of glory

DETROIT

The story of a pottery is intertwined with the history of its city

CHALLENGED BY A friend to replicate a piece of shimmering Babylonian earthware, Mary Chase Perry had an idea. The ceramicist decided to fire her pieces three times, adding a spray of kerosene for the final blast: the oil burst into flames, combusting with the metal oxides in the glaze to create a swirl of metallic colours. In 1903, the same year Henry Ford established his motor company in Detroit, Perry co-founded a small pottery studio in the city. By 1909 she had perfected the iridescent glaze and the process of "fuming" that became the studio's trademark.

The fortunes of Pewabic Pottery—named after an old copper mine near her birthplace—have since reflected those of Detroit itself. Perry's workshop, which fashioned handmade, delicate wares, could not have been more different from Ford's vast factory and its assembly-line production. But as Steve McBride, Pewabic's current boss, notes, the midwestern city "has always been a place of parallel tracks". The workshop was an integral part of America's Arts and Crafts movement, a backlash against mechanisation that began in the late 19th century. Yet those tracks sometimes intersected. Albert Kahn, who designed the earliest Ford factories, decorated the interiors with Pewabic ceramics.

Ford helped to bring people, and wealth, to the city in the early 20th century. Architects designed stunning Beaux-Arts and Art Deco buildings, including one for the Detroit Institute of Arts that opened in 1927, and the majestic Guardian Building (pictured), built in 1929; both were adorned ►►



Back Story The Western rides again



"The Power of the Dog" demonstrates the grit and flexibility of a venerable genre

Rose GORDON is trapped. Played by Kirsten Dunst, she is swabbing a floor in the half-light when she first appears in "The Power of the Dog". It is 1925, and the widow runs a boarding house in a one-saloon town in Montana. For their part, the Burbank brothers, Phil and George, are trapped in a gloomy ranch house and each other's company. Jane Campion, the director, is trapped too—in her case in the moribund genre of the Western.

Or so it may seem. After George (Jesse Plemons) marries Rose, the film tells a story of strength and vulnerability, secret hurts that boil over as rage and unsayable things expressed without words. Along the way, "The Power of the Dog"—which is up for a whopping 12 Academy Awards—demonstrates the genius of the Western form, and the freedom to be found in artistic constraints.

The death of the Western has been anticipated by critics for decades. All those panning shots and wagon trails are said to be too languid for today's audiences, who want more action and whizier effects. The vistas are over-exposed and the politics irredeemable. Parts of the template can be tracked to other kinds of movie—to the cops and hoodlums in gangster flicks, or the frontiers explored in science fiction. But the Western itself has been declared, on and off, to be as doomed as Butch and Sundance.

It has never died, because it is an unkillably flexible genre. Natural justice versus the formal kind, the embrace of domesticity and the wide world's allure, duels between men and callousness towards women, perilous journeys, fears faced and fled: these Western themes, all of which feature in Ms Campion's film, will never be stale. The Western served as a commentary on McCarthyism in "High Noon" and on the Vietnam war in "The

Wild Bunch". Crucially, the meaning of its key elements can be reversed at will.

The violence at the Western's heart can be noble or tawdry. Masculinity can be virtuous or toxic; lawmen, outlaws and avengers either righteous or sadistic. America can be a dream or a racist nightmare. Revisionism is one of the genre's proudest traditions. It encompasses the homoeroticism of "Brokeback Mountain" and John Wayne's old-school heroism in "Stagecoach". Its setting is both the blasted terrain of "The Outlaw Josey Wales" and the grandeur of Monument Valley.

"The Power of the Dog" finds new depths in Western motifs—fresh dangers in the landscape and suffocation in the homestead, and a queasy affinity between villain and innocent. In the novel of 1967 on which it is based, Thomas Savage writes that Rose's arrival at the Burbank ranch "could mean the end of the world, as Phil knew it". Played by Benedict Cumberbatch, Phil sets out to destroy her, to that end bullying and then befriending her effete but steely son Peter (Kodi Smit-McPhee). Only now the weapons are not



six-shooters but a stretch of rawhide rope, a banjo and a whistled tune.

Like the violence, time and memory are recalibrated. In lots of previous Westerns, the clock ticks down not only to a gunfight but to the demise of the West, as railroads and the government move in. Here the Old West is not just past; it is a legend, even a lie.

