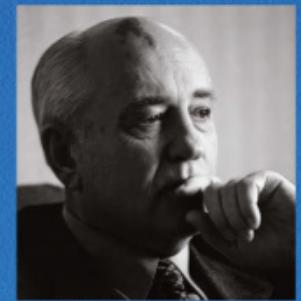


The Economist

Mikhail Gorbachev

The man who liberated millions, even if he didn't set out to do so



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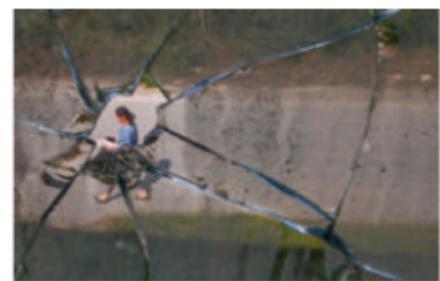


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Exceptionally heavy monsoon rains over two months have caused devastating floods in **Pakistan**, killing more than 1,100 people and leaving a third of the country under water. Shehbaz Sharif, the prime minister, said that a million homes have been wrecked and thousands of miles of roads destroyed. The climate minister described it as a “catastrophe”, blaming countries that have become “rich on the back of fossil fuels”.

Separately, the **IMF** approved a \$1.1bn payout to Pakistan after the government implemented an austerity budget, which included sharp increases in fuel and food prices amid high inflation. The measures have quickly made the new government unpopular.

The **IMF** also reached an agreement to provide **Sri Lanka** with a \$2.9bn loan to help it through its worst economic crisis since independence in 1948. As part of the agreement Sri Lanka must implement serious tax reforms.

We can see you

The UN’s human-rights office released a long-awaited assessment of China’s treatment of the Uyghurs in **Xinjiang**. It said China’s actions “may constitute international crimes, in particular crimes against humanity”. It criticised China’s “vague” anti-terrorism laws, which have led to the “arbitrary deprivation of liberty” of Uyghurs and other Muslim groups. And it concluded that allegations of torture, forced medical treatment and sexual violence in detention centres were credible. China dismissed the report as slander.

Taiwan shot down a Chinese civilian drone for the first time, having fired warning shots at drones that were buzzing its outlying islands. Earlier, two American warships passed through the Taiwan Strait without incident. It was the first such operation since China staged military drills around Taiwan in response to a visit there by Nancy Pelosi, the speaker of America’s House of Representatives, in early August.

China’s Communist Party announced that its five-yearly congress would start on October 16th. Xi Jinping is poised to secure a third term as party leader, in violation of recent retirement norms.

Nicolás Maduro, **Venezuela’s** autocratic ruler, received **Colombia’s** new ambassador to the country. It marks the re-establishment of diplomatic ties between the two countries, which had been severed since 2019. Gustavo Petro, Colombia’s left-wing president, who recently assumed office, has also announced that the border will be reopened, and that military relations may be restored, too.

A truth commission set up by the **Mexican** government said that six of the 43 students who went missing in 2014 were kept alive in a warehouse for several days. An official at the commission claimed that a local army commander ordered their killings. A week earlier, the attorney-general who oversaw the original investigation into the disappearances was arrested by federal agents.

Supporters of Muqtada al-Sadr, a rabble-rousing Iraqi cleric, breached the fortified seat of **Iraq’s** government and tried to march on the home of a former prime minister, Nuri al-Maliki, sparking gun battles that killed at least 30 people. The protests come after months of deadlock in which Mr Sadr, whose party won the most seats in elections last year, has been unable to form a government.

At least 32 people were killed and more than 100 injured in clashes between rival militias in Tripoli, the capital of **Libya**. The government said that the violence broke out when one group of armed men began “firing randomly at a convoy”.

Angola’s ruling party, the MPLA, which has run the country since its independence in 1975, claimed victory with 51% of the vote in a general election that was widely expected to be rigged. The main opposition, UNITA, which ostensibly won 44%, rejected the result and has filed official complaints.

Police in **Madagascar** killed 19 people when they fired on a crowd of vigilantes who tried to storm a police station to seize four people arrested on suspicion of abducting a child.

Earning his Nobel peace prize



Mikhail Gorbachev died in Moscow at the age of 91. The last leader of the Soviet Union helped bring about an end to the cold war, and sharply diminished the threat of a very real nuclear one. Although his landmark summit with Ronald Reagan in Iceland in 1986 ended with no agreement, it led to a breakthrough in arms-control negotiations. At home he brought in *glasnost* (openness) and *perestroika* (reform), hoping to revive a dying economy. Lauded in the West, his fellow Russians were aghast at the break-up of their empire. Mr Gorbachev once said that markets were a mark of civilisation, not capitalism.

Ukraine launched a counter-offensive against Russian forces in **Kherson**, which abuts Crimea. The offensive

began after Ukrainian troops attacked Russia in the eastern Donetsk and Luhansk provinces, diverting Russian resources. Kherson was the first big Ukrainian city to fall to Russian troops in March.

A team of UN inspectors made their way to the **Zaporizhia** nuclear plant, which has endured weeks of shelling nearby. Russian forces have controlled the facility since March, supervising the technicians who have kept it running. The UN inspectors hope to assess any damage.

America’s Justice Department revealed in a court filing that **Donald Trump** tried to hide classified material at his home in Florida. During the FBI’s search of the premises some classified papers were found unsecured in his desks. Scores of classified documents were discovered at Mar-a-Lago. It is not yet known which papers Mr Trump had squirrelled away.

A federal emergency was declared in **Mississippi**, after a water-treatment plant near Jackson, the state capital, was shut down because of problems with the pumps. Those who do get water from a tap have been told not to drink it.

Mary Peltola won a special election for the Democrats to fill the lone seat for **Alaska** in the House of Representatives, beating Sarah Palin. Ms Peltola ran on a strong pro-abortion platform in a state the Republicans had held since 1973. However, the candidates will contest the seat again in November’s midterms.

NASA said it would proceed on September 3rd with a second attempt to launch its Moon rocket, after the first launch was aborted because of an engine glitch. The agency is sending an unmanned capsule on an orbit around the Moon, 50 years after the last Apollo mission. The Artemis programme aims eventually to send men, and women, to the Moon.

Central-bank officials attending the annual Jackson Hole symposium conveyed a clear, hawkish message on interest rates. Jerome Powell, chairman of the Federal Reserve, said he expected the Fed would raise rates throughout next year. Officials from the European Central Bank talked of “sacrifice”, and said that the lessons of the 1970s showed there should be no easing of monetary tightening at the first signs of a dip in inflation. The ECB is expected to lift rates at its next meeting on September 8th. The central bankers warned that higher rates were necessary to tame inflation, even if they lead to recession.

The stark commitments to carry on with rate increases rattled **stockmarkets**. The S&P 500, NASDAQ composite, Dow Jones Industrial Average, FTSE 100 and German DAX all fell sharply over a few days, wiping out most of the gains they had made during August's rally.

Annual inflation in the **euro zone** rose to 9.1% in August (it was over 20% in the Baltic countries of Estonia, Latvia and Lithuania). All indicators point to prices rising even more sharply over the coming months. The ECB is now expected to raise its main interest rate by more than half a percentage point.

Soaring energy prices are a big cause of Europe's inflation woes, and show no sign of easing amid the disruption to Russian gas supplies. This week Gazprom, Russia's state gas producer, shut the Nord Stream 1 pipeline again for three days, apparently for more repairs. Gazprom is also set to stop all shipments to Engie, a French utility, in a payment dispute. Meanwhile, Uniper, one of Germany's biggest utilities, asked for a government increase to its credit line to avoid a liquidity crunch. Wien Energie, which supplies Vienna, warned of difficulties in financing its operations. Amid the turmoil, the European Commission said it was working flat out on

an intervention plan that would “decouple” gas prices from the electricity market.

Heating or eating?

In **Britain** the energy regulator lifted the price cap on bills by 80%. From October the average household's annual bill for gas and electricity will rise to £3,549 (\$4,117). Companies are not covered by the cap; some said they would go bankrupt.



Turkey's economy grew by 7.6% in the second quarter, year on year. The weak lira, a result of the government's unorthodox economic policies, has boosted exports. But household consumption, up by 22.5% in the quarter, also added to GDP. With inflation at 80%, households have brought forward their purchases to beat further price increases over the coming months. Meanwhile, Turkish authorities raised

energy prices for households by an average of 20%, and industry by 50%.

Snap decided to shed a fifth of its workforce amid a slowdown in digital advertising. The social-media company also warned of slowing revenues in this quarter.

Moderna filed lawsuits in America and Germany seeking damages from **Pfizer** and **BioNTech**, for allegedly infringing patents on the mRNA technology used in covid-19 vaccines.

America reached a breakthrough agreement with China that will allow American regulators to inspect the **accounts of Chinese firms** that are listed in the United States. A row over accounting standards had threatened to boot Chinese companies off American exchanges. That threat has receded, although Gary Gensler, head of the Securities and Exchange Commission, said that the new framework was “merely a step in the process”.

BYD, a Chinese maker of electric cars with global ambitions, reported a big jump in sales and profit for the first six months of the year. The company sold more “new energy

cars” in the first seven months of the year than in 2020 and 2021 combined. Nonetheless, **BYD**'s share price swooned after it emerged that Warren Buffett, its most prominent backer, had slightly reduced his stake to 19.9%.

Honda announced a partnership with **LG Energy Solution**, a South Korean battery-maker, to invest \$4.4bn in building a factory for **electric-car batteries** in America. LG Energy Solution is expected to benefit from the tax credits provided in the Inflation Reduction Act for companies that lessen the reliance on China for battery components.

A 90-hour week

People embarking on a career should be prepared to **work 18 hours a day**, according to the boss of Bombay Shaving Company in India. Shantanu Deshpande said that employees in their 20s should “worship” their job, and that the work-life balance at that age is “blah”. Those who disagree should speak to his staff, he said. Mr Deshpande's comments come amid a trend of “quiet quitting”, or doing the minimum that your job requires. “Acting your wage”, as some quiet-quitters put it.



The disunited states

Far from being laboratories of democracy, American states are now Petri dishes of polarisation

TWO STATES, two very different states of mind. On August 25th California banned the sale of petrol-powered cars from 2035, a move that will reshape the car industry, reduce carbon emissions and strain the state's electricity grid. On the same day in Texas a "trigger" law banned abortion from the moment of conception, without exceptions for rape or incest. Those who perform abortions face up to 99 years in prison.

These two events may seem unrelated, but they are symptoms of an important trend. Washington, DC, may be largely gridlocked, but the states are making policies at a furious pace (see Briefing). In theory, that is no bad thing. With 50 states, America has 50 laboratories to test which policies work and which do not. People can choose to live and companies can opt to operate in places where their preferences are reflected in local rules, as many did during the pandemic, typically moving to states with fewer restrictions. Each state can make its own trade-off between the weight of taxes and the generosity of public services. Any state can learn from neighbours with better schools or business regulations.

Alas, this constructive form of federalism is not what state politicians are pursuing today. Instead, they are fighting a national culture war: prescribing what can be discussed in classrooms, how easy it is to buy and carry a gun, which medical interventions may be offered to teenagers who identify as transgender, and what sort of benefits unlawful immigrants may claim. Such issues enrage both parties' partisans in a way that, say, fixing the roads or refining tax policy does not. Moderates might prefer less rage and more road-mending, but many state politicians can safely ignore them.

This is because 37 of the 50 states, where three-quarters of Americans live, are ruled by a single party. The number where one side controls both legislative chambers and the governor's mansion has nearly doubled in the past 30 years. These one-party states are self-perpetuating, as the winners redraw electoral maps to their own advantage. And politicians with ultra-safe seats have perverse incentives. They do not worry about losing a general election, only a primary, in which avid partisans call the shots because they are more motivated to vote. The way to woo such partisans is to eschew compromise.

Hence the proliferation of extremism. Most Texans think their new abortion laws are too draconian, for example, even though most also think the old national rules were too lenient. If Texas were not a one-party state, its legislators might have found a compromise.

Hence, too, a new politics of confrontation. Some states aim to punish those who seek an abortion or transgender surgery in another state; others offer sanctuary to the same people. Blue states encourage lawsuits against gunmakers; red states sue to stop California from setting its own emissions standards. Some partisan pugilism is largely performative. To publicise his view that blue states are too soft on illegal immigration, Texas's Governor Greg Abbott has sent busloads of migrants to New York. But the relentless focus on national controversies is at best a dis-

traction from the local problems that state politicians are elected to solve. Governor Ron DeSantis in Florida, a probable presidential contender, unveiled a "Stop WOKE Act" to restrict how race is discussed in classrooms; of the ten examples of excessive wokery in his press release, not one was from Florida. And all these battles are divisive; all entrench the notion that red and blue America cannot rub along despite their differences.

This makes for a nastier, shriller national conversation. It also makes it harder to do business in America. Whereas once the country was, roughly speaking, a giant single market, now California and New York push companies to become greener while Texas and West Virginia penalise them for favouring renewable energy over oil and gas. Recently Texas went so far as to blacklist ten financial firms for going too green.

The biggest worry is that partisanship could undermine American democracy itself. Many Republicans cannot win a primary unless they endorse Donald Trump's Big Lie that he beat Joe Biden in 2020. That year a coalition of Republican state attorneys-general sued other states to try to have their votes invalidated. Whatever happens in the November midterm elections, such sparring could proliferate. America is not going to have another civil war, as some feverish pundits speculate, but it has already endured political violence, and that could get worse.

American dysfunction poses a risk to the world, which depends on America to uphold the rules-based order (or what's left of it), to deter military aggressors and to offer an example of democratic governance. It is doing especially badly on the last of these. What can be done?

The federal government should stop neglecting its responsibilities. Policies on immigration and climate change, for example, are clearly better set nationally than locally. Reforms to break the gridlock in Washington, such as ditching the Senate filibuster, might help. But more than this America needs electoral reform.

States of play

It should end gerrymandering, which lets politicians choose their voters rather than vice versa. States should do redistricting through independent commissions, as Michigan does, to de-politicise the process. This would make it harder for one party to entrench itself. It would also, by creating more competitive districts, force more politicians to appeal to the centre.

Allowing for multi-member districts could also help. Instead of carving up districts and allowing them to elect only one representative, this would increase the diversity of voices in state legislatures and Congress. Ranked-choice voting, in which voters' second and third choices count if no candidate wins an outright majority of first preferences, could promote moderation. (Ranked-choice voting in Alaska this week kept Sarah Palin out of Congress.) Different states could try different policies.

Voters, too, have a responsibility. It may be hard, in the era of social media, to ignore the blizzard of confected fury and vote for leaders who want to get things done. But the alternative is ever greater disunion, and that does not lead anywhere good. ■



Energy in Europe

Keeping the lights on

How to stop Europe's energy crunch spiralling into an economic crisis

AS DISRUPTIONS TO Russian gas, French nuclear power and Norwegian hydroelectricity wreak havoc in Europe's energy markets, prices are verging on the surreal. Benchmark natural-gas prices surged by 30% last week. Last summer French and German year-ahead contracts for electricity traded at around €100 (\$118) per megawatt hour. Recently they rose above €1,000. Prices have fallen since, but gas still trades at the equivalent of around \$400 for a barrel of oil. Shell's boss has warned that the crisis will last more than one winter.

The pain will be savage and will spread as households' and firms' existing energy contracts expire and new ones are struck. That will intensify the squeeze on the economy that is under way as the European Central Bank raises interest rates to combat inflation. Many economists predict a recession in the next few months, and the single currency is flirting with its lowest level against the dollar in two decades (see Finance & economics section). The prospect of unrest and squabbles among member states looms ahead.

So far the European Commission's response has not been ambitious enough. Its latest idea is a cap on the price of gas used to generate electricity, which will be discussed at a summit of ministers on September 9th. The commission may also seek to overhaul the power market, so that spot prices are no longer set by the costs of the marginal producer, which is often gas-fired.

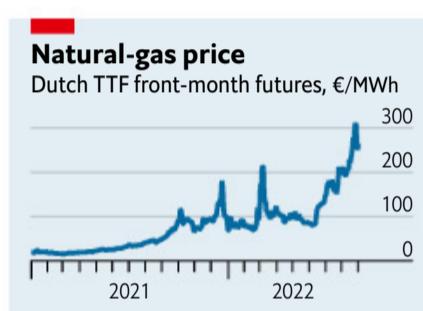
Capping prices sounds neat but could be counterproductive. That is because the ceilings will not curb demand for scarce energy. According to one study, a cap implemented in Spain has led to a 42% increase in gas-fuelled generation since June. An EU-wide policy would only increase the demand for gas further still, raising the chances of rationing in the winter. It is true that the current set-up allows some renewable-energy firms, which produce at close to zero marginal cost, to rake in profits. If gas prices were to stay high for years such windfalls could be described as

unjustified rents. But that same price signal ensures that gas-fired plants generate power when the wind doesn't blow, and incentivises more investment in renewables.

Rather than tinkering, governments should focus on two bigger tasks. The first is to allow the market mechanism to curb demand, while supporting the most vulnerable people. Large handouts will be needed, but targeted assistance can limit the bill: according to the IMF, policies that offer rebates and cash transfers to the poorest 40% of people would be cheaper than the policy mix today, which largely includes tax cuts on fuel, or retail-price caps.

The second priority is to increase supply, something that is not solely in Vladimir Putin's gift. Other sources of natural gas can be cultivated: this is one reason why France's president, Emmanuel Macron, has just visited Algeria. Within Europe, countries can help ease bottlenecks, such as inadequate cross-border gas interconnections. Today insufficient investment and differences in standards impede the flow from Spain and France to Germany and eastern Europe. The EU needs to ensure that in the event of rationing, there is a continent-wide agreement about which users are cut off first: without this the danger is that countries will hoard supplies.

All this will cost money. So far Greece, Italy and Spain, among the euro zone's most indebted members, have spent 2-4% of their GDP on fiscal handouts to cushion the energy shock. Fortunately, the EU has the firepower to help. Its €807bn pandemic recovery fund is being doled out in the form of loans and grants. Yet so far less than 15% of the pot has been disbursed. Payments for energy projects could be accelerated and the commission could offer cheap loans to help fund targeted fiscal support. The EU came together to tackle the economic consequences of the pandemic lockdowns. Be under no illusions: the energy crisis requires a similarly bold response. ■



Mikhail Gorbachev

The man who ended an empire

He liberated millions, even if he didn't set out to

AN EMPIRE BUILT on lies and violence is not worth saving. Mikhail Gorbachev, who died this week in Moscow at the age of 91, understood that above all else. For this, he deserves to be celebrated, especially by the hundreds of millions of people who have lived in greater freedom and peace since he let the Soviet empire collapse and thus ended the cold war. The tragedy is that so many have either forgotten the lessons of his extraordinary story, or drawn precisely the wrong conclusions from it.

Mr Gorbachev never set out to dismantle the Soviet Union or its wider dominion (see Obituary). He aimed, rather, to make it stronger and better, through his twin policies of openness and

reform, *glasnost* and *perestroika*. He believed in the socialist project far more than in liberal democracy; but he also knew that secrecy and repression bred only corruption and dysfunction, and that what he viewed as a worthy and humanist project would not survive without change.

He also, despite too many incidents in which force was used on his watch, had a deep personal aversion to violence. And so, when the anti-communist uprisings of 1989 swept through eastern Europe, he made the right choice: to let Moscow's satellites spin out of its orbit, rather than send in the tanks that had crushed Hungarian democrats in 1956 and Czechoslovakians in ►

► 1968. Even before that, he had understood the disastrous cost of the arms race with America, and signed a nuclear arms-reduction treaty that lowered the risk of apocalypse in Europe.

With eastern Europe liberated from foreign overlordship, it seems in retrospect inevitable that similar demands for independence would come from the constituent republics of the Soviet Union itself. Though this was not an outcome that Mr Gorbachev wanted, he again faced a choice: to acquiesce, or to prevent dissolution by force. Again, he made the right one, eventually. Soviet troops spilled blood in Georgia and Lithuania, but he ultimately let all the republics go their own way. Today, even those that still live under the shadow of autocracy, like Kazakhstan and Belarus, do not miss the days of bread queues and the gulag. Few people outside Russia agree with Vladimir Putin that the collapse of the Soviet Union was the “greatest geopolitical catastrophe of the 20th century”.

Unlike his successors, Mr Gorbachev was not corrupt. He never sought to enrich himself, his family or his cronies, which was one reason why he was able to retire from office without fearing prison or worse. Mr Putin cannot say the same. On the contrary, in the rump of the old Soviet empire that he still controls, he is doing his best to erase Mr Gorbachev’s legacy. State-sponsored lies and violence are back, along with jail cells for peaceful dissidents. Respect for the law and free speech have vanished. “All Gorbachev’s reforms—to zero, to ashes, to smoke,” said Alexei Venedikov, an old friend of the late president’s, recently. Mr Venedikov used to run an independent radio station, closed down shortly after Mr Putin’s invasion of Ukraine began. On the day Mr Gorbachev died, Russian state prosecutors requested a 24-year prison term for a critical journalist, born near the end of Mr Gorbachev’s rule.



Freed from the dead hand of Russia’s *nomenklatura*, the former satellites of eastern Europe have prospered mightily. (The former republics, less so, apart from the Baltics.) Russia could have grown rich and free, had not Boris Yeltsin empowered the kleptocrats and Mr Putin done the same for the securocrats. But even though Mr Gorbachev’s vision of an open society has been reversed in Russia, it was an astonishing achievement to have attempted it, and to have followed where it led.

Alas, tyrants around the world have seen what Mr Gorbachev did as a cautionary tale: if you give people a bit of freedom, they will demand more. China opened up economically, but bloodily suppressed its own democratic stirring on Tiananmen Square in

June 1989. When, later that year, eastern Europe shook off communist-party rule, the hardliners in Beijing felt vindicated for not having allowed anything similar. When the Soviet Union itself collapsed and communists lost power in Moscow, too, China’s rulers quietly congratulated themselves for not having been so weak and foolish. Given the choice, people tend not to like being ruled over by unaccountable and unremovable apparatchiks; so China’s leaders resolved not to give them that choice. Stability and economic progress in China have come at a terrible cost in terms of personal freedoms, the rights of minorities and ingrained corruption.

History has moved on since Mr Gorbachev left the Kremlin. Russia is no longer a superpower in any but the nuclear sense, but China has rapidly become one. The Big Lie, a driving force of the Soviet Union that only those without clear memories hanker for, has been shown to work even in mature democracies. These are awkward truths for liberals to grapple with. As they mourn the man who let a tyrannical empire disintegrate, they must keep struggling against modern tyrants and empire-builders. ■

Technology and covid-19

Zoom fatigue

The tech darlings of the pandemic have crashed and burned. But there are winners, too

IN THE EARLY days of covid-19, the tech industry was consumed by a sense of euphoria. With billions of people locked down at home, work and play were shifting online. Many hoped that the new normal would spark a huge productivity boom as firms digitised and workers spent less time commuting. The excitement was most evident in stockmarkets, where any firm related to this trend saw its share price surge. The value of an equally weighted portfolio of five pandemic darlings—call it the “lockdown lunacy index”—increased by 320% from the start of the pandemic to its peak in August 2021. The tech-heavy NASDAQ, by contrast, rose by 88%.

The mania has ended. Today the lockdown-lunacy index—which includes Netflix, a streaming service; Peloton, a maker of fancy exercise bikes; Robinhood, a stock-trading app; Shopify, an e-commerce platform; and Zoom, a videoconferencing firm—has fallen by more than 80% from its peak, far exceeding the 18% drop in the NASDAQ. Zoom and friends are trading at below pre-pandemic prices.

How worrying is this return to Earth? To be sure, some of it reflects gloomier prospects for the global economy, racked by in-

flation, war and rising interest rates. And it is disappointing that two years of digitisation and remote work have not provided clear evidence of a productivity boom (see Finance & economics section). Yet there are reasons still to be techno-optimistic. Much of the early enthusiasm may simply have been focused on the wrong types of firm. Though the pandemic darlings have fizzled, the shift towards ever greater digitisation continues. The true winners are not the flashy consumer-tech firms, but the companies that provide the infrastructure to enable this shift.

Much of the decline of our lockdown index reflects shakier business models. On August 22nd Zoom reported that its year-on-year revenue growth had fallen to 8%, the lowest rate since the company listed in 2019. Three days later Peloton reported a nearly 30% fall in its quarterly sales, compared with a year ago. Subscribers are fleeing Netflix for other viewing platforms, such as Disney+. Robinhood is laying off a quarter of its staff as day traders cool on the markets.

The fading work-from-home boom has affected the demand for hardware, too. Worldwide PC shipments are expected to decline by 10% this year; analysts reckon mobile-phone sales will ►

▶ tumble by 7%. A downturn in spending on video games and a series of crypto implosions have dented the sales of the powerful semiconductors used to mine digital currencies and render computer graphics (see Schumpeter).

Look beyond the boom and bust of consumer tech, though, and you see the real successes. The market for the infrastructure technology that underpins people's daily lives, such as cloud computing, cybersecurity and digital payments, is thriving. The cloud-computing industry is expected to grow to almost \$500bn this year, up from \$243bn in 2019 (see Business section). Amazon's cloud offering, the largest in the world, is still growing at 33% each year. It accounted for three-quarters of the firm's operating income over the past 12 months, and is propping up the tech giant's ailing e-commerce business. Its closest rivals are the cloud services of Microsoft and Google. Their annual sales are growing by 40% and 36%, respectively.

Cloudification has created new demands for cybersecurity, another tech winner. The combined revenue at the three largest

listed cybersecurity firms has almost doubled since the start of the pandemic. Their market capitalisation has tripled, and has come down only a fraction since the start of the year. Digital payments are another bright spot, thanks to lockdowns and social distancing. Three-quarters of iPhone owners use Apple Pay, up from half in 2019, and nine out of ten American retailers now accept it as a payment method. Almost 200m people in India and China have used some form of digital payment for the first time since the onset of covid. A third of adults in sub-Saharan Africa now have a mobile-money account, up from a fifth in 2017.

Sanity reigns

The bubble may have burst on the pandemic's darlings, but the drumbeat of digitisation continues. The less eye-catching technologies that provide the underlying infrastructure for the shift are the true beneficiaries of covid. Whether these will fuel a productivity boost one day remains to be seen. But there was more going on during the pandemic than lockdown lunacy. ■

Responding to floods

Get ready for the rains

What Pakistan needs to learn from Bangladesh

AN UNUSUALLY HEAVY monsoon has caused havoc in South Asia this year. In May and June it inundated swathes of Bangladesh and north-eastern India, killing hundreds and displacing millions. Over the past few weeks it has battered Pakistan, where more than 1,100 people have died and at least half a million have lost their homes in the deluge. A third of the country is under water (see Asia section). When such a catastrophe strikes, there is an urgent need not just to provide humanitarian support but also to learn lessons for the future. And in Pakistan's case, the country does not have to look far to find them.

Flood-prone countries have spent decades developing methods to contain the damage that others can readily adopt. Broadly, these fall into three categories: infrastructure adjustments, early-warning systems and efficient channels for swift financial relief. In South Asia Bangladesh has led the way on all three.

Bangladesh has for years invested in flood defences to protect its low-lying coastal regions from cyclones. Residents near the coasts and in regions farther inland that are at risk from monsoon-related flooding have been encouraged to make their houses more resistant to floods, and have received money to do so. Shelters have been put in place on raised ground, and modified to include women-only facilities and take animals, making people more willing to use them. As for early warning, researchers gather weather data down to village level to predict floods days in advance. People are warned via text messages and from the loudspeakers of mosques to leave their homes, and helped to shelters by trained volunteers. Cash and, increasingly, mobile-money transfers provide financial help without bureaucracy.

All this has saved many lives. In 1970, when Bangladesh was still part of Pakistan, 300,000-500,000 people died in a massive cyclone there. A similar one in 2020 killed only about 30.

Plenty of countries need to increase investment in flood de-

fences. African cities are struggling to do enough (see Middle East & Africa section). Pakistan itself improved its early-warning systems after flash floods killed more than 2,000 people in 2010, which may have helped lower the death toll of the current floods. Better cash-transfer networks should help provide relief to those who have lost their livelihoods.

Now for some neighbourly advice

Yet it is clear that Pakistan has failed to take fully on board the lessons on offer from Bangladesh. One reason is a reluctance to heed sufficiently the threat posed by climate change, a failure that afflicts rich countries, too (see United States section). The weather patterns behind the latest disaster are consistent with what is expected in a warming world. As they become more common and affect areas not used to such extremes, more people will have to be better prepared.

But the bigger reason is politics. Pakistan's have been a mess, distracting from the sort of patient planning needed to build resilience against floods. The floods have hit a country already reeling from economic and political instability. Imran Khan, who was ousted as prime minister in April and is keen to do the same to his successor, is exploiting the disaster to score political points, which may end up jeopardising the government's relief efforts.

Pakistan's plight also provides a different sort of warning, about the broader impact of global warming. As climate conditions grow more extreme round the world, they are likely to produce more political instability. Shockingly large numbers of people may be forced to leave their homes in the coming decades as climate change renders their cities and villages uninhabitable (see Culture section). Calls to compensate poorer, worse-affected countries for climate changes they did not cause are likely to grow louder. All the preparation in the world may not be enough to contain the fallout. ■



Britain's building problem

Free the bulldozers

Britain's growth problem won't be fixed until its absurd planning rules are reformed

SMALL THINGS can create big problems when anyone tries to build anything in Britain. A single wizened tree can scupper plans for 291 flats. A colony of terns can stall the development of a nuclear-power station. If nature does not intervene, politicians sometimes do. Government ministers, who are supposed to focus on affairs of state, can rule on the fate of a car park on the outskirts of London. Even if politicians hold off, the courts may step in. A large wind farm off the coast of Norfolk was postponed after a local resident persuaded a judge that the government had not properly assessed how it would affect his view.

Building in Britain is never easy, often difficult and sometimes impossible. The country has become a vetocracy, in which many people and agencies have the power to stymie any given development. The Town and Country Planning Act, passed in 1947, in effect nationalised the right to build. Decisions about whether to approve new projects are made by politicians who rely on the votes of NIMBYS ("Not in my back yard"), NOTES ("Not over there, either") and BANANAS ("Build absolutely nothing anywhere near anything").

Green belts, which were designed to stop suburban sprawl, have achieved precisely that (see Britain section). These enormous no-build zones enjoy Pyongyangesque levels of support among voters, who picture them as rural idylls rather than the mish-mash of motorways, petrol stations, scrubland and golf courses that they are in reality. Strict environmental laws protect many creatures, especially cute ones like bats. Judges strike down government decisions if they are based on a botched process because Britain respects the rule of law.

In isolation, each part of the planning system may seem unobjectionable. But the whole thing is a disaster. Britain's failure to build enough is most pronounced when it comes to housing. England has 434 homes per 1,000 people, whereas France has 590. Its most dynamic cities can barely expand outwards, and are frequently prevented from shooting skywards as well.

But the problems extend well beyond housing. Britain has not built a reservoir since 1991 or finished a new nuclear-power station since 1995. HS2, a high-speed railway, is the first new line connecting large British cities since the 19th century. Even modest projects, such as widening the A66 road across northern England, take over a decade. The result is frustration and slower economic growth.

A truly bold government could transform the planning system. A proper land-value tax would weaken the perverse incentives to keep city centres underdeveloped and encourage landlords to build or sell up. Scrapping or shrinking the green belt is a no-brainer. A rules-based system, with local authorities declaring loose zones of development and letting developers build within them, would be preferable to a discretionary system that leaves each decision in the hands of capricious politicians.

Such drastic changes are out of the question for now. A gummed-up system in which it is hard to build anything is the revealed preference of British voters. Alongside the National

Health Service, the planning system is one of the only policies of Clement Attlee's post-war Labour government to survive the free-market turn that Britain took in the 1980s. The best thing Boris Johnson's government attempted was an ambitious reform of planning rules. It was shelved after a rebellion among Tory MPs; the cabinet minister who proposed it lost his job.

Notes from a NIMBY nation

More modest changes could make a difference, however. Encouraging neighbouring local authorities to work together on long-term plans has been a Conservative policy success since 2010. Mayors in Greater Manchester and the West Midlands have thrived through such co-operation. The government should go further and hand regional authorities more fiscal powers, including full control over all property taxes.

Currently, who pays what is settled almost entirely in Whitehall rather than town halls. British local authorities take a far smaller slice of revenues raised in their area than is usual in other European countries. So they have little incentive to allow development: they endure all the political pain for a piffling fiscal gain. Giving local authorities a larger slice of the pie would encourage them to bake a bigger one.

If an incentive to grow is not enough, the government should compel them at least to try. All public authorities should be given a mandate to boost growth. Granted, that is a nebulous goal. Yet similar rules exist in other areas. Since the Equality Act was passed in 2010, public authorities have been expected to do their bit for "equality", an ill-defined concept. Local authorities have had to think deeply about how to make a whole host of things more equal or end up in court.

A growth mandate would provide YIMBYS with legal ammunition to face down their NIMBY nemeses. Opponents of development have an arsenal of legal weapons. A growth mandate would help redress the balance. Expecting Rutland County Council to do its bit for GDP is no more absurd than expecting it to contribute to reaching net zero by 2050. Boosting growth and stopping climate change require systemic solutions, well beyond a local politician's usual remit of potholes, bins and dog poo. But every little helps.

Finally, projects crucial for Britain to hit its target of being emissions-neutral by 2050 should be exempt from bog-standard planning rules. At the moment, legislation designed to protect the environment stands in the way of projects that will help reach the climate goal. Renewable-energy schemes can be blocked for environmental or aesthetic reasons. Earlier this year a council in Kent recommended refusing its own planning application for solar panels on the roof of its building because they would look "out of place".

Britons mistake conservationism for environmentalism, confusing the protection of ancient woodland and great crested newts with the efforts needed to keep climate change at bay. If Britain's bonkers rules on building cannot be changed, they should at least be bypassed. ■



Battery cells could be mega

It is a febrile time to work in the battery industry ("Cell-side analysis", August 20th). However, the answer to meeting the demand from electric vehicles is not just to run faster, but smarter. The market is obsessed with gigafactories, with many seeing this as the only way to deliver cells at the volumes needed. Reaching gigascale is essential, but there are other routes to getting there than trying to go from zero to 60 straight away.

You said that these facilities take three years to build. In fact, the process can be longer, up to seven years from land acquisition, permitting, infrastructure delivery and power connectivity through to final build and commissioning. There are squeezes, too, on raw-material supply chains, with a handful of big players buying up resources. These need to be tackled to make larger factories a reality.

Added to all that, people often forget that demand for battery cells is much bigger than sometimes stated. Within carmaking, they are needed for powertrains in hydrogen fuel-cell vehicles as well as in electric cars. They are also vital for renewable energy storage to maximise output from wind and solar.

How do we square the circle? Megafactories, smaller facilities, are part of the solution. They can be created quicker than their giga cousins, helping us to scale up production. They require less upfront capital and are suitable for more locations, making it easier to repeat the model. This can mean green industrial jobs in more places, too.

The battery industry's ambitions are gigantic, but if we're going to reach them, and deliver the industry's net-zero potential, then we need more diverse models, including making the transition gradually to giga rather than trying to fast forward in one giant leap.

DAVE PELL
Commercial director
AMTE Power
Oxford

Fire as forest management

I taught a culture and forestry class for many years, and I've seen "Bambi" about 20 times. I appreciated your article on what the Disney classic tells us about eco-disasters ("Burning up", August 13th), but there are some important things to mention about the portrayal of fire. Open woodlands and patchy forests tend to have much higher levels of biodiversity and are more resistant to high severity wildfire, good reasons for making fire and other means of thinning forests part of our management practices. Even in Europe the emphasis on managing dense forests is relatively new. The Black Forest, for example, used to be managed by a form of Swidden, slashing and burning, in the 19th century.

"Bambi" actually portrays the outcome of a fire very well. After the tragic event, flowers and herbs abound and Bambi's mate has twins. This is not unusual. In the years following a fire there is typically a profusion of forage for deer and elk, and a habitat for an abundance of creatures that simply need more sun. This nutritional burst leads to more young.

Too often we characterise an ecological phenomenon as bad or good, when in fact it is part of how the ecosystem works. Sometimes a short term "damage" is a long-term benefit, especially if it leads to greater ecosystem resilience and fewer over-fuelled fires that burn everything in their path. I hope that people will come to terms with this, so that the active management of our forests can begin.

LYNN HUNTSINGER
Professor of rangeland ecology
and management
University of California,
Berkeley

Condiment cordiale

The shortage of Dijon mustard in France is intriguing ("The great French mustard shortage", August 13th). But I would have welcomed an angle on the potential economic opportunity for Britain to seize an open-

ing for English mustard. It is interesting that our Gallic friends have turned to the blander American variant to replenish stocks rather than the more nasally challenging English variety, which should be more familiar to them. Maybe this is because of post-Brexit trade or supply-chain issues. Or does it say something about the state of the Anglo-French relationship?

JONATHAN WARD
Dallas

Tummy troubles

Bartleby (August 20th) suggested a new entrant to corporate jargon: "probiotic management", or gut instinct. Perhaps the perfect opposite of this would be "antibiotic management", or analysis paralysis. This would give us the perfect framework to use the right management tool for each problem: antibiotic to avoid decisions, probiotic if you can stomach the consequences of making a decision.

SRIKANTH RAJAGOPALAN
Bangalore, India

State pushers of cigarettes

You described how climate activists vilify multinational oil companies and ignore state-run oil giants ("Nationally determined contributors", July 30th). The same applies to multinationals and state monopolies in tobacco. Most of the former have committed to ending smoking by moving smokers to lower-risk nicotine products. Many of their brands have been authorised by the American Food and Drug Administration as being appropriate for the protection of public health. Philip Morris International now derives 30% of its revenues from such products and British American Tobacco 15%.

Yet state monopolies, which together sell well over 50% of all cigarettes, have not even started the transition. The Chinese state monopoly is by far the biggest seller globally, accounting for about 45% of all sales. The World Health Organisation and most govern-

ments ignore this reality. They turn a blind eye to state-run cigarette companies, at the same time refusing to engage with the multinationals that pour billions into research and innovation to help end the 8m deaths a year from tobacco.

DEREK YACH
Former executive director at the World Health Organisation
Southport, Connecticut

Cutting out the state

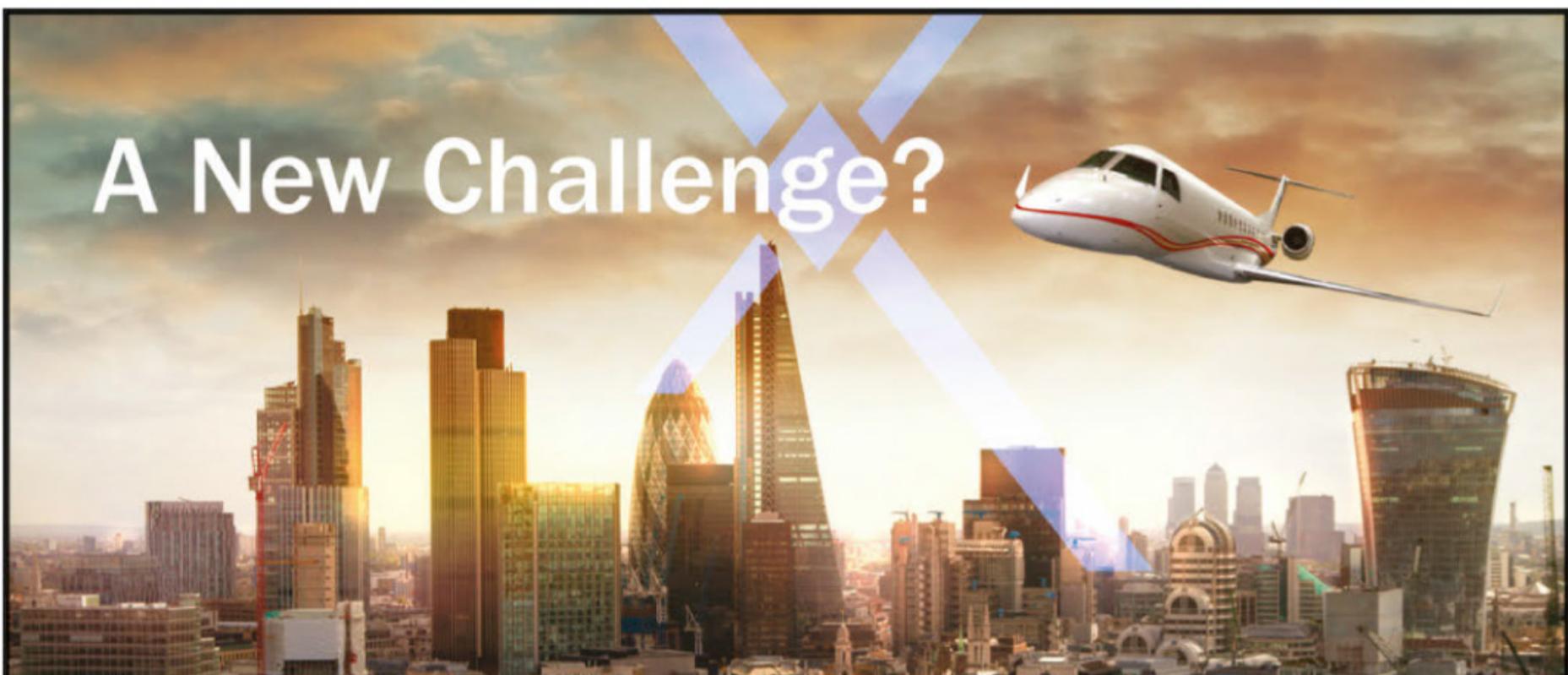
As a British expatriate living in the United States, I was shocked—shocked!—to learn that because of the local authority's neglect, the pavement weeds on your correspondent's street in Britain have grown to "almost two metres high" ("The summer of discontent", August 13th). In order to avert the collapse of British civilisation as we know it, may I suggest a giant grass scythe, available from Amazon for only £24.67. Should this not be up to the task by the time it arrives, I would be happy to loan your correspondent the chainsaw that every self-respecting American home is equipped with, as our civic responsibilities include keeping the sidewalk (pavement) clear of such impediments.

MALCOLM HARKER
Seattle

Political intelligence

The Liberal Democrat who encouraged the party's pursuit of cerebral voters (Bagehot, July 30th) should remember Adlai Stevenson's warning when he ran for American president in the 1950s. A supporter yelled that he would have the vote "of every thinking American". Stevenson replied, "Madam, that's not enough. I need a majority." He lost twice by a landslide.

