

# The Economist

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Why people reject jobs

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How far will China's tech-bashing go?

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Robinhood and the merry mob

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Proteinotopia: biological origami

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JULY 31ST–AUGUST 6TH 2021

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## Dashed hopes

Emerging markets'  
growth problem



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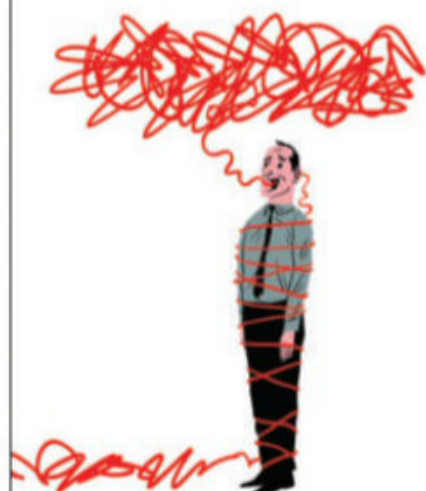
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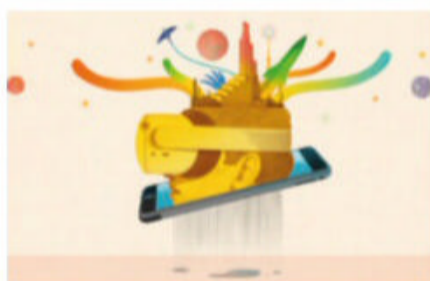
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**Tunisia's** president, Kais Saied, fired the prime minister, suspended parliament for 30 days and assumed executive authority. The power grab, he said, was justified by the constitution and necessary to quell unrest over a sputtering economy and one of Africa's worst outbreaks of covid-19. Many Tunisians cheered the move, which came after a day of protests aimed at the government. But international watchdogs raised concern over Mr Saied's actions to suppress dissent, such as banning public gatherings of more than three people. Ennahda, the largest party in parliament, accused him of a "coup".

A court in **Tanzania** charged Freeman Mbowe, leader of the main opposition party, with "terrorist-related" crimes. Mr Mbowe had been campaigning for changes to the constitution. Critics accused the new president, Samia Suluhu Hassan, of continuing the authoritarian practices of her late predecessor, John Magufuli.

The UN's food programme said it would soon run out of food in **Ethiopia's** war-torn Tigray region, leaving hundreds of thousands of people at risk of starvation. More than 100 lorries carrying emergency supplies have been halted in the neighbouring Afar region.

Soldiers from Botswana and South Africa arrived in **Mozambique**, where they will help the government battle jihadists who have overrun parts of the northern-most province of Cabo Delgado. They join 1,000 troops from Rwanda, who have already been involved in several fire-fights with the insurgents.

Eighteen track-and-field athletes, including ten from the 23-strong Nigerian delegation, were banned from the **Olympic games** in Tokyo over worries that they had not been sufficiently tested for performance-enhancing drugs.

**South Korea** and **North Korea** restored a key communication line, suggesting a tentative thaw in diplomatic relations between the two countries. The North had disconnected the hotline in spectacular fashion in June 2020 when it blew up the liaison office in the border town of Kaesong.

Civilian casualties from armed conflict in **Afghanistan** rose by nearly 50% during the first half of the year compared with the same six months last year, according to the UN. By early September, the last American soldier will have left Afghanistan (except for a few hundred to guard the airport and American embassy).

Joe Biden confirmed that America's combat role in **Iraq** will finish by the end of the year. The mission will instead switch to one of training and advice. Most of the 2,500 American troops in the country will remain there.

The American Senate voted to proceed with a compromise bill to increase spending on **infrastructure**, a key policy of the Biden administration. The bill picked up the support of 17 Republicans.

America's deputy secretary of state, Wendy Sherman, met counterparts from **China's foreign ministry** in the northern Chinese city of Tianjin. Ms Sherman was the highest-ranking American visitor to China since Joe Biden became president in January. The mood was gloomy: a Chinese official said Sino-American relations were at a "stalemate".

In **China** Sun Dawu, an outspoken businessman, was sentenced to 18 years in prison. Mr Sun was convicted of several crimes, including provoking

quarrels, assembling people to attack state agencies and illegal occupation of agricultural land. He has long been a critic of government policies.

A court in **Hong Kong** found Tong Ying-kit, a 24-year-old waiter, guilty of terrorism and inciting secession. Mr Tong had ridden a motorcycle while displaying a flag with the words "Liberate Hong Kong, Revolution of our Times" and had collided with several police officers. He was the first person convicted under a draconian security law, which China imposed on Hong Kong last year.

Pedro Castillo, a leftist former schoolteacher, was inaugurated as **Peru's** president. He said he would not govern from the presidential palace, which is on the site of the house of Peru's Spanish conquistador, and would go ahead with a plan to rewrite the constitution. But he promised "responsible change".

**Guatemala's** chief anti-corruption prosecutor, Juan Francisco Sandoval, fled to El Salvador after the attorney-general removed him from office. Hundreds of people protested at the presidential palace against Mr Sandoval's removal.

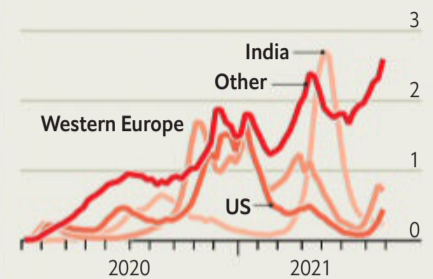
**Armenia** said three of its soldiers were killed in a border clash with **Azerbaijan**. Both sides accepted Russian mediation to ease tensions. There have been sporadic skirmishes between the two since the end of their brief war last year over the Nagorno-Karabakh region.