In the novel the ranch-hands are "all play-acting, like they saw in the moving pictures"; in the film, Mr Cumberbatch walks with a tense strut that suggests Phil is impersonating a cowboy as much as the actor is. He longs for a dead comrade named Bronco Henry, a figure more powerful for remaining off-screen. At the last, the story turns out to have been not only a Western but a murder mystery, its clues scattered lightly and the plot wound tight. The killer, you realise, gave warning of the crime, but nobody listened, as people often don't.

For these characters, as for most people in real life, liberation lies not in running away but in making the most of constricting circumstances. Likewise, a seemingly limiting form—the self-portrait, say, or the sonnet, or the Western—can be a chance for an artist to take a personal stand. Each departure in look and feel can be an assertion of independence. The contrast with the canon redoubles the effects. In lazy hands, a genre is a shortcut or a comfort blanket; in talented ones, it is a challenge.

Ms Campion rises to it triumphantly. By rights, her film will win a ten-gallon-hatful of Oscars at the ceremony on March 27th. Then again, awards, like life, are not always fair. Or, as a character says in "Unforgiven", another drama of rough justice that was said to have saved the Western 30 years ago: "Deserve's got nothing to do with it."

with Pewabic's glittering tiles. During the Depression, which hit Michigan and its manufacturing badly, the pottery pivoted to make smaller pieces such as buttons, brooches and ashtrays. Jobs and people left cities after the second world war; in 1965, four years after Perry's death, Pewabic was handed over to Michigan State University's ceramics programme. Later a non-profit organisation took it over.

The workshop's fortunes recovered as Detroit crawled out of its protracted slump; the city's low prices attracted creative youngsters from across the country. In 1987

Michele Oka Doner, a Florida-born artist, won a competition to design a new installation at Herald Square subway station in New York, and chose gold Pewabic tiles for her 11,000-piece mosaic, "Radiant Site". In 1991 the studio was designated a National Historic Landmark. More recently, when construction began at Detroit's flagship stadium, Little Caesars Arena, in 2014, the pottery was commissioned to create an imposing, 5,000-piece exterior mosaic. And these days riders on the city's new tram network, the QLine, can see its tilings at every stop.

Today Pewabic is part of a renewed Arts and Crafts movement, argues Mr McBride, as some consumers again opt for artisanal products rather than mass-produced schlock. Sales of pottery and tiles have increased by a fifth since 2019; Mr McBride reckons the pandemic inspired people stuck at home to spend more on furnishings. But, true to its roots, Pewabic remains a small outfit with only a few dozen employees, who still use its original clay mixer from 1912. Its story over the past century, much like Detroit's, is one of ingenuity, adaptation and, above all, resilience. ■