JONATHAN COOPERSMITH
Washington, DC



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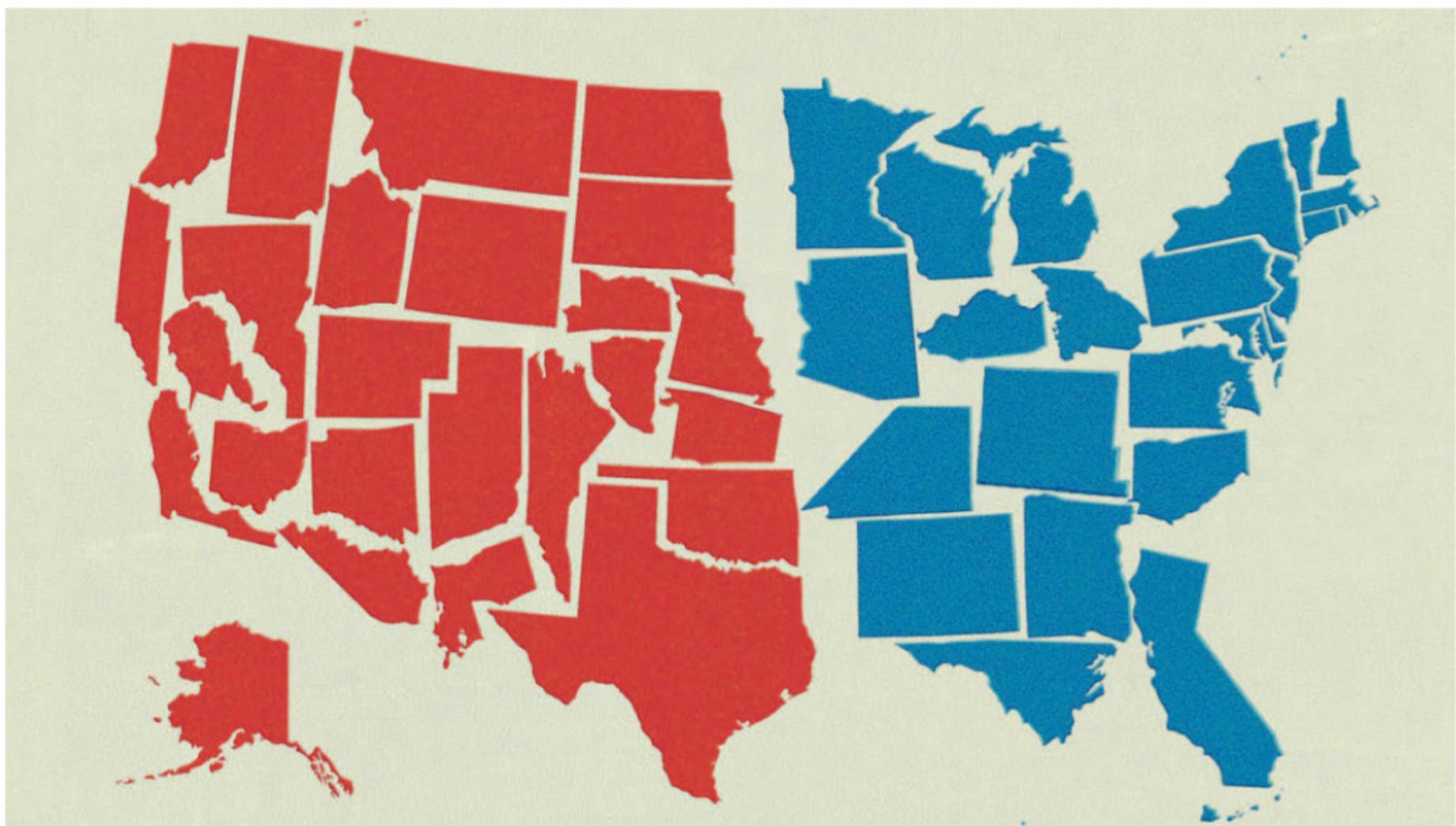
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A house divided

DALLAS AND SACRAMENTO

American policy is splintering state by state, with profound consequences

TO UNDERSTAND THE future of America, don't head to Washington, DC. Instead, talk to the governors of its most conservative state, Mississippi, and its most progressive one, California.

Bespectacled and calmly confident, Mississippi's Republican governor, Tate Reeves, is on a high. It was his state's 2018 ban on abortion after 15 weeks of pregnancy that returned the issue to the Supreme Court, setting the stage for the reversal of *Roe v Wade* in June, a decision which gave all state governments the freedom to decide their own abortion regimes.

In August, at the Conservative Political Action Conference in Dallas, Mr Reeves boasted of his state's other bans: on vaccine mandates; on teaching critical race theory; on transgender students taking part in school sports on the basis of the gender with which they identify. "I think Mississippi has led on social and cultural issues for years," he says, and he plans to keep that lead. Though he declines to say which policies he and the Mississippi legislature will target next, "there will certainly be opportunities for us to do [more]."

Some 2,700km (1,700 miles) away, California's governor, Gavin Newsom, is as depressed as Mr Reeves is upbeat. "It's the great unravelling," he says. "All the progress that I've enjoyed in my 50-plus years, all being unravelled, in real time."

Californian Democrats are reasserting the liberal values he sees threatened. A law Mr Newsom signed in June protects people who get or facilitate abortions in California from lawsuits filed in states where abortion is banned. He recently began dangling tax credits in front of companies which might be considering moving out of states that impede reproductive, gay and trans rights. California is also considering declaring itself a "sanctuary state" for trans-identifying children, shielding them from court actions by states that penalise surgery aimed at aligning their bodies with their professed identities.

Mr Newsom does not see this as differentiation. He sees it as active defence. "I want to punch the bullies back," he says. "I don't like what they're doing". He has used campaign funds to throw those punches. "I urge all of you living in Florida to join the

fight or join us in California where we still believe in freedom," he said in a TV ad which aired on the opposite coast: "Freedom of speech, freedom to choose, freedom from hate and the freedom to love."

There is, however, one thing that unites Mr Newsom and Mr Reeves. They both believe the federal government receives too much attention. Increasingly, policies that matter in people's lives are originating in the states.

Those policies reflect America's growing ideological polarisation. "State policies vary more than they ever have before," says Chris Warshaw of George Washington University, co-author of a forthcoming book, "Dynamic Democracy". As states go in different directions on social and economic policy, the consequences will be deeply felt by all Americans, regardless of their place on the political spectrum, with implications around the world.

To quantify the divergence among states, Mr Warshaw and Devin Caughey of the Massachusetts Institute of Technology analysed 190 policies from the 1930s to 2021. On the whole, states have become more liberal. They have unwound, for example, racial restrictions, bans on women serving on juries and laws criminalising sodomy. However, states have also shifted further apart, with a much larger gap between those furthest to the right and to the left (see chart 1 on next page). Data for 2022 are likely to show "massively more divergence", predicts Mr Warshaw.

Take California and Mississippi. In ➤

► presidential election terms, they have moved to the left and to the right, respectively, since 1972, with small exceptions (when a Southerner, Jimmy Carter, won over Mississippians, and Ronald Reagan wooed Californians) was on the national ticket. The difference in terms of state-level policy is more recent and more dramatic (see chart 2). The same is true of the states in general. Those likely to vote Republican in presidential elections are becoming more conservative in terms of state politics; the same, broadly speaking, holds for Democrats, though the effect is only seen in more strongly Democratic states (see chart 3 on subsequent page). Meanwhile states which used to vote a bit to the left of the national mean in presidential elections while enacting policies a bit to the right of it at the state level, and vice versa, are mostly gone.

Consideration of abortion alone would seem to make Mr Warshaw's prediction of more divergence a sure thing. *Roe v Wade* stopped states from banning abortion prior to fetal viability (around 24 weeks). With *Roe* overturned, 12 states now have an outright ban, and two ban it at the sixth week of pregnancy. When all the states have responded to the overturning of *Roe*, it is expected that half will have enacted bans or severely curtailed access.

Why do people break up?

Some in the other half are passing laws to codify abortion rights or protect health-care providers. Connecticut has expanded access by allowing physician assistants and nurse-midwives to perform abortions. In August Kansans defeated a proposed constitutional amendment restricting abortion. There will be measures on abortion on at least five state ballots this year, a record. In two of them, California and Vermont, voters are expected to enshrine reproductive rights in their constitutions.

But there is more than reproductive rights at stake. Guns are another battleground. So far this year ten states have imposed new restrictions on the purchase or

carrying of firearms. Meanwhile, states with Republican governors and legislatures are pushing for fewer restrictions. Many have embraced "permitless carry" laws, which remove all restrictions on gun-owners being armed in public. In June Ohio became the 23rd state to allow this. The same month, its Republican governor, Mike DeWine, signed a law lowering the number of hours' training that teachers require if they are to bring guns into classrooms from 700 to 24.

The treatment of undocumented immigrants is a third area of divergence. Enforcing immigration law has generally been taken to be the prerogative of the federal government. Increasingly, though, states are changing the experience and outcomes for their undocumented residents. Through various laws, California has "de facto legalised" undocumented immigrants, says Ken Miller, a professor at Claremont McKenna College. In June it became the first state to start offering Medicaid, the government health-insurance scheme for the poor, to all low-income adults regardless of immigration status.

Texas is pushing in the opposite direction. Its governor, Greg Abbott, has declined to expand Medicaid to any more low-income Texans, let alone non-citizens. He has ordered state police to start bringing unauthorised immigrants back to the border. Mr Abbott has also said he wants to stop paying for undocumented children to attend public schools. What the children who do go to school must be taught (such as ethnic studies in California, or African-American and Latino studies in Connecticut) and must not be taught (such as critical race theory in a number of states) is a whole other story.

Another area where state policies are starting to have national impact is that of voting and election administration as it relates to early voting access, voter ID requirements, mail-in voting and whether felons should be re-enfranchised. In 2021, 29 states expanded access to voting by mail, while 13 states restricted it. Many Republican-dominated states are taking aim at election administration, for example by shifting oversight authority away from non-partisan bureaucrats to political actors. This could complicate states' certification of election results.

America's national identity as a collection of states is written into the country's very name. The 13 colonies-turned-states were wary of federal power subjugating their own. They needed to be assured of autonomy if they were to ratify the constitution. That need was most acutely felt when it came to the degree of autonomy slave states felt they needed for their own race-based subjugations, but the issue was broader than that. The founders thought a federal republic of distinct and diverse



states would be protected from the spread of dangerous zealotry. As James Madison wrote, "The influence of factious leaders may kindle a flame within their particular states, but will be unable to spread a general conflagration through the other states."

Then turn around and make up

The federal model that was enshrined in the constitution is not unique. Australia, Canada and Germany have similar architectures of power. But the American model has particular features, perhaps most notably its tenth amendment, which explicitly confers to the states "the powers not delegated" to the federal government.

Countries like Canada and Australia are more resolved in what dominion the federal government can enjoy, according to Don Kettl, professor emeritus at the University of Maryland School of Public Policy. In America, by contrast, "There has never been true stability in the relationship between states and the federal government."

One way to think about the state-federal relationship is as a tug-of-war. For most of the country's history, states have had the rope pulled over to their side of the field. In 1861, fearing that the pull on the rope from the federal government was getting too

See our interactive chart online

For a version of chart 2 which allows you to track all of the states, scan this QR code on a mobile device or go to economist.com/housedivided



► strong, the states of the South went so far as to secede. When they returned to the Union after the civil war the slavery they had allowed was indeed prohibited by the constitution. But the states of the South and North alike remained empowered.

The Great Depression, and President Franklin Roosevelt's belief in the necessity of mounting a strong, national reaction, saw a movement in the opposite direction. The New Deal was the start of half a century of a more invigorated federal government. The second world war reaffirmed national purpose; the successes of the civil-rights movement came at the explicit expense of what state governments in the South considered their rights. Other federal investments, regulations and court cases followed, standardising welfare programmes, the drinking age, environmental protections and more. America became more uniform.

Political scientists say the 1980s was the point when the tug-of-war reversed itself again. Ronald Reagan set about returning power to the states in what he dubbed "new federalism". In the 1990s, when 60 years of almost continuous Democratic control of the House of Representatives came to an end, this fell into step with a new national polarisation.

Good or bad

It was only after the stalemated presidential election of 2000, when America spent weeks staring at two-tone technicolour electoral maps on cable-news channels, that people first began to speak of red states and blue states. It proved a telling shift, an easy way to essentialise political distinctions. During Barack Obama's administration red states began tugging hard on the rope. Some rejected federal policies like the Affordable Care Act. State attorneys-general also started taking on a greater role as they took their battles against Washington to court. Texas became the chief judicial resister.

At that point the increase in states' willingness to use their rights could be seen in a specific partisan frame: a red arrow against a blue source of centralised power. But the years of Donald Trump's presidency saw a similar, inverse strategy of resistance by the blue states. California became the centre of resistance and crafted its own policies in response to Washington, DC, including on climate change and immigration. The willingness of state governments to take action against the party in federal power became one of the few remaining bipartisan aspects of American politics.

The covid-19 pandemic, in which states were empowered to set their own policies, further underscored how different states' paths could be, with blue states favouring mask and vaccine mandates and business closures, and red states opposing them.

Covid also pushed states apart, as they took a side in a national battle over whether to prioritise economic or public health. Kevin Stitt, the Republican governor of Oklahoma, gives covid-19 and the various political reactions to it as part of the reason why "there has never been a bigger difference between a blue state and a red state".

The differences go well beyond just hot-button ideological issues and rules on voting. Take economic policy. States have long differed in their tax strategies, their attitudes to unionisation and their imposition of regulations on business. In a dissenting opinion on the sale of ice in Oklahoma City, Louis Brandeis, a Supreme Court justice, wrote in 1932 that "A single courageous state may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country." The pleasing metaphor took hold. For much of the period that followed, the ability for states to experiment in economic matters continued to be seen as one of the federal system's strengths.

Today the range of economic policies being tested in the states' laboratories has expanded to include minimum wages, paid sick leave, the categorisation of certain types of formerly freelance workers as employees in response to the growth of the gig economy, and more. Benefits and protections vary significantly based on one's state of residence. Policies to encourage the fight against climate change and reduce its costs are particularly divisive. In August California announced it would ban the sale of petrol-powered cars from 2035. In July West Virginia said it would stop doing business with five major banks, which have been critical of coal usage.

For businesses that operate on a national scale the growing variation in economic regulations creates headaches and blunts

the advantage of having a large, open domestic market. There is also the challenge of tip-toeing through the minefield of social and cultural issues which politicians in red "pro-business" states are choosing to care about. In Florida this year Disney, unwilling to alienate a substantial number of its employees, opposed a bill aimed at restricting discussions of sex, sexuality and gender identity in public classrooms. As a result Ron DeSantis, Florida's governor, revoked various privileges the company had enjoyed.

If all this diversity really could be taken as experimentation aimed at finding the best policies for all, the costs might be worth it. Unfortunately the ability for success to diffuse from one state to the rest is increasingly impaired. Jacob Grumbach, a professor at the University of Washington and author of a book, "Laboratories against Democracy", has studied policy-sharing among states and found that "partisan diffusion" had become more common, with states emulating policy only from other states controlled by the same party. States learn from each other how to be more thoroughly blue or red, not how to better serve their citizens. Laboratories of democracy are splitting into "separate partisan 'scientific' communities", he argues.

Happy or sad

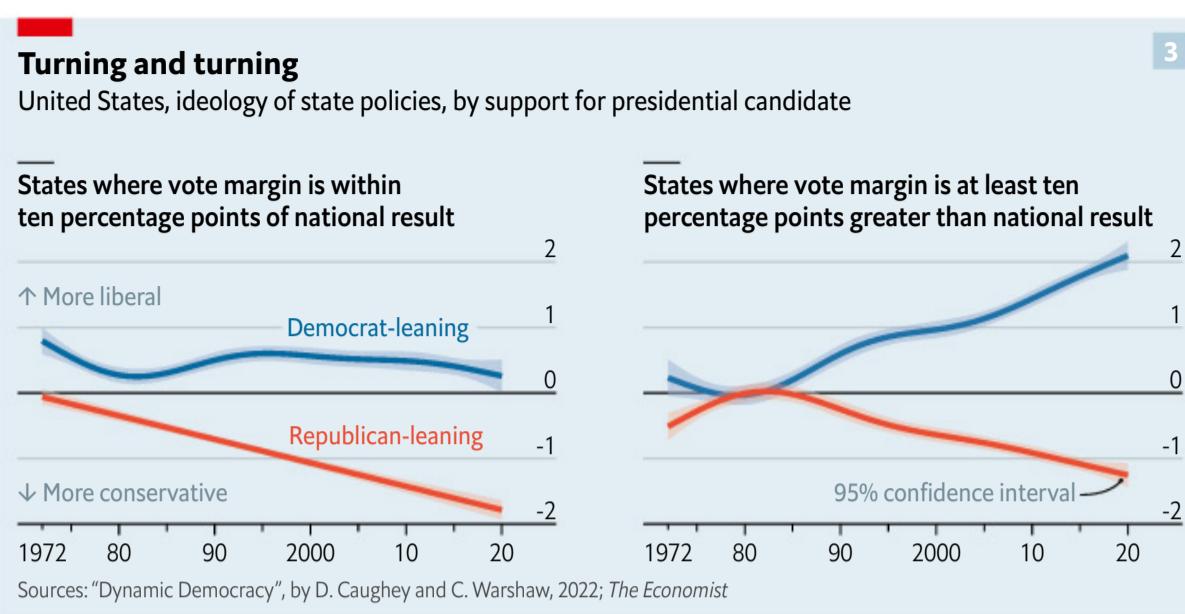
If policies do not diffuse, though, people might. Recently domestic migration has favoured big red states like Texas and Florida at the expense of big blue ones like California and New York. Political pushes to the right by red-state legislatures could slow or reverse that trend; Mr Newsom certainly hopes so. If people increasingly choose states on political grounds the country will become even more divided.

That aside, there are two reasons to think that states will continue to diverge. First, they are being handed more power to set their own agenda. In his concurring opinion in *Dobbs v Jackson Women's Health Organisation*, the decision which overturned *Roe*, Justice Clarence Thomas wrote that the Supreme Court should revisit the "demonstrably erroneous decisions" in which the due-process clause of the constitution had been applied to cases involving gay marriage, sodomy and married couples' access to contraception in a way which took authority from the states. The Supreme Court has also given states more authority over elections, whittling at the federal Voting Rights Act of 1965.

This attitude is not entirely consistent; in the same session that it overturned *Roe* the court also struck down a New York gun law. There seem to be rights the court's Republican majority wants the states to have and others it is less keen on. But the former look likely to outnumber the latter.

A second reason to think states' diver-





gence will continue is because of the polarisation between the two parties and their capture of states. Today there are 37 “trifecta” states in which one party controls the governorship and both chambers of the state legislature: 23 are Republican-controlled, 14 Democratic. Thirty years ago, there were only 19 (see chart 4). Then, less than a third of Americans lived in a state with a government controlled by a single party. Today nearly three-quarters do.

More single-party control increases policy divergence. Opponents cannot stop legislation they disagree with, and there is no incentive for politicians to reach across the aisle or appeal to median voters. Legislators worry only about competition from primary challengers and are more likely to skew to extremes.

Redistricting, which is controlled by legislatures in most states, makes this worse by further reducing political competition. During its next session the Supreme Court will rule on a case in North Carolina, determining whether state courts can weigh in on elections and redistricting, or if state legislatures should have unfettered power in such matters. If the justices rule in a way that empowers the legislatures, it could enhance gerrymandering and further diminish political competition.

The founders may have intended the

borders between states as firebreaks against the “mischiefs of faction”, but state politicians’ adherence to national issues and parties have proved too infernal. A central irony about the factional fighting taking place over state politics is the degree to which its effect has been a national one. National interest groups, such as the National Rifle Association, have increased their role in getting enthusiasts in one state to press for legislation modelled on that in another. Republican groups have been better at doing this than Democratic ones, says Mr Newsom. “These guys understand bottom-up, we don’t. They’ve been in the long game, we haven’t.”

The fact that the base responds to nationally promulgated ideology helps explain why state politicians are moving to positions far beyond voters’ views and devoting time to issues of little practical import within the state. Around half of Ohioans favour some level of legal abortion; their representatives are proposing a total ban. When Mr DeSantis issued a press release announcing a bill targeting critical race theory and corporate wokeness, none of the ten examples he provided came from the Sunshine State.

David French, a conservative thinker, looked at the consequences of all this division in a book, “Divided We Fall”, published in 2020. He believes that “there are unhealthy and healthy forms of federalism”. Today’s seem firmly in the first category. As an example, he points to a proposed law in South Carolina that tries to restrict free speech around abortion, barring any website from hosting or publishing information about abortion access. “Bounty-hunter” laws, by which states give new powers to private citizens rather than to themselves, are another disturbing example. Texas pioneered this approach with a law allowing any citizen to sue abortion providers. California fired back by letting people sue gun-makers.

Where does all this disunity lead? As voters wake up to the strong influence states will exert over their lives there will

be more attention paid to their politics. The American Civil Liberties Union (ACLU), for example, is diverting several hundred million dollars away from the federal level to invest in state constitutional issues and state Supreme Court-justice races (although it will not endorse political candidates). “There’s great possibility there,” says Kary Moss of the ACLU; some state constitutions provide greater protections for rights than the federal constitution.

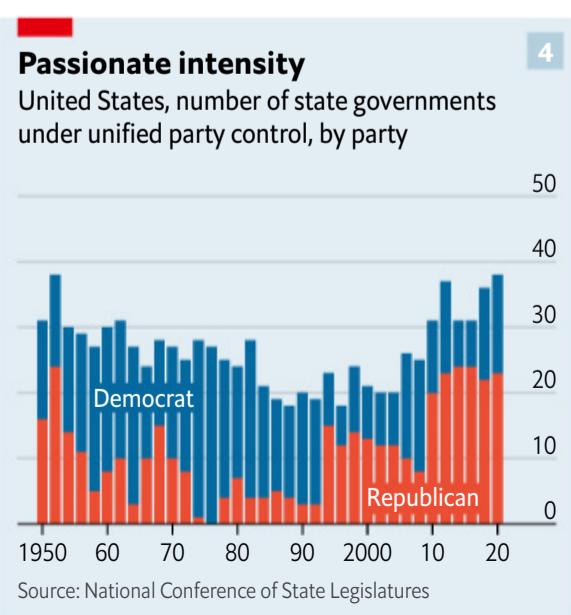
At the same time, states seem increasingly interested in not just divergence, but conflict. In 2016 California passed a “sanctions regime” banning state money from being used for non-essential travel to states that discriminate against gay and trans people. There are now 22 states on the travel-ban list; Mr Newsom came under political fire in June for taking a holiday in Montana, which is one of them. Regimes which restrict communication and travel between states, even if for the most part symbolically, can only make relations more acrimonious.

There will be legal conflict, too. Several states are not content just to limit abortion within their boundaries; they want to punish people out-of-state who aid and abet abortions. This seems likely to bring them into confrontation with states like California and Connecticut, which are passing new laws to protect citizens from lawsuits regarding abortion facilitated by other states. There are echoes here of the tussles between southern and northern states before the civil war. With the Fugitive Slave Act of 1850, it was decided that escaped slaves in free states had to be returned to their owners, with the help of the federal government. In interstate abortion battles, the federal government may well be forced to get involved too, at least in court.

Let's stay together

The most extreme outcome would be if today’s disunity led again to a real possibility of secession. That remains highly unlikely. But in a recent survey of nearly 9,000 Americans conducted by researchers at the University of California, Davis, half the respondents said there would be a civil war in America within the next few years. Searches for “secession” shot up in the aftermath of the 2020 election. If 2024 sees a constitutional crisis in which states, rather than just individual politicians within them, use new powers to reject the result the voters intended, the country’s constitution, and its constituent parts, will face a serious test.

In his book Mr French lays out several scenarios for secession. When asked what the odds are of one of them actually coming true, he asserts a continued belief that the United States will stay united. “But for the first time in my life,” he adds, “I’m not certain of that.” ■





Fast-warming cities

Hot and not too bothered

LAS VEGAS

Many Americans are still not taking extreme heat seriously enough

IN 2021 EXTREME heat killed more Americans than any other weather-related disaster. People seek shelter after tornado warnings, and leave coastal areas before a hurricane hits. Yet many ignore extreme-heat advice. In July over 150m Americans, or nearly one in two, were in parts of the country issuing such alerts. In the Great Plains heat indices (a measure of how heat is felt by the body) rose to 49°C. In the run-up to Labour Day, which this year falls on September 5th, over 50m were in areas on alert as a sustained heatwave was forecast in western states. Officials have urged Californians to cut their energy use to help the state avoid rolling blackouts.

America's cities are struggling to deal with heat. Last year the first "chief heat officer" was appointed in Miami-Dade County; Los Angeles and Phoenix followed suit. Their job is to raise public awareness of the dangers of high temperatures. People get used to routine risks, explains Erick Bandala, a scientist at the Desert Research Institute (DRI) in Las Vegas. Mr Bandala likens attitudes to heat to the ease with which

many people drive a car. Heat, because it feels familiar, can be a surprise killer.

High temperatures can cause deadly heatstroke. They can also aggravate existing medical problems. Respiratory illnesses tend to worsen, as heat causes the number of harmful pollutants to increase in the air. For some, such conditions turn fatal. Yet heat is rarely given as the cause. The Environmental Protection Agency reports that as many as 1,300 deaths a year in America fall into this category.

Las Vegas—the second-fastest-warming city in America, behind only Reno, also in Nevada—has taken steps to protect resi-

dents. When extreme heat engulfed the city in August it set up temporary "cooling stations", free air-conditioned public spaces that are now common in several American cities. Las Vegas is also trying to pinpoint specific heat problems. A project sponsored by the National Oceanic and Atmospheric Administration is allowing the city to identify "urban heat islands", which can be up to 11°C hotter than nearby areas.

Poorer districts tend to be the hottest. Their residents also suffer most in extreme heat. Many do not own air-conditioners, or cannot afford to run them continuously. The homeless are even less able to find relief. But cities suffer broadly in too-hot weather. Workers, especially those outdoors, are less productive. Tourism takes a hit: flights out of Las Vegas were cancelled last summer owing to high temperatures.

Water shortages, common in fast-heating cities, exacerbate the problem. Some local governments still struggle just to provide clean water. Residents in Flint, Michigan had none for nearly three years: their tap water contained dangerously high levels of lead. In August 1m people in the wider Detroit area were advised to boil their water to kill bacteria. On August 29th residents of Jackson, Mississippi's largest city, lost safe running water "indefinitely" after a storm took out the local water-treatment facility. The heat index that day was 39°C.

The Las Vegas valley depends on Lake Mead, America's largest reservoir, for 90% of its water. Its levels have reached record ↗

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▶ lows after a 23-year megadrought. In early August the UN warned that the reservoir was on the brink of reaching “dead pool” levels, the point at which water stops flowing downstream from dams.

To provide relief while preserving water, Las Vegas has begun to plant drought-tolerant trees, says Marco Velotta from the city’s Office of Sustainability. It aims for 60,000 by 2050. Nevada banned ornamental grass from places such as office parks and median strips in southern parts of the state last year. The Southern Nevada Water Authority is offering residents \$3 per square foot to rip up their own turf and plant desert-friendly species instead.

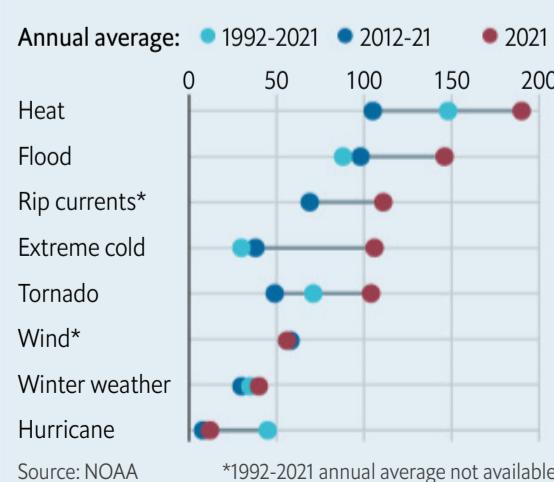
Doesn’t seem to be a shadow in the city
Much more could be done to protect urbanites from extreme weather. A study published in 2016 found that only 13% of New York’s counties had cooling centres that could be reached by public transport. For cities with adequate water supplies, greenery is useful: trees, grassy rooftops and parks all help to lower temperatures. Using less concrete, brick and asphalt, which trap heat, helps too. Denver requires some buildings to install “cool roofs”, a white membrane that reflects heat (adoption has been slow). In Phoenix, asphalt is sprayed with a coating that lowers temperatures.

A study from First Street Foundation, a non-profit group, predicts that an “extreme heat belt” will settle across America in about 30 years, from Louisiana to Wisconsin. It will affect over 100m people. In August researchers at Harvard and the University of Washington forecast that by 2100 heat exposure would increase by three to ten times in America, among other mid-latitude regions.

People can “certainly live in these areas and adapt”, says Derek Kauneckis, a scientist at DRI. But the fear is that policymakers will wait until an extreme event occurs—when Lake Mead reaches dead-pool levels, say—to act. “We know what’s coming,” says Mr Kauneckis. The closer it gets, the harder the task will become. ■

Something new under the sun

United States, weather-related fatalities by cause



Source: NOAA

Colorado’s Senate race

Rocky Mountain high ground

PUEBLO

The contest could show Republicans an alternative to Trumpism

ONE OF THE hallmarks of campaign season in America is the appearance of candidates at state fairs, where they can burnish their Everyman credentials and schmooze with voters. Joe O’Dea, the Republican Senate candidate in Colorado, recently strutted in a cowboy hat at a livestock auction during Colorado’s fair in Pueblo, as smells of barbecue and farm animals wafted through the building.

Mr O’Dea is trying to unseat Michael Bennet, the two-term Democratic incumbent. (Mr Bennet’s brother is *The Economist*’s Lexington columnist, and had no involvement in this story.) At first glance, the state seems too blue for Mr O’Dea’s barnstorming to make much of a difference. Democrats hold the governor’s mansion, the statehouse and both Senate seats. But Democratic dominance is relatively new in Colorado. Less than 20 years ago Republicans controlled each level of government.

Colorado’s Senate race matters for three reasons. First, every seat counts as the Republicans try to retake control of Congress. Though Mr Bennet will probably prevail, the race seems to be tightening. The Cook Political Report, a non-partisan newsletter, is newly rating it as “Lean Democrat”, rather than “Likely Democrat”. National Republicans are taking notice. Mitch McConnell, the top Republican in the Senate, has said the party would go “all in” for Mr O’Dea.

Second, both candidates want to chart a different path forward for their parties. While Republican primary voters in several other states elevated far-right candidates who pledged fealty to Donald Trump, Colorado bucked the trend. In June moderate candidates for governor, secretary of state and the Senate prevailed over their election-denying challengers. Mr O’Dea unequivocally says that Joe Biden won the election in 2020 (though he believes him to be a “lousy” president). He also hopes that Mr Trump will recede from politics. “I don’t think President Trump should run again,” he says. “It’ll pull the country apart.”

His candidacy may reveal whether Republicans are better off nominating hardcore Trump acolytes who fire up the party’s base, or moderates who appeal to independent voters. About 45% of registered voters in Colorado do not belong to a party, and Mr O’Dea is betting they will turn out for him. “I’ve been campaigning to those people,” he says. “They’re gonna make the decision on who our next senator is.”

Mr Bennet also thinks his party has an image problem. Colorado’s blue hue, he told *The Economist* between campaign events in several ski towns, helps dispel the idea that Democrats “are either a coastal party, or a party of elites. Or even worse—a party of coastal elites.”

Third, Mr O’Dea hopes his moderation will test how Democratic Colorado really is. The answer is important for the West as a whole. Eight of America’s ten fastest-growing states in the decade to 2020 were west of the Mississippi. Along with pandemic “zoom towns”, the boom has led to hand-wringing from western Republicans over the political implications of rapid population growth. Could Republican states such as Idaho, Montana or Utah become the next Colorado? “The Blueprint”, a book about Colorado’s political evolution, offers a more nuanced take. In the 2000s liberal mega-donors, politicians and lobbyists built permanent campaign infrastructure in Colorado that hastened its transformation, the authors argue.

Rob Witwer, a former Republican state lawmaker and co-author of “The Blueprint”, wonders whether the Republican Party in Colorado has been too damaged by Mr Trump to make a comeback. Mr O’Dea will soon find out. ■

Mental-health treatment

ADDING UP

CHICAGO

A new boom in online mental-health treatment causes concerns

THE SUCCESS of TikTok, a social-media app, is built on its unpredictability. Open it up, and you might be shown a video of a clever machine in a food-processing factory, then another of someone hawking a get-rich-quick scheme. In between there are adverts. And these, at least for many young Americans, have been more predictable: focused, often, on mental health.

An ad for Cerebral, a venture-capital-funded health startup, shows two women speaking on the phone. “I’ve been looking for mental-health options, but I don’t have insurance,” says one. “Well, have you tried Cerebral?” goes the reply. Another, for Done, relates to attention-deficit hyperactivity disorder (ADHD). It promises “personalised ADHD care” for \$79 a month.

The pandemic was deadliest for older people. But it was perhaps most disruptive to the mental health of young ones, trapped indoors and unable to socialise. New graduates had to start jobs over Zoom. The result, predictably, was a surge in demand for mental-health treatment. ▶



► That has happened all over the world. In America, it has also produced a remarkable market response. New firms are offering treatment as a subscription service. Instead of ringing a doctor and waiting weeks for an appointment, you get a same-day slot, over video, through a phone app. Prescribed drugs are delivered in the post, packaged a little like fancy meal kits. Done was started by a former Facebook designer, Ruthia He, and is backed by several celebrity investors. Cerebral is backed by SoftBank, a Japanese conglomerate which has poured money into tech startups.

Some worry that wider access brings laxer controls. Much concern centres on the handling of ADHD, for which the primary treatment is stimulants. ADHD is characterised by a struggle to focus and difficulty completing tasks. It is diagnosed subjectively—typically in childhood, though adult diagnoses have risen. Stimulants, of which Adderall is the best-known brand, counteract the symptoms. But they are also addictive drugs, controlled by the Drug Enforcement Agency (DEA).

Before the pandemic, a patient needed to visit a doctor in person to get a prescription. But those rules were lifted to aid social distancing. As a result, the drugs can now be prescribed after a virtual visit.

Many doctors fear that venture-capital-backed firms have strong incentives to overprescribe. “There are all kinds of costs” to taking stimulants, says Anna Lembke, a Californian psychiatrist. At first, the stimulants almost always help, she says, but over time, dependency can build up. When people are “treating doctors like a vending machine”, it creates the conditions for addiction, she says.

Even before the pandemic, perhaps a third of stimulants were “diverted” away from strict medical use. Students use them to study, and to party. Prescriptions jumped by 9.4% last year, according to IQVIA, a medical-data firm. In part because

manufacturing levels are controlled by the DEA, which has not lifted its annual quota, the result is shortages. A survey of its members by the National Community Pharmacists Association, published on August 11th, found that 64% are struggling to get enough Adderall.

A clampdown may be coming. In April Cerebral was sued by Matthew Treube, formerly its head of product implementation, who alleges that he was sacked after objecting that the firm “consistently and at times egregiously put profits and growth before patient safety”. Employees were encouraged to prescribe stimulants to 100% of new patients, he says. Cerebral said the allegations are “without merit”. In May, Insider, a website, reported that the firm was under investigation by the DEA. Cerebral’s boss, Kyle Robertson, resigned, and the firm stopped prescribing stimulants after its pharmacy partner cut it off. Other firms such as Done continue, but it is unclear if they will be able to carry on. The pandemic rules about online prescribing are expected to be revisited in November.

Yet according to Craig Surman, an associate professor of psychiatry at Harvard Medical School who specialises in ADHD, it is a tricky balance to strike. Ideally, doctors would have the time and resources to conduct full evaluations, questioning not just patients but also their parents or partners to confirm the diagnosis. But that is not incompatible with telehealth. And a lot of people suffering from ADHD are probably still undiagnosed, he says. Between 1% and 2% of the population “will benefit pretty meaningfully from being on stimulants”, he reckons.

In Britain, medical advertising is illegal and rules for diagnosing ADHD are stricter, yet there, too, prescriptions have climbed in recent years. Even in America, the rise in diagnoses long predates the pandemic. A clampdown may save some people from addiction, but it could hurt others. ■

Congestion pricing

Out of a jam

NEW YORK

America's most congested city may be on the verge of ending gridlock

SAM SCHWARTZ, best known to New Yorkers as “Gridlock Sam”, has been advocating congestion pricing for five decades. The hope is that charging will discourage people from driving into crammed midtown and downtown Manhattan, and help fund improvements to public transport.

A former cab driver turned traffic engineer, Mr Schwartz tried to introduce congestion pricing to the city in the 1970s and 1980s. William Vickrey, a celebrated economist who drew up the first plans for this in the 1960s, once told Mr Schwartz that it was the “one tried and true method” to reduce congestion. In Singapore, London and Stockholm, which set up zones in 1975, 2003 and 2006 respectively, charging has cut traffic by about a quarter.

After an attempt by Mayor Mike Bloomberg fizzled out in 2008, congestion pricing stalled for more than a decade. At last, in 2019, state lawmakers agreed to implement it south of 60th Street, making New York the first big American city to do so. The law grants exceptions to emergency vehicles, people with disabilities and households in the zone whose income is \$60,000 or less.

Now a launch is on the horizon. In August the Metropolitan Transit Authority (MTA), the state agency which runs the subway, released seven tolling scenarios, with fees between \$9 and \$23 during peak hours for non-commercial cars. Lorries may have to pay as much as \$82.

New York badly needs a congestion zone. According to INRIX, a transport-data firm, it has the worst traffic in America. Average speeds decreased by 22% between 2010 and 2019 in the proposed zone. It can be faster to walk. In 2018 the Partnership for New York City, a business group, calculated that congestion would shave \$100bn off the economy of the city and its suburbs over the subsequent five years. New Yorkers forgo on average 102 hours a year due to traffic, or \$1,600 in lost productivity.

Yet in recent virtual public hearings on the plans, many voiced concerns. Some dialled in from their cars, including Nicole Malliotakis, a Republican congresswoman from Staten Island. She said congestion pricing was being “jammed down the throat” of her constituents, many of whom rely on cars because the borough is poorly served by public transport.

Cab drivers and delivery workers fear getting charged multiple times. But too ➤



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► many exemptions risk keeping traffic levels high, and making it harder to raise an expected \$1bn in revenue—which is to be leveraged to borrow \$15bn for the revamping of the MTA. New Jersey's governor, who likens congestion pricing to double taxation for drivers, wants to kill the scheme.

To avoid paying tolls in Manhattan, lorries are likely to use the Cross-Bronx expressway, a congested motorway. That appeals to Richie Torres, a Democrat who represents the Bronx in Congress. The area is plagued by air pollution and high asthma rates. Nicole Gelinas of the Manhattan Institute, a think-tank in the city, says that if the aim is to reduce congestion by getting more people on public transport, overnight hours—when commuter lines to the suburbs do not run—should be free.

Pricing works best if it can be easily adjusted. New York could charge more when midtown Manhattan becomes chock-a-block during the UN's General Assembly or at Christmas. Mr Schwartz, who coined the word "gridlock" in 1980, is confident most issues will be dealt with by the time pricing is launched, perhaps at the end of 2023. But "I'm not breaking out the champagne until the first car is charged," he says. ■

Horseshoe crabs

A rapacity for carapaces

Crab blood, still widely used to test American drugs, is growing scarcer

EVERY APRIL in South Carolina, fishermen catch hundreds of horseshoe crabs as they crawl onto shore to mate. The crustaceans are transported to labs owned by Charles River, an American pharmaceutical company, in Charleston. There they are strapped to steel countertops and, still alive, drained of about a third of their blue-coloured blood. Then they are returned to the ocean. This liquid is vital for America's biomedical industry. A litre of it goes for as much as \$15,000.

Parts of modern medicine have been unusually reliant on the horseshoe crab. Its blood is the only known natural source of limulus amebocyte lysate (LAL), an extract that detects endotoxin, a nasty and sometimes fatal bacterium. Drug firms use it to ensure the safety of medicines and implanted devices, including antibiotics, anti-cancer drugs, heart stents, insulin and vaccines. The immune cells in the crab's blood clot around toxic bacteria, giving a visual signal of unwanted contamination.

As pharmaceutical companies ramped up production of the covid-19 jab, demand for the blue liquid soared. In 2020 nearly

650,000 crabs were bled in America, 36% more than in 2018.

Bleeding is not without harm to the crabs. Conservationists estimate that between 5% and 30% of them die on release. Biologists at the University of New Hampshire have found that, once bled, females become lethargic and have trouble following the tides to egg-laying areas. According to the Wetlands Institute, a non-profit group, the number of horseshoe crabs in Delaware Bay, where the Atlantic variety spawns, has declined by 90% over the past 15 years.

In 2016 the International Union for Conservation of Nature listed them as "vulnerable" to extinction. It blamed overharvesting for use as food, bait and biomedical testing, as well as habitat loss. This also hurts other species. The red knot, a bird that migrates from South America to the Arctic tundra, is endangered largely because of the decline in horseshoe-crab eggs in Delaware Bay, a stopover.

As crab numbers fall and demand for LAL rises, America's biomedical industry will face a crunch. Billions of covid-19 vaccinations have relied on it, but so do plenty of routine surgical procedures such as hip replacements, whose numbers are growing. Charles River, one of four manufacturers of LAL in America, estimates that 55% of injectable pharmaceuticals and implanted devices globally are tested using the extract produced at their facility in Charleston.

Yet a synthetic alternative to LAL is already available, which in Europe is rapidly replacing crab blood as the industry standard for testing. In 2003 Lonza, a Swiss biotech company, cloned crab DNA to create recombinant Factor C (RFC). Troubled by the red knot's decline, Jay Bolden, an avid birdwatcher and biologist, pioneered the use of RFC in America at Eli Lilly, a pharmaceutical company. In a study published in 2017 Mr Bolden found that RFC detected en-

dotoxins as well as LAL, or even better. The test turned up fewer false positives and, moreover, was cheaper to produce.

That year Eli Lilly vowed to test all new products with RFC; 80% of the company now uses it instead of LAL. Sanofi, a French pharmaceutical firm, is also making the switch at their American plants. In 2018 America's Food and Drug Administration (FDA) approved the first medicine tested with RFC. Six more of Eli Lilly's have since been authorised.

In Europe, China and Japan, pharmacopeias list RFC among their approved endotoxin-testing agents. But the US Pharmacopeia (USP), a non-profit that helps set medical quality standards on which the FDA relies, has been reluctant to add the synthetic substance to its list. That means American firms that want to use RFC tests must work harder to prove their safety to the FDA. To explain its hesitation, USP says that "one adverse incident might not only set back the adoption of RFC but could damage overall trust in vaccines or other injectables, already plagued by misinformation."

That holdup comes with its own costs. Barbara Brummer, who previously worked at Johnson & Johnson and is now with the Nature Conservancy, an NGO, sums it up: "We are doing damage to an endangered population and not using an alternative that is equally effective and could be mass-produced" more cheaply.

Charles River argues that supply fears are overblown, and that bleeding does little harm to crabs; it has been a vocal critic of the synthetic option, on safety grounds. But if USP approved synthetic testing, Mr Bolden reckons America's other drug companies would swiftly turn away from LAL. The next several rounds of covid-19 boosters produced in America will rely on the horseshoe crab. But such vampire-like dependence on its blue blood cannot last much longer. ■

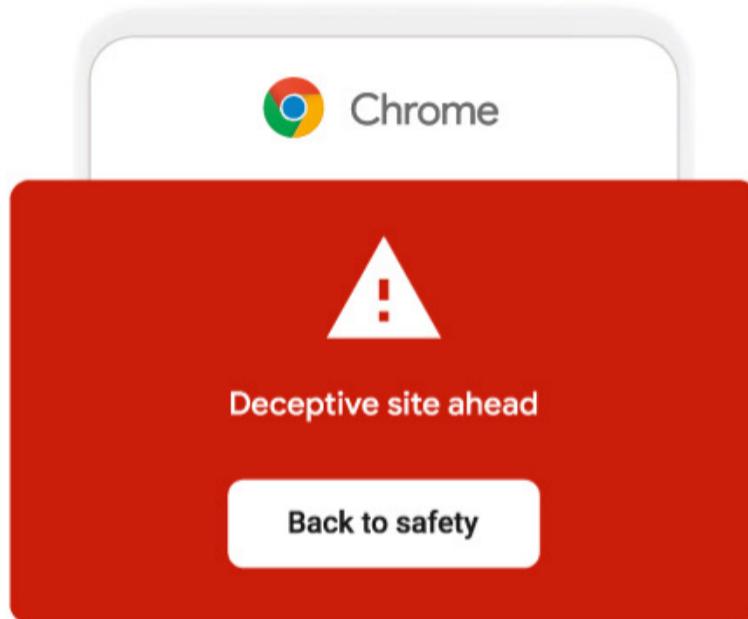


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From whale to oyster to human, animals are returning to New York City's waters



FOR REASSURANCE that Americans can still work together with patience and vision, look to the waterways of New York. Nine humpback whales recently surfaced there together, spouting and breeching against the city skyline as though vying for the most dramatic selfie. Fin whales and right whales are also appearing in startling numbers—along with bottlenose dolphins, spinner and hammerhead sharks, seals, blue crabs and seahorses. Oysters, which all but vanished decades ago, are clamping themselves to bulkheads from Brooklyn's Coney Island Creek to the Mario Cuomo Bridge, almost 20 miles up the Hudson from the city.