The **French parliament** approved a sweeping bill that obliges people to show a covid-19 health pass when entering a restaurant or bar, or boarding a train or plane. Emmanuel Macron hopes the measures will prod people to get vaccinated; millions have signed up for a job since he announced the legislation. More than 160,000 protesters took to the streets of Paris and other cities, decrying the bill as infringing on basic liberties.

## Coronavirus briefs

To 6am GMT Jul 29th 2021

Weekly confirmed cases by area, m



Vaccination doses

	Total '000	% of over-11s with	
		1st dose	2nd
Malta	747	100	95
Iceland	468	93	88
Mongolia	4,111	89	81
UAE	16,587	89	79
Uruguay	4,721	88	75
Israel	11,107	86	80
Chile	25,337	85	75
Denmark	7,090	82	60
Canada	48,255	81	65
Singapore	7,256	81	59

Sources: Johns Hopkins University CSSE; Our World in Data; United Nations

America's Centres for Disease Control reversed its earlier advice and said that people living in areas with a high prevalence of covid-19 should wear **masks** again in public indoor spaces. Meanwhile, the governors of California and New York said that state employees will be required either to take a **vaccine** or submit to weekly testing. Joe Biden prepared similar measures for federal-government workers.

Lockdown measures were extended by another four weeks in **Sydney**.

**Tokyo** reported a record number of new cases, though there was no big outbreak among participants in the Olympics.

In **Malaysia** someone reportedly broke pandemic restrictions by flying a helicopter 180km (112 miles) from Kuala Lumpur to pick up 36 portions of rice from a restaurant. Police are searching for any grains of evidence.

→ For our latest coverage of the virus please visit [economist.com/coronavirus](https://economist.com/coronavirus) or download the *Economist* app.

The Chinese government widened its crackdown on businesses that don't toe the Communist Party's line, targeting **private tutoring**, an industry worth \$100bn in revenue, which it decreed can now only operate without profit. Foreign investment will be restricted, no new licences issued, and curbs on teaching hours introduced. The constraints are harsher in tone than those imposed on the tech industry, but Chinese tech stocks swooned as investors wondered whether a broader clampdown was on the cards.

**Tencent's** share-price fall was among the steepest; it shed a sixth of its value. The Chinese tech giant has suspended new registrations on its WeChat social network while it upgrades the platform to comply with the government's latest edicts for the industry.

**SoftBank** is reportedly selling about a quarter of the stake it holds in Uber to offset the heavy losses from its holding in **Didi Global**, China's biggest ride-hailing company. Didi's market value slumped when Chinese regulators targeted it for investigation recently.

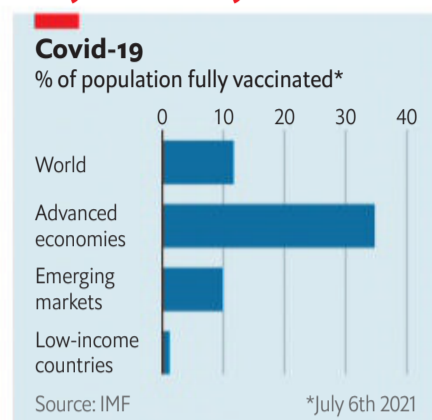
Meanwhile, China's securities regulator approved a secondary listing of shares by state-owned **China Telecom** on the Shanghai stockmarket, which could raise \$8.4bn.

Zomato's IPO was a roaring success in Mumbai. The food-delivery app is the first of several **tech firms in India** to whet investors' appetite with a market flotation. Paytm, a fintech firm, is next. Both it and Zomato count Jack Ma's Ant Group among their backers.

**Robinhood**, a trading app used by hordes of small investors to buy and sell stocks, not least the "meme" variety, priced its shares at the lower end of its target range ahead of its debut on the Nasdaq stockmarket. The unconventional broker has taken an unconventional approach to an IPO, eschewing the usual boardroom

presentations to institutional investors and selling a third of its shares to its customers.

### The jabbed and jabbed-nots



In its latest outlook, the IMF said that **access to vaccines** had become the "principal fault line" for the world economy, separating emerging markets and low-income countries, which are grappling with surging infections, from advanced economies. The fund increased its projections of growth for the rich world this year, but shaved its estimate for less-developed regions. It does expect all countries to have gained broad access to vaccines by the end of 2022.

**Pfizer** said it now thinks revenue from the vaccine it developed with BioNTech will reach \$33.5bn this year. The drug company is selling its doses for profit (as is Moderna).

AstraZeneca and Johnson & Johnson have said they will not make a profit from their vaccines until the pandemic ends.

**South Korea's** economy was 5.9% larger in the second quarter than it was a year earlier, during the depths of the pandemic. On that measure exports also rebounded, as they have in other countries. But by comparison with the first quarter of this year GDP expanded by just 0.7%, the slowest pace since the middle of last year.

**Facebook** doubled its net profit in the second quarter, year on year, to \$10.4bn. Its revenue from ads soared, suggesting that Apple's new privacy policy, under which iPhone users must give their clear consent for ad data to be collected, has had little impact on Facebook's business so far.

America's other tech stars also reported stellar earnings. **Apple's** quarterly net income of \$21.7bn was driven by iPhone sales; it is on track for a record profit for its fiscal year. **Alphabet** reported its best-ever quarter for revenue and profit, of \$18.5bn, boosted by online advertising as economies reopen. And **Microsoft** had another bumper three

months as the pandemic boon to its cloud-computing and Team communications businesses helped generate a profit of \$16.5bn.