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 govt bonds latest, %	change on year ago, bp	per \$ Feb 16th	% change on year ago	
United States	5.5	Q4	6.9	3.4	7.5	Jan	4.9	4.0	Jan	-3.5	-7.7	2.0	73.0
China	4.0	Q4	6.6	5.2	0.9	Jan	2.6	5.1	Dec‡§	2.0	-5.0	2.5	6.34
Japan	0.7	Q4	5.4	3.0	0.8	Dec	1.2	2.7	Dec	1.9	-7.0	nil	115
Britain	6.5	Q4	3.9	4.3	5.5	Jan	3.7	4.1	Nov††	-2.6	-6.5	1.6	104
Canada	4.0	Q3	5.4	3.8	5.1	Jan	3.8	6.5	Jan	nil	-7.5	2.0	83.0
Euro area	4.6	Q4	1.2	3.9	5.1	Jan	3.0	7.0	Dec	3.2	-4.0	0.3	63.0
Austria	5.7	Q3	14.6	4.1	5.1	Jan	2.4	4.9	Dec	1.8	-3.1	0.6	75.0
Belgium	5.6	Q4	2.0	3.3	7.6	Jan	2.2	5.7	Dec	0.6	-4.3	0.7	87.0
France	5.4	Q4	2.9	3.9	2.9	Jan	2.2	7.4	Dec	-1.3	-4.9	0.8	96.0
Germany	1.4	Q4	-2.9	3.3	4.9	Jan	3.9	3.2	Dec	6.6	-2.7	0.3	63.0
Greece	13.7	Q3	11.3	4.2	6.3	Jan	4.3	12.7	Dec	-3.9	-4.3	2.7	189
Italy	6.4	Q4	2.5	4.3	4.8	Jan	2.7	9.0	Dec	3.5	-5.5	1.9	135
Netherlands	6.2	Q4	3.8	2.8	6.4	Jan	3.8	3.8	Dec	9.0	-4.1	-0.2	36.0
Spain	5.2	Q4	8.3	5.5	6.1	Jan	3.2	13.0	Dec	1.3	-5.4	1.2	103
Czech Republic	3.0	Q3	3.6	4.1	9.9	Jan	8.1	2.2	Dec‡	-0.9	-4.3	3.0	150
Denmark	3.7	Q3	4.5	2.7	4.3	Jan	2.0	2.5	Dec	8.6	nil	0.6	80.0
Norway	5.4	Q4	0.3	3.4	3.2	Jan	3.0	3.5	Nov††	8.5	0.2	1.4	76.0
Poland	5.5	Q3	7.0	4.9	9.2	Jan	6.2	5.6	Jan§	0.5	-3.1	3.9	255
Russia	4.3	Q3	na	2.5	8.7	Jan	5.6	4.3	Dec§	7.4	0.9	9.6	264
Sweden	5.7	Q4	5.7	3.0	3.9	Dec	2.4	7.3	Dec§	3.7	-0.3	0.7	42.0
Switzerland	4.1	Q3	6.8	3.0	1.6	Jan	1.1	2.3	Jan	5.0	0.5	0.3	61.0
Turkey	7.4	Q3	11.3	3.4	48.7	Jan	35.3	11.3	Dec§	-3.3	-3.9	20.9	818
Australia	3.9	Q3	-7.5	3.3	3.5	Q4	2.6	4.2	Jan	1.6	-4.6	2.2	94.0
Hong Kong	5.4	Q3	0.5	2.9	2.4	Dec	2.2	3.9	Dec##	1.3	-1.5	1.8	69.0
India	8.4	Q3	54.1	7.0	6.0	Jan	4.6	6.6	Jan	-1.6	-6.4	6.7	67.0
Indonesia	5.0	Q4	na	5.3	2.2	Jan	3.5	6.5	Q3§	-0.5	-4.9	6.5	24.0
Malaysia	3.6	Q4	na	4.5	3.2	Dec	2.8	4.2	Dec§	3.2	-6.1	3.7	72.0
Pakistan	6.0	2021**	na	3.4	13.0	Jan	8.0	6.9	2019	-5.6	-6.4	10.9	†††
Philippines	7.7	Q4	13.0	5.3	3.0	Jan	3.9	7.4	Q4§	-2.9	-7.2	5.3	216
Singapore	6.1	Q4	9.5	3.8	4.0	Dec	2.8	2.4	Q4	17.3	-1.8	1.9	88.0
South Korea	4.0	Q4	4.5	2.9	3.6	Jan	2.3	4.1	Jan§	4.1	-2.9	2.7	85.0
Taiwan	4.9	Q4	11.1	3.2	2.8	Jan	2.4	3.7	Dec	14.6	-0.7	0.7	37.0
Thailand	-0.3	Q3	-4.2	2.9	3.2	Jan	1.9	1.5	Dec§	1.8	-4.7	2.0	69.0
Argentina	11.9	Q3	17.3	3.0	50.7	Jan	51.8	8.2	Q3§	0.5	-4.4	na	107
Brazil	4.0	Q3	-0.4	0.3	10.4	Jan	7.6	11.6	Nov§##	-0.7	-7.3	11.2	348
Chile	17.2	Q3	21.0	3.0	7.7	Jan	6.9	7.2	Dec§##	-2.4	-3.5	6.0	338
Colombia	10.7	Q4	18.2	4.2	6.9	Jan	4.7	11.0	Dec§	-4.9	-6.8	9.0	399
Mexico	1.0	Q4	-0.4	1.9	7.1	Jan	5.1	4.0	Dec	-0.9	-3.3	7.8	246
Peru	11.4	Q3	15.0	2.3	5.7	Jan	5.5	11.0	Jan§	-2.4	-3.0	6.1	231
Egypt	9.8	Q3	na	5.4	7.2	Jan	6.3	7.4	Q4§	-3.9	-6.9	na	15.7
Israel	10.7	Q4	16.6	4.4	3.1	Jan	2.7	4.3	Dec	5.1	-2.7	1.7	71.0
Saudi Arabia	3.3	2021	na	5.0	1.2	Jan	1.8	6.6	Q3	6.3	2.0	na	3.75
South Africa	2.9	Q3	-5.8	2.1	5.7	Jan	4.8	34.9	Q3§	-0.7	-6.0	9.1	45.0