Humans, too, can be seen in profusion, on the water and in it. One can forget, when the horizons are bounded by skyscrapers a bus-length away, that New York City is an archipelago, a fringe of North America trailing into the Atlantic. Only one of its five boroughs—the Bronx—is on the mainland, and the three rivers that wind through them, and the harbour into which those rivers drain, are cleaner than they have been in 100 years. They are becoming New York's great decentralised park.

New Yorkers paddle-board on the Hudson; they cruise the Harlem river, blasting music as they sun themselves on the foredecks of sleek motorboats; they chase each other on jet skis under the Brooklyn Bridge; they surf at dawn in sight of the housing projects of Far Rockaway, in Queens, then take the A train to work.

And they catch whale-watching tours from Brooklyn. "It's amazing," says Howard Rosenbaum, who grew up in New York when sighting a single whale off the distant tip of Long Island was a big deal. He leads the Wildlife Conservation Society's Ocean Giants Programme, which happens to be based at the Bronx Zoo. "I've worked in every ocean basin, and people associate these wildlife spectacles with other areas of our planet. Yet they're right here in our backyard." He suspects the whales' return owes to some combination of the Clean Water Act of 1972, the Endangered Species Act of 1973, and a decade-old, multi-state initiative to stop the overfishing of one of the whales' favourite foods, menhaden, known locally as bunker.

Mr Rosenbaum had the foresight to begin asking questions about whales in the region some 15 years ago. The Conservation Society's research project has matured as they began appearing in

greater numbers. He is now working to deconflict the big marine and terrestrial mammals, to prevent ship strikes and ensure that forthcoming wind farms take the whales into account.

Some number of New Yorkers have always been drawn to the water. Herman Melville marvelled at how residents of the "insular city of the Manhattoes" were pulled seaward. "Circumambulate the city of a dreamy Sabbath afternoon," he writes in "Moby Dick". "What do you see? Posted like silent sentinels all around the town, stand thousands upon thousands of mortal men fixed in ocean reveries." Some still stared with wonder a century later, in 1951, when Joseph Mitchell published a classic essay in the *New Yorker*, "The Bottom of the Harbour". But by then they were watching "gas-filled bubbles as big as basketballs continually surge to the surface" from the sludge below. The harbour had been just a dump, a factory and a highway for too long.

Consider the oyster, less eye-catching than the whale yet glamorous in its own way. Some biologists estimate that New York harbour was once home to half of the world's oysters. Early European visitors described finding some a foot long. Their beds lined Brooklyn and Queens and encircled Manhattan; Ellis Island was called Oyster Island. New York oysters were prized in London restaurants, and the families dominating the trade built mansions on Staten Island, where their fleets of schooners docked. Even after the oyster beds were stripped, by the late 18th century, enterprising businessmen kept the trade going for another 100 years by farming oysters. But the pollution became too severe. After cases of typhoid fever were traced to oysters in New York's harbour in 1916, the city's board of health banned the business.

The time has come

Some wild oysters lingered. Mitchell could still find a few when he was studying the harbour. For their resurgence now, credit public spirit combined with private initiative. Since 2014 a non-profit group, the Billion Oyster Project, has been working towards returning that many oysters to the harbour by 2035. It recently put down its 100-millionth oyster, and, with help from thousands of volunteers, is now seeding them at a pace of 50m a year. An adult oyster is said to filter water at a rate of 50 gallons a day.

The non-profit relies in part on divers trained by the Harbour School, a public high school that gives students a marine education on top of a conventional one. The divers say the harbour bottom is still covered in sludge that obscures their vision—"black mayo", they call it—but around the oyster reefs they can see underwater as far as a dozen feet.

No one reading this would be wise to eat an oyster from New York's harbour. There is much work still to be done. About 60% of the city's sewer system mixes human sewage with stormwater run-off. When heavy rain overwhelms the water-treatment plants, New York empties its bowels into the waterways. The rule of thumb is that it is not safe to enter the water for three days after rain. Cleaning up New York's water, and reconciling the needs of its animals and humans, is the work of generations.

The good news is that such work has been going on for a generation, and, despite the menace of climate change, things in some ways are getting better. Also weirder, often in a good way. A few weeks ago Mr Rosenbaum was on a 37-foot boat, watching a humpback whale near the Verrazzano Bridge, which connects Brooklyn to Staten Island. He saw something black-and-white and the size of the boat rising towards the surface. It took him a moment to realise, and then to accept, that he was seeing a giant manta ray. ■



Digital attacks are
being used to censor critical
information online

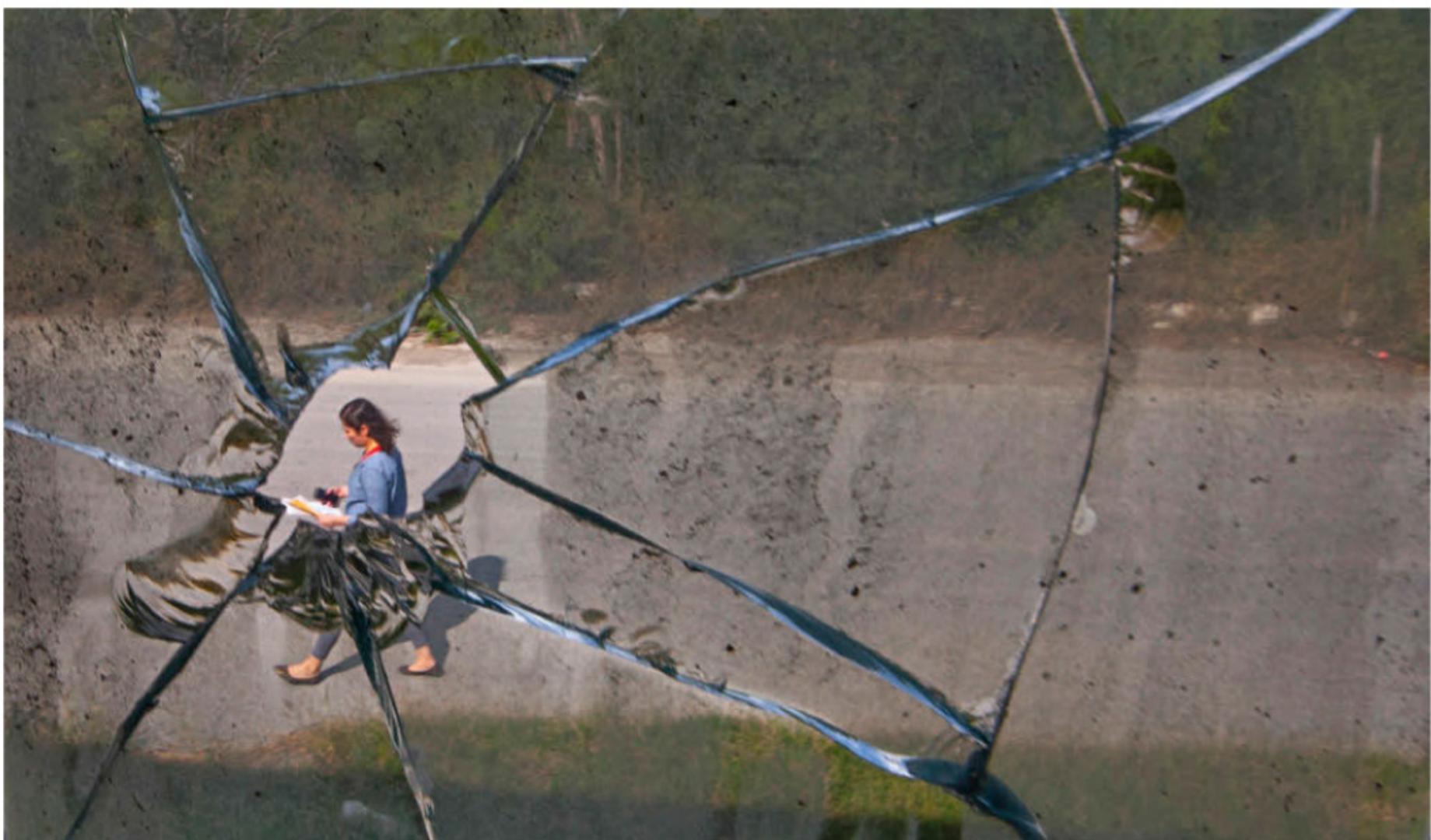
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more from these attacks

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Mexico

Narco nastiness

MEXICO CITY

Several violent episodes illustrate Mexico's growing problem with gangs

TO LISTEN TO the Mexican government, criminality is on the wane. "Mexico is a country of tranquillity, at peace, the violence is limited to very few regions," President Andrés Manuel López Obrador declared earlier this year. Officials boast about a fall in murders and kidnappings since he took power at the end of 2018.

This narrative looked shaky in August when violence flared in four of Mexico's 32 states, leaving at least 260 people dead. In Ciudad Juárez a fight between two gangs in a prison spilled out into the city. In Tijuana, Guanajuato and Jalisco gangs burned cars and shops, possibly in retaliation for the attempted arrest of one of the leaders of the Jalisco New Generation Cartel, known by its Spanish acronym, CJNG.

Mexico has long been a violent place. Its position between the coca plantations in Colombia, Peru and Bolivia and consumers of drugs in the United States makes it a natural centre for crime. The flow of guns from its northern neighbour does not help. By some estimates, 200,000 guns are illegally shipped into the country each year.

The events last month were not an anomaly. Recent statistics make for grim reading. Murders may have fallen by 3.4% between 2020 and 2021, but that is not terribly surprising, given the imposition of various covid-related restrictions across the country. And other crimes that involve killings are on the rise.

Between 2006 and 2012 an average of eight people "disappeared" each day (many of whom were probably murdered). Now the daily average is 25. Mexico's murder rate is 28 per 100,000 people. That is four times the murder rate in the United States. Polls show Mexicans are more concerned about violence than any other matter. In 2021 the cost of violence in Mexico was estimated by the Institute for Economics and

Peace, a think-tank, to be 4.9trn pesos (\$243bn), around a fifth of GDP.

Part of the reason for such violence is that the number of gangs, which are responsible for most murders, more than doubled in the decade to 2020. Now there are 205, according to the International Crisis Group, a think-tank. Their reach has expanded across municipalities. They are more powerful and confident, too. CJNG has paraded high-grade military gear, including armoured vehicles and drones. Gangs are no longer just drug-peddlers. They traffic people, steal oil and control the markets for avocados, tortillas and chicken in some states.

Mr López Obrador describes his approach as "*abrazos no balazos*" (hugs not bullets). His bet is that generous cash handouts, such as a monthly payment of 5,258 pesos to poor youngsters who enroll in an apprenticeship programme, will bring down crime. That aside, his policies are contradictory and often ineffective.

For a start, he tends to place all the blame on previous presidents. And in one sense he is right to: the policy of taking out drug kingpins, started by Felipe Calderón during his term as president from 2006 to 2012, had the consequence of fragmenting gangs. But for all the faults of the past administrations, at least they had a strategy, says Evan Ellis, a security specialist. By the end of Mr Calderon's six-year term, the murder rate was falling, from 24 per 100,000 people in 2011 to 22 in 2012. That

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— Bello is away

► continued into the term of Enrique Peña Nieto, falling to 17 per 100,000 people in 2014, before rising again.

On coming into office Mr López Obrador dismantled the federal police, deeming it corrupt, and set up a new body called the National Guard. It is made up mainly of soldiers and marines who were given little training in civilian law-and-order, and lack the investigative and forensic nous of the police. As a result, it is fairly ineffective. With more than 100,000 members, it arrested just over 8,000 people last year. By contrast in 2018 the federal police, who at most numbered 38,000 officers, arrested 22,000. In the first 18 months of Mr López Obrador's term no one was convicted of murder, claims Francisco Rivas of the National Citizen Observatory, an NGO. (No public data have been published to back up this claim.)

And despite his talk of hugs rather than bullets, the president has boosted the numbers of soldiers on the streets. The average number deployed so far during his term is 73,347, compared with 53,000 during his predecessor's term and 48,500 during Mr Calderón's. On August 8th he announced he would issue a decree to bring the National Guard under army control. But at the same time, the president has ordered security forces to take a hands-off approach when dealing with criminals.

Mr López Obrador has slashed budgets for domestic security and justice. Yet Mexico spends just 0.63% of GDP on security, the lowest in the OECD, a club of mostly rich countries. Spending on the army has risen under Mr López Obrador, to 104bn pesos, almost double the amount a decade earlier. But that does not reflect an increasing interest in public security: Mr López Obrador has given the army ever more tasks, including building airports and banks. Attorneys-general, at the federal and state levels, who are being asked to do the bulk of investigative work, have also seen their budgets cut.

The president's prickly nationalism may also have made things worse. In 2020

Congress passed a law that requires foreign agents to share all intelligence with Mexican officials. This law, most likely aimed at the DEA, the United States' drug-enforcement administration, has made it difficult to operate because foreign governments cannot be certain their Mexican counterparts will not pass on information to the gangs themselves (as appears to have happened in a few cases).

Corruption is a worry because the municipal police are so underpaid. Many work for the gangs. Estimates, using data collected by Mexico's statistics agency, suggest 86% of reported crimes go unresolved. "That tells people they can do whatever they want," says María Elena Morera of Common Cause, another NGO.

High-profile arrests in the past six months may herald a change in the president's approach. El Huevo, a suspected drug lord, was arrested in north-eastern Mexico in March. In July Rafael Caro Quintero, who is considered responsible for the murder of a DEA agent, and who was the grisly inspiration for the Netflix series "Narcos: Mexico", was captured. More kingpins are being extradited to the United States, too. "Mexican forces are now doing surgical strikes rather than hitting around blindly," says Eduardo Guerrero of Lantia Intelligence, a crime-tracking outfit. A law which came into effect in the United States on August 24th seeks to crack down on unregulated private sales of guns, which may also help reduce the number of American guns going south of the border.

But even if he wants to get tougher on crime, Mr López Obrador will find it tricky. In 2019 he undermined his authority to make arrests when he buckled to pressure after the armed forces captured a son of El Chapo, a former leader of the Sinaloa Cartel. In retaliation gang members rioted in Culiacán in north-western Mexico, and within hours Mr López Obrador ordered his release. Mr Guerrero reckons the recent violence was intended to send a similar message to the government to back off.

Rampant violence does not have to be the norm. Between 2012 and 2021 the northern state of Nuevo León managed to reduce crime after its richer citizens helped fund a security plan that included firing corrupt police officers and creating a new, well-paid force to replace soldiers on the streets. It also co-operated with two neighbouring states on security.

Mexico City has crime under control, too. The local mayor, Claudia Sheinbaum, a close ally of the president, has raised wages for police officers and improved street lighting. Murders fell in the capital by 34% between 2018 and 2021. Ms Sheinbaum is often touted as a potential successor to Mr López Obrador once he steps down from office in 2024. But by then, violence in Mexico will probably be worse. ■



Guatemala

Dusty weather

RABINAL

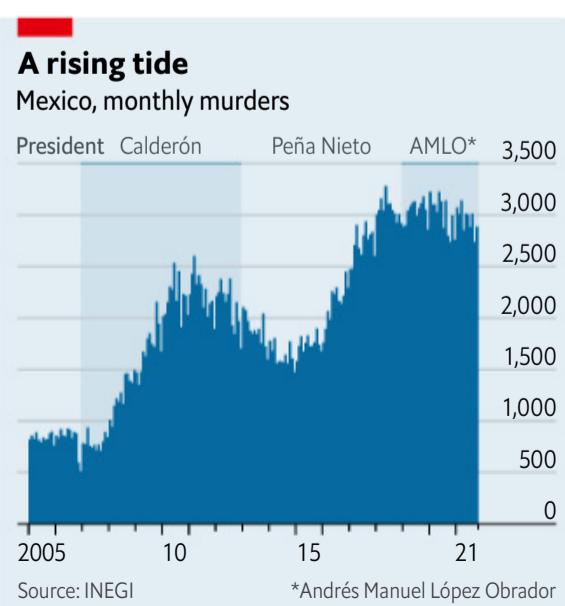
Traditional farming practices are being embraced by some in the dry corridor

UP IN THE hills of central Guatemala the midday sun has burned through the thin layer of clouds. In the valley below, a grid of dusty streets and breeze-block houses mark out Rabinal, a small town at the heart of Central America's drought-stricken dry corridor. But the tops of the hills are lushly verdant, crested by the last remnants of an ancient forest. A group of youngsters want to keep it that way.

Every week, half a dozen teenagers and 20-somethings from the local indigenous community, the Maya-Achi, pile into a truck and climb up pothole-ridden roads to reach small farms nestled into the hill-sides. Some days they fill the truck with hundreds of infant trees. On others, they haul up bags of native seeds.

But their mission, and that of the small NGO for which they work, *Voces y Manos*, remains the same: boosting "agroecology". This is a type of farming which mixes indigenous practices with techniques to buffer crops against the effects of climate change. For 14 years the NGO has been encouraging crop diversification, reforestation and the use of natural fertilisers. In doing so, the Maya-Achi youngsters hope to provide opportunities for Guatemalans, other than migrating north.

Most residents of Rabinal can still remember a time before extensive droughts gave meaning to the term "dry corridor". Until two decades ago cool winds would roll in off Guatemala's Pacific coast each year, depositing rain. But as global tem-



peratures began to rise, and the oceans sandwiching Central America grew warmer, the reliability of that cycle began to break down. The clearing of vast tracts of forest to make way for big farms, mines and settlements further limited rainfall. Lack of land reform, and the legacy of state violence towards the Maya-Achi in the 1980s, have compounded problems.

In recent years, subsistence farmers—who make up 62% of households in the dry corridor—have lost between 50% and 80% of their harvests to crop failure. Over 800,000 Guatemalan migrants have been apprehended at the United States border since 2019. The World Bank thinks that 4m internal migrants will leave the dry corridor, out of a population of 11m, by 2050.

About 500 families around Rabinal have taken up agroecology. In the hamlet of Xesiguán, Beatriz Tecú has rejected industrial fertilisers and herbicides for two decades. Those break down the soil structure, increasing the risk of erosion and reducing water retention. Now, along with protecting the leafy trees and native plants that dot her land, she has helped trap valuable groundwater and stopped fertile topsoil from washing away. Her yields are not large, but as the rain diminished, they have never disappeared.

Similarly, Alfredo Cortez's farm down the road is dominated by towering groves of banana trees, giant drums of homemade fertiliser and a fish-pond. "Education is with the eyes," Mr Cortez smiles, "but changing attitudes is complicated." A surprise storm or particularly long drought could wipe out entire fields, meaning that convincing others to take a gamble on change is not easy. Neither is Mr Cortez's plot, for all its abundance, an island safe from climate change. "Thirty years ago, you could barely cross the river there," he says, pointing to a mostly dry riverbed.

Surveys of farms in Central America, Mexico and Cuba suggest that agroecology can reduce the loss of fertile topsoil and increase soil's water retention after hurricanes. Similarly, studies of farms that have adopted such practices in Asia suggest reductions in food insecurity. Agroecology "represents a real alternative to migration or starvation for Central Americans who still live off the land," says Michael Bakal, one of the founders of *Voces y Manos*.

Not all farmers agree. José de Paz, who owns a dry patch of land just past an evangelical church, knows chemicals exhaust the land, but says that after so many years of use, without them nothing will grow. This year the earth in his corn patch is powdery; his rubber boots sink into the ground as he walks. "What will my kids do if things continue this way?" he says. He points to a three-storey house built with remittances sent from the United States. "You can't build that working here." ■

Ecuador

Mule got mail

QUITO

What to do in a country with a backlog of 1m letters and parcels?

SILVIA MENESSES was excited when she ordered some curtains and other items on Wish, a website. That was five years ago. Her parcel has yet to arrive. The experience of Ms Meneses, who runs a sandwich shop in Quito, is a typical one in Ecuador. For years, Correos del Ecuador, the national postal service, was slow and unreliable. During the pandemic, it closed. Ecuador became one of only a few countries not to have a postal service.

Ecuadorians used to get post, and a fair bit of it. A whiskey-barrel-turned-postbox on the Galapagos islands dates to the 1700s, as a way for sailors to exchange post (these days tourists use it, see picture). What is now the office of the Ecuadorian vice-president was once the post office's headquarters. Ms Meneses recalls the joys of receiving a letter.

But the postal service never reached all of Ecuador, with its impenetrable jungle and breath-stealing mountains. Many homes do not have addresses, and not everyone could afford a PO Box. Those who could saw a service in decline. Because of steady budget cuts, fraud and exorbitant taxes on parcels, by 2019 Correos captured only 8% of the Ecuadorian postal market (the rest went to private companies). Its lacklustre performance gave Lenin Moreno, then the president, an excuse to shut it down in May 2020.

A service still exists on paper. Mr Moreno forgot that Ecuador is a member of the Universal Postal Union, a UN body,

and is bound by its convention to facilitate the sending of international post. So in February 2021, just before leaving office, he signed a decree creating a new company. It currently has 84 employees and 24 vehicles, says its manager, Verónica Alcivar (Correos had 422 vehicles). It could be expanded to 250 workers, but that seems unlikely. Instead it has contracted a Colombian firm to deliver a backlog of over 1m letters and parcels.

Ecuadorians have other workarounds. Unable to receive deliveries from Amazon, an e-commerce giant, they turn to human "mules" to courier goods on planes from the United States. "Christmas is our busiest time of year," says one civil servant who also runs a successful mule business. He wishes to remain anonymous for tax reasons.

Documents are trickier. Students wishing to enroll at foreign universities must spend a fortune sending their registration papers abroad. And there can be consequences to not having a postal service. It acts as a "backstop if other systems fail", delivering medicines, welfare benefits or ballot papers, says Richard John, a historian.

In the centre of Quito, echoes of another way of life remain. Blanca Guaraca, a street vendor, flips through postcards that she sells to tourists. She recommends a post office where your correspondent can post one. It is now a bookshop. When a service is rarely used, it is hard to know when it's gone.



Signed, sealed and undelivered



Floods in Pakistan

Under water

ISLAMABAD

A country reeling from economic and political crises is hit by the worst floods in recent history

THIS YEAR had already been cruel to Pakistan. The country has endured double-digit inflation for months, driven by soaring food and fuel prices. The value of its rupee has plunged as foreign reserves have dwindled. The ousting of Imran Khan in April failed to restore longed-for political stability; followers of the former prime minister took to the streets to hound his successor. Now a terrible natural disaster has increased the pain.

For two months vast swathes of Pakistan have been inundated by its heaviest rainfall on record. Over 1,100 people have been killed, and early estimates put the costs at \$10bn. On August 30th the climate minister said that one-third of the country was under water; the government declared 72 out of 160 districts to be disaster zones (see map on following page). The past few days have brought more than 100 deaths and the destruction of thousands of houses, as flash floods in northern Pakistan washed buildings from the riverbanks.

The volume of rainfall is staggering. Some 700mm (28 inches) was dumped onto the south-eastern province of Sindh, nearly six times the 30-year annual average. Balochistan, a vast, arid province which is normally left untouched by the monsoon, has received five times its annual average. The resultant flooding is the worst in decades.

Massive floods in 2010 cost an estimated \$10bn, mostly in rural areas. This time the cities were hit too. Transport links in and around Quetta, the capital of Balochistan, have been broken. The potholed roads of Karachi, a megacity in the south, have

been all but washed away. Early estimates suggest 1m homes will have to be rebuilt.

City-dwellers tend to be less reluctant to leave their flooded homes than people living on the land. As a result, the death toll is currently lower than the 2,000 people who died in the floods in 2010. More rain is imminent, though. The economic fallout from the floods—which are estimated to have affected one in seven Pakistanis, or 33m people—will be immense. Inflation, which reached 25% in July, will rise further as food crops are wiped out. The hit to rural wealth and incomes will probably spread to the industrial sector. Carmakers have already predicted a collapse in sales. Water-logged ground could ruin the next wheat season. The cotton crop, which is used to make many of Pakistan's most valuable exports, has been devastated.

As biblical as this seems, there is probably worse to come. Projections for South Asia made by the UN's Intergovernmental Panel on Climate Change suggest that the frequency and intensity of precipitation will increase across the region as temperatures rise. The total amount of rain is set to increase too. This is happening alongside an ever-rising rate of drought. When rain falls on parched land the water tends to move over the hard ground rather than soaking into it. This leads to larger volumes of fast-moving flood water which cause more damage and kill more people. ➤

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On August 29th the IMF approved the release of \$1.1bn to Pakistan, signalling the resumption of an existing bail-out programme and access to further lines of credit. Mr Khan blew up the IMF programme while still in office in February, when he imposed fuel subsidies. The cash is needed urgently. Earlier in August Pakistan's foreign-exchange reserves fell to \$8bn, enough for just one month of imports. Yet abiding by the IMF's conditions while providing an effective flood response and negotiating the country's fractious politics will be a fiendish task for the prime minister, Shehbaz Sharif.

The IMF deal is predicated on "steadfast implementation" of a federal budget that prioritises cutting spending and borrowing. The fund has acknowledged that the flooding will mean some fiscal slippage. Yet it may not prove sufficiently flexible for Mr Sharif. His government has already made itself unpopular by raising electricity and fuel prices at the IMF's behest. Last week—speaking via video link from Qatar—Mr Sharif was forced to rescind a further increase in electricity prices after people took to the streets.

With an election due by October 2023, the prime minister will be under pressure to loosen the purse strings in order to provide flood relief. Members of his own party have already denounced the IMF deal; its leader (and Mr Sharif's elder brother), Nawaz Sharif, is reportedly unhappy with it. Mr Khan will also no doubt pile in.

International donors have sprung into action. The UN has appealed for \$160m-worth of emergency aid. America has pledged \$30m. And there are hints of help from unexpected quarters. Pakistan has banned trade with India since 2019 when Narendra Modi, India's prime minister, scrapped the autonomous status of the Indian-administered portion of Kashmir. On August 29th Mr Sharif's government suggested that it might relax the ban to bring in vegetables from India to help stabilise prices. Mr Modi's subsequent public statement was conciliatory. That is good. Pakistanis need all the help they can get. ■



Farming in South Korea

Daughters of the soil

NONSAN

Growing numbers of young Koreans are leaving the cities for farms

WHEN KIM JI-UN lived in Seoul, she worried about finding a good job and a decent place to live. Now, she frets that drought may botch her crop of potatoes and corn. The 23-year-old and her sister started a farm last year in Nonsan, a city in South Chungcheong province. Her first harvest was a success; she was surprised that her black soybeans did better than her strawberries.

Ms Kim is part of a phenomenon called *kwichon*, or returning to rural life. Coined a millennium ago, the term crops up during periods of economic hardship, when city-dwellers are forced to move back to their hometowns, often to farm. This time, in the wake of the pandemic, many new farmers such as Ms Kim have never lived in the countryside before. The government encourages them. It agitates over South Koreans' tendency to flock to Seoul, the capital, and sees *kwichon* as a way to revive dwindling rural areas. By planting young farmers in rural areas now, the government hopes to reap big rewards in future.

The plan is working. In 2021 nearly 380,000 people moved to the countryside, up 15% from 2015. Almost half of them (a record high) were younger than 40. The new generation cares less than earlier ones did about getting a job at one of South Korea's prestigious *chaebol*, such as Hyundai or Samsung. Some do not want to become like their fathers "who do nothing but work", says Chae Sang-heon, a professor at Yonam University in South Chungcheong province. Others take a dim view of their prospects, and say they "know they will never be a

success like their father".

Comfort with digital technology gives young farmers a leg up, says Cho Kyung-ik, the director of the Beginning Farmer's Centre, the government-affiliated institution which educates those who wish to *kwichon* at its offices near Gangnam, a posh area of Seoul. They sell fresh produce on Instagram and Naver, South Korea's largest search engine.

The centre also teaches techniques with which young Koreans tend to be less familiar—how to use a tractor or select the best crops. It arranges a trial period in the countryside during which aspiring farmers live and work under the tutelage of an old hand, learning what it means to do back-breaking labour from dawn to dusk. Mr Cho says the trial periods boost the chances of a successful transition.

The most important lesson on the syllabus is how to get on with the locals. Life is more communal in the countryside, and newcomers are expected to abandon their atomised urban ways; the neighbours' doorways, not just your own, should be swept when you get the broom out. The villagers are also offered tips on how to act towards the newcomers, especially the young ones, through role-playing sessions.

That part is not yet a total success. Ms Kim says her neighbours have a gruff streak. "The old people come in here and give me unwanted advice, or say that I will never be able to grow anything," she says. Her black soybeans beg to differ. She and the South Korean government will be hoping that her corn and potatoes put the argument to rest for good.

Energy infrastructure

Grid locked

VIENTIANE

Can South-East Asian countries learn to share power?

IT TAKES JUST three hours to fly to Singapore from Vientiane, the capital of Laos. To transmit electricity between them, however, has taken eight years. In June and July both countries undertook an experiment in energy exchange. Electricity from hydropower plants in Laos, which brands itself “the battery of Asia”, buzzed through wires in Thailand and Malaysia to arrive in Singapore. The amount of power made available, 100MW, is less than 1% of what Singapore produces itself. Yet this trial, which was mooted in 2014, has been hailed for its symbolism: it marks the first time electricity has travelled across four South-East Asian countries.

Singapore calls the project a “pathfinder”—proof of concept, in other words—towards an old vision: a regional super-grid that allows all ten members of the Association of South-East Asian Nations (ASEAN), a regional group, to trade electricity. Envisioned by ASEAN a quarter of a century ago, the ambition has remained mostly on paper. Connections between neighbours are few (see map). Cross-border power sales are piddling. The International Energy Agency (IEA), an intergovernmental forecaster, estimates that 65% of the region’s roughly 5.5GW in interconnector capacity links just two countries, Thailand and Laos. Brunei and the Philippines have no external links at all.

In Europe and North America, trading with neighbours has been crucial to reducing costs and pollution while boosting capacity. It has also helped those regions handle the vagaries of solar and wind power. Pooling power over a large area means that deficits in one place can be quickly compensated for by surpluses elsewhere. California, for example, draws solar power from less-populated desert states such as Nevada when demand surges.

Yet ASEAN governments tend to hoard power, usually by overbuilding fossil-fuel plants. Most member states boast generation capacity of over 30% more than peak demand. “Although people want to be friends, you can never fully trust your neighbour,” says Matthew Heling of AFRY, a consultancy. “Will they give you power when you want it?” Suspicion keeps costs and pollution higher than necessary.

What has changed is the push for clean power. Singapore produces 95% of its energy from natural gas. Solar and wind farms take up a lot of space, which is in short sup-

ply in the tiny island-state. Singapore’s government reckons it would find it hard to generate more than 3% of its own power from solar. The country aims to be importing 4GW, or roughly a third of its projected requirement, of low-carbon power from neighbours by 2035.

If power-trading offers Singapore a way to get greener, it is for Laos a lifeline. An extravagant decade of dam-building has helped bring the battery of Asia to the edge of default. Its currency has tumbled by a third against the dollar so far this year. Exporting power was supposed to earn foreign exchange that could be put to use for domestic development. Instead Électricité du Laos (EDL), the state-owned power company, is saddled with debt. Some 95% of its exports go to Thailand on unfavourable terms. A more diverse customer base will help boost its finances. “Anything that’s going to get them dollars is manna from heaven right now,” says an analyst.

Doing this through ASEAN’s patchwork of grids, though, is no easy task. Each one speaks a different language. They exist under different regulatory and commercial regimes. Singapore’s power markets are governed by commercial forces; Vietnam’s are centrally controlled. Thailand has high-efficiency power lines; Laos has leaky ones. The accomplishment of the Laos-Singapore trade, says Jennifer Tay of PwC, another consultancy, was to establish a lingua franca that permitted power to cross four states. This required ironing out problems of differences in voltage and frequency, and matters such as transit fees.

A pan-ASEAN super-grid is still a long way off, not least because the region’s governments remain inward-looking. Politicians gain prestige from power surpluses, not from technocratic grid initiatives. Ministers in both Malaysia and Indonesia have bristled at the notion of exporting green energy that they could use towards their own climate targets. Connecting grids is technical, observes Shi Xunpeng of the University of Technology Sydney. Sharing power is political. ■



Ageing prisoners

Decline and punishment

FUCHU AND TOCHIGI

Japan’s prisons attempt to adapt to their ageing inmates

AT FUCHU PRISON, in western Tokyo, an octogenarian lobs coloured bean bags onto a table. Behind him, a silver-haired inmate sits hunched at a computer, doing arithmetic and responding to quiz questions like: “Is a dandelion a flower?” Others fold origami paper into pentagons. Repetition and practice help to “stimulate their minds”, says a watching officer.

Fuchu is one of a handful of prisons trying out rehabilitation programmes aimed at maintaining older inmates’ physical and mental health. The puzzles and games are designed to curb the development of dementia in their participants. Authorities are wary because Japan’s prisoners, like the rest of its population, are getting older. In June the government decided to amend the penal code, bringing programmes such as this to prisons across the country.

The ageing of Japan’s lawbreakers is reflected in the crime statistics. The number of offenders over the age of 65 has more than doubled over the past 20 years. Elderly criminals are now more likely than younger ones to reoffend and end up back in jail. The justice ministry reckons some 14% of inmates over the age of 60 have symptoms of dementia.

Traditionally, Japan’s prisons have been highly punitive. Inmates atone for their crimes through forced labour. Talking is banned during much of the day; recreational activities such as reading are allowed only at allotted times. Inmates live “like robots”, says Hamai Koichi, a former justice-ministry official, now a criminologist at Ryukoku University in Kyoto.

That harsh monotony can accelerate cognitive decline. Some convicts see it looming in those around them. “Most of the inmates who are older than me keep saying the same thing over and over,” frets a 71-year-old at Tochigi prison, north of Tokyo. “I don’t want to become like them.”

Growing numbers of aged inmates had already pushed prisons to become a bit more considerate, informally at least. Older inmates struggle to keep up with tasks, so prisons reduced their workloads. Social workers and carers were brought in to supplement guards. Many prisons have put in handrails. Some serve puréed food for those with trouble chewing. “As prisons started to look more like nursing homes, government officials began questioning their approach,” says Mr Hamai.

The amendment to the penal code—the ➤

► first since the law was passed in 1907—is meant to codify this shift to a more benevolent approach. Labour will no longer be mandatory. Prisons will offer educational programmes in an effort to help criminals rejoin society, thereby curbing recidivism. But the penal system lacks both the money and the manpower to implement more intensive rehabilitation programmes. Experts worry that inmates may not understand the purpose of activities, and that forcing them to participate against their will could be harmful.

The government has avoided deeper re-

form. It has not considered relaxing sentencing guidelines in such a way as to limit elderly incarceration, or considered offering an amnesty to older inmates. Most crimes committed by older people in Japan are petty, such as theft and shoplifting. They are often driven by poverty and loneliness. But repeated misdemeanours can still land offenders behind bars for years.

"It's nice that they're introducing rehabilitation programmes, but I can't help thinking: why are these people even in prison?" says Yasuda Megumi of Kokugakuin University in Tokyo. She believes reinforc-

ing the safety net would be more effective.

The tension is most acute when it comes to prisoners with dementia. Japanese law prohibits jailing people with psychological disorders, especially if they cannot understand why they are being punished. That rule is rarely followed. The numbers of prisoners with dementia is therefore likely to grow. Igarashi Hiroshi, the founder of Mother House, a non-profit organisation focused on rehabilitation of ex-convicts, puts it well: "There's no use telling someone with dementia to regret their mistakes." ■

Banyan Rule the airwaves

A tycoon's bid for a big Indian news channel bodes ill for media freedom

FOR YEARS, whenever observers lamented the decline of press freedom in India, especially within its broadcast media, the country's defenders could point to a welcome exception. New Delhi Television Ltd (NDTV), a news channel with national reach, has long been a stalwart voice of independent journalism. If viewers wished to hear facts and opinions other than those sanctioned by the national government, at least one channel would air them.

So the news, in late August, that a billionaire industrialist, Gautam Adani, had launched a bid to take over NDTV naturally alarmed India's media-watchers. That Mr Adani is reported to be the richest man in Asia is one concern. But it is his close ties to the country's prime minister, Narendra Modi, that are the primary cause of unease.

Even in an age of smartphones and social media, broadcast journalism remains vital in India. Television is still ubiquitous, whether at home, on supersize screens in malls and offices or the smaller ones in most Indians' pockets. Its ownership is highly concentrated, with most channels run by Reliance Industries, a conglomerate controlled by Mukesh Ambani, another towering business figure. Mr Ambani, as it happens, is also a pal of Mr Modi.

It looks likely that Mr Adani will succeed in taking over NDTV (its boss is a distant relative of a senior editor at *The Economist*). A spokesperson for Mr Adani said that the newsroom would retain its independence. The reality will be different. Broadcast journalists who have been willing to criticise the government, or at least to report fairly and independently, will feel constrained to toe official lines. Ahead of a general election in 2024, the space for opposition politicians to air

their views without being shouted at, as is routine on other channels, would surely shrink.

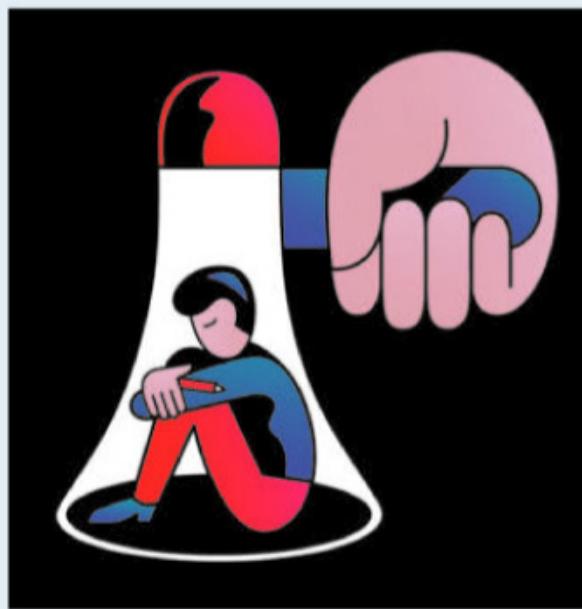
The saga carries the whiff of an earlier age. Traditionally, Indian governments influenced the media by exploiting the industry's ownership structure. Like Messrs Adani and Ambani, whose business interests range from airports and refineries to retail and textile, the owners of most media companies also make serious money in other sectors. That provides politicians with pressure points. To rein in critical coverage without the bad optics of leaning directly on editors, those in office turn on those sister industries. The withdrawal of an operating licence here, the threatened loss of a lucrative government contract there, are usually enough to persuade owners to whip their journalists into line.

The use of such tactics has grown under Mr Modi's government. Independent journalists say that the commercial arms of their organisations put ever more pressure on the newsroom. Sometimes a quiet word comes down from the owners

themselves. Those who criticise the mighty always run the risk of politicians refusing to speak to them for a while. This problem has grown worse, journalists report; some are now denied any access at all to elected officials. This bodes ill for accountability.

The government is also finding more creative ways to control the flow of information. Defamation suits are used to tie journalists up in years-long legal battles. Laws designed to fight terrorism and sedition are unleashed upon reporters who are just doing their jobs, particularly Muslims. An illustrative example is Siddique Kappan, a journalist from Kerala, who has spent the best part of two years in jail in Uttar Pradesh after he was arrested on his way to report on the alleged rape and murder of a young Dalit woman. He was charged, among other things, with sedition. This sort of government repression has led Reporters without Borders, an advocacy group, to rank India at 150 out of 180 countries in its annual index of press freedom this year, its lowest position ever.

Do not expect that trend to be reversed soon. Some journalists try to find solace in the fact that a more hostile environment may force them to do better work, amassing more evidence and better sources before daring to publish a story. Plenty of courageous reporters still defy threats of harassment, intimidation or jail. However, assuming Mr Adani succeeds in taking over NDTV, the fear is that space for free speech—or simple truth-telling—through India's most influential news medium may shrink further. If so, it will grow harder for India's defenders to brag that their country remains a lively, outspoken and confident place. When Indian journalists are muzzled, India is diminished.





War jitters

The perils of “peak China”

WASHINGTON, DC

A new book warns America that a weakening China is more likely to invade Taiwan than a strong one

WHEN WILL America and China face the greatest danger of war? Around 2049, when Communist leaders promise a “great rejuvenation of the Chinese nation” and a “world-class military”; or 2035, when they aim to “basically complete the modernisation of national defence and the armed forces”; or 2027, when, according to American military chiefs, China seeks to have the wherewithal to invade Taiwan?

A new book by two American geostategists argues that the acute peril is now. In “Danger Zone: the Coming Conflict with China”, Hal Brands of Johns Hopkins University and Michael Beckley of Tufts University argue that the world’s giants are engaged in a decade-long sprint, not a “hundred-year marathon”, as the title of another book puts it. China is about to have “a hard fall” or may already be in decline, they argue. This makes it more dangerous, not less. It could soon try to seize Taiwan, while it is still able to do so.

The authors thus flip the “Thucydides trap” popularised by another professor, Graham Allison, who argued that China and America were destined for war in the

same way as a rising Athens and a fearful Sparta came to blows in antiquity. Messrs Brands and Beckley argue instead that the Athens of Thucydides was not an upstart, but a risen power fighting to avert decline. Imperial Japan’s fear of economic strangulation, leading to its surprise attack on Pearl Harbour in 1941, is an example of such a “peaking power trap”.

Both elements of the thesis—that China is peaking and that war is imminent—are contested by other analysts. Yet it captures something of the zeitgeist in Washington. Experts debate whether China’s slowdown means it has hit the “middle-income trap” (in which poor countries struggle to grow more than moderately rich). They also fret about growing hostility between America and China, and military tension around

Taiwan (see next article).

The analysis of China’s intentions matters because it affects American policy. “Is China just a drunk in a bar, or is it Tony Soprano giving you the evil eye while he sips his whiskey?” asks Jude Blanchette of the Centre for Strategic and International Studies, a think-tank. “If we think China is a near-term threat, then we throw everything at deterring it militarily and we forget about competing over the global order.”

Many experts have come a cropper predicting China’s collapse. Still, Messrs Brands and Beckley argue that its stellar growth resulted from several factors that are now reversing. A demographic boom is turning to bust. Market reforms are yielding to a re-centralisation of the economy, the cowing of innovative tech firms and a struggle to control debt. A “smarter autocracy” with slightly looser political controls has reverted to the more oppressive form, creating a techno-surveillance state. And instead of embracing China’s rise, rich countries have started to constrain trade. Some economists, such as Thomas Orlik, argue that China’s rulers have enough resources, regulatory levers and experience to avert a systemic crisis. A new edition of his book on China’s economy, “The Bubble That Never Pops”, is about to be published.

In a commentary for *Foreign Affairs*, a journal, Oriana Skylar Mastro of Stanford University and Derek Scissors of the American Enterprise Institute, a think-tank, argue that the hard fall is unlikely. China’s relative decline, if it happens, is likely to be ➤

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► gradual. Its military power will keep growing. It will want to seize Taiwan, but need not lash out. Rising or peaking, China is liable to be more aggressive, they think. But America should avoid "short-term solutions that undermine its ability to compete in the long term".

President Joe Biden regards China as the greatest threat to America's primacy, but for now seems to treat it principally as an economic and political challenge. His defence-budget request for the coming fiscal year implies the military threat will be most acute only in the 2030s. It seeks a below-inflation increase, and invests heavily in research and development for future weapons. The size of America's fleet, already smaller than China's, is set to shrink before it expands again in the next decade. Meanwhile, the AUKUS agreement to provide Australia with nuclear-powered submarines will probably not deliver the first boat before 2040.

Prominent military figures, though, are alarmed. Admiral Philip Davidson, the former head of America's Indo-Pacific Command, argues: "The threat is manifest in this decade, and certainly in the next four or five years. From the bottom of the sea to space, we're seeing the Chinese becoming better." His successor, Admiral John Aquilino, says China wants to finish modernising its armed forces by 2027. The timeline is shrinking, he told the Senate in March.