A report by a law firm into **Credit Suisse's** dealings with Archegos Capital Management delivered a damning verdict on its risk management. The Swiss bank lost billions when Archegos went bust in March. The report highlighted how it had focused on short-term profits, and failed to see the hazard in Archegos's "voracious" hedging of stocks. Credit Suisse said the incident had been a "turning point" and it was now taking a more "conservative" approach to risk.

**Laying out the welcome mat**  
All visitors from America and the European Union who are fully vaccinated will no longer have to quarantine upon arrival in most of Britain (they will still have to take covid-19 tests). That is good news for the airline and tourism industries, which have been pleading with governments to ease travel restrictions. The Biden administration, however, has no current plans to lift its measures on visitors from Britain and the EU to the United States.



# Dashed hopes

**Unrest and economic underperformance stalk the emerging world. The key to better times remains openness**

AT THE START of the century, developing economies were a source of unbounded optimism and fierce ambition. Today South Africa is reeling from an insurrection, Colombia has suffered violent protests and Tunisia faces a constitutional crisis (see Leader). Illiberal government is in fashion. Peru has just sworn in a Marxist as its president and independent institutions are under attack in Brazil, India and Mexico.

This wave of unrest and authoritarianism partly reflects covid-19, which has exposed and exploited vulnerabilities, from rotten bureaucracies to frayed social safety-nets. And as we explain this week (see Briefing), the despair and chaos threaten to exacerbate a profound economic problem: many poor and middle-income countries are losing the knack of catching up with the richest ones.

Our excess-mortality model suggests that 8m-16m people have died in the pandemic. The central estimate is 14m. The developing world is vulnerable to the virus, especially lower-middle-income countries where remote working is rare and plenty of people are fat and old. If you strip out China, non-rich countries have 68% of the world's population but 87% of its deaths. Only 5% of those aged over 12 are fully vaccinated.

Alongside the human cost is an economic bill, since emerging markets have less room to spend their way out of trouble. Medium-term GDP forecasts for all emerging economies are in aggregate 5% lower than before the virus struck. People are angry and, even though protesting during a pandemic is risky, violent demonstrations around the world are more common than at any time since 2008.

Rich places, such as America and Britain, are no strangers to incompetence and turmoil. But disappointment has hit emerging economies especially hard. In the early 2000s they buzzed with talk of “catch-up”: the idea that poorer countries could prosper by absorbing foreign technology, investing in manufacturing and opening up their economies to trade, as a handful of East Asian tiger economies had done a generation earlier. Wall Street coined the term BRICS to celebrate Brazil, Russia, India and China—the world economy's new superstars.

For a while, catch-up worked. The proportion of countries where the level of economic output per head was growing faster than in America rose from 34% in the 1980s to 82% in the 2000s. The implications were momentous. Poverty fell. Multinational companies pivoted away from the boring old West. In geopolitics catch-up promised a new multipolar world in which power was more evenly distributed.

This golden age now looks as if it has come to a premature end. In the 2010s the share of countries catching up fell to 59%. China has defied many doomsayers and there have been quieter Asian success stories such as Vietnam, the Philippines and Malaysia. But Brazil and Russia have let down the BRICS and, as a whole, Latin America, the Middle East and sub-Saharan Africa are falling further behind the rich world. Even emerging Asia is catching up more slowly than it was.

Bad luck has played a part. The commodity boom of the

2000s fizzled out, global trade stagnated after the financial crisis and bouts of exchange-rate turbulence caused turmoil. But so has complacency as countries have come to think that fast growth was preordained. In many places basic services such as education and health care have been neglected. Crippling problems have been left unfixed, including South Africa's idle power plants, India's rotten banks and Russia's corruption. Instead of defending liberal institutions, such as central banks and the courts, politicians have used them for their own gain.

What happens next? One risk is an emerging-market economic crisis as interest rates in America rise. Fortunately most emerging economies are less brittle than they were, because they have floating exchange rates and rely less on foreign-currency debt. Long-running political crises are a bigger worry. Research suggests that protests suppress the economy, which leads to further discontent—and that the effect is more marked in emerging markets (see International section).

Even if emerging economies avoid chaos, the legacy of covid-19 and rising protectionism could condemn them to a long period of slower growth. Many of their people will remain unvaccinated until well into 2022. Long-term productivity could be lowered as a result of so many children having missed school.

Trade may also become harder. China is turning inward, away from the broadly open policies that made it richer (see next Leader). If that continues, China will never be the vast source of consumer demand for the poor world that America has been for China in recent decades.

The West's increasing protectionism will also limit export opportunities for foreign producers which, in any case, will be less advantageous as manufacturing becomes less labour-

intensive. Unfortunately, rich countries are unlikely to make up for it by liberalising trade in services, which would open up other paths to growth. And they may fail to help exposed economies such as Bangladesh—a success story—adapt to climate change.

Faced with this grim landscape, emerging markets may themselves be tempted to abandon open trade and investment. That would be a grave error. An unforgiving global environment makes it even more important for them to stick to policies that work. Turkey's notion that raising interest rates causes inflation has been disastrous; Venezuela's pursuit of socialism has been ruinous; and banning foreign firms from adding customers, as India just has with Mastercard, is self-defeating. When catching up is hard, those emerging markets which stay open will have the best chance.