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	% change on:			index	% change on:		
		Feb 16th	one week	Dec 31st 2020		Feb 16th	one week	Dec 31st 2020
United States S&P 500	4,475.0	-2.4	19.1		Pakistan KSE	45,684.8	-1.4	4.4
United States NAScomp	14,124.1	-2.5	9.6		Singapore STI	3,439.3	0.6	20.9
China Shanghai Comp	3,465.8	-0.4	-0.2		South Korea KOSPI	2,729.7	-1.4	-5.0
China Shenzhen Comp	2,297.0	-0.9	-1.4		Taiwan TWI	18,231.5	0.4	23.7
Japan Nikkei 225	27,460.4	-0.4	0.1		Thailand SET	1,701.5	-0.1	17.4
Japan Topix	1,946.6	-0.3	7.9		Argentina MERV	90,577.6	3.6	76.8
Britain FTSE 100	7,603.8	-0.5	17.7		Brazil BVSP	115,180.9	2.4	-3.2
Canada S&P TSX	21,383.6	-1.0	22.7		Mexico IPC	53,680.9	1.7	21.8
Euro area EURO STOXX 50	4,137.2	-1.6	16.5		Egypt EGX 30	11,568.1	-0.2	6.7
France CAC 40	6,965.0	-2.3	25.5		Israel TA-125	2,087.8	0.2	33.1
Germany DAX*	15,370.3	-0.7	12.0		Saudi Arabia Tadawul	12,495.2	2.4	43.8
Italy FTSE/MIB	26,969.3	-0.6	21.3		South Africa JSE AS	76,502.6	-0.2	28.8
Netherlands AEX	758.9	-1.4	21.5		World, dev'd MSCI	3,060.3	-2.1	13.8
Spain IBEX 35	8,737.2	-1.2	8.2		Emerging markets MSCI	1,244.2	0.4	-3.6
Poland WIG	67,607.1	-1.3	18.6					
Russia RTS, \$ terms	1,524.5	-0.7	9.9					
Switzerland SMI	12,191.6	-1.4	13.9					
Turkey BIST	2,041.4	-0.1	38.2					
Australia All Ord.	7,573.0	nil	10.5					
Hong Kong Hang Seng	24,718.9	-0.4	-9.2					
India BSE	57,996.7	-0.8	21.5					
Indonesia IDX	6,850.2	0.2	14.6					
Malaysia KLSE	1,603.2	3.3	-1.5					

Sources: Refinitiv Datastream; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities

The Economist commodity-price index	2015=100	Feb 8th	Feb 15th*	% change on:	
				month	year
Dollar Index					
All Items	179.8	176.8	176.8	6.0	8.5
Food	149.5	149.7	149.7	7.7	18.1
Industrials					
All	208.1	202.1	202.1	4.9	2.7
Non-food agriculturals	173.0	181.1	181.1	5.2	26.6
Metals	218.5	208.3	208.3	4.8	-2.1
Sterling Index					
All items	202.5	199.5	199.5	6.5	11.8
Euro Index					
All items	174.6	172.6	172.6	5.9	15.8
Gold					
\$ per oz	1,826.4	1,849.2	1,849.2	1.8	2.1
Brent					
\$ per barrel	91.0	93.4	93.4	6.6	47.1