The Indo-Pacific Command's list of unfunded priorities runs to \$1.5bn. The largest sums would boost its ability to protect (or attack) satellites; buy more long-range anti-ship missiles; and enable "campaigning", which involves networks to share information with allies and facilities to test new warfighting concepts. Congress is likely to accept much of this. House and Senate committees have recommended authorising, respectively, \$37bn and \$45bn more than the \$802bn defence budget requested by the administration.

For Bonnie Glaser of the German Marshall Fund, another think-tank, any conflict is likely to be caused by political change more than a shifting power balance. Even if China's forces were unprepared, Mr Xi would not hesitate to go to war if he felt Taiwan was moving towards independence, thereby humiliating the Communist Party. That said, she thinks he would live for some time with the current status quo that keeps Taiwan in a twilight zone—de facto autonomous, but not recognised as independent by major powers—if he felt the island was not slipping away. "I don't think that the party is going to fall if Xi Jinping doesn't achieve reunification with Taiwan," she says.

The political calendar could thus produce the next crisis. The Communist Party congress in mid-October, at which Mr Xi is expected to gain a third term, may reveal

more about his intentions towards Taiwan. A series of summits in Asia this autumn may hint at how far China and Russia will make common cause.

In America the bipartisan Taiwan Policy Act, under debate in Congress, would include such China-poking measures as declaring Taiwan to be "a major non-NATO ally" and upgrading its envoy to ambassador-like status. In midterm elections in November, Democrats may lose one or both houses of Congress to more hawkish Republicans; similarly, the White House could switch in 2024. Taiwan holds a presidential election the same year. Might a new Taiwanese president then push for independence, and gain recognition from America? Such a prospect, argues Ms Glaser, could be a real trigger for war. ■

America, China and Taiwan

Just passing by

American warships transit the Taiwan Strait

THEY WERE not the first American warships to sail through the Taiwan Strait in defiance of Chinese warnings. Nor were they the biggest to navigate the waters between mainland China and the self-governing island of Taiwan. But when the *USS Chancellorsville* and the *USS Antietam*, two guided-missile cruisers, made the transit on August 28th, the potential for sudden escalation was perhaps greater than at any point in the past 25 years.

It was the first such operation since China staged big military exercises around Taiwan after a visit there by Nancy Pelosi, the speaker of America's House of Representatives, in early August. China, which claims Taiwan, called her visit a dangerous provocation and warned that America

"must pay the price". During its drills, China's military aircraft and ships crossed the strait's median line—long a de facto maritime border—and its warplanes have continued to do so regularly since, raising fears that they are trying to dominate the waterway and, potentially, block transits by American and allied warships.

In the end, though, the transit appears to have proceeded much like many others. America's Seventh Fleet said the two ships made a "routine" passage through waters "where high-sea freedoms of navigation and overflight apply in accordance with international law". The Chinese armed forces' Eastern Theatre Command said it tracked the American ships throughout, keeping all their movements "under control". Taiwan's defence ministry said it detected eight Chinese ships in the area that day and 23 aircraft, seven of which—including fighter jets and an attack helicopter—crossed the median line (see map).

The signalling suggests both sides are anxious to avoid direct military confrontation. America wanted to resume transits relatively quickly to maintain its credibility, but avoided doing so immediately after Ms Pelosi's visit. The choice of ships similarly signified muscularity but not escalation: America usually sends one or two ships on such transits, but has not sent two cruisers—among its most capable vessels—in at least four years, according to Collin Koh of the S. Rajaratnam School of International Studies in Singapore. The last time America sent an aircraft-carrier through was in 1995, after China fired missiles into waters around Taiwan.

America also appears to have tempered its statements to avoid describing the strait as "international waters". The ships passed through a corridor "beyond the territorial sea of any coastal state," the Seventh Fleet said. Chinese officials have said recently that they do not see the strait as international waters. Some experts agree, noting that "international waters" is not a legal term, and both sides theoretically have some maritime rights in the entire strait.

China's response, meanwhile, indicates that it wants to keep tensions under control ahead of a five-yearly Communist Party congress, which starts on October 16th and is expected to grant Xi Jinping a third term as party leader. At the same time, China's military behaviour suggests it is trying to impose costs for Ms Pelosi's visit on Taiwan, rather than America.

Chinese forces continued to cross the median line on August 29th and 30th. Unidentified civilian drones have been buzzing Taiwan's outlying islands. On September 1st Taiwan's defence ministry said that it had, for the first time, shot one down. The Taiwan Strait may still be open to American warships, but the drama there is far from over. ■



The UN and Xinjiang

Took you long enough

TAIPEI

A long-awaited report condemns China's actions in Xinjiang

ONE OF CHINA'S favourite propaganda tools is the group tour. In the region of Xinjiang, for example, foreign dignitaries are often guided around by officials, as handpicked locals praise the Communist Party for improving their lives. When the UN's human-rights chief, Michelle Bachelet, was given such a tour in May, Chinese state media crowed that she had seen the "real Xinjiang". Never mind the overwhelming evidence that more than a million Uyghurs and other ethnic minorities in the region have suffered a violent campaign of incarceration and forced indoctrination in recent years.

The saving grace of Ms Bachelet's trip, thought activists, was that it would precipitate the release of a report from her office detailing China's abuses in Xinjiang. The assessment, three years in the making, was ready in December. But her office held it back, reportedly under pressure from China, which wanted it delayed at least until after the Winter Olympics in Beijing in February. It was then announced that the report would be released after Ms Bachelet's visit to Xinjiang—and after China had a chance to review it and comment (as is normal). Months passed.

At last, on August 31st, in the final hours of Ms Bachelet's term, the report was published. It is refreshingly straightforward. Relying on China's own documents, as well as dozens of interviews with victims, the report concludes that China's actions "may constitute international crimes, in particular crimes against humanity". It criticises China's nebulous "anti-terrorism law system", under which Uyghurs and other minorities were detained for such innocuous acts as downloading WhatsApp or contacting family abroad. Appalling accounts of abuse, including rape and torture, at the detention centres in Xinjiang were affirmed. Forced sterilisation, coerced labour, unreasonable surveillance and the destruction of religious and cultural heritage are just some of China's other offences, according to the report.

In a 131-page response, China justified some of its actions on security grounds and said the report was "based on disinformation and lies". Last year China's foreign minister, Wang Yi, called Xinjiang a "shining example" of human-rights progress.

Activists are mostly pleased with the report. They had worried that Ms Bachelet, under Chinese pressure, would withhold it

The painters of Dafen

An art factory in decline

They can paint like Van Gogh, but few think they are masters

THE VILLAGE of Dafen was once thought to produce the most oil paintings in the world. Heralded by the press as the "world's art factory", visitors marvelled at its many workshops, in which painters churned out mock masterpieces by Van Gogh, Rembrandt and Warhol. Their customers spanned the globe and included retailers, hotels and tourists. But the village, part of the southern city of Shenzhen, was always seen more as a production line than a place of culture. Today the future of Dafen may depend on whether it is able to earn the respect of China's art world.

Things started to change for Dafen in 2008, when the global financial crisis cut into overseas orders. With more demand

coming from inside China, artists began painting different subjects. New customers preferred Chinese styles, says a painter in Dafen. He learned the art of *shan shui*, which involves depicting natural landscapes. In some ways Dafen reflected the broader economy. China long pursued an export-led growth strategy, but as exports started to decline as a share of GDP, domestic consumption played a larger role in driving growth.

China is the world's second-largest art market. But it is not clear where Dafen fits in. Li Jinghu, an artist from nearby Dongguan, often visits the village hoping to discover new talent. But he is disappointed by the lack of creativity. "The village has nothing to do with art," says Mr Li. "It is just one of thousands of production workshops in China." Locals say the demand for their paintings has declined during the pandemic. Many of the workshops have closed. "Most people would probably be surprised Dafen is still around," says Lisa Movius, a writer in Shanghai who covers art.

Some worry that Dafen may not survive much longer. Officials promote it as a creative hub. Many locals would like that to be true. "We've had several decades of copying," says the painter from Dafen. "We should let it go." But Dafen's customers struggle to see it as more than a factory. A recent visitor to a shop in the village recoiled at the 1,000 yuan (\$145) asked for an original painting. If demand does not improve, many of the painters will simply move on. Mr Li warns that in two years Dafen may cease to exist.



Artist, labourer or both?

or water it down. Her actions over the past several months were hardly reassuring. At the end of her visit to Xinjiang she spoke in Chinese-government euphemisms, framing re-education camps in the region as a response to terrorism and calling them "vocational educational training centres". (Later she said she was citing, not endorsing, that term.) When answering questions from Chinese state media, she criticised racism and rights violations in America. That, too, is a favourite tactic of China's government: pointing out America's flaws in order to distract attention from its own.

China has long tried to redefine human rights as being about security and development, not individual freedoms. It also paints them as subjective. Mr Wang has said that "countries must promote and protect human rights in light of their na-

tional realities and the needs of their people." China wants to make the UN's human-rights system "all about governments having dialogues with each other rather than the actual pursuit of investigations and accountability," says Sophie Richardson of Human Rights Watch, a pressure group.

A coalition of Uyghur groups has recommended ways to build on the report. It says the UN Human Rights Council, in session this month, should establish a commission of inquiry and that businesses should disengage from companies that support China's actions in Xinjiang. Governments, it says, should stop deporting Uyghurs and other minorities back to China. Ms Bachelet's office waited "far too long" to deliver its report, says Rushan Abbas, a Uyghur activist. Efforts to hold China accountable must catch up. ■



South African politics

Coalitions of the unwilling

BETHLEHEM AND JOHANNESBURG

The ANC is predicted to lose its parliamentary majority in 2024, ending three decades of dominance. Parties will have to team up to form a government

IN 2014 SILAS TSHABALALA received word that there was a home for him in a new public-housing scheme on the outskirts of Bethlehem, a town in the middle of South Africa. Eventually he sold enough scrap metal to pay to move his family from their slum. "I was very excited," he recalls, "but honestly speaking life has not improved." He points to a tap with no water, toilets that do not flush and an unfinished roof.

Like many projects ostensibly aimed at helping the poor, the housing scheme was a vehicle for corruption. In this case it allegedly involved Ace Magashule, the former secretary-general of the ruling African National Congress (ANC), who has denied any involvement in the project. In 2019, a year after Mr Magashule's patron, Jacob Zuma, was replaced as president by Cyril Ramaphosa, "the ANC came and told us things would improve," says Mr Tshabalala. "But nothing has changed." He has voted for the ANC since 1994, when black South Africans were enfranchised (pictured). And next time? "No. There is no value in voting for the ANC any more."

It is an increasingly common view.

Many signs are pointing towards the ruling party losing its majority at the general election in 2024. Under the country's system of proportional representation, that would mean a coalition government—and a new political era for sub-Saharan Africa's most industrialised country.

Opponents of the ANC often struggle to understand the ruling party's longevity. Is it nostalgic loyalty to its role in the anti-apartheid movement? Or perhaps patronage? Both matter. But the most important reason is that, for at least the first half of the ANC's 28-year reign, life got better for most South Africans. The poor got housing, running water and electricity. The murder rate—the best proxy for violent crime—fell from 1993 to 2011. Real incomes

rose for pretty much everyone.

Today unemployment is near a record high, at 34%. Over the past decade real incomes have grown only for the richest 5%. Public services are collapsing. There have been a record number of blackouts this year. The murder rate is approaching former highs. Corruption exploded under Mr Zuma. There is a pervasive sense that no one is in charge in South Africa.

Voters are rightly blaming the ruling party. At local elections last year the ANC's share of the vote fell below 50% for the first time in a nationwide ballot.

In the past, turnout for the ANC has always been higher in general elections than in local ones. But analysts reckon the end is nigh. "There is a psychological acceptance within the country that it's the end of the ANC as a single governing party," says William Gumede, a commentator. "The ANC will lose its majority nationally in 2024," predicts Sam Mkokeli, a veteran political journalist. "There's a 20% gap in the market," he adds, mostly among the black voters who have deserted the ANC.

Who will fill it? The second-largest party, the Democratic Alliance (DA), appears stuck at about a fifth of the vote. It does well among South Africa's minorities but poorly among the black majority that, perhaps unfairly, does not trust what many see as a "white party".

At the other end of the spectrum is the Economic Freedom Fighters (EFF). Founded by Julius Malema, a former ANC youth leader, the party is a mix of hard-leftism, ↗

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► black nationalism and rabble-rousing racism. It has been stuck at around 10% of the vote at the past two elections. "They don't have a brand that is materially different to the ANC," explains Ralph Mathekga, a political analyst. "It is still a faction of the ANC."

Some of the gap in the market will be filled by small parties appealing to ethnic identities, such as Inkatha Freedom Party, a Zulu-nationalist outfit. But a bigger gobbler of the ANC's vote may prove to be ActionsA, established in 2020 by Herman Mashaba, a haircare magnate turned politician. ActionsA won 16% of the vote in South Africa's largest city in 2021 and has performed strongly in by-elections. If the EFF espouses left-wing populism, Mr Mashaba's party is of the right-wing variety. It is more vocal about its leader's belief in God than many other parties in a devout country. Its support for tough measures against immigrants is popular.

Could there be a pragmatic alternative? Songezo Zibi, a former corporate executive and newspaper editor, whose NGO, Rivonia Circle, is set to morph into a presidential campaign, reckons so. The centre of South African politics, he argues, is "non-racial, but social-democratic", drawing an implicit distinction from the non-racial liberalism of the DA. But it is unclear whether there is room for a party appealing mainly to the professional classes.

The idea of coalitions fills some with dread. It could mean more mouths at the trough of corruption. Others are optimistic. Frans Cronje of the Social Research Foundation, a think-tank, argues that national politics will end up looking like that in Germany or Israel—an imperfect but pragmatic game of arm-twisting. South Africa, he points out, is "a country born of compromise", a reference to the negotiations that ended apartheid.

Ultimately electoral mathematics will determine the outcome. If the ANC were to fall marginally below 50%, it could cobble together a coalition with small parties, meaning that little would change. A larger deficit might mean the terrifying prospect of a deal with the EFF or the promising idea of a tie-up with the DA, which the DA's leader has openly suggested. It could also create the opportunity for a coalition of non-ANC parties, as is the case in the cities of Johannesburg and Pretoria.

Whatever the precise arrangement, South African politics is on the cusp of change. On July 21st Thabo Mbeki, president from 1999 to 2008, confessed that "there is no national plan to address the challenges of poverty, unemployment and inequality; it doesn't exist." He warned that, a year on from the worst civil unrest in the democratic era, the condition of the economy could "spark our own version of the Arab spring". It would be much better if revolution came via the ballot box. ■

Floods in west Africa

Underwater cities

DAKAR

Every year west African urbanites face a watery nightmare

"**I**T WAS A wave of water," says Oulimata Sambe. She points out the still-sodden armchairs, muddy wardrobe and the water stain a metre and a half up the wall in her small house in Ngor, a fishing village within Dakar, the capital of Senegal. "I had two grandkids on my bed, I had to evacuate them out of the window," she adds. Not far away, underpasses on Dakar's scenic corniche became car-swallowing lakes. Just weeks earlier another downpour had turned quiet streets in Dakar into raging rivers and collapsed a section of motorway.

Similar events regularly occur across the region. Recent flooding and landslides also killed eight people in Freetown, the capital of Sierra Leone. In June flooding killed 12 people in Abidjan, the commercial capital of Ivory Coast. Floods in Lagos, Nigeria's commercial capital, claimed another seven lives. Even when they are not deadly, city floods ruin lives and livelihoods. Storm water recently inundated the biggest textile market in Kano, a city in northern Nigeria, destroying hundreds of thousands of dollars' worth of fabrics.

Unusually heavy rains have become significantly more common over the past 30 years, leaving huge numbers of people at risk (see map). In places this is partly because of deforestation. A recent study by

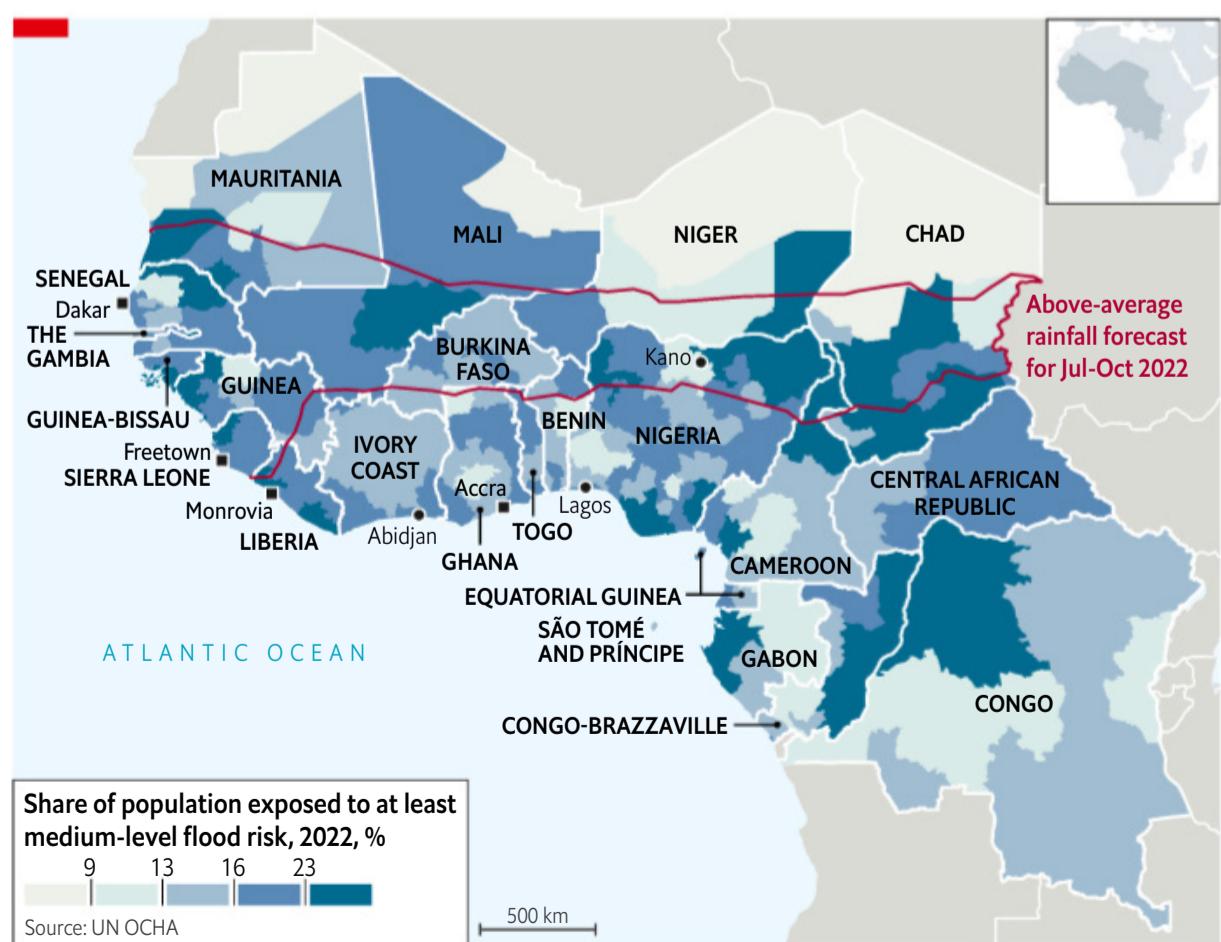
Christopher Taylor of the UK Centre for Ecology and Hydrology, a research institute, and his co-authors found that afternoon rainstorms in deforested parts of coastal west Africa happen twice as often compared with 30 years ago. Their frequency went up by only about a third in places that kept their forests.

Some of the most denuded—and thus drenched—places are coastal cities such as Freetown and Monrovia, the capital of Liberia. Yet areas deep inland are also at risk. Some 340,000 people have been hit by recent flooding in Chad. Worryingly, the Intergovernmental Panel on Climate Change (IPCC) predicts there will be heavier downfalls more often across most of Africa as the planet warms up.

Yet regular flooding of cities in west Africa is not only caused by heavier rain. Breakneck, unplanned urbanisation is also to blame. As cities have grown, builders have thrown up concrete walls haphazardly with little thought about providing drainage, making it harder for water to find a clear path to the sea. As ever larger areas have been paved over, there has been less exposed soil into which water can gently sink away. And as cities get more packed with new arrivals, their few functioning drains get overwhelmed or clogged.

Unplanned urbanisation can also put more people in harm's way. Fully 40% of the people who settled in the outskirts of Dakar between 1988 and 2008 made their homes in areas that are at significant risk of flooding or coastal erosion.

Untrammeled development is damaging urban forests and wetlands, too. Ordinarily they should help soak up water and reduce floods. In Freetown, some residents



► built on a hillside in a protected forest reserve, destabilising the soil. In 2017 it collapsed after three days of rain, killing more than 1,100 people. In Ghana, developers have encroached on perhaps 40% of the internationally recognised wetlands, including some protecting Accra, the capital.

Flooding imposes economic costs, as well as human ones. Even normal rain in Dakar creates a swampy gridlock across the city and badly slows business—apart from the few brave hawkers who wade between stationary cars selling their wares. The World Bank found that in 2017 flooding in coastal areas caused damage worth almost 3% of GDP in Ivory Coast and 1.4% in Senegal. One study found that families hit by natural disasters in Senegal were 25% more likely to fall into poverty.

"All our belongings are ruined," says Yaya, a mother of six whose one-room home in Dakar was recently swamped. She had to throw away the sodden mattress she shared with her children, which pushed her into debt. A new mattress cost 75,000 CFA francs (\$115), but she could only scrape together a third of that. "I will pay little by little," she explains. With interest, she will also pay more. Nearby Fatou surveys her small shop's once-prized fridge with dismay. "I bought it for 250,000 CFA," she says. "Now it's bust."

After brutal floods in 2012 President Macky Sall of Senegal announced a \$1.4bn ten-year flood-prevention plan. The government has built 43 pumping stations in Dakar and its surrounds and added new drainage canals, too. Accra launched a similar programme in 2019. In some parts of Dakar these efforts have helped. Yet in much of west Africa progress is slow. Informal settlements are often the most at risk, but governments do not always recognise them, which means they are less likely to help make them safer, says Jessica Troni of the UN Environment Programme.

Even in Senegal, some are asking questions about where exactly the flood-prevention money went. In 2016 a deputy minister in the responsible ministry admitted to the national assembly that she did not know how the funds were used. She was fired soon after.

In Ngor, many are dismissive of the response. "The government doesn't do anything," grumbles Abdoulaye, as he unloads tuna from his pirogue. "It's anarchy." Some think that the authorities have made the area more prone to flooding, because they directed storm water from other neighbourhoods upstream into a canal that passes through Ngor. Meanwhile, as they do every year, residents of Dakar mop up and struggle to carry on with their lives. Ms Sambe says someone from the local mayor's office came to visit and promised aid. Yet that was weeks ago. "They've done nothing," she says. ■



Mozambique

Preparing for a long fight

PEMBA

A brutal insurgency is proving more resilient than expected

MARTA FLICKS off the ants scurrying down her t-shirt. "Beheaded," she whispers, referring bleakly to her husband. They had been hiding in thick bush in northern Mozambique when they were stumbled upon by jihadists toting machetes who had previously pillaged their village. Back in December, Marta, 17 at the time, was blindfolded and marched along tracks to a secluded camp where her husband was then murdered. She was held captive, abused as a sex slave and traumatised. The jihadists cast her out of their camp, heavily pregnant, a few months ago.

She is one of thousands of victims of a jihadist insurgency that has been raging in earnest since 2017 in Cabo Delgado, the sorely neglected northernmost province of Mozambique (see map on next page). Locals call the jihadists al-Shabab, echoing the name of the guerrillas tied to al-Qaeda who have ravaged Somalia for the past 15 years. Mozambique's jihadists, however, claim a link to Islamic State (IS), a rival extremist movement, whose tentacles have spread from Afghanistan and Iraq across to the Sahel and down to eastern Congo.

At first Mozambique's jihadists hit dozens of towns and villages in Cabo Delgado's far north, gaining little attention abroad. Yet when they attacked Palma in early 2021 their shots echoed around the world. This was because the picturesque resort town had been steadily filling up with foreigners working on Africa's biggest energy project to exploit huge offshore gasfields.

Panicked, Mozambique asked for help

from Rwanda and the Southern African Development Community (SADC), a regional bloc. Both sent troops, who regained key towns and pushed rebels away from the area around Pemba, the provincial capital, and from the north coast where infrastructure is to be built to export gas. But the jihadists are far from defeated. Mozambique is in for a guerrilla war that could last years. That is making gas investors skittish.

ENI, an Italian gas firm, is pressing ahead with plans to extract and liquefy gas using offshore platforms that are well out of reach of the insurgents. But TotalEnergies, which had been working on a \$20bn onshore project, ceased work altogether last year. ExxonMobil, another energy firm, is dragging its heels on its own \$30bn liquefied natural gas project.

After a lull, violence has surged again. In June the northern province witnessed the highest number of attacks in two years, according Cabo Ligado, a monitoring project backed by the Armed Conflict Location & Event Data Project (ACLED), an NGO based in America that tracks political violence worldwide. The jihadists' area of operations has widened, too. They are reckoned to have killed more than 4,000 people since 2017 and have caused nearly 1m to flee their homes. Gaggles of women and children can be seen wandering along lonely roads towards the relative safety of Pemba. "This is an enormous humanitarian crisis," says Luis Montiel of Médecins Sans Frontières, an international NGO, lamenting that it is considered to be "no-►

► where near the premier league". "And we are nowhere near the end," he adds.

Pushed away from the gas infrastructure, the insurgents have spread south and west. Officials in Maputo, Mozambique's capital, say the jihadists are starving to death in the bush—and that their appearance in the southern parts of Cabo Delgado is a sign of weakness. "We have them on the run," says Brigadier Simon Barwabat-sile, the deputy commander of SADC's Mission in Mozambique, known by its acronym SAMIM. He notes that the rebels have been hard pressed in the Katupa forest north-west of Pemba. Hence some have moved farther south.

He may be too optimistic. "We can dispel the security forces' victory narrative," says Piers Pigou of the International Crisis Group, a think-tank. "It does look like we are in for a long fight."

"This has become a game of whack-a-mole," admits Nuno Lemos Pires, the Portuguese commander of the European Union's mission training Mozambican soldiers. The EU has earmarked €89m (\$89m) in security aid for Mozambique and is expected to provide an extra €20m or so to Rwanda and some €10m to SAMIM before the year's end. This cash will not last long. The Rwandans' deployment of around 2,000 troops may cost \$1m a day.

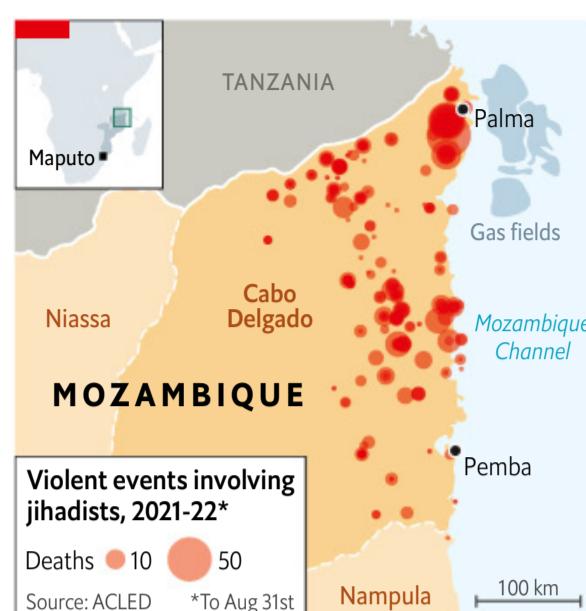
The insurgents, perhaps numbering only a few hundred hard-core fighters, have broken into smaller cells, enabling them to disperse. This may be because of pressure from SAMIM and Rwanda. But it may also be to widen their support-and-recruitment network. Groups of them have even made incursions farther south into the neighbouring province of Nampula.

Women like Marta who have been freed from slavery say they have seen their captors walking casually through Pemba. Others say that strange men wander into villages from the bush to buy and sell things—and to ask for directions. Locals suspect that some of the young men driving motorbike taxis across the province are raising funds for the rebels.

The circle of strife

Though al-Shabab's affiliation to IS was at first taken with a pinch of salt, it may be getting serious. In May IS declared that Mozambique was one of its provinces. There has been talk of men and materiel coming from eastern Congo, where IS has an active branch. Supplies certainly slip through from southern Tanzania. America says the Mozambican rebels are led by an elusive, iron-fisted figure known as Ibn Omar, who is also said to go by the nom-de-guerre of the King of the Jungle.

Troops from SAMIM and Rwanda are keeping the insurgents away from the main towns, but they do not completely control the roads, complains a business-



man who can no longer safely send lorries to buy cotton from farmers. The Rwandans are widely seen as Africa's leading bush-warfare experts. Yet they are in unfamiliar terrain and tend to stick to the roads in the safety of their armoured vehicles. A diplomat in Maputo worries they "have bitten off more than they can chew".

As SAMIM and Rwanda have moved forces to cover new areas the insurgents have spread to, the rebels have exposed the Mozambican army's feebleness, sometimes overrunning places that had previously been cleared by foreign troops. Mozambican soldiers, recruited mainly from the south, are barely able to communicate with the locals up north. "They are totally unable to hold territory," worries Tomas Queface of Cabo Ligado. "And the insurgents are taking advantage."

FRELIMO, the liberation movement that has ruled Mozambique since 1975, is much to blame for the disgruntlement of the northerners, who have suffered chronic neglect and poverty. Only the well-connected benefit from the riches of Cabo Delgado. Just 11% of people in the province are attached to the electricity grid; only a fifth have a mobile phone.

Mired in corruption scandals, the government is floundering. Hopes that it would try to ease discontent in Cabo Delgado with a new development strategy are fizzling. "They barely want to recognise that there are problems," says João Feijó at the Institute for the Rural Environment, a local NGO. "Nobody wants reforms." Nor, apparently, do the authorities want any scrutiny. During a four-week visit to Mozambique *The Economist* made many requests to speak to government and army officials. We did not receive a reply.

In Cabo Delgado, too, few people think that the government cares about protecting them. Amid the chaos spread by the insurgents, criminal gangs are now looting villages and attacking cars on the roads. "They forgot about us," spits a man sitting under a thatched roof. "And then they abandoned us to the bandits and the killers." ■

Energy in Egypt

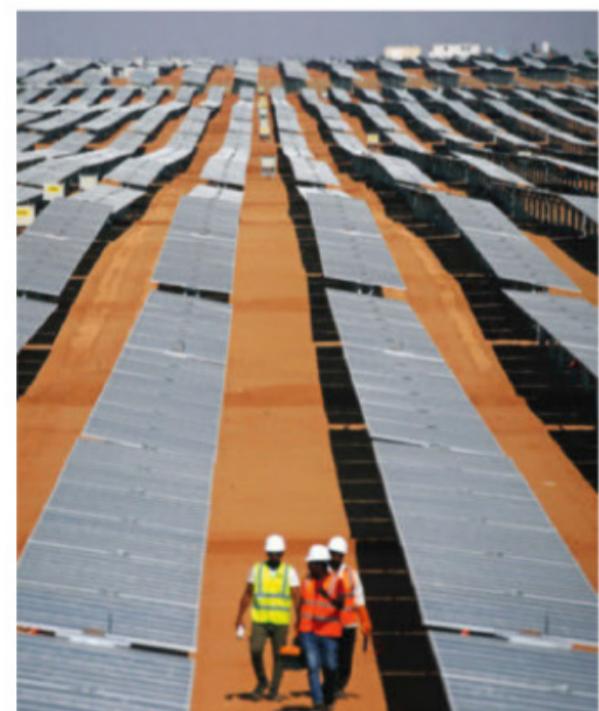
Why sun and wind need harnessing

CAIRO

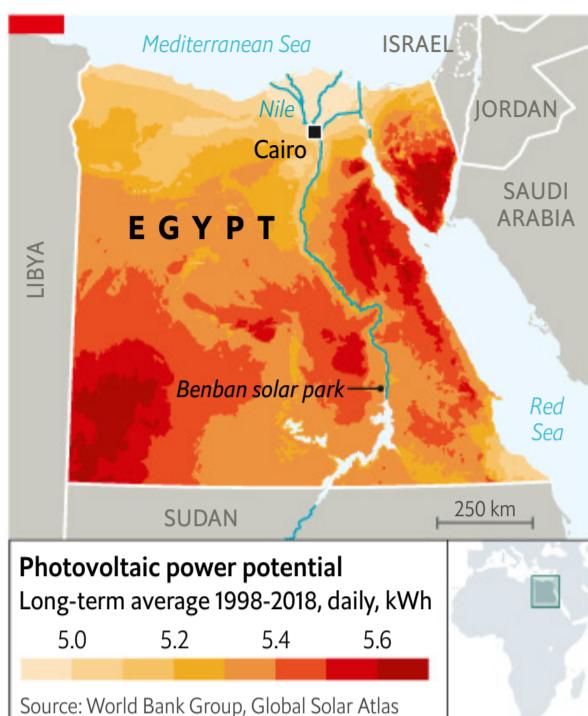
The government is keen on solar power but its citizens less so

FOR MOST of the year the sun bakes down from a cloudless sky over Egypt, making it an ideal place to generate solar power. And because many Egyptians have their air conditioning blasting in the heat of day, it provides power just when it is needed. The International Energy Agency (IEA) reckons Egypt is one of the world's best regions for solar. Some companies agree, having invested in projects such as the Benban solar park, one of the world's largest, 650km (400 miles) south of Cairo. Egypt's government has also tried to boost rooftop solar power by offering homeowners generous incentives. Yet even though Egypt will host this year's international summit on climate change, its dirtier sources of energy continue to overshadow the solar sort.

In 2016 Egypt set a target of producing 20% of its electricity from renewable sources by 2020, with most of the new capacity coming from sun and wind. But in the 12 months to March 2021 renewables including hydro accounted for just 12%, with solar power contributing under 3% of Egypt's electricity. Renewable energy has struggled to keep pace with the massive increase in demand for electricity from a growing population (now around 105m). The IEA reckons Egypt's electricity consumption has risen almost threefold in the past two decades. Yet for most of that period until 2017 its solar-power capacity hardly went up, whereas there was a three-fold jump in its use of natural gas, which it would far rather export now at high prices. ►



Banking on Benban



▶ Egypt's government has found it hard to convince its citizens of the merits of installing their own solar power. In 2014 it introduced a "feed-in" tariff, promising to pay homeowners and companies for surplus solar power they produce. Yet eight years later only a paltry 749 rooftop solar units have been installed.

Ayman al-Nahhas, a 58-year-old teacher in a village north of Cairo, leapt at the chance to reduce what he called "panic-provoking" electricity bills of about 5,000 Egyptian pounds (\$260) a month on an apartment building and workshop he owns. The 200,000 pounds he spent was an excellent financial decision, he says. It also put an end to the frequent blackouts he used to suffer.

But the upfront expense deters many. A solar unit able to produce enough power for a family of five costs roughly 65,000 pounds, says Wael al-Nashar, chair of Oneira Systems, which installs rooftop units. "Such figures are beyond most Egyptians," he says. A weakening local currency puts imported units even further out of reach.

Red tape is yet another barrier. People applying for the government's permission to install the panels and connect them to the national grid must fully own their properties and be certified to have no outstanding planning snags. Such conditions rule out millions of buildings. It can cost thousands of pounds to get the right bit of paper. Moreover, some 20m people live in greater Cairo, most of them in apartments where they do not have their own space on the roof to put up solar panels.

Incentives for reform are weak because Egypt has a surplus of generating capacity from gas-fired power stations. Still, those with the cash to embrace clean energy rarely look back. Power cuts at Mousa el-Zantti's vegetable shop frequently meant that his produce rotted. He had to sell his wife's gold to raise the cash for solar panels. "But they saved my livelihood," he says. ■

Iraq's political crisis

Militias amok

AMMAN

Despite his vanishing act, Muqtada al-Sadr has never been more present

RELIGIOUS SHIA leaders have long recognised the power of vanishing. Their greatest Imam, Muhammad the Mahdi ("messiah"), disappeared in 873. Yet more than a millennium on, he is a potent symbol that inspires believers to challenge oppressors. Muqtada al-Sadr, a rabble-rousing Iraqi cleric and politician, appears to be following suit. On August 29th he announced his "final withdrawal" from politics after months of deadlock since the general election last year. Far from signalling that he was quitting, though, his announcement was a clarion call for his followers to take to the streets.

Protesters swiftly overran parliament, then fanned out across the "international zone", Iraq's fortified seat of government in central Baghdad that is still commonly known as the Green Zone. They stormed government offices and splashed in the Green Zone's palatial pools. They tore down the icons of their Iranian-backed political opponents, the Co-ordination Framework (CF), including the portraits of its patron, Qassem Suleimani, an Iranian general who was killed in an American airstrike in 2020.

Violence broke out when Mr Sadr's supporters attempted to march on the home of one of the CF's leaders, a former prime minister, Nuri al-Maliki. At that point CF militias opened fire, prompting Mr Sadr's supporters to send in their own armed group, Saraya Salam, whose men arrived with rocket-propelled grenades. A night of pitched battles in and around the Green Zone followed that left at least 30 people dead and hundreds injured.

Mr Sadr's chief grievance is an election that was stolen well after the votes had been counted. His party, Saïroun, was the front-runner with 22% of the seats. Although he draws support mainly among Shias, Iraq's biggest sect, he cobbled together a coalition that included Sunnis and Kurds, the two other major groups in Iraq.

But when he seemed to have a parliamentary majority that would allow him to form a government, the CF, a bloc of Iranian-backed Shia parties, staged a "judicial coup", according to Michael Knights, an Iraq expert at the Washington Institute, an American think-tank. Iraq's federal court "moved the goalposts as the ball was about to cross the goal line" by ruling that Mr Sadr needed the votes of two-thirds of MPs to elect a new president, not a simple ma-

jority as is usually the case, Mr Knights notes. The court also ruled that the Kurdish regional government had to hand control of its oil exports to the federal government, in a move that appears to have been aimed at punishing Kurdish parties for supporting Mr Sadr's coalition.

An outraged Mr Sadr pulled his MPs from parliament. Under Iraqi law this meant ceding their seats to the runners-up from each district, which gave the CF a majority and allowed it to try to form a government of its own. To prevent this Mr Sadr sent in the mob to occupy parliament in July. They soon settled in for a prolonged sit-in protest to demand fresh elections. Their numbers were swelled in early August when thousands came to a mass prayer inside the Green Zone.

For now, the rival militias have pulled back from the brink. Fear of an intra-Shia civil war has had a calming effect. After two days out of sight, Mr Sadr appeared on social media to order his forces to retreat from the Green Zone. In return, some suspect he has secured the CF's approval of his preferred choice of prime minister. Others think that all sides are merely mustering allies for the battle to come. For Iran, Iraq is an important doorway into the region. It will not readily abandon its allies. Mr Sadr, too, wants reinforcements from his Arab allies in the Gulf, Saudi Arabia and the United Arab Emirates.

Absent from the fray are the actors who once kept a lid on Iraq's politics. Without Suleimani's towering presence, Iraq's Shia factions are squabbling. America has tired of babysitting the country that has cost it more than 4,400 lives and hundreds of billions of dollars. The democratic institutions it created—an elected parliament, federal court, and prime minister—are becoming playthings of Shia militias. The real disappearing act may not be Mr Sadr's, but that of hope in a democratic Iraq. ■



Pool protest party



The Ukraine war

The game's afoot

KYIV

Ukraine begins a long-awaited counter-offensive in the south

IN AUGUST 2014 Ukraine's army suffered one of the greatest reverses in the country's independent history. Ukrainian soldiers found themselves besieged by Russian-backed forces in Ilovaisk, a town in eastern Donetsk province. As they tried to escape, at least 366 of them were killed in what many Ukrainians describe as a massacre. The historical resonance of that episode will certainly not have been lost on the Ukrainian generals who unleashed a counter-offensive against Russia in southern Kherson province on August 29th, eight years later to the day.

The initial news of an attack came in the early afternoon, with reports that the first line of Russian defences north of Kherson city had been breached. One Ukrainian unit said it had pushed back pro-Russian troops north-east of Kherson city after supposedly elite Russian paratroopers in the second echelon, to the rear, failed to support them and fled. A spokesman for Ukraine's southern command confirmed only that the army had begun "offensive actions in several directions in the south". The deputy head of the neighbouring

Odessa military district, however, was more explicit. "The battle for Kherson [city] has begun," he wrote.

A source in Ukrainian military intelligence described the breakthrough to *The Economist* in less excitable terms. It was, he said, merely the prelude to a larger operation. It had been made possible by an under-reported offensive in the east of the country on the border between Donetsk and Luhansk provinces, which had taken six villages and successfully diverted Russian aviation and air-defence resources. On the night of August 28th Ukraine turned its attention back to the south, striking key bridges, ammunition dumps and Russian

command points. That meant that when Ukrainian artillery and aircraft then attacked the front lines, the Russian side was unable to call on support or co-ordination. "When we stormed them," said the intelligence official, "they ran."

The source said that Ukrainian forces would still need to penetrate a second line of defence, manned by tougher mechanised units, in order to reach the banks of the Dnieper river north-east of Kherson city. The current Ukrainian ground attacks appear to be aimed at driving a wedge through the estimated 20,000-25,000 Russian troops who are thought to be deployed on the river's west bank.

If the northern grouping could be trapped in a pocket—a cluster of forces isolated from supplies and other units—then 10,000-12,000 Russians would have little obvious chance to retreat. In an evening address on August 29th Volodymyr Zelensky, Ukraine's president, said the Russian soldiers had a simple choice: "If they want to survive, it is time...to flee."

A former senior Ukrainian official said the immediate aim of the operation was not to attack Russian forces in Kherson city directly, but to weaken Russian positions around it in the hope of forcing them to withdraw without a destructive urban battle. "If we just take Kherson," he said, "they will shell us and the city from the other side of the river." The former official predicted that the offensive would continue without hurry or excessive risk-taking.

Western officials agreed that the attacks ➤

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were “shaping” operations—military parlance for preliminary attacks intended to soften up enemy defences before an offensive. What is notable, though, is that they did not just involve strikes on rear areas, like ammunition depots and headquarters. The Ukrainian military source confirmed that it was the first time that American-supplied HIMARS missiles had been used in a tactical battlefield situation, striking infantry and other front-line positions. That suggests that Ukraine is confident of receiving a fresh supply of ammunition from its partners.

The coming days are crucial. Ukraine’s front-line troops will be vulnerable as Russia tries to contain the advance. This is presumably one reason why Ukrainian officials have imposed a news blackout. On August 30th Russia’s defence ministry claimed the Ukrainian side had already lost 1,200 men in the push. A Ukrainian forward-reconnaissance officer fighting in northern Kherson province acknowledged that the fighting was “tough” with real losses, but “nowhere near that order”. On August 31st British military intelligence said that Ukraine had “pushed the front line back some distance in places”.

If Ukraine were able to recapture Kherson city, it would reshape the military geography of southern Ukraine, blocking Russia’s overland path to Black Sea ports like Odessa and potentially threatening supply lines out of occupied Crimea. The first phase of this war ended with Russia’s ignominious retreat from Kyiv and northern Ukraine at the beginning of April. The second culminated with Russia’s capture of the city of Severodonetsk in Luhansk province in late June. The front lines have barely moved in the two months since. If indeed Ukraine has found a chink in Russia’s armour, it could mark the beginning of the war’s third chapter. ■



Italy

Taking the fight to the next level

ROME

A tough anti-mafia prosecutor looks set to enter parliament

LAW-AND-ORDER candidates do not come to the hustings with greater credibility than Federico Cafiero de Raho. Until earlier this year the 69-year-old Neapolitan was Italy’s chief anti-mafia prosecutor. Yet Mr Cafiero de Raho is not running in the general election on September 25th for either of the hard-right parties that look set for government—the Brothers of Italy and the Northern League, whose leaders stridently, and daily, inveigh against criminality, but relentlessly link it to immigration.