## Catch up, don't give up

Some rules have changed: universal access to digital technologies is now vital, as is an adequate social safety-net. But the principles of how to get rich remain the same today as they ever were. Stay open to trade, compete in global markets and invest in infrastructure and education. Before the liberal reforms of recent decades, economies were diverging. There is time yet to avoid a return to the needless hardship of old. ■



## China's tech-bashing

## Get poor quickly

## China's crackdown on the online-education business marks a turning-point

TO GET RICH is glorious, Deng Xiaoping supposedly said. "To get as rich as Jack Ma is clearly not so glorious," quipped an investor last November when the initial public offering of Mr Ma's Ant Group was cancelled on the say-so of China's financial regulators. A lot of foreign investors interpreted it as a slap-down to China's best-known billionaire and thus a warning to the country's other plutocrats not to get too big for their boots.

But in the months since then the scope of the regulatory crackdown has grown ever wider. China's two internet giants, Alibaba and Tencent, are being worked over by the antitrust authorities. Earlier this month Didi Global, a ride-hailing service, was caught in the net just days after it listed in New York. And in the past week the education-technology industry has become a target. New regulations bar any company that teaches subjects on the school curriculum from listing abroad, having foreign investors or making profits. When it comes to teaching school-children, no one should get rich.

The market response to the latest bureaucratic diktat was a sharp sell-off (see Business section). The share prices of a trio of Chinese online-tutoring firms listed in New York fell by two-thirds. The panic spread to other Chinese firms listed in America. The Nasdaq Golden Dragon China Index, which tracks the biggest stocks of this kind, fell by almost 20% over three days. The contagion took in China's onshore market, with share prices down across the board.

China's preferences now seem clear. It wishes to see capital raised on its own exchanges, within its purview and on the terms that it dictates. The effects of this on financial markets are likely to linger. China itself may be the biggest loser.

Start with the effect on the market value of tech firms outside China. The tech-heavy Nasdaq index also sold off in response to the rout of Chinese tech stocks, because the latest episode signalled that investing in technology carries regulatory risk. In

America Joe Biden's administration has also sought to strengthen oversight of big tech, by beefing up antitrust. But trustbusting in America takes place in a legal context. There is a body of jurisprudence that limits how far the authorities can go in clipping the wings of tech giants, even those making profits many find obscene: Alphabet, Apple, Facebook and Microsoft all reported a record second-quarter haul this week. If Chinese rivals are mired in red tape, that is all to the good of big tech in America.

And the clampdown will indeed harm Chinese tech. Investors who piled in during recent years have this week been pumelled in public markets. Private American capital is also tied up in Chinese startups. The value in those ventures is now, in effect, frozen. The route to an IPO for a young Chinese firm—the reliable way for venture capitalists to get their money back—now borders on perilous. A lot of Chinese firms have raised money abroad in vehicles known as variable-interest entities, which are essentially synthetic shares. This route may now be blocked for ever. And venture capitalists will surely be charier about backing Chinese tech startups, however promising.

Still more worrying is that any investment, even in an onshore non-tech firm, is now at risk from arbitrary rule changes. That will raise the cost of capital for Chinese firms. China's securities regulator hastily convened a meeting with international bankers this week to reassure them that only education-based firms were being targeted. It suggests that China's policy brass, having startled markets, have realised that they may have miscalculated.

It certainly looks that way. The capital markets are not a tap that regulators can turn on and off when it suits them. True, investors' memories can be short. But China is gaining a reputation for regulatory high-handedness that it can shed only by starting to follow transparent rules—and that is precisely the sort of subordination the Communist Party abhors. ■



## Tunisia

## Relighting a beacon of democracy

## The way out of Tunisia's crisis

THERE IS BUT ONE success story to come out of the Arab spring. Among the countries that toppled dictators a decade ago, only Tunisia emerged as a full democracy. Its free and fair elections, featuring Islamists and secularists, free-marketeters and communists, stand out in a region littered with despots. Liberals consider it a beacon of hope: if democracy could flourish in Tunisia, why not in the rest of the Arab world?

Tunisians don't see their country as much of a model. Ten governments in ten years have failed to curb graft, improve services or create jobs. The most recent one, led by Hichem Mechichi, struggled to deal with one of Africa's worst outbreaks of

covid-19. On July 25th tens of thousands of Tunisians, braving the heat and defying a lockdown, protested against his inept administration. That night President Kais Saied suspended parliament and seized power (see Middle East & Africa section).

What a shame that it has come to this. Mr Saied was elected two years ago as a rebuke to the political class. He is popular, in large part because he has no political experience. Many Tunisians celebrated his power grab, hoping that he would clean things up. Yet democracy is a fragile thing and Mr Saied is treating it roughly. His claim to be acting in line with the law rings hollow. Large parts of parliament have rejected his actions, some ▶▶



▶ calling them a “coup”. Already facing economic and health crises, Tunisia now faces a constitutional one as well.

This is not the first time its nascent democracy has been pushed to the brink. Secular and Islamist forces faced off in 2013-14 after two political assassinations. Tunisia’s leaders, urged on by labour unions and civil-society groups, eventually hashed out compromises that saved the system. Since then, though, unemployment has remained high and corruption rife. As in other countries, the coronavirus has added a new layer of instability (see International section). Many Tunisians are nostalgic for the period before the revolution, when there was at least the perception of order under Zine el-Abidine Ben Ali, the last dictator.