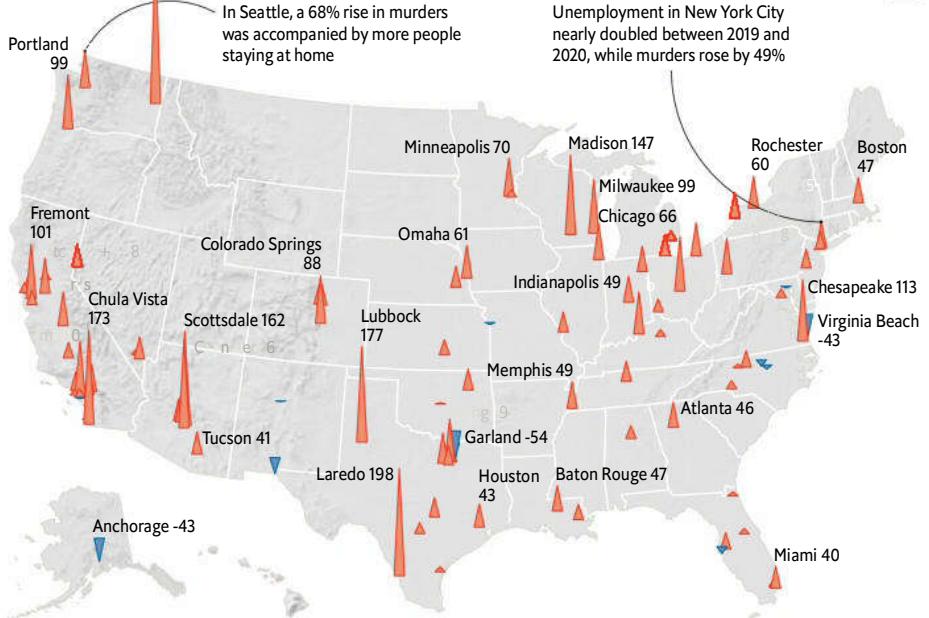
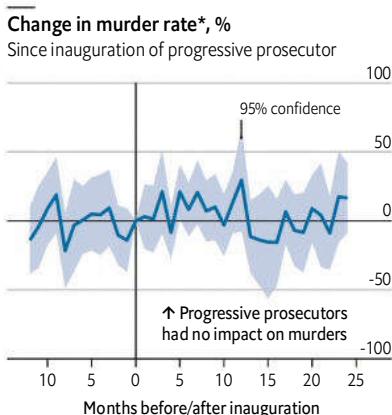
Sources: Bloomberg; CME Group; Cotlook; Refinitiv Datastream; Fastmarkets; FT; ICCO; ICAO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

For more countries and additional data, visit Economist.com/indicators

→ America has experienced an extraordinary, nationwide surge in violence. Less clear is what caused it



Change in murder rate, 2019-20, %



*In 35 American cities and counties between 2015 and 2021 Sources: "Prosecutorial reform and local crime rates", by Amanda Agan, Jennifer Doleac and Anna Harvey, working paper, 2021; Patrick Sharkey, americanviolence.org; FBI; World Bank

Why have murders soared?

Progressive prosecutors look more like the scapegoat than the source

IT WAS A short honeymoon. On January 1st, Alvin Bragg assumed the office of Manhattan district attorney. One of a new class of "progressive prosecutors"—criminal-justice reformers who aim to reduce the number of people in prison—Mr Bragg launched a spate of policy changes. Offences like burglary and possession of certain weapons would be downgraded; other crimes like prostitution and resisting arrest would no longer be prosecuted at all. Weeks later, New York City witnessed a sudden surge in violent crime. Two police officers were killed on the job. Mr Bragg had to announce a u-turn.

America has seen an explosion in violence since the start of the covid-19 pandemic. The national murder rate increased by 29% between 2019 and 2020—the largest single-year jump since 1905. That wiped out 20 years of progress on homicide. Data for violence in 2021 are still being collected, but the preliminary evidence suggests that homicide continued to rise, albeit at a less sharp rate. Among 22 large cities that

have already reported, murders rose by 4% between 2020 and 2021.

As Americans try to make sense of it, some have blamed progressive policies and reformers like Mr Bragg. These days Republicans are criticising President Joe Biden for being soft on crime. They also see electoral rewards in attacking Democratic rhetoric to "defund the police"—as attempted, unsuccessfully, in liberal cities like Austin and Los Angeles. But new evidence suggests that the actual blame may not lie with urban progressives.