He is standing for the idiosyncratic Five Star Movement (M5S), heading its list of candidates for the Chamber of Deputies in two regions: Emilia-Romagna and Calabria, homeland of the 'Ndrangheta, the most globally pervasive of Italy’s four main organised-crime syndicates. (Italian law lets candidates stand in more than one constituency.) Another prominent former anti-mafia prosecutor, Roberto Scarpinato, is on the M5S’ slate for the Senate in Calabria and Sicily, birthplace of Cosa Nostra.

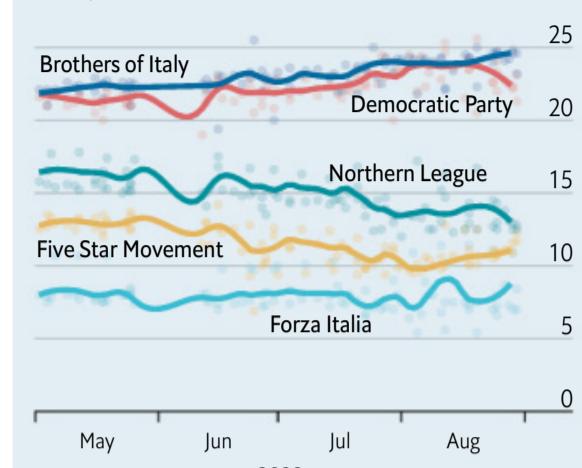
Disastrously amateurish at times, wracked by internal division and with less than a third of the support it enjoyed at the last election, the M5S nevertheless has an admirable record on organised crime. Its 2018-19 governing coalition with the League, in which the Five Stars were senior partners, introduced two laws that bolstered the fight against corruption and stiffened the penalties for political collaboration with organised criminals. More recently, the M5S has been at the forefront of efforts to prevent mafia trials, which are often immensely complex, from becoming subject to time limits.

The issues of corruption and the mafias have become entwined as never before as Cosa Nostra and the 'Ndrangheta in particular have become more sophisticated. “The mafiosi no longer rely on violence or intimidation to obtain political acquiescence,” notes the candidate, who says the Five Stars are the only party tackling the matter. “They have made such prodigious amounts of money from trafficking narcotics that they can buy it.” Vittoria Baldino, in second place behind Mr Cafiero de Raho on the Five Stars’ slate in Calabria, says the same is true of business. “The mafias have become more innovative. Their infiltration of the legitimate economy is a major obstacle to the development of Calabria and the entire country.”

The scion of a noble family, Mr Cafiero

Right on top

Italy, voting intention in general election, %
Main parties

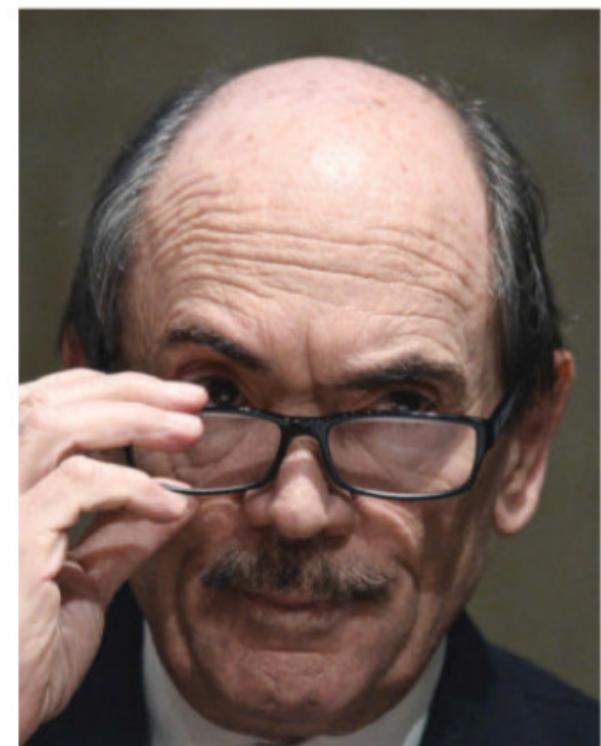


Source: National polls

*DUMMY DATA May-Aug22

de Raho led for the prosecution in one of the biggest trials mounted against a cartel: the previously almost unknown Casalesi clan, an offshoot of the Neapolitan Camorra. It took 42 hearings just to read the charge sheet, and by the time the last appeal was heard in 2010, 12 years had passed.

Mr Cafiero de Raho goes everywhere with a police escort these days. Will that not hamper his campaign? He says he will probably not hold rallies, but was hoping to meet voters in factories, social centres, voluntary associations and similar, smaller forums. The former anti-mafia chief is virtually assured of a seat, even if the M5S gets no more than the 10% that recent polls have given it. Once in parliament, he plans to use his experience and authority, built up over 43 years as a prosecutor, to press for further changes in the law. He already has plans for an amendment that would give protection to politicians and businesspeople who come under pressure from organised criminals. “I shall not be holding back,” he warns. ■



Not backing down

Spain

Only yes is yes

MADRID

The home of machismo gets an affirmative-consent law

THEY CALLED their chat group “the pack”, the five men who raped an 18-year-old woman in a doorway during the San Fermín festival in Pamplona in 2016. They even filmed their crime. But a court in Navarre found them guilty only of “sexual abuse”, a charge well below rape. The judges found that the victim had not physically resisted, and therefore the violence or threat that must accompany the crime was absent. An appeals court agreed.

Only after an uproar were the men found guilty of rape by Spain’s supreme court. But the tumult did not subside, and the slogan “No means no” gave way to a new one: *Solo sí es sí*, “only yes is yes”. Now Spain’s parliament has passed a new law with that at its core: sex without clear consent in word or deed would count as the serious crime of sexual aggression or rape.

Spain joins more than a dozen European countries with affirmative-consent laws. Evidence indicates that they make a difference in reports, charges and convictions. In the first year (2021) of Denmark’s consent law, for example, the number of rape charges brought by police grew by 56%, and those brought to the next stage by prosecutors more than doubled. That is partly because it is easier for a victim to argue that she could not consent (because of shock, say, or a spiked drink) than that she was physically incapable of resistance. But Gyrithe Ulrich, a senior prosecutor, told Denmark’s state broadcaster that fears of kangaroo courts and easy convictions are overblown. The Danish conviction rate in completed rape trials is 60%; for other crimes it is 90%. She reckons that nothing (including the new law) will bring the rape conviction rate that high.

As important as achieving convictions, advocates say, is giving victims a quicker path to recovery. Those who report their rapes to police are also more likely to tell friends and family, get counselling, deal with shame and trauma, and finally return to their personal lives and careers.

That such a law has been passed in the land that gave the world the word machismo should not, in fact, be a surprise. Emilio Lamo, a sociologist, argues that Spain quickly jumped “from the rearguard to the avant-garde” in social affairs, for example being one of the first countries to allow gay marriage. This week the cabinet also considered a law liberalising abortion. It would eliminate three-day waiting periods, allow

16- and 17-year-olds access without parental permission and ensure that no parts of the country are without abortion providers. (Many now are, because of conscience clauses for doctors who object to abortion.) But not everyone in a once heavily Catholic and conservative country has gone along happily with these rapid changes.

Today’s government includes the centre-left Socialists and far-left Podemos. The consent law is the brainchild of Podemos’s Irene Montero, the equality minister, a hate-figure to those on the right. They are correct to spot sweeping ambition in the law, which goes well beyond rape. It bans sharing of someone else’s sexual pictures or videos without consent, and advertising of prostitution. It offers income support to women out of work or on re-

duced hours because of sexual violence, which can force them to move home or hide. And it will bolster consent-based sex education at all schooling levels.

The new law also criminalises street harassment. It is likely to hit few perpetrators (it is hard to identify a passing harasser), but is symbolic. A deputy for Vox, a right-wing party, said in May that she would miss the tradition of come-ons like “Tell me your name so I can ask for you for Christmas,” thanks to legislators with “hate for beauty, and for men”. In reply, many women shared stories of frightening street encounters. Spaniards are likely to find that the culture—and the judges—that initially let “the pack” off so lightly will change more slowly than the hard right fears, or than the radical left would like. ■

Summer sun

Sober business

MAGALUF

New plans for a noisy Spanish island

SUMMER FLIGHTS to Majorca often crackle with the sound of beer cans being opened. Visitors to the sunny Spanish island commonly plan to drink until they drop. But Majorca’s authorities, and many of its residents, grow ever more tired of *turismo de borrachera* (drunken tourism), the kind that leaves beaches strewn with rubbish and pavements splattered with vomit. Over the years they have brewed endless plans to clean things up.

The most recent new rules dictate that all-inclusive resorts in the noisiest swathes of the island may provide guests with no more than six drinks a day—three of them at lunchtime, and a maximum of three at night. Revellers in the

affected zones, which include Magaluf, Majorca’s grimmest party town, have had to say *adiós* to organised pub crawls and happy-hour drinks deals. Bacchants can still snap up bevies at supermarkets, but stores are no longer entitled to sell alcohol after 9:30pm. Businesses which break the rules risk fines of up to €600,000 (\$613,000).

These draconian regulations in fact came into effect in 2020, but until now have largely flown under the radar because of quieter-than-normal tourist seasons resulting from the pandemic. How far they are reckoned to have irked tourists this year is therefore an important test. Many locals, at least, seem relieved. It is “about time”, says one.

Yet attracting a mellower type of tourist will require much more than just prohibitions. Last year Magaluf, famous for its cavernous nightclubs, launched an annual literary festival. Irvine Welsh, author of “Trainspotting”, showed up. This season the city is promoting a weekend “hippy market” (akin to a car-boot sale, but for bohemians). This looks a lot like an effort to replicate similar bazaars on the somewhat more fashionable island of Ibiza, which attract thousands of free spirits every year.

Majorca has long thirsted for a better class of layabout. When it opened in 1903 the Gran Hotel, a modernist mansion in the heart of Palma, the capital, promised rich loafers comforts unattainable anywhere else on the island. It closed decades ago. Perhaps the latest projects will do a more lasting job of getting Majorca’s seediest spots smartened up.



A spirited retreat

Ukrainians in Poland

Here to stay?

PRZEMYSŁ

As the war drags on, a generous welcome grows more strained

FOR REFUGEES, putting down roots can feel like a betrayal. Many Ukrainians who fled to Poland after Russia invaded their country hesitated to place their children in Polish schools, hoping to return home soon. But Liliya Lysyk enrolled her 15-year-old daughter Yeva immediately after arriving in March in the border city of Przemysł. Yeva has learned Polish and likes her school, apart from one awkward moment. "My history teacher said Lviv [the biggest city in western Ukraine] should have been a Polish city," says Yeva. "He is a good teacher, but we agreed to disagree."

Yeva's classroom dispute hints at the problems that are arising as it becomes clear that many refugees have come permanently. No one is sure how many there are; estimates run from about 2m to 3.5m. Poland has been very generous, granting Ukrainians the right to work, to attend school and to receive social benefits. Most Poles see Ukraine as a brother nation with a similar language and culture. A recent poll showed 84% favour letting refugees in.

But as the war drags on, strains are emerging. Poland's schools, hospitals and housing market are struggling to accommodate the refugees. Other issues run deeper. Although Poles and Ukrainians are friends now, for centuries they were bitter rivals. In 1943 Ukrainian nationalists massacred 100,000 Poles. After the war both Poland and the Soviet Union (which included Ukraine) expelled each other's citizens. Today's refugees are determined to remain Ukrainian, but modern Poland is ethnically homogeneous and unused to large minorities. Now that is changing.

Poland's education system is bearing the brunt. Some 180,000 Ukrainian children were in Polish schools as of late June. (The rest study remotely at schools in Ukraine.) As parents get used to the idea of staying longer, far more are expected to enrol in Polish schools in September. With children making up over 40% of Ukrainian refugees, the numbers could be huge.

Yeva is lucky: at her school 30% of the classes are taught in Ukrainian. This curriculum, a partnership between the Polish and Ukrainian education ministries, has expanded to hundreds of schools. But it can absorb only a fraction of new arrivals. Meanwhile Ukraine's government would rather not too many Ukrainian children enter Polish schools, for fear their parents will not return to rebuild the country.



Language is only one barrier. Literature classes deal overwhelmingly with Polish writers. History classes concentrate on Poland's struggles with Russia, Germany and Austria-Hungary, which carved it up in the 18th and 20th centuries. "Our teaching is very focused on the state," says Aleksandr Pawlicki, a history teacher at Warsaw University's education school. Ukraine, a nation that long lacked a formal state, gets "lost between Poland and Russia".

Mixed-up history

Nationalism in both Poles and Ukrainians emerged among intermingled peoples, so one country's heroes are often the other's villains. Many Ukrainians trace their history to the Cossack hetmanate, an association of fiercely independent warrior-farmers in what is now eastern Ukraine and southern Russia. Most celebrate Bogdan Khmelnitsky, a Cossack leader who led uprisings against Russia and Poland in the 17th century. Poles tend to consider Khmel-



nitsky a brute, recalling his Cossacks' massacres of Poles and Jews. The template was established by "With Fire and Sword", a 19th-century novel set during the uprising that pits a savage Cossack against a refined Polish nobleman for a princess's love.

The countries' 20th-century history is just as fraught. After the first world war Poland got back its independence along with much of what is now Ukraine, including Lviv. But Ukraine was brutally absorbed into the Soviet Union. Some later Ukrainian nationalists, including the best-known, Stepan Bandera, are generally seen as fascists. In 1943, as the Red Army rolled back the Nazis, his Organisation of Ukrainian Nationalists launched an ethnic-cleansing campaign to secure what is now western Ukraine in any postwar settlement. Some 100,000 Poles were murdered.

Ukraine has never properly acknowledged the massacres, and since its independence in 1991 many Ukrainians have grown up revering Bandera. This has little influence on Ukrainian politics, where far-right groups are marginal. But it creates problems for mixed classes of Polish and Ukrainian students. "I try to teach the debate," says Jacek Staniszewski, a teacher.

Most refugees are less worried about history than about jobs. Poland's robust labour market helps: the unemployment rate is just 2.5%. The shortage of workers has grown more acute as many Ukrainian men who worked in Poland before the war have gone home to fight. Yet by June, just 185,000 Ukrainians had taken up formal employment using a new streamlined permit system. Over 90% of the refugees are women and children, and childcare for working mothers is in short supply. Only about 5% say they speak good Polish, according to a report by Poland's central bank, consigning many to jobs for which they are overqualified. Ukrainian mothers can draw child benefits, but these provide only 500 zlotys (\$106) a month per child. In July Poland cut back its stipends for those hosting refugees. Hosts are growing increasingly weary, says Agnieszka Kosowicz of Forum Migracyjne, a Polish NGO.

One risk, says Paweł Kaczmarczyk, head of migration studies at Warsaw University, is "compassion fatigue". He bemoans the government's failure to communicate a coherent integration strategy or to publicly promote the positive economic effects of Ukrainian immigration. A deeper issue is whether Poland can adapt to being a multi-ethnic society again, as it was for centuries before the second world war. A report by WiseEuropa, a think-tank in Warsaw, calls for a "governmental programme of multicultural management". Poland's current government is known for its vociferous nationalism. It has welcomed Ukrainians wholeheartedly, but embracing multiculturalism may be a stretch. ■

Charlemagne | Digital overreach?

The EU leads the world in making rules for big tech. Enforcing them is another matter altogether



A GLOBAL SATELLITE system that doubles as a universal translator. A pope who uses it to broadcast a message of peace in many different languages simultaneously in the hope of preventing the world from fragmenting. If critics paid any attention when “Vatican III” was published in 1985, they dismissed the novel by Thierry Breton, now the European Union’s commissioner for the internal market, as a literary vanity project typical of ambitious French leaders. Yet “Vatican III” seems prescient today. Although the European Commission, the EU’s executive branch, may not be building a virtual equivalent of the Tower of Babel, Mr Breton and other Eurocrats do want to spread their own digital gospel universally and cement the EU’s role as the world’s digital über-regulator.

The telecoms-cum-computer contraption in Mr Breton’s novel ultimately proves to be a success. Whether the same will be said about the EU’s evangelical digital rulemaking is another question. The EU may have passed, or at least drafted, the world’s most important digital laws. But now it faces the considerably more difficult task of enforcing them. As if to mark this new phase, the commission on September 1st opened an office in San Francisco—an embassy of sorts to work with Silicon Valley firms.

The EU did not seek the role of global digital regulator, but was sucked into it by a phenomenon called the “Brussels Effect”, after the title of a book by Anu Bradford of Columbia Law School, which makes the EU the world’s regulator by default. America is too politically paralysed to play this role; China disqualifies itself by its authoritarian bent. In Brussels, by contrast, the power of lobbyists is more limited and mandarins tend to know their dossiers; this often results in regulations on which other countries can build. As for global companies, they have no choice but to comply if they hope to sell into one of the biggest digital markets.

So far the symbol of the EU’s rulemaking power in tech has been the General Data Protection Regulation, or GDPR. This privacy law requires, among many other things, that individuals give explicit consent before their data can be processed. Enforceable since May 2018, it has taken the world by storm. Graham Greenleaf of the University of New South Wales says nearly 160 countries have adopted legislation “influenced substantially” by it. A pair of other laws, however, which the European Parliament passed in

early July, are likely to rival it: the Digital Services Act and the Digital Markets Act, which will start entering into force next year. The DSA deals with such issues as hate speech, illegal goods and advertising. The DMA defines a new category of dominant “gatekeeper” platforms mostly run by America’s tech titans—and prohibits them from engaging in practices deemed uncompetitive, such as giving preference to their own services or blocking their instant-messaging services from interoperating with rivals.

Yet the GDPR has already shown how difficult it is to make such digital rules stick. Enforcement has been slow, at least when measured in fines. Since 2018 penalties have amounted to nearly €1.7bn (\$1.7bn) in about 1,200 cases, according to CMS, a law firm. Although the cumulative fines meted out to the regulation’s main targets, America’s tech titans—Alphabet, Amazon, Apple, Meta and Microsoft—reached a hefty €1.3bn, this is less than a thousandth of what they collectively made in sales last year.

The main reason for this relative leniency is the way the EU has set up enforcement. Cases that cross borders are handled by the data-protection authority in the country in which a firm is based. This should make Ireland’s Data Protection Commission the EU’s most powerful privacy watchdog: all of big tech’s European headquarters bar Amazon’s are based in the Emerald Isle. Yet to the dismay of privacy advocates, the country has proved to be a bottleneck. It does not have enough resources and is unsure how aggressively it should go after firms which provide a lot of local jobs and tax revenues. To avoid the same regulatory logjam with the new DMA and DSA, the commission has now given itself the role of enforcer. It has already started building what will amount to a new industry watchdog. It will eventually boast some 220 civil servants, contract workers and national experts. It will have its own financing, through a levy on the firms it regulates, and a bespoke software platform to keep track of cases.

“We are ready,” Mr Breton recently claimed in a blog post. Observers are not so sure. Even if the set-up functions as planned, its regulators have their work cut out. They will probably have only a dozen firms to oversee. But assuming that the big gatekeepers have to comply with all the DMA’s 21 obligations, there will be just 0.7 staff for each obligation and gatekeeper firm, calculate Christophe Carugati and Catarina Martins of Bruegel, a think-tank based in Brussels. Such a ratio may be enough if the companies play ball. But in contrast to the GDPR, many of the DMA’s obligations go to the core of their business models.

Then again...

If enforcement of the DMA and DSA turns out to be too weak, Brussels could face growing competition from Britain and the Beltway. In the case of the GDPR, some countries have already started diverging from its path. Britain is working on a lighter-weight version. America’s often dysfunctional Congress may soon manage to pass a federal privacy law, the American Data Privacy and Protection Act, which improves on the GDPR. In its current form, it would hold bosses personally responsible for privacy violations.

All of which suggests that the premise of both Mr Breton’s book and the so-called Brussels Effect may be wrong. A central actor, however well placed, cannot unify the digital realm. Instead, a different assertion in Mr Breton’s novel may hold true: that digital technology will lead to fragmentation of the world into what he calls “logical continents”. For a detailed explanation of what might be done about that, interested readers may have to wait until he leaves Europe’s capital, giving him time to write another novel. ■



Green and fettered land

Britain can't build

Why the country struggles to create enough homes, roads, reservoirs and power stations

BRITAIN'S GROWTH CRISIS



DUNCAN SANDYS, a Conservative minister in the 1950s and 1960s, has two reasons to be remembered. The first is that he was the "headless man" being fellated by the Duchess of Argyll in a Polaroid photo, which emerged in divorce proceedings so vicious that they were turned into a BBC One drama earlier this year.

The second reason is less salacious. In 1955 Sandys issued a circular that fundamentally changed Britain. It implored local councils to forbid building on the edge of cities in order "a) to check the further growth of a large built-up area; b) to prevent neighbouring towns from merging into one another; or c) to preserve the special character of a town". The authorities had tried to restrict urban growth since the reign of Elizabeth I. Now they could.

Today all four nations of the United Kingdom have green belts. About 13% of

England is so designated, including the surroundings of every major city. The girdle that encloses London is three times the size of the capital. A stroll through it takes in scrubland, pony paddocks and petrol stations. In "The Blunders of our Governments", a book by Anthony King and Ivor Crewe, the policy is held up as a rare example of legislation achieving exactly what was intended.

The green belts do their jobs well, pushing development into the rural areas between them (see maps). Indeed, most parts of the planning system work as intended. Councillors retain democratic control over the planning system. Environmental watchdogs enforce their mandates fiercely. Stringent rules protect bats, squirrels and rare fungi. Courts ensure that procedures are followed to the letter. But the system as a whole is a failure. Britain cannot build.

In total, about 10% of GDP is spent on building, compared with a G7 average of 12%. England has 434 dwellings per 1,000 people, whereas France has 590, according to the OECD, a club of mostly rich countries. There is little slack in the market. In

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France, about 8% of dwellings are vacant at any one time. In England, the rate is barely 1%. Britain also struggles to build reservoirs and (despite boasts from successive prime ministers) nuclear power stations. With almost 500,000 people, Leeds is the largest city in Europe without a mass transit system. What has gone wrong?

The problem starts with the Town and Country Planning Act, which nationalised the right to build on land. Where once owners could do almost as they pleased, after its passage in 1947, local councils controlled what was built where. They have never relinquished that power. The planning system has more in common with an old eastern European command economy than a functioning market, argues Anthony Breach of Centre for Cities, a think-tank. "We do not have a planning system, we have a rationing system," he says.

Even when councils approve development, other outfits can stop it. Natural England was created in 2006 with the aim of protecting flora and fauna. After a European Court of Justice ruling in 2018, it was tasked with ensuring "nutrient neutrality", meaning any development could not increase phosphate or nitrate pollution in rivers. Natural England came up with a blunt solution: building could not go ahead unless developers could prove it would not lead to an increase in nutrient levels, a stipulation that few could provide.

The result was a near total freeze on house-building. Local politicians and developers, who had spent years in painful ↗

► negotiations, were caught out. In total, about 14% of England's land faced extra restrictions. One industry group argues that 120,000 houses were affected, or 40% of Britain's annual housing target. Liz Truss, the likely next prime minister, has promised to scrap the requirement, but details are scant.

Newts present as many problems as nutrients. Anyone who harms a great crested newt while building can be jailed for up to six months. Bats are a nightmare for anyone renovating or developing (enterprising NIMBYs sometimes install bat boxes in order to attract them to a potential site). Protected under law, it is a crime to harm a bat or destroy its roost. A full report, which involves ecologists scouring a property with bat-hunting microphones plugged into iPhones, can cost £5,000 (\$5,800).

If a roost must be destroyed, a like-for-like replacement must be installed. HS2, a railway line, was forced to build a £40m bat tunnel to stop the creatures being squished; its route is lined with bat-houses, which are large enough for humans. For developers, the rules are an expensive annoyance. For bats, however, the legislation has been a success. Numbers of the common pipistrelle have almost doubled since records began in 1999.

Some schemes do not survive contact with environmental objections. A planned nuclear power station in north Wales was rejected by the planning inspectorate in 2019 partly on the ground that it might affect a local population of terns. Inspectors ruled that "it cannot be demonstrated beyond reasonable scientific doubt that the tern colony would not abandon Cemlyn Bay". That the terns had existed next to a previous nuclear power station was little defence. Inspectors also worried about the effect construction would have on the dominance of the Welsh language.

Even small housing estates now require reams of impact assessments and consultations. A planning application used to involve a single thick folder, says Paul Smith, the managing director of Strategic Land

Group, which helps customers win planning permission. Now it is a thicket of PDFs, often running to thousands of pages.

For a development of 350 houses in Staffordshire, a developer had to provide a statement of community involvement, a topographical survey, an archaeological report, an ecology appraisal, a newt survey, a bat survey, a barn owl survey, a geotechnical investigation to determine if the ground was contaminated, a landscape and visual impact assessment, a tree survey, a development framework plan, a transport statement, a design and access statement, a noise assessment, an air quality assessment, a flood risk assessment, a health impact assessment and an education impacts report. These are individually justifiable, yet collectively intolerable.

See you in court

Make an error, however, and a legal challenge will follow. Anyone affected by a decision and able to afford a judicial review can challenge a planning decision. For a group of motivated, well-off NIMBYs, whipping together £20,000 for a review is easy enough. In Bethnal Green, in east London, a mulberry tree blocked the conversion of a Victorian hospital into 291 flats. Dame Judi Dench, an actor, was roped in to support the tree, which was so frail it required support from a post haphazardly nailed onto one of its branches.

After a campaign, the mulberry was in 2018 designated a veteran tree, which gives it special legal rights. (The number of signatories to save the tree matched the then population of Bethnal Green.) Although the developer had proposed moving the plant, a judge ruled that the council had not properly considered the danger that it might not survive: "A policy was misinterpreted; a material consideration was ignored." The site sits derelict today.

Councils behave rationally when it comes to development. They levy no income tax or sales tax, and cannot even fund all their operations from property taxes, known as council tax. In all, local

government imposes taxes worth less than 2% of GDP, according to the OECD. So more development does not equal much more money for better services. But it does equal more complaints. Councillors often enjoy majorities of just a few dozen votes. A well-organised campaign can replace an entire council, as happened in Uttlesford, in Essex. The result is that local councils are "a bottleneck on national economic growth", argues a joint paper by the Centre for Cities and the Resolution Foundation.

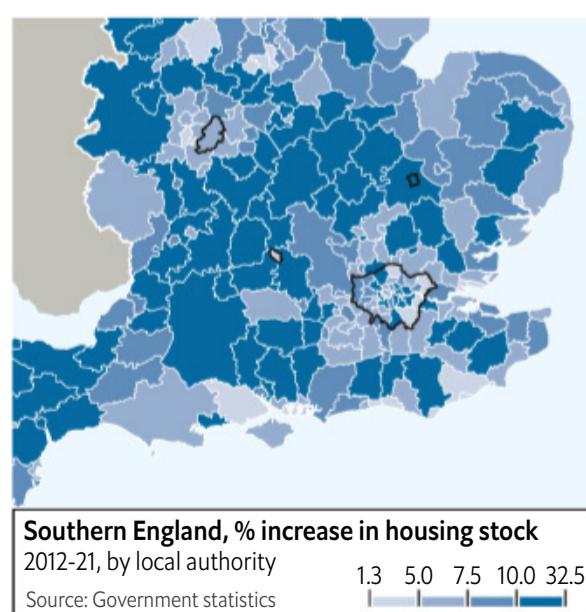
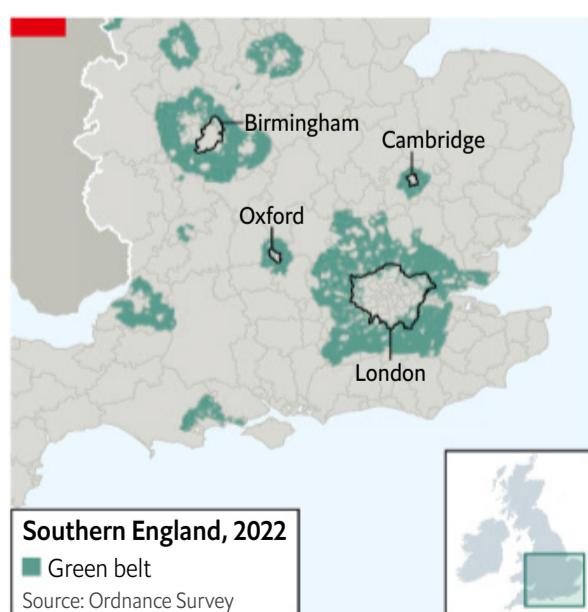
The government in Westminster can usually override local objections. "When the state decides to act, it has unlimited power," says Andrew Adonis, a Labour peer, who oversaw the introduction of HS2. Projects such as hybrid bills allow the government to bypass the planning system, turning Parliament into a kind of planning committee. The process is so arduous that sitting on the committee is often a form of punishment from the whips who enforce party discipline. But the benefit is that courts do not challenge primary legislation. Judicial review claims bounced off HS2 like stones off a tank.

Even when the government acts, it is often cautious. A plan to turn a quarry in Kent into a settlement of 15,000 homes was one of the most ambitious schemes, when announced by George Osborne, the then-chancellor, in 2014. Yet it is around a seventh of the size of Milton Keynes, a maligned but highly successful new town begun in the 1960s.

Larger schemes, such as a push for a million homes stretching between Oxford and Cambridge, with a new railway and motorway linking them, have been ditched due to local opposition. "We were a bit out of puff," admits a cabinet minister. Greg Smith, a Tory MP, had already put up with HS2 slicing through his constituency, and it seemed unfair to subject him to more building. In Britain, pork barrel politics works in reverse, with MPs keen to keep things out of their constituencies.

As a result, Britain's most productive region is shackled. Burgeoning life-sciences firms fight for scarce lab and office space while world-class researchers live in cramped, expensive homes. The average house price in Oxford, £474,000, is about 12 times average incomes. Given the opposition of local councils and local MPs to housebuilding, though, it can hardly be said to be against voters' will.

Britain is rare in that the Treasury functions as both a finance ministry, keeping a close eye on spending, and an economic ministry, investing for the future. Thriftiness tends to trump investment. "[The Treasury] can add up but they can't multiply" as Diane Coyle, an economist, puts it. It shackles big infrastructure projects, balking at upfront costs even if there are large returns later on.



The result is false economies. HS2, a £100bn project to connect London to Birmingham and then Manchester, Sheffield and Leeds, was intended mostly to add capacity to Britain's crowded railways, not (despite the name) to speed journeys up. The government recently cut the eastern leg of the scheme to save money. That it was the most beneficial part of the scheme—the eastern leg to Leeds and Sheffield had a benefit-to-cost ratio of nearly 5.6:1, compared with 2.6:1 on the western leg between London, Birmingham and Manchester—was overlooked. Joseph Bazalgette, the Victorian responsible for London's sewer system, is said to have argued that: "We're only going to do this once and there's always the unforeseen". Now, the opposite principle applies.

Political capital is less fungible than the financial kind. When it comes to building things in Britain, there is usually no alternative scheme ready to go. If a big project is scrapped, the political capital spent on forcing through its approval cannot be instantly reallocated. The slow process of winning support at a local and national level must start anew. In the meantime, nothing is built.

And Westminster can be capricious. In 2022, after years of argument, Transport for London won permission to build 351 flats on land it owned at Cockfosters Underground station. Grant Shapps, the transport secretary, blocked the development because it removed too many car parking spaces. The Leeds Supertram Act was passed in 1993. Three decades later, Leeds possesses no tram, super or not, as a series of governments refused to fund the project. In 2016 the government rejected a proposal for a trolleybus, in part because it did not think the route would reduce inequality within the city.

Scepticism among NIMBYs is often justified. Post-war town planners botched city centres, bulldozing through objections. Birmingham's Victorian centre was carved up to make way for ring roads that still throttle the city. London narrowly avoided a similar fate. New developments, such as Nine Elms, manage to be expensive while looking cheap. Outside big cities, development is often limited to boxy housing estates, which are notorious for poor building quality. A Welsh property surveyor has amassed 560,000 followers on TikTok by angrily taking viewers through snags in newbuilds. ("Check out what this absolute melt has done with this hinge," he almost screams in one video. "That is absolutely ridiculous.")

In Oxfordshire a group of residents have spent almost a quarter of a century fighting attempts to build a reservoir. The Environment Agency and a public inquiry sided with the residents over Thames Water. The objectors are shrewd, motivated

and well-versed in water regulation. The chairman of the Group Against Reservoir Development (GARD) is a retired nuclear scientist; his predecessor was a brigadier. But after a summer of drought, in which Thames Water had to implement a hosepipe ban, the victory rings a little hollow.

Efforts are being made to convert the unbelievers. New planning legislation offers residents the chance to propose their own development and, in effect, approve it themselves via street votes. The government is trying to improve design standards, hoping that beautiful buildings will attract less opposition. Those who put up with infrastructure, whether wind turbines or a reservoir, may benefit from free energy or water bills under one scheme floated by ministers.

Officials are also toying with a net-zero

trump card. Projects deemed crucial to making Britain emissions neutral by 2050 would be able to ride roughshod over many obstacles. At the moment policy aimed at protecting the environment hinders projects that should help the climate. The government protects flora and fauna because voters want it; circumventing such rules can only be done in the name of the environment, runs the logic.

Building is binary, however. If something is built, those who oppose it will be unhappy; if it is scrapped they will be delighted. There is little incentive to meet halfway, or to accept a payoff. "This is not some sort of poker game where we demand huge compensation," said Derek Stork, who chairs the reservoir-killing GARD. Britain cannot build. But that is just the way voters want it. ■

Environmental protests

Glue sticks

Green groups have become expert at paralysing infrastructure

GLUEING YOURSELF to a motorway is a good way to protest, explains a facilitator for Extinction Rebellion, an environmental group, during an online training session. So is locking onto a building or climbing a structure of bamboo poles. All are time-consuming to deal with safely. "It keeps us there, longer, in the public eye," the facilitator says.

Extinction Rebellion became well-known in April 2019, when thousands of demonstrators blocked bridges and roads. The group hopes to repeat that performance with a three-day demonstration in central London starting on September 10th. But its techniques, and those of other environmental activists,

are changing.

Using lots of bodies to block roads has become more difficult. The covid-19 pandemic curtailed large protests, and Extinction Rebellion's following may have diminished, says Graeme Hayes of Aston University—though he adds that the upcoming demonstration could reverse that. Smaller groups, such as Insulate Britain, have shown the disruptive potential of "glueing-on" and tunnelling under construction projects.

The goal of all such tactics is to agitate the public, which will then (in theory) nudge politicians to pursue ambitious policies. Extinction Rebellion's initial protests may have drawn people's attention to climate change. But more drastic actions might be too irritating. More than a third of Britons say policing of public demonstrations is not strict enough. A new bill would criminalise locking on or obstructing major transport works, or even carrying equipment to do such things.

Environmental protests certainly make building and running infrastructure harder. In July authorities closed part of the M25 motorway for six hours to remove protesters from the gantries. John Groves, the chief security and resilience officer for the HS2 railway, told lawmakers in June that protesters had cost the project £126m (\$147m) in delays, mostly by tunnelling under the route. Extinction Rebellion promises showy tactics to cap off the London protest. New joiners should leave promptly, the group says, unless they fancy being arrested.



The height of fashion



School meals

Food for thought

SOBRAL, BRAZIL

Should every schoolchild eat free?

BEFORE THE pandemic a quarter of pupils in Capistrano Unified, a sprawling school district south of Los Angeles, were eligible to receive free lunch and breakfast. But when classrooms closed the number eating that grub fell sharply, even though staff handed out frozen meals in school car parks and delivered food by school bus, says Kristin Hilleman, who manages its school canteens. At the lowest point just 1% of the district's pupils were eating the meals her team provides.

Since schools have fully reopened, however, she has faced challenges of a different kind. By the time schools broke up earlier this summer, the number of pupils taking lunch in her cafeterias was about 50% higher than it was before the pandemic. The number coming for breakfast had doubled. Ms Hilleman has been thinking about investing in new freezers to store the extra meals that her district's central kitchen now produces. The space she has is "bursting at the seams".

Such stories are one result of an unplanned national experiment. Soon after America's schools closed in 2020, the fed-

eral government suspended the means-testing that determines which children may eat at its expense. That in effect made school meals free for every child. This temporary move aimed to cut formalities that risked keeping meals from being doled out during the pandemic. Starting last month, schools in most of the country have had to begin charging richer pupils once again. Yet lawmakers in Maine and in California—Ms Hilleman's home state—have found cash to replace the federal money that is disappearing. This year they have become the first American states to make school meals permanently free for all.

Disasters have often prompted expansions of school-meal programmes. After the financial crisis of 2008, in particular, countries all around the world sought to expand them as a way of bolstering social safety-nets. The closure of classrooms during the pandemic has again drawn attention to schools' role in providing nutrition; in all kinds of places, new spending is being mulled. Research strongly suggests that expanding meal programmes in the poorest countries—where coverage is low

and hunger is widespread—could transform the prospects of millions of youngsters. There is thinner evidence that new splurges in rich countries, such as on universal schemes, would have a large positive effect.

About 390m schoolchildren benefit from a school-food scheme of some sort, reckons the World Food Programme (WFP), a UN agency. That sum is equal to about half of all children of primary age. Programmes differ greatly. Brazil, Estonia, Finland and Sweden are among the countries that provide nosh free to all pupils. Lunches in England are free to all children in their first three years of school, but only to around 20% of pupils at later stages.

China's programme feeds around one-quarter of pupils. Rather than sprinkling free meals among the poorest children in every school, as is common in richer countries, it identifies the poorest bits of the countryside and funds meals for everyone who attends the schools within them. India dishes up more free meals than anywhere else. Its "Mid-Day Meal Scheme" feeds at least 90m children.

Brazil's programme, which reaches about 40m, is a distant second. But it is more generous, feeding children as young as six months. At a secondary school in Sobral, a town in Brazil's baking north-east, servers heap mounds of chicken and rice onto metal trays clutched by teenagers. Pop music echoes around the cafeteria, which is open to the playground. Teachers and pupils eat together, perched on yellow

► chairs at red tables. The headmaster, Carlos Augusto Pinto de Sousa, says that sharing food encourages respect.

The biggest void is in poor countries, where fewer than 20% of all primary and secondary pupils may be benefiting from a meal in school, according to a survey carried out by the Global Child Nutrition Foundation, an NGO. Reducing the lifelong burden of malnutrition is not the only good that would come from swiftly expanding coverage in these places. Systems that are created to deliver meals often end up also being used to deliver tasty bonuses, such as eye tests and dental checks.

Free school meals can nourish minds as well as bodies, in three ways. First, in countries where many children are hungry, they create a huge incentive to show up to school. Research from Burkina Faso and Kenya, among other places, shows that providing meals increases attendance where it is low.

Second, adequate food is essential for brain development. This includes essential micronutrients, which can be added to school meals. Third, children who have been fed find it easier to concentrate, so they learn more when they show up. Emerging evidence finds that school meals can indeed have this effect.

Offering meals makes it less likely that hungry children (or those who have gorged on sugary snacks brought from home) will disrupt lessons. Providing meals is also an important step towards lengthening school days, which in much of the world end at lunchtime. A recent study in Ghana found that providing school meals there pushed up literacy and numeracy scores, and that the improvements for girls were particularly large.

The pandemic has made it urgent to help schoolchildren in the developing countries that are home to 90% of the world's children. The World Bank estimates that before the crisis about half of ten-year-olds in such places could not read and understand a simple story, and that share could have risen to two-thirds.

The main obstacle to free lunches is the price. The World Food Programme estimates that supplying them in low-income countries costs about \$55 per pupil per year. However, median government spending on education in such places is only about \$70 in total for each primary-school child (see chart).

Foreign aid often helps. But divisions among donors can complicate fundraising, says Donald Bundy of the London School of Hygiene and Tropical Medicine. Donors who support nutrition often prefer to spend on preschoolers. Those keen to improve education tend to think that paying for food is not part of their job.

Biniam Bedasso of the Centre for Global Development, a think-tank, says it is worth

digging deep. He says that in poor countries providing meals may be a more reliable way of driving up school results than mounting campaigns that are more directly designed to improve lessons (even though these usually look a lot cheaper). That is because projects such as retraining teachers, and making sure they stick with new practices, are easy to mess up. By contrast, even weak governments can usually find someone who can slop beans and rice on a plate.

In rich countries, where most of the poorer children already benefit from free school meals, the trade-offs are different. The cost of expansion is less prohibitive: one guess is that making meals free for all American children would require another \$11bn annually. That would push up the country's total spending on schools by about 1.5%. The question in these places is therefore whether, if such money were to be found, it would not be better spent improving the quality of the food offered to the poorest children—or on other interventions that might help pupils who are falling behind.

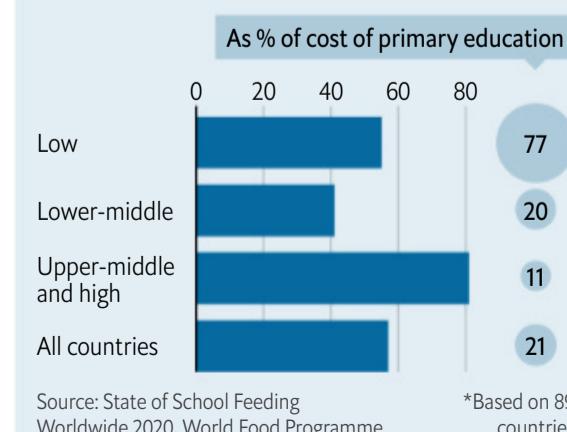
Cheat on this

Fans of universal-meal programmes argue that offering food to everyone can sweep away barriers that prevent lots of needy children from benefiting from existing schemes. The rules used for means-testing inevitably contain loopholes and flaws. Some pupils end up going hungry because parents fail to fill out nosy forms. And some poorer children choose not to eat their free meal, both because doing so can attract stigma and because queuing at a cafeteria can mean spending lunchtime away from their friends.

Nudging more children towards school meals could hold down obesity rates. A survey in England found that dishes provided by schools are healthier than 98% of packed lunches. Encouraging children to chomp fruit and vegetables when they are little might instil good habits that last them a lifetime.

Clever sausage

Median yearly cost of school meals per child*
By country income group, 2020, \$



A study of universal free meals in Sweden, which were rolled out region-by-region in the 1960s, found that both rich and poor children benefited. Children who ate free during their primary-school years earned on average 3% more over their lifetimes than those who did not. The impact was greatest for the poorest children, but even those from wealthy families saw a bump. In England, the introduction in 2014 of free school meals for all children in their first three years of school helped limit rates of overweight and obesity.

Yet some other studies underwhelm. In England the share of older children choosing to eat free meals they were entitled to fell after food was made free to all infants. That could be because an influx of little children slowed service for other pupils by jamming canteens. A recent review of literature examining universal-meal schemes that already exist in some American cities found "limited but promising" evidence that they improved pupils' weight and behaviour, but only "mixed evidence" of increased test scores or attendance.

Investments over the next few years will produce more data to chew on, both from rich countries and poor ones. In 2021 the governments of France, Finland and about 60 other countries agreed to participate in a "School Meals Coalition" supported by the WFP. Its members promise joint efforts to improve and extend school-meal programmes. They have pledged to find ways to reach a further 73m of the world's poorest children by 2030, most of them in sub-Saharan Africa. This coalition could probably not have been created without the shock of covid-19, says Mr Bundy.

Since the pandemic started Rwanda has promised to increase five-fold the number of pupils getting meals in its schools. New Zealand, which until 2020 had no school-meal programme, is expanding a pilot scheme quicker than planned. In England a campaign led during lockdowns by Marcus Rashford, a footballer at Manchester United, has bounced the British government into making more food available during holidays. Scotland's government says all primary-age children will be eating lunch free in a few years.