However, Ben Ali also left Tunisians angry and despondent (even as he tortured dissidents and plundered the state). A replacement strongman is not the answer to Tunisia’s problems. Does Mr Saied hope to become one? The former law professor strikes many as incorruptible, but also unyielding. Under the constitution, he can suspend parliament for a maximum of 30 days, yet he says he may wait “until the situation settles down”. He has barred public gatherings of more than three people. The police in Tunis have raided Al Jazeera, a media outlet seen as sympathetic to the Islamists of Ennahda, the biggest party in parliament. None of this bodes well for Tunisian democracy.

Mr Saied makes no secret of wanting radical reform of the political system. To begin with, he would like the president to have more power and to get rid of parties and some elections. Such is

the dismal state of Tunisia that no idea should be dismissed. But even if he has the solutions to the country’s political problems, Mr Saied will struggle to implement them alone. Supporters of Ennahda, which styles itself “Muslim democratic”, will not roll over. Nor will the other parties pushed aside by the president, who is an independent.

Many Tunisians blame Ennahda for their country’s ills. But Rachid Ghannouchi, its leader and the Speaker of parliament, helped Tunisia through the crisis in 2013-14 by joining a national dialogue and working with Beji Caid Essebsi, a rival at the time. To his credit, Mr Ghannouchi is again being pragmatic. Ennahda has called on its supporters to leave the streets and suggested a new national dialogue. Mr Saied should take up its offer.

Western democracies ought to lend their support. Over the past decade countries such as America and France, Tunisia’s former colonial master, have done relatively little to keep the only true Arab democracy on track. More aid would certainly help. In a sense, the West must outbid Saudi Arabia and the United Arab Emirates, which have opposed the Arab spring. Yet in response to Mr Saied’s actions, America has merely expressed concern.

Ultimately, though, the responsibility for fixing Tunisia falls on its leaders. Painful reforms are needed to bring down big deficits and attract investment. Politicians have squandered a decade by taking, at best, half-measures. Tunisians are right to be angry, but they should not give up on democracy. Rather, when their leaders fail, they should vote them out. ■

### Biological origami

## Proteinotopia

**Remarkable progress in understanding the folding of proteins will help open up almost limitless vistas**

WHEN ST JOHN THE EVANGELIST wrote of the Word becoming Flesh, he was drawing on ideas of reason and order derived from classical Greek philosophy. But he was also providing a succinct description of the most basic truth in molecular biology. In a wonderful and ancient mechanism called the ribosome, words—in the form of messages stored in DNA—are translated into flesh, in the form of proteins.

Proteins are flesh both literally, in that they give meat the texture and bloodiness that carnivores savour, and figuratively, in that their actions lie behind all the strengths and frailties of body and mind. Both their manipulation and their mass production are fundamental to modern pharmacology. The huge market for statins rests on the way they interact with the workings of a protein called HMG-CoA reductase; Keytruda, the world’s biggest-selling cancer drug, is a protein itself, a subtly tweaked antibody which turns off a mechanism that lets cancers evade the immune system. Understanding the form and function of proteins is crucial to medicine, to agriculture and to replacing the petrochemicals currently produced from oil. And that understanding is fast deepening.

Proteins are created as chains of smaller molecules called amino acids. The ribosome can fill each link in the chain with one of 20 different varieties of them. The words stored in DNA set out which of those 20 types of amino acid goes where. The process is explained in this week’s “Biology brief”, the first of six.

In order to take on the shape required of it, a protein must fold itself up into a specific form, a process which produces all manner of kinks, twists, swirls, sheets and cavities. The shape depends on the amino-acid sequence, but the interactions between the hundreds of amino acids are just too complex for the sequence alone to reveal much. To understand the structure of a protein in detail, scientists have had to make comparatively large amounts of it, coax those molecules into forming a crystal (or, more recently, flash-freeze them) and bombard the sample with x-rays (or, if it is a frozen one, electrons). These procedures take time, money and effort. Only a tiny fraction of the proteins whose sequences are known have been studied this way.

Now things look likely to get considerably easier. AlphaFold, a very elegant piece of software developed by DeepMind, a British AI company, has learned from the detailed study of sequence and structure to make predictions of protein shapes using just the amino-acid sequences of their very bendy backbones. On July 22nd DeepMind, which, like Google, is owned by Alphabet, made 350,000 of its predictions freely available to all, having released the code the week before. Millions more such predictions are expected soon.

As those suspicious of hype rightly point out, not all of these will be equally good and better prediction does not do away with the need for other ways of exploring protein structure. AlphaFold will not be the last word in the application of AI to the pro-▶



blem. All that said, the software looks likely to be massively useful, helping researchers spot possibilities and dead ends more quickly and letting them take on projects they would otherwise have steered clear of. If AlphaFold is not soon providing useful pharmacological results, as well as lots of basic biology, it will not be for want of application.

AlphaFold will also help usher in an era of altogether stranger things. Proteins are typically made from 20 different amino acids, each of which can, in principle, sit at any point in the chain. With 20 choices as to what should follow the first amino acid, you have  $20 \times 20 = 400$  possible amino-acid doublets,  $20 \times 20 \times 20 = 8,000$  triplets and so on. By the time you get to an eight-amino-acid chain, there are more possibilities than there are people on Earth. Human proteins are typically 400 amino acids long; many have lengths in the thousands. There is no type of physical thing in the observable universe remotely as numer-

ous as the possibilities inherent in a 400-amino-acid protein.