To test this hypothesis, a trio of social scientists examined what happened to crime after progressive prosecutors assumed office in 35 cities and counties over a six-year period. They found no detectable effect of policy change on rates of major crimes including murders. The claim that overly lax criminal-justice policy drove violence looks shaky; so too does the progressive contention that decriminalisation would drive down offences. Separate analysis by John Pfaff, a criminologist at Fordham University, found that murders went up by almost equal rates in cities with and without progressive prosecutors.

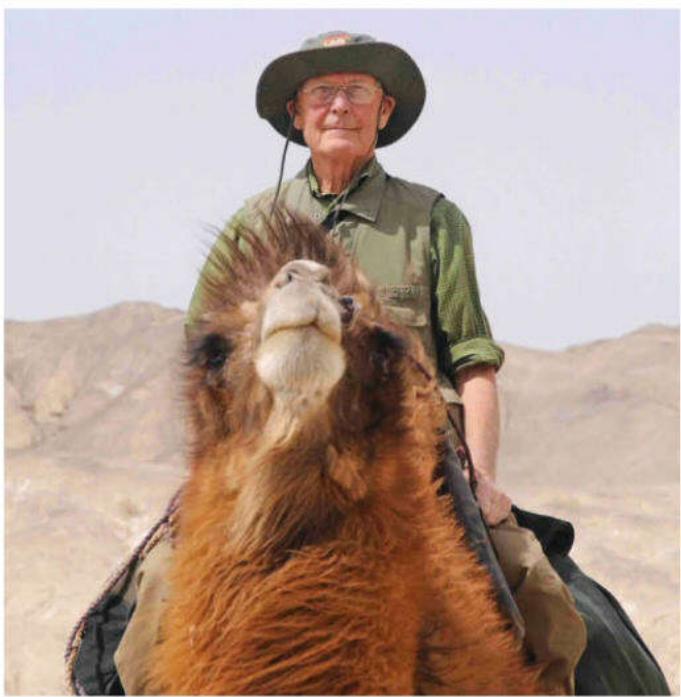
The reality is that the murder wave has affected every part of America—rural, suburban and urban. Some blame the upheaval of the pandemic. Yet the spike in murders was not mirrored in other rich countries that endured disruptive lockdowns.

Homicide rates in Canada, Germany and Sweden only marginally increased.

Trends in murder are notoriously difficult to explain. Criminologists still cannot agree on what drove the great homicide decline that began in the 1990s. There is thus considerable debate about what is causing this unfortunate bit of American exceptionalism. It is easier to rule explanations out than endorse any single one. Progressives have blamed easy access to guns, which Americans bought in record numbers during the pandemic years. Yet when researchers at the University of California, Davis, computed the correlation of new gun purchases with murders, they found very little.

The Economist tried its hand at this statistical conundrum by gathering high-frequency data in ten cities on covid spread, lockdown severity and unemployment. We found that homicide rates were worse in areas with higher unemployment. This was also true in areas with more severe lockdowns, which we measured using data gathered by Google on the change in people's mobility patterns. These correlations, though suggestive, cannot explain what caused the extraordinary upsurge.

That suggests that some humility about policy is in order. Progressive and conservative politicians have all failed to arrest the murder surge. Simple explanations, it turns out, are often simply wrong. ■



Look behind the Ranges

John Hare, explorer, writer and saviour of the wild camels of the Gobi desert, died on January 28th, aged 87

LIKE MANY other folk, John Hare found camels difficult to love. On first acquaintance. They could be surly beasts, obstinate as mules and with a kick hard as a horse. They could batter you with their long necks, smell awful and had an unpleasant habit of regurgitating their breakfast over you. Really, the last thing he meant to be was the camel obsessive he became—the man who tracked down the fast-vanishing wild Bactrian camels of the Gobi desert and made sure they survived.

But there was another side to camels, which he saw when he was posted to northern Nigeria. He went there in 1957 for the Colonial Administrative Service, the last man in, as he saw himself, to act for Britain on the eve of independence. His area was Mambilla, a remote mountain region without roads, where he oversaw 83,000 tribesmen on horseback or on foot. On one expedition, south of Lake Chad, he used camels and was impressed.

His porters were admirable. But they also grumbled about hours and pay, got roaring drunk on payday and had to be sprayed daily with DDT to stop jiggers digging under their toenails. Camels, by contrast, were strangely content with life. When they were hungry, a thorn bush sufficed. Going through soft sand, where he floundered, they would glide along serenely at three miles an hour. Later, when he was making regular trips to the Gobi desert, he even found himself on freezing nights snuggling up to a camel, having first sluiced himself with kerosene to keep its ticks away.