Campaigners in the United States may have failed to persuade the federal government to let its experiment with universal free meals run indefinitely, but other state governments could yet join California and Maine in finding cash to feed all children for good. Ms Hilleman's cafeterias still suffer problems stoked by the pandemic. Her district, like many others, is struggling to find enough staff and to secure some types of food. But she believes that making meals free for everyone has made it less likely that children who choose to eat them will suffer stigma as a result. She says that feels like "a huge win". ■



Cloud computing

Margin brawl

SAN FRANCISCO

The cloud-computing giants are battling to protect fat margins

WHEN CHIEF executives ring the closing bell at the Nasdaq stock exchange in New York, it is usually because their firm has just gone public. When Adam Selipsky did so on June 27th, he was celebrating a tie-up with the bourse. He is the boss of Amazon Web Services (AWS), the tech giant's cloud-computing arm, and the deal is part of the exchange's shift of its stock-markets to AWS's cloud. Tailored features include data transfer with minimal delay, which should please high-frequency traders. Nasdaq's customers will be able to use AWS's advanced analytics tools, such as machine learning (ML), through the stock exchange's platform.

The deal, first announced last November, came weeks after Alphabet, Google's parent company, unveiled a similar tie-up between GCP, its cloud offering, and CME, one of the world's biggest derivatives exchanges. A day before that deal was struck Microsoft Azure announced the rollout of its financial-services cloud. Clients include Morgan Stanley and HSBC, two banks. Not-so-big tech is wading in, too: IBM and Oracle also offer financial clouds.

Competition in the cloud is billowing. Alphabet, Amazon and Microsoft have together invested almost \$120bn in the past 12 months, most of it in data centres and the servers that power them. Amazon and Microsoft have seen their capital expenditure as a share of revenue rise by almost five percentage points in the past five years to 13% (see chart 1 on next page). Customers, increasingly irked by sky-high bills, are opting for more than one cloud service for fear of lock-in. "It's not a winner-take-all market," says an executive at a big cloud provider. Tech giants are battling to gain the upper hand.

All this should be putting pressure on stratospheric profits. AWS accounts for three-quarters of Amazon's operating in-

come. Before this year's tech-stock slump some analysts reckoned it could become a \$1trn firm if spun out. Microsoft's Azure is thought to be just as profitable. Google, by contrast, is taking a hit as it tries to gain market share. It racked up \$3.3bn in cloud-related operating losses over the past 12 months, around 1% of Alphabet's revenue.

For now there is little sign of a margin squeeze. On July 28th AWS reported an operating margin of 29%, four times that of Amazon's retail business. Azure's margins, which Microsoft does not reveal, are believed to be steady, too. Google's cloud segment cut its operating losses from 16% of revenue in the previous quarter to 14%.

A combination of a fast-growing industry, hardware improvements and barriers to switching providers explains why margins have been elevated. But some of these factors are transient. The cloud giants are therefore preparing for a squeeze by trying to sell higher-margin software and by making their services even stickier. The result could be a vast cloud market offering a range of new capabilities to customers.

Cloud computing, still in its early days, is growing rapidly. AWS created the industry in 2006 as a way to make money from its excess storage capacity by offering to host other companies' data. GCP joined the fray two years later, followed by Azure in 2010. Partly because it moved first, AWS has 34% of the cloud-infrastructure market, still the largest share (see chart 2), according to data from Synergy Research Group. But Azure and GCP have made gains.

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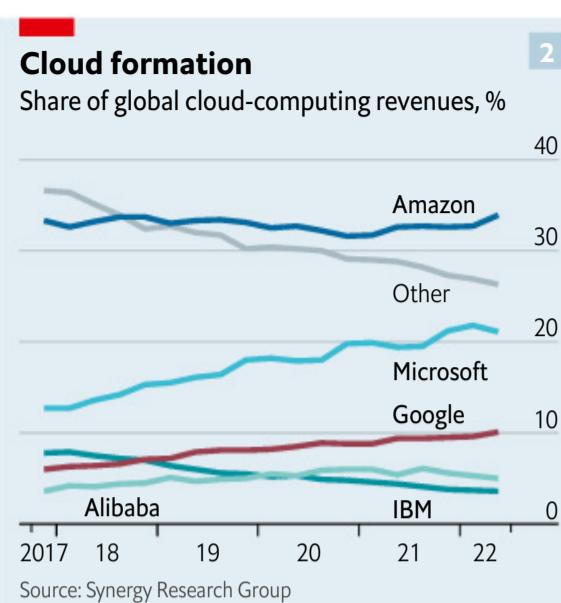
This year global sales from the entire industry are forecast to surpass \$495bn, according to Gartner, a research firm. That includes an ecosystem of firms selling services on top of or related to the cloud, such as Okta, a maker of authentication software, and MongoDB, a database firm. It could grow to more than \$1trn by 2030. Today only 30% of enterprise workloads—applications, software programs or work that would have been run on a local server—have been shifted to the cloud.

Revenues of the big three “hyperscalers” are still growing at a decent clip. Last quarter AWS’s sales grew by 33% compared with the same quarter a year ago. Azure and GCP managed 40% and 36% respectively. Amazon and Google both have a backlog of multi-year contracts that are yet to be reported as sales of \$100bn and \$50bn respectively. (Microsoft does not publish this number.) Such growth has meant less pressure on margins.

The firms have also managed to cut the costs of hardware by making better use of old machines. Servers need to be upgraded less frequently than first thought, making clouds cheaper to run. The three tech giants have announced extensions to their average server lifetime from three to four years. On July 28th Microsoft went one better and said that it was extending it to six years, saving the firm about \$4bn in 2023. AWS is still running some of the servers it bought in 2006.

Taking chip design in-house has cut the costs of hardware by winning back margin from chip suppliers. AWS’s Graviton chips, designed by a team it acquired in 2015, lead the market. Google offers Tensor Processing Units, designed to boost ML capabilities, among other silicon. Microsoft is said to be trying to develop custom chips, too. In January it poached one of Apple’s top chip designers. Even as costs have fallen, prices have not followed suit, keeping margins high.

Margins are also protected by the fact that few companies have moved workloads from cloud to cloud. David Linthicum



cum of Deloitte, a consultancy, says firms like to have the ability to switch but have rarely done so. One reason is that the benefit may be small, while costs can be prohibitive. Hyperscalers charge “egress” fees for moving data out of their cloud.

Another barrier to switching has been that cloud providers tend to cater to different markets. AWS started as a service for developers and many of its clients are tech startups. Microsoft, by contrast, is more focused on large organisations. It uses its long-established enterprise-software business to cross-sell Azure. Like AWS, GCP’s customers are more often tech startups, partly because of its reputation for use of advanced technologies, though it also bundles cloud services with its advertising and productivity offerings for big customers.

The worry now for cloud providers, however, is that the factors that supported margins are starting to give way. The hyperscalers are increasingly hunting on each others’ turf. AWS and GCP are hiring ever bigger sales teams to help target large businesses. Microsoft is trying to increase its appeal to techies. It offers free Azure services to startups, including some provided by Github, a system for tracking changes in software code, which Microsoft acquired in 2018.

Egress fees may be falling, too. AWS cut some in December. Big customers are said to be able to negotiate discounts, sometimes forcing the tech giants to waive them completely. Costs may start to climb as the limits on extending server life are reached. And, crucially, growth will slow as the industry matures. One executive says that he expects competition to push margins down in the medium term. He also thinks that there is room for more competitors further up the “tech stack”.

Faced with the prospect of dwindling margins, the hyperscalers are trying to move up the tech stack themselves. One promising area is building software that runs on top of their servers for specific industries. Selling software is more profitable than selling hardware, because costs

are lower and scaling easier. And software can be stickier too: it is easier for a hospital to change its data-storage providers than the providers of its health-records database. The trend is showing up in hiring, say executive recruiters. Amazon, Microsoft and Google have been busy hiring bosses from various industries with the aim of selling cloud services back to the sorts of business they came from.

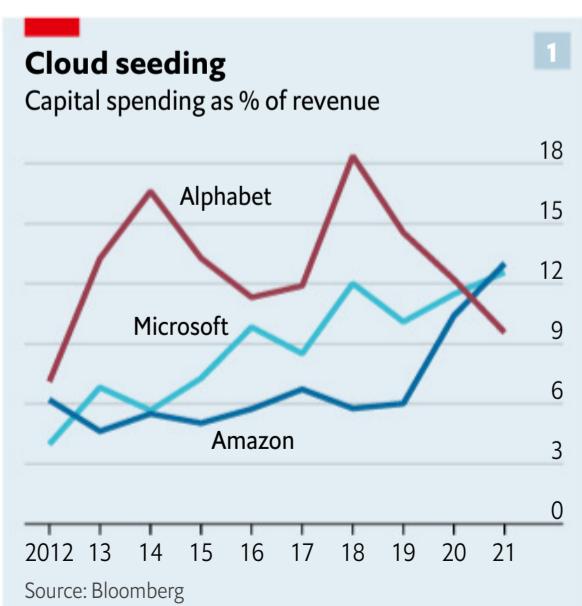
The cloud providers offer software for a range of organisations, from gaming firms and government to finance, as the AWS-Nasdaq deal demonstrates. They are buying their way into a health-care cloud, too. In 2021 Microsoft announced the acquisition of Nuance, a health-care cloud provider, for \$20bn. In June AWS invested in Oben Health and PeerCapsule, two health startups. The same month Oracle closed a \$28bn deal to buy Cerner, which develops electronic health-record software.

Another draw is high-end analytics, using techniques such as artificial intelligence (AI) and ML. Microsoft offers 26 such services, Amazon 25 and Google 12. Customers can analyse video images, convert speech to text and receive recommendations for improving their code. Google and Microsoft have invested heavily in quantum computing. The idea is to sell something that is difficult to replace, making switching harder. “The AI and ML offerings are all unique. They are done in radically different ways,” notes Mark Moerdler of Bernstein, a broker.

The shift towards software may not necessarily prove a huge success for cloud providers. Regulators are unlikely to look kindly at big tech’s attempts to dominate cloud-based IT services. And plenty of firms, such as Databricks and Snowflake, already sell cloud-based software. Customers will probably balk at being locked into a tech giant’s software services, much as they do with storage services.

Even so, the push shows where the cloud industry could go. Firms first adopted cloud computing to gain flexibility and to cut spending on data centres. Now advanced analytics that sit on top of the cloud could offer customers new capabilities. Grocery stores use AI and video cameras to know when to restock shelves; Cirque du Soleil uses similar technology to analyse the emotional reactions of its audience when performers undertake death-defying stunts. Such new ML capabilities, delivered by the cloud at lower prices and combined with more data, greatly expand the upper bound of the cloud-computing market, notes Keith Weiss of Morgan Stanley.

These are the types of things that Satya Nadella, the boss of Microsoft, is referring to when he says that IT’s share of GDP could double in a decade. If true, then dominance of the cloud market is worth fighting for. And the war is only just getting started. ■



Source: Bloomberg



Business in India

The AA economy

MUNDRA

Gautam Adani and Mukesh Ambani vie for the commanding heights of their country's economy

FROM THE PIER at Mundra, the biggest private port in India, it is possible, on a clear day, to spot the world's largest oil refinery, 50km south across the Gulf of Kutch. In the early 1990s both sites in the state of Gujarat were malarial swamps and farmland. Today they are monuments to India's economic promise—and to the tycoons who built them. Gautam Adani and Mukesh Ambani, both billionaires, have in recent years become the best-known faces of Indian business. To supporters, they are patriotic nation-builders, using their sway and resources to further India's economic progress. To critics they are only in it for themselves. Their motivation seems to lie somewhere in between.

The duo's rising influence over Indian business is undisputed. Many observers now talk of the "AA economy". That is an exaggeration, but the combined revenues of the companies controlled by Messrs Adani and Ambani are equivalent to 4% of India's GDP. They are also responsible for 25% of the capital spending of listed non-financial firms at a time when overall investment has been subdued. "Never have we walked away from investing in India, never have we slowed our investments," asserted Mr Adani at the annual meeting of his group on July 26th. Not to be outdone, Mr Ambani, at his own annual meeting on August 29th, pledged to double the size of Reliance, the conglomerate that he runs,

adding "patriotism inspires and energises everything we do."

They play such an important part in India's economic development because they have succeeded where others in the country have all too often failed, by creating businesses that are both large and fast-growing. Under Mr Ambani's stewardship Reliance, founded by his father, Dhirubhai, has gone from dealing in petrochemicals and refining to encompass retail, telecoms and renewable energy.

Mr Adani's operation is more speculative and generates modest cashflows but he has progressed in a decade from a small office in Mumbai to an empire of ports, airports and energy utilities spread across seven public companies and various private ventures. The two men's publicly listed companies are worth a combined \$452bn, up from a collective valuation of \$112bn four years ago.

Both have amassed considerable wealth along the way. Over the past four years their personal fortunes have swelled four-fold, according to Hurun India, a research firm, from \$65bn to \$237bn combined (see chart 1). Mr Adani is now reckoned to be the world's third-richest man behind Elon Musk and Jeff Bezos.

Much can be attributed to the fact that their vast ambitions fit with those of India's prime minister, Narendra Modi, for the country's economic development. The

government still oversees hundreds of state-controlled companies but confidence has long since disappeared in their ability to spur growth. Instead, for the economy's commanding heights, heavy industry and infrastructure, the government's hopes increasingly rest on a handful of private firms which appear able to handle India's debilitating red tape and erratic allocation of projects. Both men have so far been able to navigate the country's treacherous judicial and political currents.

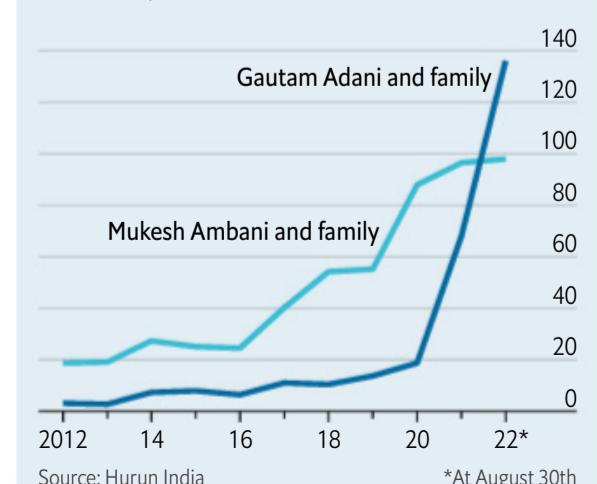
Yet there are strong arguments that they are not merely favoured industrialists collecting rents. Their desire to invest appears to have little regard for profits. Reliance hasn't generated a return on capital in excess of 10% in a decade. Only two of Mr Adani's listed companies do better and both are ventures with foreign firms: Adani Wilmar, a food processor co-owned with a Singaporean firm (which returns 15%), and a natural-gas distribution business held jointly with Total, a French energy giant (which returns 19%).

That urge to invest is bringing the firms into closer competition. Perhaps that is unsurprising. Reliance and the Adani Group share many characteristics. The founders of each were born in the north-western state of Gujarat, as was Mr Modi, whose own ascent was tied to the state's impressive record of economic growth during his time as chief minister. Both firms have grown largely by building dominant positions in existing industries then moving into related areas. Thus they have become interwoven with, and vital to, India's economy—and Mr Modi's vision.

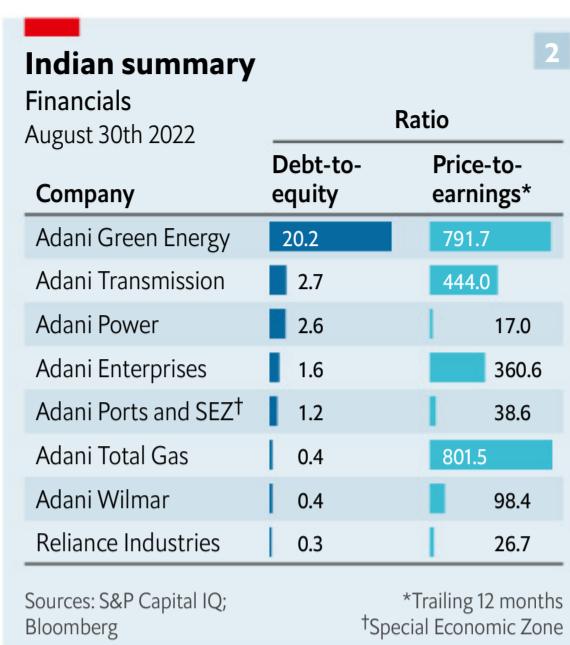
In Reliance's case, trading of textiles was followed by the production of textiles, then the manufacture of the polymers used in textiles and finally the production of the petrochemicals used to make those polymers. Refining, energy and petrochemical businesses accounted for 91% of revenues and 99% of profits as recently as 2017. Since then Reliance has undergone a transformation. Jio, the firm's telecoms arm, signed up its first customer in 2016 ➤

Making a pile

Net worth, \$bn



Source: Hurun India



► and now has 421m subscribers using its mobile network. That in turn is being used to create other new businesses such as providing access to computing at central hubs through the network.

A retail division includes 2,500 grocers and 8,700 electronics stores. Its 4,000 fashion outlets, in combination with an online operation, sold 430m garments in the past year. Dozens of big international retail companies in clothing, food and toys, hamstrung by India's crippling regulations, have entered the country through joint ventures with Reliance. Those that have chosen to compete independently, notably Amazon and Walmart, are perpetually hamstrung by murky policies. A large media organisation includes three news networks, film production and a sizeable online financial portal.

Mr Adani began trading in diamonds in the 1980s. Metals and grains followed until he won the government concession to develop Mundra port. Begun in 1998, it now has a rail link and freight airport, as well as facilities allowing for shipments of petroleum, natural gas, aviation fuel, dry cargo and containers. In terms of traffic, the port ranks 26th globally. Mr Adani's intention is for it to be the world's largest by 2030. He has also acquired a dozen other smaller ports, and now controls 24% of the country's capacity as well as 43% of container traffic and 50% of port revenues. Such expansion fits neatly with the government's objectives for India to become an exporting powerhouse.

Other businesses often dovetail with existing operations. Adani-controlled entities import over a third of the country's coal and transmit 22% of its electricity, much of it generated using coal but a growing amount from a network of solar farms. Its expanding warehouse operations hold 30% of the country's grain. Seven airports, acquired in 2019, handle a quarter of India's passenger traffic and a third of air freight. A vast empty field in an area known as Navi Mumbai is intended, with-

in two years, to be the location of the city's second airport. The other was one of those bought by the Adani group. Among other Adani ventures are 13 large road-construction projects in nine states and the acquisition of a controlling interest in Israel's Haifa port, a potential stepping stone to trade across the Mediterranean. Last year, after a decade-long struggle, a combined mine, railway and port was completed in Australia, and coal is slowly starting to be exported to India.

Inevitably, the frenetic activities of these two business groups had to collide. In August Mr Adani launched a hostile takeover of NDTV, a broadcaster, a move that follows the purchase of a 49% stake in Quintillion Business Media, another firm. Each of these entities will compete with Reliance's media ventures (see Banyan). Both Mr Adani and Mr Ambani have announced plans to spend upwards of \$70bn on energy projects encompassing batteries, hydrogen and solar power. To knit his expanding empire together, Mr Adani in August became a surprise bidder at the government's auction of 5G bandwidth, a possible prelude to competing with Reliance in telecoms. Among Mr Adani's industrial projects at Mundra is a refinery which will give Mr Ambani's operations close by some competition.

That sort of competition "could lead to some imprudent financial decisions from both sides", warned CreditSights, a research firm, hoping one of the men might listen. As is often the case with Indian industrial giants, there is already cause for concern. A consequence of Mr Adani's frenetic expansion is that his operations are "deeply overleveraged" says CreditSights (see chart 2). Yet the rivalry between the two may turn out to be transitory. Mr Adani, a 60-year-old, has become an elevated presence in India's business firmament; Mr Ambani has withdrawn.

Many suspect Mr Ambani, five years older than Mr Adani, is unwell (a rumour the company has denied). Reliance's annual meeting was held online, despite many such meetings now taking place in person as pandemic precautions have relaxed. Perhaps sensing the questions this raised, Mr Ambani noted that he had attended all 45 of Reliance's annual meetings, the first held when the firm occupied one room with two tables and a shared phone. But the role played by Mr Ambani's three children at the occasion has been widely interpreted as a succession plan unfolding.

That leaves the possibility that even as the prominence of the AA economy grows, its days under the current leadership could be numbered. Given India's needs, there would seem to be abundant space in the country for the efforts of both men. Finding two new bosses more suited to this environment might be impossible. ■

Pharmaceutical lawsuits

Throwing a jab

A dispute over covid-vaccine technology ends up in court

THE COMPANIES behind two of America's most widely used covid-19 vaccines are at loggerheads. Despite promising publicly not to enforce covid-19-related patents until the pandemic was over, Moderna, an American drugmaker, filed claims on August 26th against Pfizer, another American firm, and BioNTech, its German partner, in American and German courts. The dispute is over elements of the messenger RNA (mRNA) technology used by the firms to make their jabs. CureVac, another German pharmaceutical firm, also began legal action against BioNTech in July. The floodgates have opened for intellectual-property squabbles between vaccine-makers.

Covid-19 jabs will soon be commercialised in America when the government ceases to be the main buyer and sales switch to the private sector, making claims about ownership of patents more pressing. Despite whispers about patent infringement circulating since the pandemic began, jab-makers had held off litigating, concerned about their public image during a health crisis. The potential losses now outweigh reputational risks. Last year Moderna's revenues from its vaccine hit \$18bn, while Pfizer raked in more than double that.

Moderna claims that Pfizer and BioNTech copied a patented chemical modification that prevents disruptive immune reactions, as well as the lipid shells used to



Needle among the vaccine-makers

► get the mRNA to cells, in their jab. BioNTech says its work is original, and it will vigorously defend against all allegations of patent infringement. The case is likely to be long, and complex. mRNA has been decades in the making and covid vaccines based on the technology could only be developed so rapidly because of the fundamental work of many scientists. This collaborative approach makes it impossible to pinpoint a single inventor.

Adding further complication, other scientists lay claim to the modification at issue. Moderna is being sued by Arbutus, a

Canadian drug firm, over its lipid shells. Along with CureVac, small biotechnology companies including Allele and Alnylam, both from America, are suing Moderna and Pfizer over other parts of its vaccine technology. There are bound to be more lawsuits forthcoming.

Moderna has gone to court because it has the most to lose. The company's future hinges on medicines based on mRNA technology which could one day be used to treat diseases like cancers and HIV. But it is treading carefully. It has not sought an injunction, so regardless of the outcome, the

Pfizer-BioNTech vaccine will stay on sale. The case could, however, set a precedent for how much of this sort of collaboratively developed technology is patentable.

Investors seem unperturbed. Shares of Moderna, Pfizer and BioNTech have barely moved since the lawsuit was announced. Demand for the vaccines is slowing and investors recognise that lengthy patent disputes are commonplace in the pharmaceutical industry. Around the world people are starting to tramp back to the office in numbers. For a notoriously litigious industry, it is also back to business-as-usual. ■

Bartleby Talking it over

Is there a point to exit interviews?

“DO YOU FEEL your job description has changed since you were hired?” “What prompted you to start looking for another position?” Such questions are typical of the exit interview, to which an email from HR may invite you after you have handed in your notice. Do you accept? And if so, how honest should you be with your soon-to-be-ex-employer during the discussion?

Just like humans, corporate entities do not want to admit their faults. As such, many companies deal with resignations badly. Exit interviews may help them do better. More important, understanding why workers leave is critical if you want to stop more of them heading for the exit. Recruiting and training top talent is a big cost for firms, particularly those in the service sector, so anything that can be done to reduce staff turnover is valuable. Poaching is part of any competitive industry, so knowing what drew an employee to a different firm can be useful, too. Former employees who leave happy can in future fill a role as corporate ambassadors.

For firms the best exit interview is the one that doesn't happen. A study conducted by the *Harvard Business Review* concluded that they should be “the culmination of a series of regular retention conversations”. Such attempts will not work every time, or even often—staff churn is a fact of corporate life. For unsalvageable cases, some firms arrange a one-to-one conversation with the leaver's manager. Others offer an online form, which is less personal but provides the opportunity to collate feedback easily. Such exchanges are best scheduled after the initial rush of emotion has passed but before the employee has checked out mentally. The information gleaned can be revealing. In some firms,

it travels all the way up to the board.

The incentives for a departing employee are less clear. (If you are pursuing legal action against your employer, your lawyer is likely to tell you to avoid the interview altogether.) It is tempting either to ignore everyone and just walk away or, conversely, to really let rip. “When one burns one's bridges,” wrote Dylan Thomas, “what a very nice fire it makes.” But letting off steam by unburdening yourself of all the wrongs and little things that ever upset you is a shallow game.

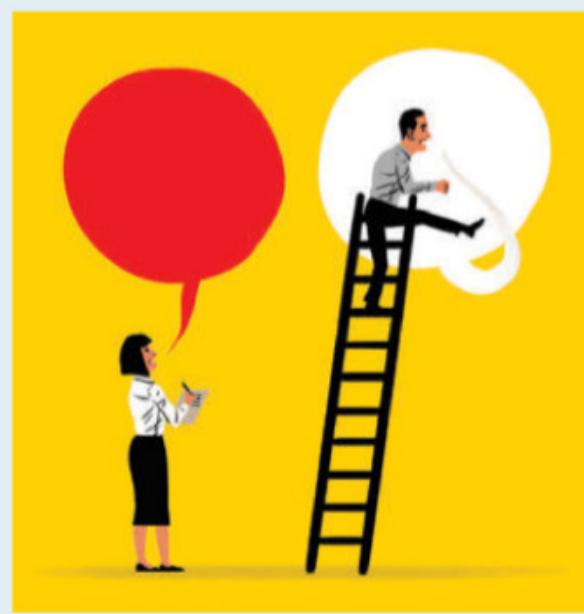
The bottom line is, you never know. You can be denied a reference or unnecessarily complicate the paperwork related to your stock options and pension plan. Or you could miss a chance to turn a former employer into a client. Your columnist, a guest Bartleby, has no immediate plans to leave her current job. But if she ever did, and was asked to participate in an exit interview, she would agree to do so—and would advise you to do the same.

As in any break-up, the one with an employer involves dealing with elusive concepts such as decorum (“It's not you,

it's me”) or closure (“Thank you for everything”). It is also transactional. As such, it pays not to be too candid. Whether the process happens over the phone, on Zoom, in person or in an online form, refrain from speaking your mind too freely. It is better to be excited about your new chapter than to unleash vitriol on colleagues who were unkind or censorious over the years.

Being too diplomatic is safer, unless it devolves into insincere platitudes. “This place is toxic” is bad; “the thing I admire about the leadership team is their long-term vision” may be worse. To strike the right balance it is useful to think of the exit interview as a performance appraisal in reverse. Outlining what you enjoyed most about the place (the pay, the camaraderie or the coffee) is a good place to start. Explaining what drew you to another employer can be particularly instructive. Gentle suggestions about what you would improve are fair game. Always remember that notes from the interview are official documentation that can be reviewed. Whatever you do, do not post rude comments about your former employer on social media.

In his book “Liar's Poker”, Michael Lewis tells the story of a senior trader quitting Salomon Brothers after being offered much more money by Goldman Sachs. His managers pleaded for him to stay, invoking loyalty to the firm; the trader retorted that if they wanted loyalty they should have hired a cocker spaniel. But a good exit interview should be about mutual graciousness when neither party has anything else to lose. For an employee to deny such a conference shows pettiness and resentment. For a company it is one last chance to leave a good impression. If you decide to part ways, why not do so on amicable terms?



Schumpeter | Seeing through the chip cycle

Nvidia's boss may be underestimating the brutality of the slump. So what?



JENSEN HUANG is a man literally schooled in adversity. When the co-founder of Nvidia, America's most valuable semiconductor company, was first sent to boarding school in Kentucky, little did his Taiwanese relatives realise that it was a school for troubled youths. He shared a room with a knife-scarred boy fresh out of prison. On some days he would either be picked upon or forced to clean the toilets. Far from buckling under the strain, he has said he learned to tolerate discomfort. That is a useful skill in the highly cyclical world of silicon chips.

Once again, the industry is in meltdown. In the tail end of the covid-19 pandemic in late 2021, when almost no one—from car companies to cryptocurrency miners—could get their hands on chips, semiconductor manufacturers, or fabs, went on a spending spree. Capital spending soared by almost 75% in six months compared with pre-pandemic levels, says Malcolm Penn of Future Horizons, a forecaster. Because of long lead times, much of that new capacity is still under construction. Yet in the meantime inflation, economic slowdown, Chinese lockdowns and a cryptocurrency collapse have buffeted demand. The purchase of computers and smartphones has also slowed. The result is a chip glut as stark as shortages were a year ago, hitting many chipmakers' profits.

That even includes Nvidia, which has replaced Intel as the bluest chip of American chip companies. On August 24th it reported a staggering slide in second-quarter earnings, while slashing revenue forecasts for the third time since May. From a peak valuation of more than \$800bn in late 2021, it is now worth less than \$400bn. True to form, Mr Huang remained sanguine. By early next year, he said after the earnings release, he expects exciting new chip architectures for data centres and gaming, Nvidia's two biggest businesses, to revive its fortunes. Yet as he looks through his spectacles at the dazzling new models that he thinks will change the face of artificial intelligence (AI), as well as more nebulous concepts like the metaverse, is there a danger that he is underestimating the brutality of the here and now?

For short-term investors, there obviously is. Things could get worse, especially in crypto. Nvidia has long been sniffy about the way cryptocurrency miners have bought up its graphics processing units (GPUs), chiefly designed for gaming, to mine Ethereum's

ether, the second-largest cryptocurrency. The last time its revenues crumbled in late 2019, the main culprit was a collapse in the price of ether, which it had woefully underestimated as a risk. That crash was short-lived. By the time the pandemic hit a few months later, the craze for ether helped propel Nvidia's stratospheric stockmarket recovery. Matt Bryson of Wedbush Securities, a broker, says that at the peak sales of chips for crypto mining may have generated about 20-25% of its gaming revenues. However reluctant Nvidia was to associate with the cryptoverse, the serendipity played hugely in its favour.

No longer. This year the price of ether has tanked, and though Nvidia acknowledges the problem, it makes no attempt to quantify the impact. Moreover, Ethereum is thought to be on the verge of switching its blockchain technology used to validate transactions from "proof of work", which uses massive number-crunching powered by Nvidia's GPUs, to a less energy-intensive mechanism called "proof of stake", which will make GPUs redundant. Partly in anticipation of this, crypto miners have dumped their GPUs onto second-hand e-commerce sites like eBay, contributing to a sharp fall in prices. With revenues from Ethereum gone for good, the fear is that the crypto winter could turn into an ice age.

Another source of concern for investors stems from the use of GPUs in what Nvidia calls data centres and which includes cloud computing and the processing of AI. A negligible business six years ago now eclipses gaming, once Nvidia's main source of revenues. Supply-chain disruptions meant that data-centre growth fell short of the firm's expectations in the second quarter. Moreover, though GPU demand from America's cloud providers such as Amazon, Microsoft and Google increased from the first to the second quarter, this was more than offset by weak sales to their counterparts in China. On August 31st Nvidia conveyed more bad news when it warned it could suffer a \$400m sales hit from new rules by the American government requiring it to obtain a licence before shipping some of its most advanced AI chips to China. There are other worries, too. One of the biggest is that, as the drive to accelerate the speed of AI models gathers pace, America's cloud providers will rely on their own chips, rather than Nvidia's GPUs. Competition from smaller chip designers could also heat up.

To the metaverse and beyond

And yet Mr Huang can probably afford to remain insouciant. That is because, however cyclical the industry, several factors are likely to strengthen Nvidia's leading position in GPUs over the longer term, expanding its "moat". First, it is still reaping the rewards of a decision to supply software, known as CUDA, as well as chips, so that programmers can fine-tune the latter to their own specifications. Even if the cloud providers make their own chips, the software makes it easier for their enterprise customers to stick with Nvidia's GPUs. Second, Nvidia is betting on a brand new data-centre chip cycle that could hugely increase AI-processing capacity in areas ranging from writing texts to understanding life sciences. These "foundation models" are surging. Third, it leads in supplying chips for autonomous vehicles that, after many false starts, Mr Huang says could be Nvidia's next billion-dollar business.

It may be common for tech bosses to shrug off short-term busts to keep the focus on long-term dreamscapes. But the good thing about chip busts is that however nasty and brutish they are, they can also be mercifully short. It's a fair bet that when this one turns, Nvidia will still be at the forefront of the industry—and that semiconductors will be more crucial than ever. ■



The energy shock (1)

A narrowing path

Europe is heading for recession. How bad will it be?

EVERY SINGLE warning light is flashing red. Russia's war on Ukraine, an uneven recovery from the covid-19 pandemic and a drought across much of the continent have conspired to create a severe energy crunch, high inflation, supply disruptions—and enormous uncertainty about Europe's economic future. Governments are rushing to try to help the most vulnerable (see next story). Amid the nervous confusion, there is broad agreement on one thing: a recession is coming.

Quite how bad the downturn will be depends on how the energy shock plays out, and how policymakers respond to it. This week energy prices reached once-unimaginable heights: more than €290 (\$291) per megawatt hour (mwh) for benchmark gas to be delivered in the fourth quarter of the year (the usual pre-pandemic price was around €30); and more than €1,200 per mwh for daytime electricity for the same quarter in Germany (up from around €60).

Because gas is the marginal fuel in most European electricity markets, it sets the price for power more broadly.

The European economy entered the crisis in a reasonably strong position. The labour market is still relatively healthy, with unemployment at 6.6%—meaning, by Europe's mediocre standards, that the economy is near to full employment. Wage

growth will probably pick up in the coming months, as long-term contracts are renegotiated. Consumer confidence fell at the beginning of the war, but consumption didn't slump. Inflation expectations have subsided somewhat.

Yet things will look considerably gloomier in a few months for three reasons. First, industry is under pressure. In the spring, the leaders of Europe's largest manufacturers argued that cutting off Russian gas supplies too swiftly would bring economic crisis to the continent. Despite high prices, industrial production has so far remained strong. "Part of the reason is that firms are still working off the backlog of orders from the past," says Michael Hüther from the German Economic Institute, a think-tank.

But these backlogs will not last for ever, and some crucial forward-looking indicators are grim. "New orders minus inventories—that is, the demands on firms that keep them busy—have fallen off a cliff," says Robin Brooks at the Institute of International Finance, which represents banks and institutional investors. The decline reflects a weakening global, and in particular Chinese, economy. As Mr Brooks notes, such a drop can mark a turning-point in the economic cycle.

The worst-affected industries will probably be east of the Rhine. Recent sur-

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▶seys of industrial bosses in Germany and Austria point towards contraction. Germany's unhealthy reliance on Chinese buyers risks dragging down demand for goods across the Teutonic supply chain. Italian industry appears to be in free fall. Poland and the Czech Republic, both sitting outside the euro zone, are vulnerable, too. The exception is Hungary, where manufacturing is expanding at a healthy pace, thanks to battery investment, the electric-vehicles boom and long-term energy contracts (although some of them will soon come to an end).

The second reason for gloom is that consumer spending on services will struggle to hold up the continent's economy. Buoyed by a strong season in France and the south of Europe, as holidaymakers made exuberant use of their pandemic savings, tourism added to growth over the summer. But sentiment is declining as consumers tighten their belts in preparation for a long, cold winter. Services are likely to stagnate over the coming months, with real estate and transport facing particularly severe difficulties, according to S&P Global's purchasing managers' index.

Last, Europe will almost certainly see the energy shock coincide with rising interest rates. Having underestimated price increases along with many other of the world's central banks, the ECB is now determined to bring annual inflation back to its target of 2%, from the alarming 9.1% recorded in August. Isabel Schnabel, a member of the bank's board, argued in favour of inflicting more pain on the economy to see the job through at the Federal Reserve's recent gathering of central bankers in Jack-

son Hole, Wyoming (see Free exchange).

Economists therefore expect the ECB to try to buttress its inflation-fighting credentials with a substantial interest-rate rise in its next policy meeting on September 8th, possibly lifting rates by three-quarters of a percentage point. In expectation, yields on European short- and longer-term bonds have increased in the past month. Despite this, the euro has continued to slump, dropping to parity with the dollar for the first time in two decades. That reflects a deteriorating outlook for Europe's economy and the decision of global investors to turn elsewhere in response. It is becoming yet another worry for the continent's policymakers, as a

weaker currency fuels inflation through dearer imports, hitting real incomes and thus consumption.

All this suggests that the European economy is certain to enter a recession, led by Germany, Italy and central and eastern Europe. Analysts at JPMorgan Chase, a bank, expect annualised growth rates of -2% for the euro area overall in the fourth quarter of this year, -2.5% for France and Germany and -3% for Italy. Italy's troubles and high debts could trigger jitters in Europe's bond markets. European politicians have so far spent a lot of time thinking about how to respond to surging energy prices. They could soon have a broader crisis on their hands. ■

The energy shock (2)

Lines of defence

Europe scrambles to protect consumers against stratospheric energy prices

EUROPE'S ENERGY war is heating up. The EU is preparing to boycott most Russian oil, starting from December. Russia, for its part, is curbing gas supply to Europe: on August 31st it halted flows through its biggest pipeline, citing maintenance. The confrontation has caused an energy crunch. Wholesale gas prices are nine times what they were last year; power prices, which are linked to gas, the marginal generation fuel, have soared.

The crisis threatens to boil over in the winter, when huge bills could hit firms and people. Accordingly, European governments are staging defensive manoeuvres. Bruegel, a think-tank in Brussels, reckons they have allocated €280bn (\$300bn) to cushioning the shock over the past year. Shielding tactics vary in kind, calibre and cost.

Many countries are softening the wholesale-price pass-through by slashing taxes. Thirteen have dropped duties on fuel, ranging from a rebate of 5p (six cents) a litre in Britain to six times that in France. Many have also cut VAT, including France, the Netherlands and Poland. Some cuts, meant to be temporary, have already been extended. Spain's suspension of a 7% tax on power generators, due to end last year, will run to 2023.

Customer subsidies are another popular tool. Greece will cover 94% of power-price rises faced by households in September, a measure that is expected to cost the taxpayer nearly €2bn. Norway is footing 90% of power bills above 700Nkr (\$70, about half the current price) per megawatt hour until March 2023.

Another type of subsidy is limits on retail-price increases, or even price caps, with governments typically paying ener-

gy firms the difference from market rates. France is restricting an increase in regulated electricity prices to 4% and forcing EDF, a state-owned energy firm, to sell more power to rivals. Romania is capping gas and electricity bills up to certain consumption levels. In another twist, Portugal and Spain are financing part of power plants' fuel costs.

Price-curbing measures can make a difference. Portugal's government reckons that, since April, its cap has kept prices 17% lower than they would have been. The problem is that they provide bad incentives. Hungary's fuel-price cap, for instance, has caused such a surge in demand that the government narrowed the scope for eligibility in July.

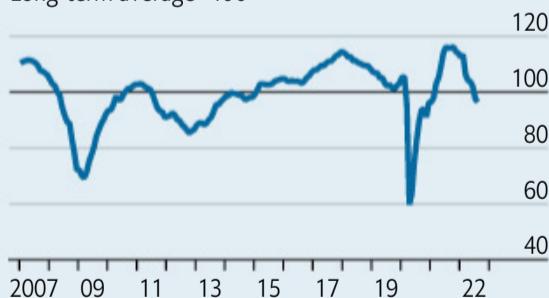
Hence the popularity of a second tactic: universal cash transfers. German workers who pay income tax are set to receive a one-off allowance of €300, with families getting a bonus of €100 per child. Increasingly, however, governments are making such policies more targeted. More than 8m British households on benefits will receive £650, on top of a universal £400 handout. Denmark, Italy and others have also reserved transfers for the worst affected.

All of this will cost governments dearly. The European Commission is keen to help, and not just by allowing member states to flout EU competition rules. It is working on limiting the price of electricity by "decoupling" it from the cost of gas—extending, in effect, the subsidy scheme pioneered by Portugal and Spain to the whole bloc. How this mega-shield would be funded remains unclear, however. Do not expect Europe to march in unison soon.

Unhappy union

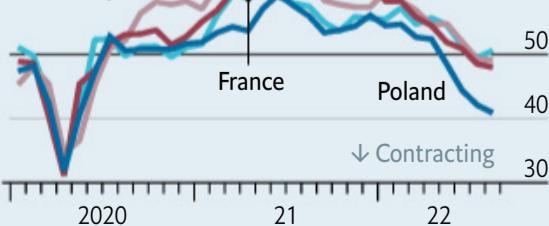
European Union, economic sentiment

Long-term average=100



Manufacturing purchasing managers' index*

↑ Activity expanding
↓ Contracting



*Based on a survey of purchasing executives

Sources: European Commission; S&P Global Market Intelligence

America's economy

Powerful prices

WASHINGTON, DC

Vast corporate profits are delaying a recession

TO THE EARS of many, “pricing power” is something of a dirty term. For left-wingers it conjures up images of greedy corporations abusing their market dominance to charge more. For economists it raises the spectre of sticky inflation as companies ratchet up prices to cover higher costs. But from another perspective, pricing power is less of a problem: it enables firms to withstand the kind of inflationary pressures that they are now experiencing. In so doing, it serves as a shock absorber for the economy, forestalling the risk of a recession.

The past few weeks have put pricing power in the spotlight in America. According to data published on August 25th, post-tax corporate profits reached 12.1% of GDP in the second quarter, their highest since at least the 1940s (see chart). When companies announced their second-quarter results, dozens noted their capacity to raise prices in the face of higher wages and dearer inputs. Chipotle, a fast-food chain, emphasised that it had sold more expensive burritos to its relatively affluent customers. The boss of Hilton boasted that, having raised room rates sharply in the face of strong demand, the hotel chain was set for “the biggest summer” in its century-long history. At IBM, a tech giant, an executive reported that the company was at last “starting to capture the reality” of higher costs in its pricing.

The combined effect of all these individual corporate decisions is striking. Nearly three-quarters of companies in the S&P 500, America’s main stock index, beat earnings estimates in the second quarter. Overall, their net profit margins were roughly 12%, a touch lower than in the same quarter last year but still above their five-year average of 11%. That helps explain the rally in stockmarkets that got going in mid-June. It also adds to the evidence that, despite all the gloomy talk, America’s economy is in reasonably good shape—and is not in recession.

If there were a compression in margins, it would portend a downswing in the business cycle. Facing lower profits, companies are forced to find ways to cut costs, which often include firing workers. When sufficient numbers do that, it becomes a drag on the rest of the economy. Conversely, comfortable margins suggest less cost-cutting pressure. Thus the corporate results of the past couple of months are

squarely on the side of resilience.

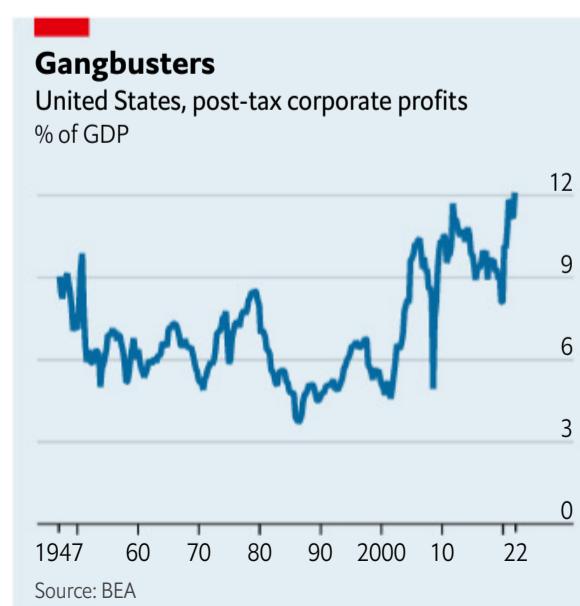
Why are companies doing so well? Unsurprisingly, energy firms have led the pack, benefiting from the surge in oil and gas prices that followed Russia’s invasion of Ukraine in February. Revenues for the S&P 500, including energy companies, were up by nearly 14% in the second quarter compared with a year ago. Excluding energy companies, they were up by 9%, according to FactSet, a data provider.

Nevertheless, even allowing for the out-performance of the energy sector, profitability has been impressive. Part of the explanation may be that American companies have more market power than a few decades ago, bringing greater stability to their earnings. Laxer application of anti-monopoly laws over the years as well as the return-to-scale of big-tech platforms help account for that.