The “potential protein space” such calculations reveal is thus a cosmos unto itself, ordered yet near infinite. The bit that evolution has explored so far—which contains wonders as diverse as proteins that flex like springs, spin like wheels, extend like pistons and crank like ratchets, that turn sunlight into chemical energy, that build, demolish and recycle all the components of life and do more besides—is but the tiniest corner of it. Already some scientists are working on “de novo” proteins well outside nature’s comfort zone as ways of making tiny mechanisms and machines. As tools like AlphaFold increase the ease of molecular design, they will be joined by many more.

Compared with the designs evolution has honed over billions of years such things as this will be the crudest of toys, at least to begin with. But who can say what new flesh the designers’ words will eventually bring into being? ■

### The Philippines

## How not to deal with China

### Rodrigo Duterte’s China policy has shown the folly of appeasement

FACED WITH a bully, you have two choices. One is to confront, as Rodrigo Duterte threatened when campaigning in 2016 to become president of the Philippines: he declared he would deal with the country’s dispute with China in the Spratly Islands by riding a jet ski into the contested waters waving the national flag. In office, Mr Duterte has taken the other path, trying to bribe, flatter, cajole and wheedle the bully into more reasonable behaviour. This has turned out to be as silly and futile as a jet ski.

As Mr Duterte prepares to leave office next year at the end of the one term the constitution allows him (see Asia section), relations with China are no better than in 2016, when his term began. Benigno Aquino, his predecessor who died in June, once likened acceptance of China’s creeping maritime expansionism to the appeasement of Nazi Germany in the 1930s. Mr Duterte, in contrast, soon after becoming president, visited Beijing, where he announced his military and economic “separation” from America, telling his Chinese audience: “I will be dependent on you.” China promised billions of dollars in investment and concessionary loans. The two sides agreed to open negotiations over fishing waters in the South China Sea.

That swatted aside one of Aquino’s achievements: a landmark victory five years ago when a UN tribunal ruled that China’s expansive claims in the South China Sea had no basis in international law. China ignores the judgment, and Mr Duterte often rubbishes it. “That’s just a piece of paper,” he said in May. “I will just throw it into the wastebasket.”

Mr Duterte, however, does not have much to show for letting China trample his country’s rights. Only three of a planned 14 Chinese-financed infrastructure projects have broken ground. Of \$15bn-worth of promised investment, only \$3.2bn was approved in 2016-20. And although soft loans and grants from China have risen from \$1.6m in 2016 to \$590m in 2019, America provided almost as much; Japan’s aid totalled \$8.5bn. Unusually for a South-East Asian country, the Philippines still does more trade with both Japan and America than it does with China.

Nor has the friendly approach restrained China’s maritime expansionism. In March some 200 of its fishing boats—or, as some called them, maritime militias—staged one of the biggest and longest-lasting incursions into Philippine waters. The Philippine foreign minister likened China to “an ugly oaf forcing [its] attentions on a handsome guy who wants to be a friend”. Mr Duterte, however, still insisted China was “a good friend”.

Yet Mr Duterte has not followed through on his other pledge in Beijing by jettisoning the alliance with the Philippines’ former colonial power, America, despite its infuriating harping on about his human-rights abuses. A 70-year-old mutual-defence treaty remains in place, and Mr Duterte’s threat to abrogate a Visiting Forces Agreement signed in 1998 has so far proved hollow. Facing resistance from the army and others, Mr Duterte has to

keep “suspending” termination. Indeed, some of Mr Duterte’s own political allies take issue with his stance on China. And though he remains popular with voters, China does not. Whoever succeeds Mr Duterte is thus likely to revert to a more nuanced foreign policy, seeking to keep America engaged and to stand up more to China.

Nobody said that dealing with China would be easy. It likes to remind its neighbours that it is a big country that they will find hard to resist. South-East Asian countries have a weak hand. All the more reason not to throw away their three strongest cards, as Mr Duterte did so thoughtlessly.

One is regional solidarity. Other countries, too, including Malaysia and Vietnam, are at odds with China in the South China Sea, and their regional association, ASEAN, has long sought to get China to agree to a code of conduct there. The second is friendship with America, with all its military might. And the third is that, in the long run, playing these first two cards is the best way to encourage China to see that its interests lie in a world where countries agree to follow an accepted set of rules—and that, far from being a piece of waste-paper, that ruling five years ago was the law. ■





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**Liberty v security**

“Power and paranoia”, the cover title to your special report on the Chinese Communist Party (June 26th), might equally well be the result of unfettered capitalism, so why pick on China? *The Economist* does a decent job of presenting the pros and cons of government policies, but you seem incapable of seeing the basic role of government as most people in the world view it.

The vast majority of the globe’s inhabitants believe that the purpose of government is to maintain stability, tranquility and national defence, and not to protect individual liberty or provide social equality. For most, those ideals are the antithesis of traditional social norms. I especially think you have a bad take on China. The fact that there were only ten dynasties in a 4,000-year history shows that rocking the boat was considered an affront to the ancestors, the gods and to humanity. Laws made sure the masses fell in line. It worked for them, where democracy may never.

Until you recognise that most cultures are still built on a firm foundation that ranks stability—from the rule of kings, dictators or imams—as the paramount necessity of a society’s existence, you will never understand the world as most people see it.

KIRK LOVENBURY

*Williamsburg, Virginia*

Your special report was a tour de force. Yet there was a contradiction. Your leader speaks of the Communist Party’s continuing popularity (“Still going strong”, June 26th). But the report documented its ever more closer control and monitoring of the population. This doesn’t suggest a party confident of popular support. I’d put my money on the party’s judgment. We can never gauge popular feeling in a totalitarian state. Too easily we mistake resignation for support.