He went to the Gobi because, transferred to Kenya as a UN bureaucrat, he hated sitting at a desk. He wanted to be an explorer. He was 12 when he announced that, and his father told him to be sensible, but he really, really meant it. His head was full of the gripping adventures of Colonel Percy Fawcett in the Brazilian jungle, searching for the Matto Grosso and Inca gold. He too wanted to “look behind the Ranges”, as Rudyard Kipling wrote, and go where no one else had been.

By a chain of amazingly fortuitous events, camels took him there. At a reception in Moscow in 1992, where he had gone to curate a UN exhibition, a man in an ill-fitting brown suit and with a Stalin-style moustache turned out to be the leader of a Russian expedition to the Mongolian Gobi. They could not take this eager Englishman unless he had scientific qualifications or technical skill, and he had neither. But they were going with camels, and he knew a bit about them, he said; and he could also provide the team with \$2,000 in foreign exchange. So he was in. A year later, presenting the results of that expedition in Ulan Bator, he met by chance a man whose brother, a general in the Chinese army, could get his team into the Lop Nur nuclear test site in Xinjiang, long barred to visitors, where many of the wild camels were.

Both expeditions were alternately wonderful and chaotic. The teams travelled through some of the most hostile territory on Earth, where temperatures ranged between -40°C and 55°C, where most water was salt, and much of the going was over razor-sharp rock-salt that shredded the tyres of their trucks. Sandstorms could obliterate everything, including their tracks when they ventured away from camp. The Russian expedition was sozzled in vodka and melancholy songs, and they found no wild camels. The Chinese one featured universal chain-smoking, a driver who kept a pigeon, for luck, in the glove compartment and a guide who itched to shoot any wildlife he saw, camels excepted. He himself cut a Victorian figure, with his canvas holdalls and battered tweed jacket and lack of almost any devices, except a compass and a copy of Kipling’s “Kim” for tough times. But the desert also sparkled with breathtaking colours, each oasis was a paradise, and when on a later trip their tame camels fled in a sandstorm, carrying most of their supplies, he was assured they would return by a lone stray swallow that touched him, magically, with the tip of its wing.

He also found his wild camels at last. They were notably different from domesticated Bactrians, extremely shy, with flatter heads, hairier kneecaps and humps set wider apart. They could also drink water that was saltier than the sea’s, and had survived 43 nuclear tests with no ill effects. Perhaps 1,000 were left in all, and their numbers had plunged in a decade. Their chief enemies now were hunters and miners illegally prospecting for gold.

At once he began to devise a plan to save them. He gathered enough material for scientists to prove in 2008 that they were a separate species, descendants of the original wild stock. This brought *Camelus ferus* world attention. He also co-founded the Wild Camel Protection Foundation to campaign for a reserve, sometimes with camel races across the English countryside, and this drew money even from the World Bank. Because his relations with the Chinese were so good, he was eventually granted a piece of the Gobi, at Lop Nur, around half the size of Poland. With Australian help, he then set up a breeding centre in Mongolia with 12 wild camels. By 2021 he had 45.

His foundation had its HQ in a shed in his garden in Kent where in later years he lived in a Mongolian *ger* with an Aga in the middle, ideal for joyful dinner parties. (His baths he took, every ten days, in London at the Reform Club.) In an old milking parlour, full of tribal artefacts and stuffed beasts, he installed a huge billiard table. It needed only a throne to look like the tent of Genghis Khan.

He was not sure, though, that he had actually been much of an explorer. Most of his wanderings had been in other people’s footsteps. But he had been the first to discover some things. One was that camels could be swum across a river (the Omo, in Ethiopia) if towed by a dugout canoe with an outboard motor. Another find was the support-poles of an ancient building in an outpost of the town of Lou Lan on the Middle Silk Road, abandoned in 330AD. The best was a tiny unmapped sweetwater valley in the Kum Tagh dunes where small herds of wild camels, sheep and asses had clearly never seen humans before. So the “last man in” in Nigeria was the first to look on that valley in the Gobi, where a naive young wild camel instinctively followed his saviour’s caravan. ■