Yet the robustness of profits over the past year is down to something far more basic: the rude health of both consumers’ and companies’ balance-sheets. In nominal terms, final demand has been well above its pre-pandemic trend, fuelled by several rounds of stimulus.

The question is how long the good times will last. Pessimism is building as the Federal Reserve raises interest rates to combat inflation. In July a survey of chief financial officers by UBS, a bank, found that they were more downbeat about their pricing power over the next 12 to 24 months than they had been in January. Some companies are already cutting back their capital-spending plans, which could spill over into hiring, too.

But this is all being done from a position of considerable strength. Aneta Markowska, an economist at Jefferies, another bank, says the Fed may ultimately be forced to induce a recession to curb inflation, but adds that it will have a fight on its hands, in part because of the resilience of profit margins. “It’s like a Mike Tyson economy,” she explains. “It’s a lot stronger than you think, and it’s going to take a lot of work to take it down.” ■

**China-US relations**

Financial recoupling

An audit deal suggests Beijing still sees some value in links with America

AT SOME POINT in September a team of American inspectors will touch down on Chinese soil in the hope of doing something miraculous: freely inspecting the internal auditing paperwork of Chinese firms listed on American exchanges. The agreement to do so, announced on August 26th, has been a decade in the making, and could prevent the delisting of some \$940bn in Chinese shares that trade in New York. Success, however, is still far from guaranteed.

Since 2011 the Public Company Accounting Oversight Board (PCAOB), an auditing governance body, has demanded that accounting firms auditing New York-listed Chinese companies open the companies’ books for inspection. These reviews were made all the more urgent by repeated instances of fraud by Chinese firms. Yet the Chinese government had pushed back, at times declaring such paperwork “state secrets” and threatening criminal charges against anyone who reveals them.

A law passed in America in 2020, the Holding Foreign Companies Accountable Act, gave auditors three years to comply before their Chinese clients were forcibly delisted. When in March the Securities and Exchange Commission, America’s market watchdog, published a list of firms slated for delisting, it caused the sharpest fall in American-traded Chinese stocks in more than a decade. In mid-August fears of impending financial turmoil grew when five Chinese state-owned companies voluntarily delisted from American exchanges.

For their part, regulators in Beijing had sent a cold message to investors in America. A crackdown on Didi Global, a Chinese ride-hailing firm, just days after it listed in New York implied that the Chinese government cared little about the reputation of companies listed on foreign markets.

All this means the deal between the PCAOB and the China Securities Regulatory Commission (CSRC) comes as a welcome surprise. It seems to show that leaders in Beijing still see some value in financial links with America—defying predictions of an imminent financial decoupling between the world’s two largest economies.

Signing the deal may have been the easy part, however. Lawyers working on cross-border regulatory arrangements note that carrying it out will be fraught with risks. The statements released by the PCAOB and the CSRC are contradictory in places. The ➤

Americans note that they will not need to go through Chinese authorities to access documents. There can be "no loopholes and no exceptions", their statement says. The Chinese say all arrangements will be done through the CSRC. A single disagreement on access could end up derailing the entire deal.

Given the Chinese government's sensitivity around data, the inspections could be awkward. The PCAOB can examine documents not just from the current year, but from a few years back. While the most recent audit documents may have been prepared without the data disclosures that China considers a national-security risk,

documents requested from previous years may still contain sensitive information, notes Travis Lundy of Smartkarma, a research firm.

That might help explain why, even though the deal has been signed, the market is so far pricing in only a 50% chance of eventual success, according to analysts at Goldman Sachs, a bank. Agreements between China and America have a poor record when it comes to implementation. Analysts at Bernstein, a broker, reminded investors of another high-profile pact meant to patch up relations: "Remember the Trump phase one trade deal?" That agreement failed miserably. ■

Hedge funds v private equity

Ready to rumble

As financial conditions worsen, distressed-debt investors prepare for battle

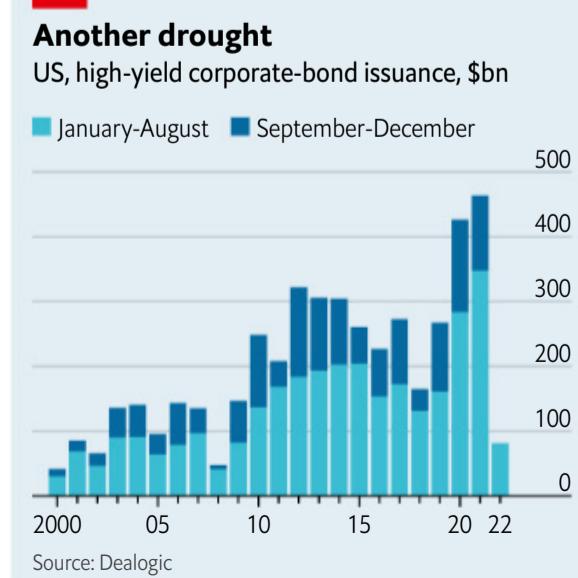
HEDGE FUNDS are used to being the star players in corporate America's most aggressive sport: financial distress. They search for value in the liabilities of troubled firms, often hoping to participate in the restructuring of a company's balance-sheet. And after a decade of unpleasantly benign financial conditions, excitement in the industry is building. A toxic cocktail of rising interest rates, slowing growth and high inflation is already creating pockets of distress. High-yield debt issuance has dried up (see chart), and it is increasingly difficult for companies to refinance their liabilities or raise fresh funds. In July the amount of distressed debt, which includes bonds yielding more than ten percentage points over Treasuries and loans trading at heavy discounts, surpassed \$240bn, nearly three times as much as at the start of May.

Distressed-debt investors have waited a long time for conditions like these. Their approach was born in the aftermath of the 1980s leveraged-finance boom, but came of age during the global financial crisis of 2007-09, when the face value of distressed and defaulted debt reached \$3.6trn (Lehman Brothers, a former investment bank, contributed more than \$600bn of that). Since 2011, funds have raised around \$500bn in anticipation of more distress, but have had few opportunities to spend it. A decade of low interest rates made borrowing easy and distress rare. Even the covid-19 pandemic turned out to be a false dawn, since the door to liquidity was held open by massive central-bank stimulus.

Although clouds are now gathering in credit markets, distressed-debt investors will not have things all their own way. In-

stead they will have to adjust to a new balance of power between lenders and borrowers. Lending to risky companies in the past decade has been not only vast, but loose. Maintenance covenants, financial commitments which lenders can use as a "stick" to force a restructuring, have all but disappeared. Combined with low interest payments, their absence means it will take longer for lenders to get companies to join them at the negotiating table. That is if distressed-debt investors can purchase debt in the first place. Today it is common for leveraged-loan documentation to include blacklists to prevent specialist funds from buying in.

Once at the table, an emboldened opponent awaits. One trend in particular has sent the secretive, tight-knit world of distressed-debt investing into a spin: aggressive "priming" transactions, which involve subordinating secured lenders. In one va-



riation, the borrowing company transfers collateral backing its existing loans to a subsidiary free from creditors' rights. This allows the company to re-use the collateral to raise new debt, in effect shoving the original lenders down the pecking order if it comes to divvying up assets. After shifting around its valuable intellectual property in this fashion, J.Crew, the preppy American clothing brand, became a verb. Since then, the creditors of companies including Revlon, a beauty brand, Golden Nugget, a chain of hotels and casinos, and Travelport, a tourism firm, have all been said to be "J.Crewed".

Another new tactic involves a company working with a group of its creditors, encouraging them to engage in what is ominously referred to as "creditor-on-creditor violence". In one type of "uptier" transaction, a company persuades a majority of its creditors to amend loan documentation to allow it to incur more senior debt. Lenders who consent are generously rewarded, often by participating in this new raise, watching the priority (and value) of their rival lenders' debt decline. In other words, borrowing companies pay Peter by allowing him to take money from Paul.

In March a court in New York concluded that one manoeuvre, undertaken in 2020 by Serta Simmons Bedding, a mattress manufacturer, may have breached the firm's credit agreement. Legal challenges to similar transactions are rumbling on, and loans increasingly include tighter wording to prevent these deals. But while uptier transactions (and other similar moves) are disputed, they are a long way from vanquished.

Distressed-debt investors should not be surprised by these new challenges. For the story of the past decade's cheap leverage is also that of private equity, which spent \$850bn on leveraged buy-outs in 2021 alone. A recent study by Vincent Buccola at the University of Pennsylvania explains the rise of hardball tactics in this light. According to his analysis, 18 of the 19 priming transactions undertaken to date have involved a private-equity sponsor. Private-equity executives, with personal fortunes at stake and an Olympic capacity for legal gymnastics, are proving considerably more adversarial than the sleepy corporate-management teams of old.

Thus Wall Street's most sophisticated operators increasingly shape the tactics of both lender and borrower, providing a vivid illustration of the triumph of finance over the real economy. After a decade of loose lending and buy-outs, increased corporate distress is now almost inevitable. The erosion of creditors' protections will leave distressed-debt investors waiting longer to capitalise on this chaos. When they do reach the boardroom, expect some gladiatorial clashes. ■

Innovation

The missing pandemic boom

Digitisation and new ways of working were meant to unleash productivity growth. What went wrong?

AMONG THE trials and tribulations of the plague years, there was a silver lining. In late 2020, with the approval of covid-19 vaccines, and into 2021, as the jabs worked their magic, techno-optimism began to spread. If people could develop life-saving inoculations in months, why couldn't the world move out of its low-growth, low-productivity slumber? Firms could embrace digitisation as never before; the shift to working from home could allow people, free of office gossip and draining commutes, to work more effectively; before long there would be vaccines for every disease imaginable. Governments promised to spend big on science; companies outlined juicy R&D plans.

It was quite a change of mood. In the years before the pandemic, the rich world's growth rate had drastically slowed. In the 2010s American labour productivity—output per hour of work—grew at half the pace of the decade before. Societies had become worse at finding new ideas, translating them into innovations and promulgating these innovations. Robert Gordon's "The Rise and Fall of American Growth", published in 2016, argued that there were fewer life-changing discoveries to be made. In early 2020 a paper in the *American Economic Review*, a leading journal, made the case that, even where there were ideas to be discovered, they were getting harder to find.

The possibility that the dynamic had shifted was intoxicating, and not just because it suggested that some good would come of the pandemic. Productivity growth is the main driver of higher real wages. As the supply side of the economy expanded, inflation would become less of a problem. And innovations would improve people's lives in ways not captured in the economic data. But our analysis comes to a depressing conclusion. So far, there is little sign that the global economy is getting more productive.

Official statistics are unusually volatile because of lockdown disruptions. In the second quarter of 2022 American GDP appeared to fall by 0.1%, even as the number of Americans on payrolls rose by 1.3m. Britain's GDP fell by the same amount, while employment rose by 150,000. Both economies are thus producing less with more people working. As a new paper by Mr Gordon of Northwestern University and Hassan Sayed of Princeton notes, today's weak productivity growth is the flipside of



strong growth in 2020. Back then American firms fired their weakest workers, boosting productivity. Now they are rehiring them, dragging it back down.

Data published at higher frequencies support the notion that productivity growth remains poor. A global purchasing-managers index (PMI) compiled by JPMorgan Chase, a bank, asks bosses about the state of the broader economy and their business. A proxy for productivity derived from PMIs, which we calculate by subtracting the employment component of the index from the output component, has in recent months actually fallen (see chart). We find similar results when applying the same methodology to a real-time indicator of economic activity published by Gold-

man Sachs, another bank.

Why has the productivity boom failed to materialise? Optimists point out that investment spending is indeed roaring, as predicted—but caution that the benefits will only be felt slowly. There is often a lag of three to five years between higher business investment and productivity growth. New research by Jason Drahos of UBS, another bank, concludes that "starting in 2024, the rest of this decade could look more like the second half of the 1990s than the second half of the 1970s". Yet there are three reasons to worry that the pandemic innovation boom might never arrive.

The first relates to investment. Firms are not necessarily spending on things that lift productivity. In recent months, with customers facing empty shelves, many have scrambled to expand and protect supply chains. This improves resilience, but by creating redundancy it also increases costs. Many firms are also building up inventories, or stocks of raw materials and finished goods. Such spending counts towards investment, as measured in the national accounts, but has zero impact on productivity. In Germany in late 2021 the build-up of inventories accounted for 9% of total investment, the most ever.

Short-term crisis management has thus taken precedence over long-term innovation. In America R&D spending remains high, but our back-of-the-envelope calculation for 31 countries suggests that overall rich-world spending on "intellectual-property products" is running at about \$3trn a year—below its pre-pandemic trend. There is not much evidence of a boom in new discoveries and use of frontier technology. In 2020 economists talked excitedly about the coming wave of automation, as companies invested in AI and machine learning. But American imports of robots, in real terms, are no higher than shortly before the pandemic. ➤



The second factor relates to working from home. Almost overnight much of the rich world moved from the office to the kitchen table. Many have stayed there: a third of paid full days in America are now done from home. This is great for work-life balance. But predictions that it would also help people work more efficiently, which pre-pandemic studies had suggested, are as yet unfulfilled. A recent survey of economists in America and Europe found that they were "uncertain about the long-term impact on productivity". At home people might be able to focus more on "deep

work"; they are also able to spend more time walking the dog.

Indeed, in some instances the pandemic has introduced inefficiencies—the third factor. Companies are still spending on extra cleaning and other measures to make people feel safer, which will do little to raise profitability. With wave after wave of covid, workers are taking more sick days. In early summer an astonishing 4m Americans said they were off work because they had the disease or were caring for somebody with it, according to an official survey. In Britain, as people moved back to the

office last year, the share of working hours lost to sickness jumped.

Perhaps, at some point, the rich world will enjoy the long-awaited productivity boom. But, adjusting for the volatility of the pandemic economy, Messrs Gordon and Sayed find "no room for a pandemic-era revival in productivity growth as has been widely suggested". A large body of peer-reviewed evidence before the pandemic established that innovation had drastically slowed—and explained the reasons why that was so. Wishful thinking is not enough to change that. ■

Buttonwood Head in the ichimoku cloud

Investors are again reaching for the astrology of finance

WHY DID THE markets move? Most investors, analysts and even financial journalists will look, first and foremost, for news. Perhaps the jobs data were published, a firm announced it was being acquired or a central banker gave a sombre speech. Yet a small, dedicated cult of "chartists" or "technical analysts" believes that the movement of stocks, bonds and currencies can be divined by the making and interpreting of charts.

Their methods are many, varied and wackily named. A "death cross" is when a short-term moving average of an asset's price falls below a long-term moving average. "Fibonacci retracement levels" rely on the idea that an asset climbing in price will fall back before rising again. Such backsliding is supposed to stop at levels based on Fibonacci numbers, like a 61.8% drop. The "ichimoku cloud", loved by Japanese traders, sees the construction of a cloud by—bear with this—shading the area between two averages of high and low prices over the past week, month or two months. A price above the cloud is auspicious; one below it is ominous. A true chartist needs only such information and "does not even care to know what business or industry a company is in, as long as he or she can study its chart", as Burton Malkiel, an economist at Princeton and author of "A Random Walk Down Wall Street", has noted.

These methods, though patently mad, have attracted attention lately because of how the S&P 500, the leading index of American stocks, has wiggled around. After slumping to a low of 3,637 on June 17th the index began to climb. On August 16th it peaked at an intraday high of around 4,325, a whisker away from its 200-day moving average of 4,326—a supposedly critical technical level. An asset that has fallen in price but is rising

is supposed to meet "resistance" at such levels. To chartists it is concerning when an asset fails to "break through" a resistance barrier—it is an indication of a bear-market rally, rather than a true bull market. And so, this time, it appears to have been: stocks have slumped by around 8% since August 16th.

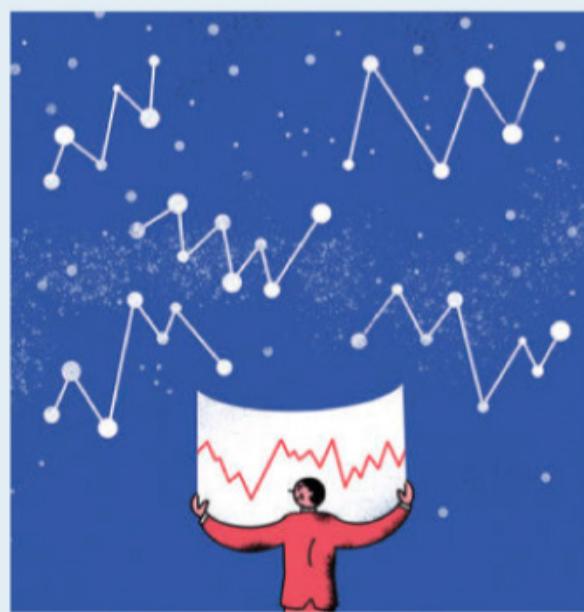
Plenty of mainstream investors use some version of trend-following. Factor investing, for which Eugene Fama and Kenneth French won a Nobel prize, is used by successful quantitative funds, like AQR Capital Management. It breaks down returns into component factors like "size" (small companies earn better returns than bigger ones) or "quality" (low-debt, stable businesses earn better returns than riskier ones). Another such factor is momentum: stocks that are rising tend to keep rising. Still, their approach is a little more sophisticated than looking at a price chart. AQR's algorithms tend to combine factors like momentum with others. They might buy, say, a small or high-quality firm whose share price has recently risen.

It is nevertheless possible to under-

stand the chartists' obsession with levels and trends. There is no real difference between a euro being worth \$1.0001 or \$0.9999, but these "big figures" in foreign-exchange markets assume importance. This is in part symbolic and in part practical: clients tend to place orders near round numbers and derivatives tend to be sold with round "strike prices". That means it will take a lot more activity for the euro to fall from \$1.0001 to \$0.9999 than for it to fall from \$1.0487 to \$1.0485. When placing orders, investors try to figure out where others are placing theirs. That can help them place a stop-loss order, to close a trade that moves against them, at a sensible level. If enough investors look at technical levels to inform their behaviour, then they begin to matter.

Perhaps the real value of technical analysis is what its use tells you about market conditions. No one bothers with the chartists' pretty drawings when the economy is good, profits are high and stocks are moving smoothly higher—nor, indeed, in the depths of a frantic bear market, when prices will plunge through any and all levels technical analysts are wont to draw. Much as people who are feeling restless about the direction of their lives are more prone to become interested in astrology, investors who are uneasy about the direction of the markets will reach for the easy reassurance of an eye-catching diagram.

That some are laying the blame for the end of the summer rally on a technical tripwire suggests they have little idea what is really going on. Perhaps Buttonwood should derive a technical indicator of her own: the more regularly chartist analysis lands in her inbox, the clearer it is that no one has any clue as to why the markets are moving.



Free exchange | Vertiginous views

Central bankers worry that a new era of high inflation is beginning



IN AUGUST 2020 Jerome Powell, the chairman of the Federal Reserve, described a shift in the central bank's policy framework. "The economy is always evolving," he noted. "Our revised statement reflects our appreciation...that a robust job market can be sustained without causing an unwelcome increase in inflation." It was a pivot informed by a long period in which prices as often rose by less than the Fed preferred as by more.

Two years on, the Fed faces very different circumstances: rock-bottom unemployment, strong wage growth and rates of inflation far above the central bank's target. On August 26th, at an annual jamboree for central bankers in Jackson Hole, Wyoming, Mr Powell sang a different tune. "Without price stability, the economy does not work for anyone," he declared, and added that the Fed was prepared to impose economic pain to get inflation back to target. Just how much might be required remains anyone's guess. But the economists and policymakers gathered under the Teton mountains repeatedly voiced a serious concern: that the global forces which in recent decades helped to keep inflation low and stable may be weakening—or reversing.

To misquote Milton Friedman, inflation is often and mostly a monetary phenomenon. Central banks have many tools to constrain spending across an economy, and thus to prevent demand from outstripping supply in a manner that fuels inflation. But they do their work against an evolving economic backdrop, which may make taming price pressures easier at some times than at others. From the 1980s onwards inflation in the rich world generally fell and became less volatile. The phenomenon is commonly attributed to better monetary policy, but also to benign global conditions relative to those which confronted central banks in the 1960s and 1970s—namely, spend-happy governments and energy shocks—when economies were battered by falling productivity growth. The world may now “be on the cusp of historic change”, as Agustín Carstens, of the Bank for International Settlements, a club for central banks, put it at Jackson Hole.

Worriers see a few reasons why inflation may stay high. Government spending and borrowing patterns seem to have changed, for one. Across rich and emerging economies, public-debt loads have soared over the past two decades. As debt burdens rise, mar-

kets may begin to fear that central banks will eventually have to help finance governments' obligations, say by creating new money to buy bonds. That could erode central-bank credibility and raise the public's expectations of future inflation.

The fiscal firepower deployed during the covid-19 pandemic may also reflect governments' greater openness to using stimulus to fight recession, which could likewise cause markets to expect more spending and inflation. Work presented at the conference by Francesco Bianchi of Johns Hopkins University and Leonardo Melosi of the Federal Reserve Bank of Chicago suggests that American inflation stood roughly four percentage points higher than it otherwise would have been, thanks to the “fiscal inflation” associated with the \$1.9trn stimulus package passed in 2021.

Workers are scarcer, too. Population growth in the rich world has slowed dramatically owing to demographic change and lower immigration. In some economies, like America, the pandemic was associated with a further drop in labour-force participation. From the 1990s to the 2010s, global labour supply expanded rapidly as populous economies like China and India became better integrated into the world economy. But that experience cannot be repeated, and ageing is beginning to hit labour supply in parts of the emerging world, as well. Workers may thus enjoy more bargaining power in the future, spurring wage growth and make life harder for inflation-fighting central banks.

Then there are slow-burning changes to the structure of the global economy. Both emerging and advanced economies engaged in a wave of liberalising reform from the mid-1980s to the mid-2000s. Tariffs fell, while labour and product markets grew more limber. These reforms contributed to a surge in global trade, large-scale shifts in global production and falling costs across a range of industries. Reform may have bolstered productivity growth, too, which ticked up in advanced economies at the turn of the millennium and in emerging economies in the 2000s. But the pace of reform fell and productivity growth ebbed after the global financial crisis of 2007-09, while trade came under sustained pressure from trade wars, the pandemic and geopolitical tensions. Globalisation served as a “gigantic shock absorber”, from the 1980s into the 2010s, noted Isabel Schnabel of the European Central Bank, such that shifts in demand or supply were easily met through corresponding adjustments to production, rather than wild swings in prices. Now that flexibility is at risk.

Nowhere to run

For the attending central bankers, this was bracing stuff. But it need not be apocalyptic. Some trends could make a new macroeconomic era a little easier to bear. Demographic change may cut both ways, as Gita Gopinath of the IMF remarked. Though workers in ageing economies may be scarce, they will also save more, helping mitigate inflationary pressures. And as those at the symposium discussed, changes spurred by the pandemic may yet yield a productivity dividend.

Most crucially, there is less intellectual confusion today than there was in the 1970s. As Mr Powell noted, central bankers once needed convincing that they could and should bear responsibility for the level of inflation—a situation that allowed high inflation to rage for more than a decade. Today, by contrast, the Fed's “responsibility to deliver price stability is unconditional”. Central bankers are beginning to accept that their task may be harder for years to come. That awareness could itself prevent a new era of shocks and volatility from being truly disastrous. ■



Naval mines

Lurkers below

Technologists are designing more fearsome naval mines, and better ways to defeat them

THE SEXY end of modern naval forces, observes Duncan Potts, a retired vice-admiral in Britain's Royal Navy, is stuff like guided-missile destroyers, fast jets and nuclear submarines. But it is often a far humbler device, the naval mine, that does much of the damage. During the second world war, these static underwater bombs are reckoned to have sunk 2,100 vessels. Not as many as the 4,600 accounted for by submarines, but far more than attacks by aircraft or artillery bombardment by other ships. Subsequent conflicts have seen mines cripple or send to the bottom nearly four times as many American warships as all other types of weapons combined.

In the latest phase of the conflict between Russia and Ukraine, mines struck early. Fighting started on February 24th. Eight days later, on March 3rd, the *M/V Helt*, an Estonian cargo ship, hit one near Odessa, the largest port controlled by Ukraine, and sank. Another victim, reported on July 2nd, was a D-106 landing craft belonging to Russia, which was sunk, apparently, by a Russian-laid mine.

Both Russia and Ukraine have laid

mines in the Black Sea. These are generally anchor mines, tethered to the seabed and floating just out of sight, beneath the waves. Most are old Soviet models and are, reckons Gokhan Ozcan of Kosder, an association of shipowners in Istanbul, unlikely to destroy craft much bigger than the *M/V Helt*, which was a mere 79 metres long. However, as he notes, an additional hazard is that some of them have broken free of their tethers and are now adrift.

What lies beneath

In April Turkey's navy began to scan the Black Sea for drifting mines by flying TAI Anka drones carrying a synthetic-aperture radar system made by Meteksan Defence, a firm in Ankara. This can detect floating mines through fog and clouds, and even at

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night. America's navy, for its part, employs equipment called the Airborne Laser Mine Detection System, which uses laser pods suspended from helicopters to locate mines at or near the surface.

Detecting mines that sit on the sea floor is harder than looking for anchor mines, for the water above them absorbs both radar waves and light. Moreover, volume for volume, such mines can pack in extra explosives, since they need not sacrifice a proportion of their internal space to the air required to provide buoyancy. The explosion of a deepwater mine creates a physical phenomenon called a bubble jet, which then shoots to the surface. Such a jet can punch through a hull in the fashion of a shaped charge piercing armour. On top of that, the upward force of a jet's arrival may lift up a ship, and then drop it, breaking its back. The seabed, therefore, is where mines are increasingly deployed. Such benthic sleepers, which may be triggered magnetically or acoustically, are known technically as influence mines.

Magnetically triggered influence mines detect the hulls of ships passing above them. Each type of vessel has its own magnetic signature, depending on the distribution of the steel used in its construction. If the signature of a passing craft matches one held in a library of target signatures stored in the mine's memory, it starts to pay attention. Its software works out from the signal's details whether and when the target is directly above it. At the appropriate moment, it detonates.

► Acoustic mines, triggered by the noise of a vessel's passage, work similarly, except that the library is of the sounds emitted by passing vessels. Like magnetic mines, the acoustic variety can be given precise instructions about what and what not to attack, for even small differences between vessels can result in sufficiently distinct signatures for a mine to tell them apart. Some mines, indeed, can be programmed to attack not merely a particular class of vessels, but an individual warship.

Both sorts, moreover, can be switched between passive, listening mode, and active, destructive mode. They may be activated, usually by the broadcasting of an acoustic activation code, when hostilities have begun, and then deactivated temporarily when friendly ships are in the area.

Countermeasure for measure

Anchor mines are often "swept" using a cutting cable bearing explosive charges intended to sever their connection with the seabed. Since mine tethers are a lot thinner than these cutting cables, that explosion leaves the cutting cable intact. Mines thus liberated bob to the surface, where they can be destroyed by a deck gun, or by plastic explosives attached to them by divers. The cutting cable may be strung between two mine-clearing vessels known as minesweepers, or held taut off the side of a lone minesweeper by a device called a paravane (in essence, an underwater kite).

Influence mines are swept not by cables, but by broadcasting misleading influences at them once they have been detected by minesweepers' cousins, minehunters. One way to trick acoustic mines into premature detonation is to employ towed devices that imitate the signatures of warships. Patria, a Finnish and Norwegian company, has developed a version of this idea called SONAC ACS. It can emit either pre-recorded or synthesised sonic signatures. The system, the firm claims, produces frequencies from infrasonic to ultrasonic that are "essentially capable of effectively simulating any ship". In the past year Patria has announced sales to the navies of Belgium, the Netherlands and Norway. Magnetic mines can similarly be fooled by towed devices containing coils tuned to mimic the magnetic signatures of potential targets.

There is a rub, however. Engineers have taken to equipping influence mines with delay clocks and counting devices. The former keep a mine dormant until a predetermined moment. The latter detonate after registering a certain number of passes by potential targets. This means they may be triggered by a ship once a minehunting team has left the area.

Minehunting itself is generally done using sonar. "Pinging" the sea floor with acoustic waves and recording signals that

bounce back allows software to create an image of what is down there. Recent advances have been impressive, says Tom Reynolds, once a special-operations officer who neutralised mines for America's navy. A decade ago, he says, towed minehunting sonar arrays were of dubious value beyond 50 metres or so to either side. Sonar systems sold to navies today by HII Unmanned Systems of Newport News, Virginia, where Mr Reynolds is now in charge of business development, manage eight times that distance. In part, they do this by using lower frequencies, which are more readily transmitted through water.

Nor need detectors of this sort be towed. They can instead be fitted to uncrewed underwater vehicles (UUVs). During the American invasion of Iraq in 2003, a conflict in which Mr Reynolds practised his skills, America's minehunting UUVs relied on a navigation system which he describes as "pretty rudimentary". It required a UUV to triangulate its position by listening to signals from a network of transponders that had to be placed in the water beforehand for the purpose. HII's latest version, the REMUS 300, by contrast, has an inertial-navigation system on board. It can dive to 305 metres and travel up to 165km from its mothership.

Other firms are even more ambitious. Saab, a Swedish company, and Raytheon, an American one, are both developing UUVs that not only detect mines, but then go on to destroy them. Saab delivered the first of its Multishot Mine Neutralisation System to France's navy in May. Raytheon's version, dubbed Barracuda, is scheduled for deployment by 2026.

Even with such "seek and destroy" UUVs at their disposal, though, minehunters will continue to find their job tricky. Engineers have now taken to disguising mines so that

they look like rocks, or are encased in glass-reinforced plastic that absorbs sonar pings. Meanwhile, efforts to develop chemical "sniffing" systems which can detect mine-derived explosives in seawater have so far failed.

Animal crackers

To better appreciate the technological challenges in finding mines, consider that America's navy still uses trained dolphins. These animals employ a biological version of sonar to detect prey—sending out a series of clicks and listening for reflections. In this context the air-filled swim bladders that bony fish have evolved to preserve buoyancy are particularly reflective, and thus noticed by them.

Conveniently, influence mines also contain air pockets, for their electronics must be kept dry. This allows dolphins to find even those buried in sediment. The animals are rewarded with fish after they release a float to mark a mine's location.

Units like the Mark 7 Marine Mammal System, as the navy refers to one of its dolphin operations, are transported all around the world, an undertaking involving aeroplanes and helicopters that helps illustrate the stark asymmetry in cost between mines and antime countermeasures. Countermeasures are expensive. But mines are cheap.

They can, in fact, be very cheap indeed. Cameron Watson of Dryad Global, a consultancy in London that issues alerts on mine risks, observes that Houthi rebels in Yemen augment the factory-made mines they receive from Iran to attack Saudi commercial shipping with makeshift ones. He describes these devices as "tin cans filled with explosives". But they work.

Mines are also easy to deploy. Large numbers can be dropped into the water quickly, from aircraft and even from fishing boats. Some models, such as the Swedish-made BGM-100 Rockan, are shaped to glide as they sink, which renders the tracking of minelaying craft less useful. Neil Hodges, once head of testing for the Australian navy's minehunting programme and now a director of BlueZone Group, a mine-countermeasures firm based near Newcastle, New South Wales, observes that a belligerent would probably also toss into the water oil drums, refrigerators and other decoys. You would have to "go and investigate every single one", he says.

Some mines can even move around. General Dynamics Mission Systems, an American defence contractor, is developing one called the Hammerhead Encapsulated Effector. This would sit on the sea floor and launch, at an appropriate moment, a torpedo to attack an enemy submarine. China's EM-56 "self-navigating mine" is ejected from a submarine and travels to a target area, such as a port, where it settles ►



The way they were

► and waits. Scott Truver, once an official at America's defence department and now with ManTech, an American military-technology firm, says America's navy intends to develop a "flexible minefield" capability. This would involve mobile mines that communicate acoustically with each other and then change positions as needed, be it for a better chance to strike the enemy or to disperse if mine-clearing vessels arrive.

Then there are rocket mines. These shoot up from the deep and explode near the target vessel, like a depth charge in reverse. Russia's PMK-2 can reportedly be laid on the sea floor 2km down. Chinese military writings suggest that a rocket mine which would pop out of the water to hit helicopters could be in the works.

On March 27th 1945 American bombers began to drop large numbers of mines in waters near Japan. In mere months, Operation Starvation, as the campaign was called, crippled or destroyed some 670 Japanese vessels, a tenth of which were warships. As Tamura Kyuzu, head of Japan's minesweeping efforts at the time, put it after hostilities had ended, America "could probably have shortened the war by beginning earlier". Though there have been big technological advances in both mines and mine countermeasures since then, that is something which naval strategists would still be wise to keep in mind. ■

Additive manufacturing

Gooey goings on

Another form of 3D-printing plastics emerges

THE USE OF plastics for mass production traces its roots to the 1860s and John Wesley Hyatt, a printer from Albany, New York. Hyatt was responding to the offer of a \$10,000 reward to anyone who could come up with an alternative way of making billiard balls—which were, in those days, carved out of ivory, a commodity becoming in short supply. His solution was to form them by pumping a molten synthetic plastic called celluloid into a mould.

Although Hyatt appears never to have received the prize, the process he invented, injection moulding, became the way in which most plastic items are made. At least they were until the emergence in the early 1980s of additive manufacturing, popularly known as 3D printing. Machines that can print things in plastic have become ever more capable, turning out objects ranging from toys to medical implants, and components for cars, drones and aircraft.

Another advance is now in the making.



Sole cake

BCN3D Technologies, a Spanish producer of 3D printers, has developed a new form of plastic printing which it calls viscous lithography manufacturing (VLM). From an initial 500 firms said to be keen to try the idea out, BCN3D has whittled the number down to 20 large manufacturers from industries such as carmaking, electronics and engineering. These are now working on potential applications at the company's base in Barcelona. The plan is that early next year they will install VLM machines at their factories around the world before the printers go on general sale in 2024.

3D printers can make plastic objects in several ways. One widely used technique involves an extrusion head tracing lines of molten polymer onto a so-called build plate. Once the first layer is done, the plate moves down a tad, a second layer is added on top of the first, and so on. More recent machines project a pattern of ultraviolet (uv) light into a vat of photosensitive liquid resin to cure and solidify the layers required to create an object. A build plate then steadily pulls the object out of the vat.

It is this second approach on which VLM is building, as it were—though the process works more like an upside-down screen printer. The machine consists of a pair of liquid-resin reservoirs, one each on either side of a build plate. Above all of these sits a transparent screen that shuttles back and forth. When one side of the screen is above a reservoir a roller coats its underside with a thin film of resin. At the same time, the adjacent side of the screen, having already been coated at the second reservoir, is positioned over the build plate.

The plate then rises to make contact with the resin film on this part of the screen. A pattern of uv light from an LCD is projected through the screen from above to cure the resin in particular areas, allowing

a complete layer to be solidified in one shot. As the build plate is lowered it peels this layer away. The peeled part of the screen then slides back to its reservoir, where any unused resin is recovered to be reused, and the newly coated other side of the screen is subjected to the same process of uv curing and peeling. And so the process continues, back and forth, until the object is complete.

One benefit of printing in resins is that they produce finely detailed, high-quality plastic parts. A drawback is that they can be brittle. It is possible to mix additional materials into resins, to improve strength, for instance, or to add flexibility. But, a bit like adding more ingredients to a cake, this thickens the mixture, which can make the resin difficult to print. The VLM process, however, can cope with this because, as Eric Pallarés, the company's chief technology officer, explains, it is designed from the get-go to use much thicker resins.

The two reservoirs can also be filled with different resins, allowing more complex construction. This would permit, say, a soft-touch surface to be added to a rigid switch. Strength could be achieved by mixing in filler materials made from the shredded remains of previously printed objects. Alternatively, a soluble material could be printed, to support delicate structures during construction, and these supports could then be washed away. At the moment, support structures often have to be added and removed laboriously, by hand.

Ejecting injection

So far, VLM is proving roughly ten times faster at making things than most other forms of plastic printing, claims Mr Pallarés. And the size of objects which can be produced is limited only by the size of the LCD used to project the image of each layer. As with most 3D printers, including those which use different processes to print metals, VLM is capable of making complex structures that are difficult or impossible to fabricate with conventional production methods such as injection moulding.

Injection moulding is also uneconomic when it comes to producing low volumes, because the precision-engineered moulds it requires can cost several hundred thousand dollars to make. That does not matter if those moulds are being used to make huge numbers of things, but for small batches the cost is prohibitive.

Additive manufacturing, however, thrives on low volumes of production, because 3D printers run on software, which is easier and cheaper to change than physical moulds. When it comes to making millions of cheap and cheerful plastic things, Hyatt's invention is likely to retain its edge for a while. For more bespoke items, additive manufacturing is just getting better and better. ■

Senescence

Undisposable somas

A jellyfish reveals the genetics of immortality

BILLIONAIRES SEEKING eternal life (and sponsorship of startup companies in this field suggests there are several of them around) could do worse than study *Turritopsis dohrnii*, known colloquially as “the immortal jellyfish”. It is not quite literally immortal. Individuals of the species do die. But those that live long enough can rejuvenate and, having done so, go through their whole lifecycles again. And again. And again.

As is true of most jellyfish, that lifecycle includes a sedentary, asexual stage, known as a polyp, and a swimming, sexual stage called a medusa. Larvae produced by sexual reproduction then develop into the polyps of the asexual stage. But *T. dohrnii* can generate polyps in another way, as well, by the reduction of a post-reproductive medusa to a cyst that then gives rise to one.

Pulling this trick off does, though, involve a lot of genetic jiggery pokery. And that is the subject of a study just published in the *Proceedings of the National Academy of Sciences* by Maria Pascual-Torner and Dido Carrero, of Oviedo University, in Spain, and their colleagues. By comparing the genome of *T. dohrnii* with that of a related, but mortal species, *T. rubra*, and also studying which genes are active during the process of rejuvenation, they have been able to identify some of the DNA that gives *T. dohrnii* its age-defying abilities.

Why animals become more decrepit with time, despite having repair mechanisms, is most easily explained by what is known as disposable-soma theory. This starts from the observation that regardless of how well it is maintained throughout the years, an individual organism is one day going to be killed by a predator, a disease, a rival or an accident. Natural selection will therefore favour a successful youth over a successful old age, since the latter may never arrive. Repair is thus good enough, rather than perfect.

The result is that animals which do manage to get old suffer the consequences of their earlier exuberance. These include breakdown of DNA-repair mechanisms, oxidative damage caused as part of the chemical process of respiration, degradation of the structures, called telomeres, that cap a cell's chromosomes and loss of so-called pluripotent stem cells, which permit the repair of damaged tissues. Rejuvenating this lot is a big project.

To begin their investigation, Dr Pascual-



A once and future polyp

Torner and Dr Carrero identified 1,000 genes from *T. dohrnii*'s genome that are known, in other species, to regulate aspects of ageing such as those listed above. Comparing these with the genome of *T. rubra* they identified 28 genes that had different numbers of copies in the two species, and thus, presumably, resulted in different amounts of the proteins they encoded, and

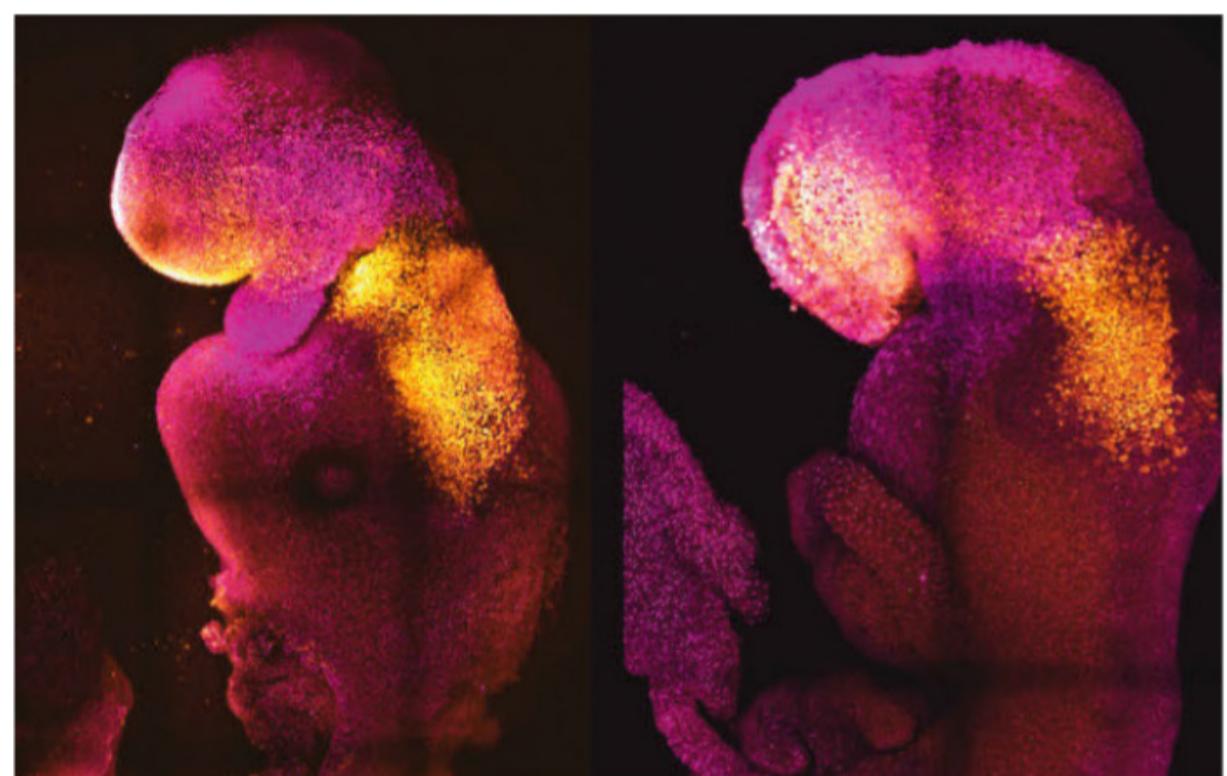
also ten unique genetic variants.

These differences suggested that *T. dohrnii* did indeed invest heavily in DNA replication and repair, in regulating its response to oxidative stress, in repairing telomeres and in maintaining stem-cell pluripotency. Moreover, many of the genes involved were specifically activated during the transition from medusa to polyp.

There were also changes in genes with activities probably related to guiding that metamorphosis. These included genes regulating the transcription of DNA into RNA messenger molecules that carry instructions to a cell's protein factories, allowing a cell to be reprogrammed, and those governing the way cells communicate with each other, which would be important in the wholesale bodily reshaping that the animal undergoes.

Some of this information may well illuminate understanding of the way human beings age. Though the common ancestor of jellyfish and vertebrates predates the Cambrian period, which began about 540m years ago, many of the genes involved are shared by the two groups, albeit with considerable differences.

That said, rejuvenation of the sort *T. dohrnii* experiences, which involves the body being largely rebuilt, does seem a rather extreme answer to the question, “would you like to live for ever?” ■



Spot the difference

These two pictures are of 8.5-day-old mouse embryos. The right-hand one was conceived in the normal way, by a sperm fertilising an egg. That on the left was grown from stem cells and then transferred to an artificial womb by a team led by Magdalena Zernicka-Goetz of Cambridge University, one of two groups who have reported creating such synthetic “embryoids” in recent weeks. The other group is led by Jacob Hanna of the Weizmann Institute, in Israel, who developed the womb. Blastoids and gastruloids mimicking earlier stages of embryonic development have been grown in the past. Embryoids carry the process yet closer to the creation of a viable synthetic animal, which, if the stem cells in question were derived from the body cells of another, would be a clone of that individual.



Population movement

Flight for life

Climate change may lead to migration on a scarcely imaginable scale. How will the world cope?

Nomad Century. By Gaia Vince. *Flatiron Books*; 288 pages; \$28.99. *Allen Lane*; £20.

Climate Change and the Nation State. By Anatol Lieven. *Oxford University Press*; 240 pages; \$29.95. *Penguin*; £9.99

SUPPOSE THE global temperature were to rise by four degrees Celsius above its pre-industrial average. This is a very gloomy scenario: it implies a world of vast deserts, devastating wildfires and colossal floods. But it is not impossible. Gaia Vince, a science writer, asks how many people might be forced to migrate by such a catastrophe, and what the other consequences might be. It is an important question, and she explains the stakes eloquently.