PETER ROWE

Former Australian ambassador to South and North Korea  
*Sydney*

**Absolute monarchs**

In 1968 Eswatini (formerly Swaziland) emerged from 65 years of British colonial administration with a constitution considerably more inadequate than your article on the country’s present troubles suggests (“The king’s reply”, July 10th). Commonwealth Office officials admitted as much, describing King Sobhuza’s constitutional position as being more like that of Queen Victoria or even George III. This was in part the result of Sobhuza’s deft political manoeuvres. In embracing atavistic governance rituals he cultivated popular support among rural Swazis.

Curiously, he also won backing from white settlers fearful of one man, one vote, as well as tacit endorsement from apartheid South Africa’s leaders. Most notably of all, he convinced key Tory politicians in London that he was a loyal ally. Sobhuza’s costumed “tribal” performances had a magnetic appeal for Britons and settlers reared on the African imaginings of John Buchan and H. Rider Haggard, no less than for anthropologists from the London School of Economics.

Unexpectedly, the continuation of such performances today by King Mswati has suited South Africa’s African National Congress since 1994. And no one more so than Jacob Zuma, who empowered his own country’s traditional leaders and cultivated the old “reserve” areas as core bastions of party support.

PETER HENSHAW

*Ottawa*

**Mitigation is worth it**

“Pain now, gain later” (July 17th) reported on analysis by the Office for Budget Responsibility of Britain’s pathway to net-zero mitigation on climate change. You interpreted the cost calculated by the OBR as 15% of annual gross domestic product. Yet the figure could have also been reported as 0.5% of GDP a year, under the more realistic assumption that

the £321bn (\$443bn) net cost will be incurred over a 30-year period (the report looks forward to 2050). What is closer to 15% of annual GDP is the size of the fiscal measures that the British government has pledged for the post-pandemic recovery, according to the IMF. That is a useful number to consider because it makes the cost of decarbonisation paltry by comparison.

The example of insulating a building to illustrate the lag between the spending and the benefits of mitigation (lower heating bills, but in the future) did not really do the job either. Generally, return rates on energy savings outperform most other options for investments. If anything, it is an example of one of the most prudent forms of putting your money where your mouth is right now. And that is before the huge benefits of reducing emissions in terms of preventing damage from climate-change-induced extreme events or lessening the impact of air pollution on health. With all that in mind I am not sure on what basis your “Treasury insiders” expect public support for net zero to evaporate.

MARINA ANDRIJEVIC

*Berlin*

**Nation-building crumbles**

“Abandoning Afghanistan” (July 10th)? Oh, come on. The American experience in Afghanistan is not appreciably different from the Soviet one in the 1980s and, indeed, the British experience in the 19th century. It is fundamentally flawed reasoning to assume that one can change a collection of tough people with an archaic, nay, atavistic, set of tribal ethics and mores into a larger nation with a representative government. It took the Western world 2,000 years to do this. What makes us think we can make it happen elsewhere, and in a comparatively short time frame, particularly now that colonialism is frowned upon?

Right from the outset, it was a commonplace observation among coalition troops in

Afghanistan that where the Taliban was concerned, “We have the wristwatches, they have the time.” The outcome was always apparent; we knew it and so did they.

What is surprising is that we never seem to learn. The blood and treasure that has been spent in Afghanistan, and Iraq and Somalia, is a painful stupidity tax on our hubris.

K. JONES

*Edmonton, Canada*

**Young man...**

Your leader on performance-enhancing drugs in sport stated that Russia is banned from the Tokyo Olympics for its doping programme (“A cloud of suspicion”, July 17th). Although technically true, Russian athletes are still competing. They are not allowed to use the country’s flag; yet their uniforms are in Russia’s national colours. Their national anthem is also banned; though they are allowed to use Tchaikovsky’s Piano Concerto Number 1, music clearly associated with Russia.

That is not a serious deterrent. A more creative approach would have seen Russian medal winners taking to the podium accompanied by the triumphant chords of “YMCA”. No song could better distance these Olympians from Vladimir Putin’s mendacious and repressive regime. You might even throw in some rainbow uniforms to match.

JAMES D.J. BROWN

*Tokyo*

If the Olympic committee really wants to promote the games to a broader audience, it might be best not only to ban the latest tech running shoes, but revert to the ancient Olympic style and require everyone to compete naked.