The most striking pages of "Nomad Century" are the maps. Ms Vince shows the areas that would be uninhabitable in a 4°C-warmer world. A wide strip around the equator, home to some 3.5bn people, becomes lethally hot. Most places south of

Britain and north of Patagonia become so grim that few would want to live there. Billions of people, Ms Vince predicts, would move to cooler climes such as Canada, northern Europe and Russia. New Zealand would become a high-rise megalopolis.

Naturally, Ms Vince favours policies that would curb carbon emissions and thus prevent the world from heating up so calamitously. To the extent that this fails, however, people will have to adapt by moving. How many will need to do so will depend on how much the Earth actually

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warms, but the book's central point is plainly true. In a hotter climate, people would be much better off living in places that are currently cold.

Ms Vince writes vividly about the engineering feats that might allow people to cope. Large emptied-out swathes of north Africa could be used to generate solar and wind power. Much of the world's food would be grown in Greenland and Siberia. High-rise northern cities could be erected to allow a global population of 10bn to live in reasonable comfort and with greater energy efficiency.

However, her economic and political analysis is cursory and unconvincing. She starts by observing, correctly, that migration tends to make the world richer, especially when people move from poor and badly governed countries to wealthy, well-run ones. Canada, northern Europe and New Zealand are exceptionally well-run, and people who move there from Africa or South Asia have prospered mightily and integrated well in the past. Future migrants will certainly boost the GDP of the places they move to. And although a huge influx of foreigners will no doubt upset nationalists and racists, that problem can be overcome, Ms Vince reckons. "We will need to shed some of our tribal identities to embrace a pan-species identity."

If only it were that simple. Ms Vince glosses over two crucial points. First, the ➤

► economic benefits of migration, though immense, accrue mostly to the migrants, rather than the native-born voters who decide whether to admit them. Letting in foreign doctors and engineers has obvious benefits for the locals; countless poor, ill-educated migrants are a different matter.

The parable of the oranges

If they are allowed to work, as Ms Vince rightly argues they should be, they will be able to support themselves. But if hundreds of millions can claim benefits as locals do, they will bankrupt rich-country welfare states; and if they are denied such help, they may become a visible underclass, as is the case in Gulf states today. That would be a more humane outcome than letting them die of heatstroke in their home countries, but it is hard to imagine a Canadian politician winning office by promising to make Canada more like Dubai.

Second, humanity is a long way from embracing a pan-species identity. Nationalism and culture matter. Some rich countries, such as Australia and the United States, have done a good (though far from perfect) job of integrating people from a wide variety of cultures into their societies. Others, such as Sweden and Japan, have not. Some, such as Hungary, have angrily refused to try.

This patchy record has been achieved in an era when migrant flows have been a tiny fraction of what Ms Vince envisages. Today, perhaps 3.5% of people live outside their country of birth. In a four-degree world a vastly larger throng would head for a smaller number of destinations. The voters of northern Europe could be swiftly and dramatically outnumbered in their homelands by people from Africa, the Middle East and other culturally distant places with illiberal traditions. Given the political crisis sparked by the arrival in 2015 of 1m Syrian refugees—a mere 0.2% of the European Union's population—it is hard to see those voters consenting to this. Ms Vince suggests creating a global body with powers over nation states, which could decide who settles where. National governments will not agree to that.

Anatol Lieven, another British writer, made a different case in 2020 in "Climate Change and the Nation State". Whatever cosmopolitan idealists might wish, nationalism is not going away, he insisted. Mass movements of climate refugees could spark violence "on a genocidal scale".

To avoid this, he suggested harnessing the power of the nation state to fight climate change. Nationalism is "perhaps the only force (other than direct personal concern for children and grandchildren) that can overcome one of the greatest obstacles to serious action; namely, that it requires sacrifices by present generations on behalf of future generations." Politically, appeals

to save "our nation" are more effective than calls to save the wider world, and they work in dictatorships as well as democracies, Mr Lieven argued.

The deputy governor of a Siberian region once told him that he welcomed climate change because it would allow oranges to be grown in Siberia. Mr Lieven pointed out that Siberians would probably have to share those oranges with tens of millions of newly arrived Uzbeks, Afghans and Chinese people. "His mouth opened and stayed that way for a while. 'Oh,' he said. 'I didn't think of that'."

Climate migration will and should occur. But if it is sudden, massive and panicked, destination countries will surround themselves with barbed wire. The way to keep it gradual and orderly is to stop the world overheating in the first place. ■

Migration to America

Risky business

Solito. By Javier Zamora. Hogarth; 400 pages; \$28. Oneworld; £18.99

THE LOUDEST voices in America's perennial immigration debate belong to politicians. These days Republicans howl about an "invasion" and point fingers at Democrats for doing too little to fix what they insist is a crisis. The flow of people is indeed vast: on the country's southern border with Mexico, American patrols encountered migrants nearly 2m times from October 2021 to July this year, a record rate. Each migrant has an individual story of desperation and danger—but most of them remain unheard.

"Solito" tells one of them. In it, Javier



The long road north

Zamora chronicles the journey he made as a child across three countries from El Salvador to "La USA". Written in the present tense from the perspective of his nine-year-old self, it captures the impact of separation on the many who feel obliged to seek economic opportunities far from their homes and families. When he was small Mr Zamora's parents moved to California illegally, leaving him to be brought up by relatives. In 1999, when he was nine, he was deemed old enough to make the trek to rejoin them. Along the way he becomes close to a mother and daughter and a young man; they pretend to be a family so as to stay together if they are apprehended.

This is a book about the risks people take to be reunited with loved ones, and how something resembling love can show up in subtle acts by almost-strangers. It is most gripping in its glimpse of the expansive and lucrative networks for human-trafficking into America. Migrants pay "coyotes" to serve as guides, who lead them north by bus and boat and on foot, supplying them with fake documents and careful instructions on how to blend in. "I'm only one pearl in a long pearl necklace," explains the first of many coyotes entrusted with Mr Zamora's life.

People from farther south pretend to be Mexican, memorising new identities so that if they are caught by American border-patrol agents they get sent back only to Mexico, instead of all the way home. Some coyotes' fees include two tries, lest the migrants be intercepted on the first go.

Like Mr Zamora's odyssey, "Solito" has heart-palpitating moments, especially as it follows him on his progress by foot into Arizona. His survival feels precarious; injury, dehydration and capture are vivid and immediate threats. But the story has dull sections too. There is a jarring juxtaposition between the risk and frenzy it evokes, and prolonged descriptions of more mundane experiences, including the narrator's struggles with using the loo (his mother left in the middle of potty-training him).

The book might helpfully have been cut by a third. Adopting a child's outlook, meanwhile, lends it a guileless authenticity, but also has a limitation. The technique conveys the narrator's emotions and insecurities, but is less successful at penetrating the thoughts of other characters.

For its raw power and devastating detail, the best non-fiction book on this subject remains "Voices of the Border" by Tobin Hansen and María Engracia Robles Robles, which collects compelling oral histories recounted by migrants. All the same, for readers who want to look beneath the political grandstanding, and better understand the plight of those who undertake this perilous journey, "Solito" offers a credible and sensitive testimony of hardship and endurance. ■

World in a dish

Soto speak

ELMHURST, QUEENS

Indonesian food is delicious but little-known. The reasons are instructive

A WANG KITCHEN, a modest restaurant on a charmless stretch of Queens Boulevard, will feel familiar to anyone who has spent time in an Indonesian city. The floor is linoleum, the service is graceful and unobtrusive and the food is as good as any offered by a neighbourhood restaurant in Jakarta. There it would be unremarkable, yet in Queens—the most ethnically and linguistically diverse urban area in the world—it stands out, simply by serving food from the world's fourth-most-populous country.

Indonesian food is underappreciated in much of the world. Precisely how many Indonesian restaurants exist in America is unclear, but there are probably fewer than 100. London, the equal of New York as an international food city, also has a paucity of Indonesian eateries. The explanation for the shortage offers valuable lessons in politics, economics and prejudice.

The gap between the renown and deliciousness of Indonesian cuisine may be the world's greatest. Diverse in ingredients and sophisticated in technique, it blends chilli heat, citrus sourness, sweetness from unrefined sugar and salty funk from dried shrimp, all enhanced by countless native herbs and spices (Europeans battled for centuries over the Spice Islands, as Indonesia's remote Maluku province was once known). Highlights include *rendang*, a sort of reverse stew in which beef or chicken is first braised and then, as the liquid evaporates, fried in the remaining fat; countless varieties of *soto*, or soup; and grilled chicken or fish served with *sambal*,

a condiment based on pounded chillies.

These dishes are not unknown everywhere in the West. The Netherlands abounds in Indonesian restaurants for the same reason South Asian cuisine thrives in Britain and north Africa in France: colonial ties. You can also eat great Indonesian food in Singapore, which suggests another reason cuisines cross borders—borders cross cuisines, and the peoples and cultures that make them. The size of diaspora communities is a factor. There are over ten times as many Chinese-Americans as Indonesian-Americans, and (not surprisingly) far more Chinese restaurants.

That, in turn, suggests some good news. Since the fall of Suharto, a dictator who ruled for 31 years, in 1998, Indonesia has seen four peaceful transfers of power. Though its citizens are still poor by Western standards and its security forces sometimes brutal, it is growing richer and freer. The per-head emigration rate is relatively low. In no South-East Asian country do fewer adults express a wish to leave.

As for the cuisine itself, what makes it extraordinary also makes it a tough sell to Westerners used to paying low prices for most Asian food. The immense quantities of herbs, spices and chillies involved are expensive in Europe and America. Many diners who would happily shell out \$30 for rip-off versions of *pasta al pomodoro* or *poulet rôti* balk at spending anything like as much on beef *rendang* or *soto ayam* (Indonesian chicken soup, which requires large amounts of fresh turmeric, lime leaves and other herbs). Their loss. ■



Football and data

In the head, not on it

Expected Goals. By Rory Smith. *Mudlark*; 304 pages; £20

THE MOST coveted figure in this summer's European football-transfer window was neither a superstar player nor a feted coach. He was a data analyst. In just over a decade at Liverpool, Michael Edwards helped revitalise an underperforming giant of English football. When he left the club in May, a flurry of rivals tried unsuccessfully to sign him. His ascent is also the story of how football, long an anti-intellectual sport, finally realised that numbers could sharpen a competitive edge.

Mr Edwards was not the first to study English football through data. In the 1950s an accountant called Charles Reep began tallying passes, crosses and shots, annotating over 2,000 games and writing up his findings in the *Journal of the Royal Statistical Society*. His main conclusion was that a team's chances of keeping the ball fell with each pass. The implication was that they should shoot on goal as quickly as possible. Reep is cited as an inspiration for the grim "long-ball" style of play that took off in England in the 1980s and peaked in Wimbledon's victory in the FA Cup of 1988.

By the turn of the millennium, more in-game actions could be recorded more quickly and accurately. After his on-field career was curtailed by injury, Mr Edwards began a second one at Portsmouth in the early 2000s, combining data and video clips to analyse the opposition. In these early days, data was often used to berate players for their physical performance, such as how far they had run. But as Rory Smith of the *New York Times* explains in ►



Back Story The gondolier's smile

The summer holidays are over. But why go away at all?

AT THE END of a tenebrous alley, where assassins may once have lurked, is an ornate 15th-century palace. You ascend a candlelit staircase and find a seat in the hall. Violetta is preparing for the soirée that opens "La Traviata", an opera that had its premiere in Venice in 1853. At Musica a Palazzo it has only three musicians, as many singers, and you, the audience, doubling as party guests. To go with Verdi and the frescoes, at the interval you get a glass of prosecco in a salon overlooking the Grand Canal.

Summer holidays are a miracle. Trips abroad require time off work, the privilege of disposable income, sophisticated travel infrastructure and international peace. The pandemic suspended them; climate-change levies may make them unaffordable. Even when you pull it off, the miracle is fragile—for, as you may recently have observed, holidays are fraught with risks and packed with contradictions. One is the explorer's delusion, whereby people set out to discover what they already expect to find.

Venice, for instance, has been performing itself for visitors for centuries, laying on masked balls, gondolas and romantic opera. Bitterness can ensue when a destination fails to match the caricature of it in the tourist's mind. Take the let-down Samuel Johnson recorded in "A Journey to the Western Islands of Scotland", published in 1775. "We came thither too late to see what we expected," he lamented, "a people of peculiar appearance, and a system of antiquated life." It is a familiar complaint. You go in search of authenticity and the unspoilt—in other words, of your own preconceptions—and are obliged to order your *seppie al nero* through an app.

If authenticity is elusive, so is comfort. Even if your aircraft cabin is plusher

than other travellers', it is rarely more congenial than your own home. On arrival you are bitten by mosquitoes and spend hours in queues. You get lost in narrow streets in a way that is funny until it isn't, and catch a *vaporetto* heading in the wrong direction. Travel with children, and a meltdown looms if the museum-to-gelato ratio gets out of whack. "Comfort must not be expected by folks that go apleasuring," Byron wrote perceptively in 1809, while afflicted with diarrhoea in Lisbon.

Your inconvenience, though, is as nothing beside the suffering you read about in the guidebook. A quirk of European sightseeing is that jaunts taken for relaxation are also safaris of pain: reminders of the centuries of bloodshed and anguish that went into all the loggias and basilicas. The upshot is an awkward mix of sybaritic indulgence and fleeting compassion for the unfortunate dead. A tour of the ghetto and the torture chamber is washed down by an Aperol Spritz (a cocktail that, in a triumph of Instagram over taste, now seems to be drunk everywhere).

Memory and time are the main glitches



in holidays. Neither can be outrun. A holiday is shaped by the yearnings that accumulate in the 50-odd other weeks of the year. This is why objectively trivial details—the furnishings in the hotel room where you spend hardly any time, the slightly bedraggled breakfast—can take on such outsize significance. The linen and the buffet will always struggle to live up to the hopes and frustrations invested in them.

And, as in the rest of life, only more so, the clock is always ticking. Discount the several days it takes to swear off email at the start, and the shadow of return that falls over the final few, and you are left, like a pampered Sisyphus on top of a mountain, with only a fleeting interlude of serenity. In his book "The Art of Travel", Alain de Botton reckoned that the spells in which everyday anxieties recede, and travellers are receptive to the wonders around them, rarely last more than ten minutes.

Why, then, did you go on holiday in the first place? Not, surely, for the rictus-grin photos and the fridge magnet. With luck, alongside the sunburn, crowds and saw-you-coming prices, there were moments of harmony and revelation—a magically deserted piazza at dusk, a perfect family evening, a ride across the lagoon on which you felt like Sophia Loren—that made life and the world seem wider and more generous. As Mr de Botton notes, Wordsworth believed such "spots of time" can live in the memory and buck you up for years after the event.

The poet was thinking of epiphanies in nature, but they can also arise on a sunlounger or on a plate. Or at the opera. For the finale of "La Traviata" you move into the palazzo's bedroom. Her silhouette cast on the stuccoed walls, Violetta swoons and dies, exactly as she should.

► "Expected Goals", a group of innovative firms and internet hobbyists gradually collated more and more match data and drew more sophisticated conclusions. When Mr Edwards went to Liverpool, he built a data department that included an astrophysicist, a chess champion and a former researcher on the Higgs boson at CERN.

Analysts have faced plenty of resistance. Liverpool were mocked for giving them a say in player recruitment alongside Brendan Rodgers, then the manager. The club's American owners decided they preferred Mr Edwards's empirical approach

and sacked Mr Rodgers. Under his successor, Jürgen Klopp, canny signings saw Liverpool overhaul rivals with much deeper pockets. "Liverpool's success gave English football a begrudging epiphany," writes Mr Smith. "It is the teams who do not invest [in data] who are considered outdated, old-fashioned, faintly neolithic."

Already, the adoption of analytics by most elite teams means the advantage conferred has shrunk. The launch of giant player databases has aided due diligence on potential signings. Tactics have changed too: long-range shots and crosses

have declined in the Premier League as data has shown they might lead to fewer goals than many coaches realised.

Still, there is more to come. One club official tells Mr Smith that "there are no more than a handful of teams in English football doing anything even vaguely useful with analytics." In its secrecy, at least, football remains a closed shop. Nevertheless, "Expected Goals" is an upbeat tale of openness. Mr Edwards and others have proved there is more than one way to achieve success—and persuaded an often insular game to become more broad-minded. ■

Storytelling on screen

Escape from Tinseltown

How an arthouse entertainment company became a multi-billion-dollar firm

“UNCUT GEMS”, a thriller about a jewel-ler with a gambling addiction, has little in common with “Ramy”, a television series about an Egyptian-American man examining his faith and desires. Likewise, “Euphoria”, a gritty high-school show, is far removed from “The Green Knight”, a feature-length retelling of an Arthurian legend. You might point out that most had a modest budget, or that they were created by emerging writer-directors. But what really connects them is A24, an entertainment company. These stories are alike in their idiosyncrasy—and that is the point.

A24 was set up ten years ago by David Fenkel, John Hodges and Daniel Katz, all veterans of New York’s independent film business. Mr Katz had worked in film financing at Guggenheim Partners, and the investment and financial-services firm provided a few million dollars in seed money. At first A24 specialised in distribution: ie, it acquired films during production or at festivals, set a release date and worked out a marketing strategy.

Its executives felt the company could stand out in two ways. First, A24 sought to challenge preconceptions about high-quality storytelling, often synonymous with historical drama and other prestige fare loved by older audiences. It would champion auteurs with unique stories to tell and work that might appeal to young cinephiles. Second, it would rethink how a film was promoted. Rather than relying on established and expensive forms of advertising, such as printed ads, it would think digitally, focusing on social media as the best way to reach its target demographic.

Industry folk were initially wary of this small upstart. After seeing “Spring Breakers”, a black-comedy crime caper, at the Venice Film Festival in 2012, it took A24 two months to negotiate the distribution deal. One A24 executive flew to Pittsburgh to woo the rights-holder; in a nod to the film’s themes, and to the bemusement of airport security, he took a gift basket including a glass bong shaped like a handgun. Others had doubted whether the film would do well in cinemas; but after A24 arranged a theatrical release, “Spring Breakers” grossed almost \$32m—not much by blockbuster standards, but a decent return for an indie film made with a \$5m budget.

More successes, and critical acclaim, soon followed. A breakthrough came when “Room” (2015), an adaptation of a novel

about a woman and child kept in captivity, won an Academy Award. (To date, films in which A24 has been involved have been nominated for 32 Oscars and won seven.) Ed Guiney, one of the producers of “Room”, says the firm’s executives take an interest in the entire shooting process. They “feel like collaborators, rather than a studio”, he says. “They’re an extension of the film-making team.” Mr Guiney’s company, Element Pictures, has since worked with A24 on projects including the forthcoming “The Eternal Daughter”.

In late 2014 A24 expanded into production, making “Moonlight” with a budget of \$1.5m. After winning the Oscar for Best Picture, it went on to gross more than \$65m. The company developed a reputation for masterful horror films, including “Hereditary” and “Midsommar”. It began to have hits on television, and so far has earned 23 Emmy nominations. This year its flagship series, “Euphoria”, averaged 16.3m viewers per episode in America. That makes it HBO’s second-most-popular show of recent decades behind “Game of Thrones”.

A24 has thus achieved a rare thing: making arthouse or offbeat stories widely popular. Its feat is all the more impressive in an era dominated by behemoth studios churning out remakes and spin-offs. Stephen Follows, a film-industry analyst, has estimated that only 3.4% of the independent films released in America between

1999 and 2018 made a profit. The majority—90%—were never shown in cinemas.

By contrast, A24 recently propelled “Everything Everywhere All At Once”, a comedy-drama set in the multiverse, to a worldwide box-office take of \$100m. It opened in a select number of cinemas, where its reputation grew, before expanding to venues across America. To promote it, A24 released videos riffing on the kooky story. In one of the tale’s universes people have hot dogs for fingers; fans can buy “Hot Dog Finger Gloves” via the A24 shop.

Currently A24 puts out about 25 movies a year, meaning it takes on only what the industry calls “passion projects”. Auteurs like working with it for this reason. Halina Reijn, the director of “Bodies Bodies Bodies”, a new horror-comedy, says it offers “a bed in which you can lay and really play and be yourself, without ever making it feel as if there’s more at stake than just the creativity”. That, she adds, “is a pretty interesting thing—to be able to do that within a system that is also driven by money.”

The bosses of A24 declined to talk on the record, coyly hoping their output speaks for itself. It has proved persuasive to financiers as well as awards juries. In March the company was valued at \$2.5bn as it took in \$225m in investment; the lead investor is Stripes, a private-equity firm that helps businesses grow. The funds will let A24 boost its production capacity. It has opened an office in London (and poached two BBC commissioners); it hopes to make films and TV programmes in other territories soon, possibly in foreign languages.

There is a risk that A24 becomes less discerning as it expands, or that investors nudge it to produce more predictable content. But for now, viewers and film-makers put off by big-studio schlock know where to look for original storytelling. ■

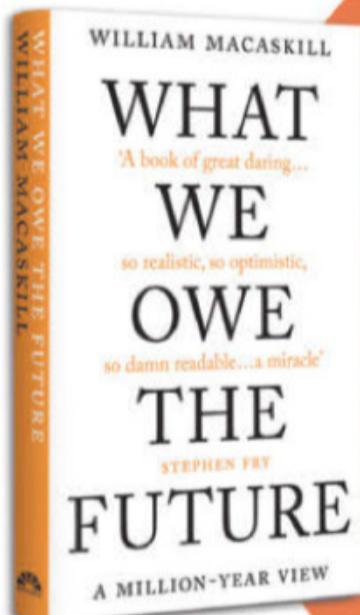


From “Spring Breakers” to big breaks

We live
at a
pivotal
time.

Humanity's written history spans
only five thousand years.

Our future could last for millions more
— or it could end tomorrow.



WHAT WE OWE THE FUTURE

BY
WILLIAM
MACASKILL

IN BOOKSHOPS NOW

"A miracle."

—STEPHEN FRY



Economic data

	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units		
	% change on year ago latest	quarter*	2022†	% change on year ago latest	2022†	%		% of GDP, 2022†		% of GDP, 2022†		10-yr gov't bonds latest,%	change on year ago, bp	per \$ Aug 31st	% change on year ago	
United States	1.7	Q2	-0.6	1.7	8.5	Jul	8.1	3.5	Jul	-3.9	-3.9	3.1	185	-	-	
China	0.4	Q2	-10.0	3.6	2.7	Jul	2.4	5.4	Jul‡§	2.2	-6.2	2.4	§§	-26.0	6.89	-6.2
Japan	1.1	Q2	2.2	2.0	2.6	Jul	2.2	2.6	Jul	1.5	-6.1	nil	-8.0	139	-20.8	
Britain	2.9	Q2	-0.3	3.6	10.1	Jul	8.7	3.8	May††	-3.1	-5.0	2.8	211	0.86	-15.1	
Canada	4.6	Q2	3.3	3.6	7.6	Jul	7.0	4.9	Jul	1.2	-3.5	3.1	190	1.31	-3.8	
Euro area	3.9	Q2	2.5	2.8	9.1	Aug	8.0	6.6	Jun	1.4	-4.4	1.6	193	0.99	-14.1	
Austria	9.5	Q1	10.0	3.9	9.0	Aug	8.0	4.3	Jun	-1.0	-4.6	2.2	234	0.99	-14.1	
Belgium	3.3	Q2	0.8	2.2	9.9	Aug	9.3	5.5	Jun	-1.0	-4.8	2.2	225	0.99	-14.1	
France	4.2	Q2	2.2	2.6	5.8	Aug	6.0	7.2	Jun	-1.9	-5.9	2.1	219	0.99	-14.1	
Germany	1.7	Q2	0.6	1.0	7.9	Aug	8.3	2.8	Jun	3.5	-3.2	1.6	193	0.99	-14.1	
Greece	7.9	Q1	9.7	4.0	11.6	Jul	9.0	12.3	Jun	-5.8	-5.0	4.1	335	0.99	-14.1	
Italy	4.6	Q2	4.2	3.0	8.4	Aug	7.2	8.1	Jun	0.3	-6.1	3.9	318	0.99	-14.1	
Netherlands	5.3	Q2	10.9	2.6	10.3	Jul	10.8	3.6	Jul	7.4	-3.2	1.9	215	0.99	-14.1	
Spain	6.3	Q2	4.6	4.7	10.4	Aug	9.2	12.6	Jun	0.5	-5.2	2.7	240	0.99	-14.1	
Czech Republic	3.6	Q2	1.9	2.2	17.5	Jul	16.7	2.5	Jun‡	-3.6	-5.7	4.8	295	24.4	-11.7	
Denmark	3.3	Q2	3.7	2.1	8.7	Jul	8.2	2.7	Jul	8.3	0.8	1.9	200	7.40	-14.9	
Norway	3.9	Q2	2.9	3.2	6.8	Jul	4.8	3.2	Jun‡‡	16.4	8.7	1.4	76.0	9.92	-12.2	
Poland	4.9	Q2	-8.1	3.2	16.1	Aug	14.7	4.9	Jul§	-3.0	-3.7	6.2	432	4.69	-18.3	
Russia	-4.0	Q2	na	-7.5	15.1	Jul	18.0	3.9	Jul§	11.2	-3.8	9.1	201	60.6	20.8	
Sweden	4.1	Q2	3.6	2.3	8.5	Jul	7.3	6.4	Jul§	3.0	-0.2	2.0	185	10.6	-18.7	
Switzerland	4.4	Q1	1.9	2.4	3.4	Jul	2.9	2.2	Jul	6.2	nil	0.8	114	0.98	-6.1	
Turkey	7.6	Q2	8.5	3.3	79.6	Jul	73.7	9.7	Jun§	-3.6	-3.8	12.6	-387	18.2	-54.3	
Australia	3.3	Q1	3.1	3.2	6.1	Q2	6.1	3.4	Jul	2.0	-2.4	3.6	248	1.46	-6.2	
Hong Kong	-1.3	Q2	4.1	0.7	1.9	Jul	2.9	4.3	Jul‡‡	1.4	-6.7	3.1	208	7.85	-0.9	
India	13.5	Q2	-12.7	6.9	6.7	Jul	7.0	8.3	Aug	-1.5	-6.6	7.2	96.0	79.5	-8.1	
Indonesia	5.4	Q2	na	5.0	4.9	Jul	5.3	5.8	Q1§	1.0	-4.3	7.1	109	14,842	-3.9	
Malaysia	8.9	Q2	na	5.0	4.4	Jul	3.1	3.8	Jun§	2.2	-6.0	4.0	78.0	4.48	-7.1	
Pakistan	6.2	2022**	na	6.2	24.9	Jul	18.5	6.3	2021	-5.0	-7.0	12.6	†††	280	219	-23.9
Philippines	7.4	Q2	-0.4	6.7	6.4	Jul	4.9	5.7	Q2§	-3.8	-7.7	6.2	208	56.2	-11.4	
Singapore	4.4	Q2	-1.0	3.6	7.0	Jul	5.6	2.1	Q2	18.1	-0.9	3.0	157	1.40	-3.6	
South Korea	3.0	Q2	3.0	2.7	6.3	Jul	5.5	2.9	Jul§	3.1	-2.5	3.8	184	1,338	-13.3	
Taiwan	3.0	Q2	-7.0	2.9	3.4	Jul	3.3	3.7	Jul	14.0	-1.2	1.3	82.0	30.4	-9.0	
Thailand	2.5	Q2	2.7	2.8	7.6	Jul	6.0	1.5	Dec§	-0.3	-5.0	2.7	128	36.5	-11.6	
Argentina	6.0	Q1	3.5	4.3	71.0	Jul	70.2	7.0	Q1§	nil	-4.6	na	na	139	-29.5	
Brazil	1.7	Q1	4.0	2.2	10.1	Jul	9.7	9.1	Jul‡‡	-0.7	-6.2	12.2	164	5.18	-1.2	
Chile	5.4	Q2	nil	2.0	13.1	Jul	11.5	7.9	Jul‡‡	-7.1	-1.7	6.8	203	893	-13.2	
Colombia	12.6	Q2	6.0	6.6	10.2	Jul	9.8	11.0	Jul§	-5.1	-4.7	12.0	504	4,423	-14.9	
Mexico	2.0	Q2	3.7	2.4	8.2	Jul	7.6	3.2	Jul	-0.8	-3.2	9.1	211	20.1	-0.3	
Peru	3.3	Q2	2.3	2.6	8.7	Jul	7.8	7.6	Jul§	-3.7	-2.1	8.0	166	3.85	6.0	
Egypt	5.4	Q1	na	5.7	13.6	Jul	12.4	7.2	Q2§	-5.1	-6.4	na	na	19.2	-18.4	
Israel	4.8	Q2	6.8	4.9	5.2	Jul	4.3	3.4	Jul	2.9	-1.7	2.9	199	3.33	-3.9	
Saudi Arabia	3.2	2021	na	7.5	2.7	Jul	2.5	6.0	Q1	15.9	10.9	na	na	3.76	-0.3	
South Africa	3.0	Q1	8.0	1.9	8.1	Jul	6.4	33.9	Q2§	-1.2	-6.2	10.4	166	17.0	-15.1	

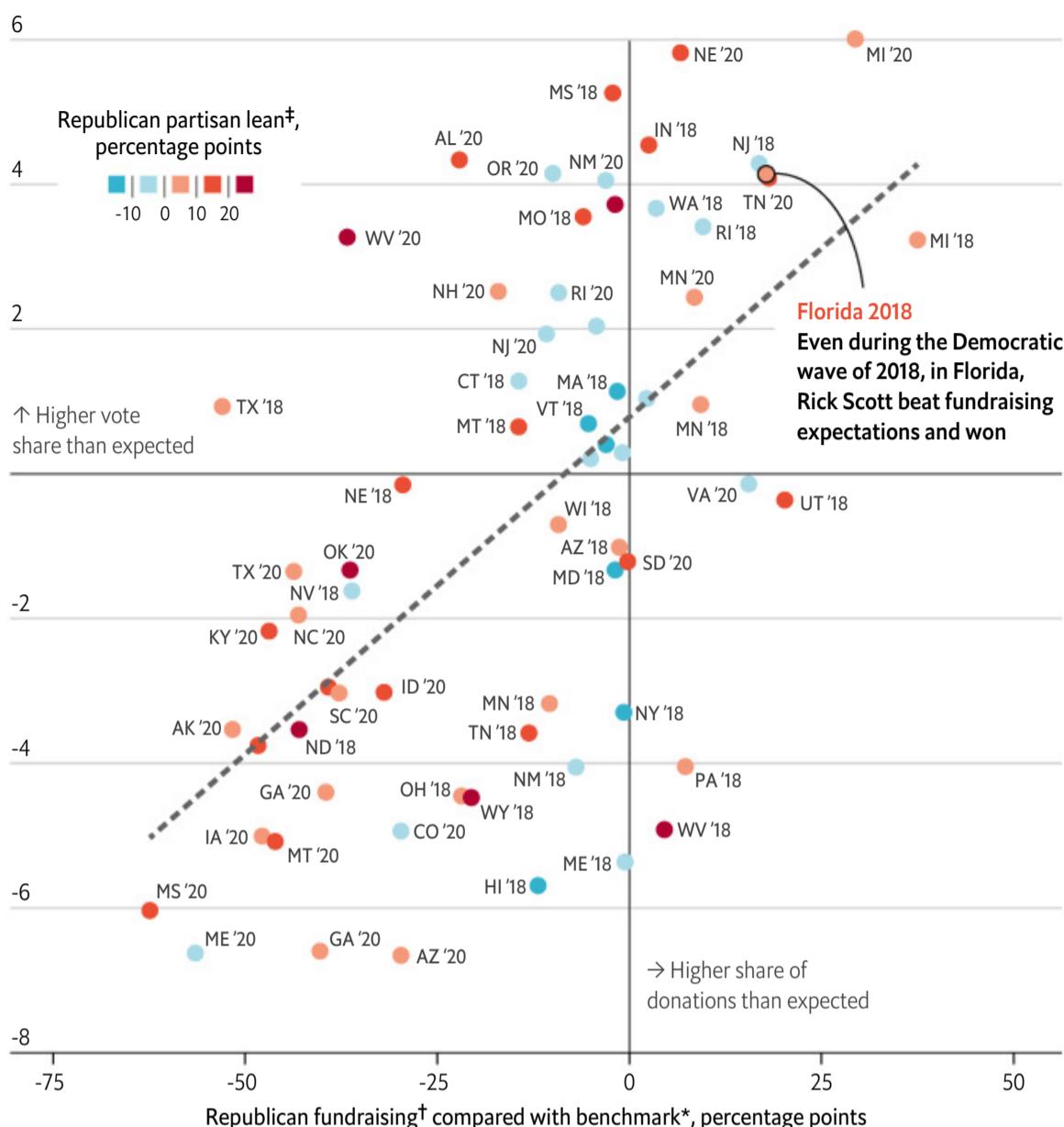
Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. #3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

Markets

In local currency	Index	% change on:			index	% change on:			index	% change on:		
		Aug 31st	one week	Dec 31st 2021		Aug 31st	one week	Dec 31st 2021		Aug 31st	one week	Dec 31st 2021
United States S&P 500	3,955.0	-4.5	-17.0		42,351.2	-2.3	-5.0					
United States NAScomp	11,816.2	-4.9	-24.5		3,221.7	-0.4	3.1					
China Shanghai Comp	3,202.1	-0.4	-12.0		2,472.1	1.0	-17.0					
China Shenzhen Comp	2,096.1	-3.0	-17.2		15,095.4	0.2	-17.1					
Japan Nikkei 225	28,091.5	-0.8	-2.4		1,638.9	0.5	-1.1					
Japan Topix	1,963.2	-0.2	-1.5		136,241.0	-2.9	63.2					
Britain FTSE 100	7,284.2	-2.5	-1.4		109,522.9	-3.0	4.5					
Canada S&P TSX	19,330.8	-3.4	-8.9		44,919.2	-5.3	-15.7					
Euro area EURO STOXX 50	3,517.3	-4.1	-18.2		9,998.6	-1.1	-16.0					
France CAC 40	6,125.1	-4.1	-14.4		2,072.3	-2.1	nil					
Germany DAX*	12,835.0	-2.9	-19.2		12,283.3	-1.3	8.4					
Italy FTSE/MIB	21,559.3	-3										

→ Candidates who beat fundraising expectations tend to fare surprisingly well in elections

Republican vote share compared with benchmark*, Senate races 2018-20, percentage points



*Based on model using past vote in presidential and Senate elections, incumbency and other factors ‡President's two-party vote share in most recent election, difference from national average

Follow the money

Fundraising remains a good predictor of electoral success

DEMOCRATS APPROACHED the American elections of 2020 hoping to make Joe Biden a president with a big congressional majority. The party's Senate candidates in Alaska, Iowa, Kansas, Montana and South Carolina all raised far more money than their opponents did. Yet all five lost.

At first glance, this suggests that campaign donations fail to predict electoral outcomes. Most studies show that, in general elections for federal offices, money buys few votes directly: once the airwaves are saturated with ads, further spots make little difference. But in the past, data on some contributions—those by individuals, which are limited to \$2,900 per candidate-donor pair—have offered precious insight.

When a party's share of these donations in a state or district has risen from one election to the next, its vote share has tended to increase too. The best explanation is that these funds, unlike those from parties or bundling groups, tend to flow to campaigns with hard-to-measure strengths like candidate quality or voter enthusiasm.

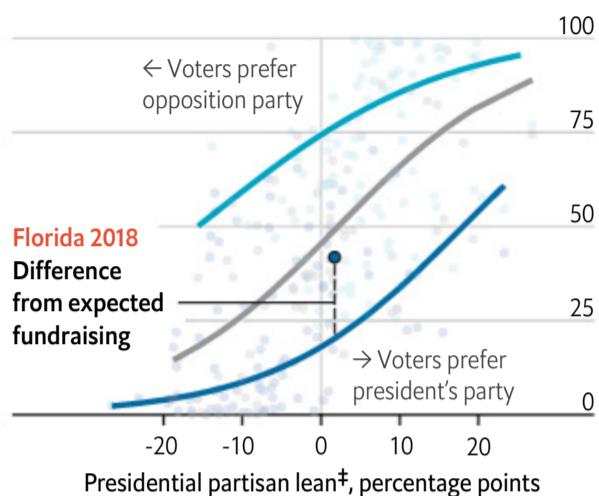
Any weakening of this pattern could explain Democratic Senate candidates' losses in 2020. In recent years, political-donation websites like ActBlue and WinRed have nationalised campaign finance. In 2020 out-of-state donors accounted for 68% of contributions by individuals, up from 31% in 2012. Such benefactors may never have heard of the recipients of their gifts, and are not eligible to vote for them.

In theory, this could make financial data less useful in revealing a candidate's strength or weakness. However, if you strip out the impact of other factors that affect donations and voting, the numbers remain informative—even in the ActBlue era.

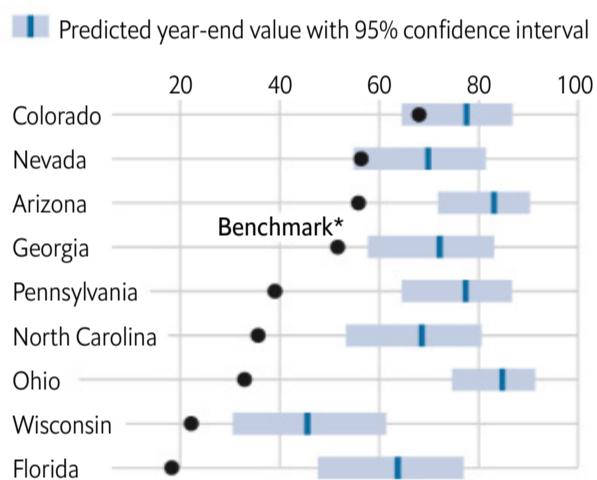
Most incumbents out-raise their opponents. So do Democrats running in liberal

Fundraising† by president's party's candidate, Senate races 2008-20, %

Candidate is • Incumbent • Running in open seat
● Challenger facing opposition-party incumbent



Democratic fundraising† in most competitive Senate races, 2022, %



states, and Republicans in conservative ones. Using these trends, we calculated the expected shares of votes and individual donations in each Senate race since 2008. For example, a Republican facing a Democratic incumbent in Florida in 2018 should get 20% of contributions and 46% of votes.

Compared with such benchmarks, good fundraisers have had unusual success. In 2018-20, candidates with donation shares at least 15 percentage points above expectations beat their predicted vote shares by three points on average. In Florida in 2018, Rick Scott, the Republican nominee, got an impressive 40% of donations, and won.

The finding that money still matters should please Democrats, who are once again winning the fundraising wars. It implies that the party's financial edge reflects real strengths, which were just too small to win the red states it targeted in 2020. This year, Democrats are competing on friendlier terrain: Republican senators are retiring in North Carolina, Ohio and Pennsylvania. Flipping just one of them would make Democrats likely to hold the Senate. ■



The architect of dissolution

Mikhail Gorbachev, last president of the Soviet Union, died on August 30th, aged 91

THE GREAT heroes in Mikhail Gorbachev's pantheon were two 19th-century socialist thinkers, Alexander Herzen and Vissarion Belinsky, whose main concerns were the dignity of the individual, and whose books he knew almost by heart. When they appeared on the Russian stage, in Tom Stoppard's trilogy "The Coast of Utopia", he went to see them. At the end of the performance he was called on stage and given a standing ovation by an audience that, for the most part, had scarcely been born when, in 1985, he became the last general secretary of the Soviet Union.

The *perestroika* ("restructuring" or "reformation") which he started then never reached the destination he wanted, a democratic, humane socialism—perhaps because that destination was Utopia, rather than a real place. To the elite of modern Russia, he seems an oddity if not a traitor: a fool who brought about the collapse of the Soviet Union and made no money out of it. He had power, a comfortable life and the fate of hundreds of millions of people in his hands—and he let it all go when, on December 25th 1991, he resigned as president of the Soviet Union.

He had spent eight hours in a meeting with Boris Yeltsin, Russia's president and his bitter rival, discussing the transfer of power. Afterwards, he went to lie down in his office—for the last time. When Alexander Yakovlev, his closest comrade, walked in, he saw tears in Mr Gorbachev's eyes. "You see, Sasha," said the president, "this is how it goes."

He had not meant the Soviet Union to die like that. The man who ended the cold war, who changed the course of 20th-century history, was neither a dissident nor a revolutionary. He intended to reform the Soviet Union, not destroy it. But his aversion to violence and his belief in the Enlightenment were enough to finish a system held together by repression and lies.

He was born in 1931, soon after Stalin had seized complete power and launched the collectivisation which would eliminate the

peasantry. He grew up in the south of Russia, a rich agricultural region inhabited by Cossacks who had never known serfdom, in a village called Privolnoe, which means "free-willed". One of his grandfathers hung Orthodox icons; the other preferred portraits of Marx and Lenin. Like many of his generation, he preserved a peasant's common sense and caution. He also had the physical strength of someone who had worked the land from an early age.

It was those sensibilities and human instincts that, years later, allowed Ronald Reagan to see in him not just a Marxist-Leninist, but someone with whom he had a lot in common. Both were self-made men who started in small farming communities, both believed in decency, both embodied the optimism and confidence of the post-war years. The end of the cold war was determined as much by his affinity with Reagan as it was by the inadequacy of the Soviet economy. Since he was more concerned with improving the living conditions of his countrymen than with the status of a superpower (which he took for granted), he saw no sense in continuing an arms race.

It was the logical conclusion of a journey that began with the death of Stalin. When Nikita Khrushchev denounced Stalin's cult of personality in 1956, Mr Gorbachev was one of the young party leaders who had to spread the message among rank-and-file Communists. Clearing socialism of the distortions of Stalinism was to be his life's work. He came to power with no plan or programme of reforms: only, after 18 years of stagnation, the simple conviction that "We can't go on living like this." Instead, he offered the Soviet Union youth, energy and—freshest of all—humanity.

Perestroika began with a bad omen: a nuclear explosion in Chernobyl. The accident, which the government tried to cover up, epitomised its dysfunction, arrogance and disregard for human life. Now, seizing his chance, he condemned a system "penetrated by servility, bootlicking, persecution of those who think differently, window-dressing, personal connections and clans". In its place he offered *glasnost*, openness. This, he told colleagues, was the true socialism.

In that spirit, in 1989 he declared the first-ever competitive elections to the Supreme Soviet. He also agreed that its debates should be televised for the first time. Millions of people saw Andrei Sakharov, a dissident physicist whom he had recalled from exile, openly challenge him. In those few days the political monopoly of the Communist Party was broken, along with the mystery of its power.

This was also a signal to all its parts that the Soviet Union was dissolving. In early 1991, desperately trying to hang on to the country, he fatally aligned himself with the forces of repression, sending Soviet tanks into Lithuania. A few months later the same KGB-led forces mounted a coup and put him under house arrest in Crimea, where he was on holiday. When the putsch collapsed and he returned to Moscow, he chose to go home to care for his wife Raisa, who had suffered a stroke, rather than to play a public politician.

In his unconcealed affection for his wife, he violated the code that demanded of Russian rulers a complete abnegation of private life. But then again, putting private life above the ephemeral interests of the state was his main credo. Leaving office was not the end, as it had been for most of his predecessors. And unlike his successors he had nothing to fear, no wealth to hide. In the first years after his resignation he did commercials for Pizza Hut to make money. By the standards of today's Russian elite, he was a poor man. The money from his 1990 Nobel peace prize was used to set up *Novaya Gazeta*, Russia's liberal newspaper.

When Raisa was diagnosed with leukaemia, he accompanied her to a German clinic to hold her in his peasant's arms. Soon after burying her, he appeared at a backstage party at the Moscow Art Theatre. An actor called on the ex-president to read or sing something. Everyone froze with embarrassment, except Mr Gorbachev. The crowd gave him space, and he sang Lermontov's poem, "Alone I set out on the road. The flinty path is sparkling in the mist." ■



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