JON GODFREY

*Gilmanton, New Hampshire*

Letters are welcome and should be addressed to the Editor at The Economist, The Adelphi Building, 1-11 John Adam Street, London WC2N 6HT  
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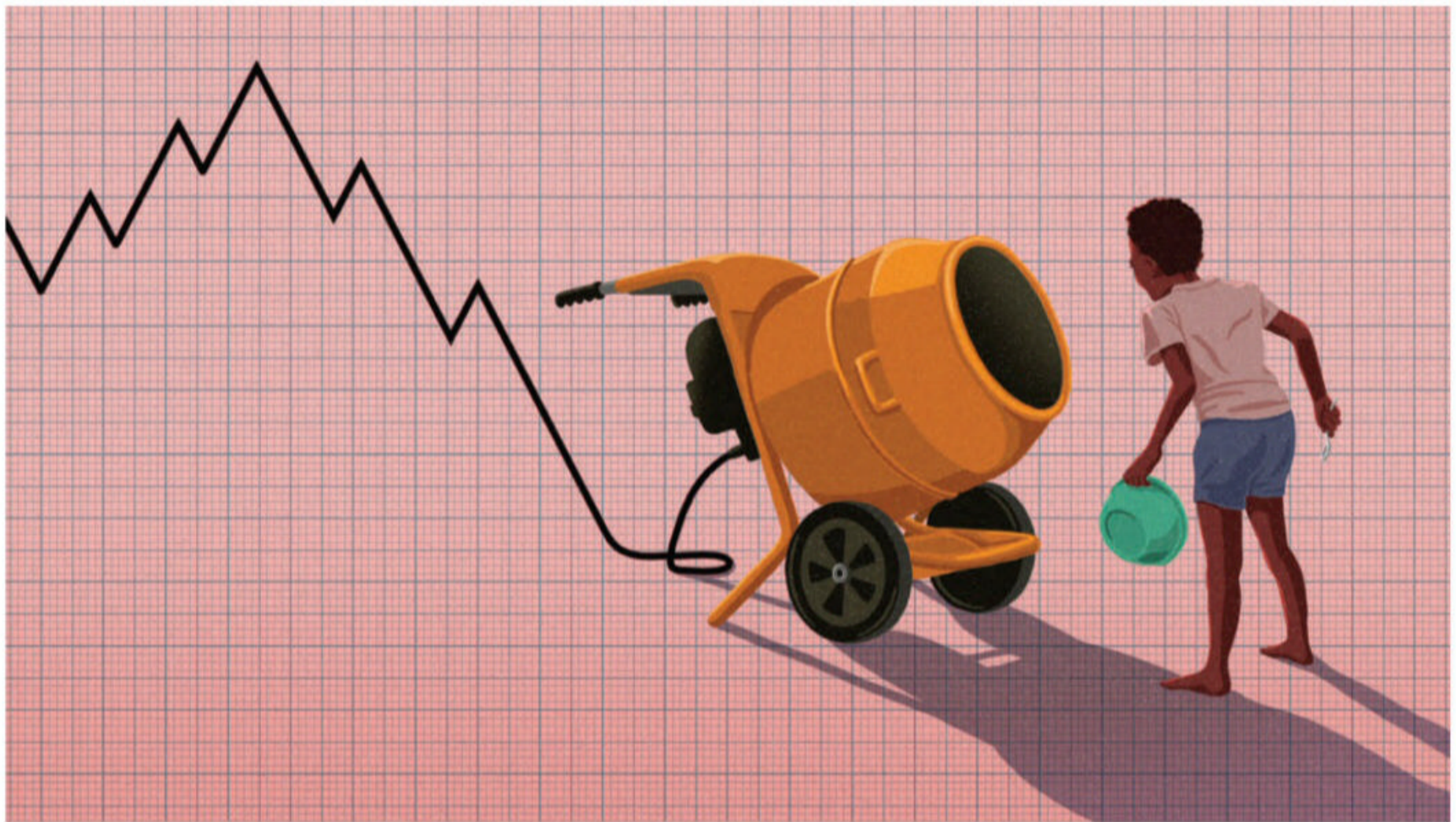
## Appointment of Director General

Science Foundation Ireland (SFI) is the national foundation for investment in research in the areas of science, technology, engineering, and mathematics (STEM), which assist in the development and competitiveness of industry, enterprise, and employment in Ireland. It also promotes and supports STEM education, engagement, and career development, and the value of STEM to Ireland's economic and societal development. With a vision to further enhance Ireland's reputation as a Global Innovation Leader in scientific and engineering research, SFI's new Strategy 2025 – Shaping Our Future – is designed to meet current challenges and to position Ireland to take advantage of future opportunities.

The Board of SFI is now seeking to appoint an outstanding individual to the role of Director General (Chief Executive Officer) of the Agency. Reporting to the Board, the Director General will be an inspiring leader with a proven track record of achievement in academia, industry, or government/public sector. They will bring a deep understanding of the international research environment, and the strategic vision, leadership and management experience to deliver effectively on the mission and vision of the Agency.

SFI will be supported in this appointment process by the executive search firm Perrett Laver. For further details, including job description, person specification and information on how to apply, please visit <https://www.perrettlaver.com/campaigns/sfi-director-general>. For informal enquiries please contact [SFI@perrettlaver.com](mailto:SFI@perrettlaver.com). The deadline for applications is **noon IST on Wednesday 1<sup>st</sup> September 2021**.

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## A mixed-up slowdown

WASHINGTON, DC

### The prospects for developing countries are not what they were

IN 2000 THIS newspaper wrote that “the most pressing moral, political and economic issue of our time is third-world poverty.” At the time, 28% of the world’s population lived in extreme poverty, which is to say on incomes of \$1.90 a day or less. Nearly one billion of those 1.7bn people lived in India and China.

Just a year later, Jim O’Neill, then the chief economist for Goldman Sachs, a bank, grouped those two countries, along with Brazil and Russia, into one of the defining acronyms of the 2000s: the BRICS. Though at the time the quartet accounted for only 8% of global economic output, Mr O’Neill argued that, given their population, even modest growth in their output per person would increase that share significantly, and that such growth looked likely. Investors were urged to take note. So were policymakers.

By 2003 Goldman Sachs’s researchers were forecasting that the BRIC economies would, by 2025, have a combined GDP at least half that of the G6 (America, Britain, France, Germany, Italy and Japan). By 2040 they expected the BRICS to have pulled

ahead. A dramatically different world was on its way, one in which the big emerging economies had pretty much caught up with the developed economies of the North in economic heft if not in terms of income per person.

The first prediction was too conservative. From 2000 to 2011, the BRICS grew on average by a startling 17% per year, in nominal US dollars at market-exchange rates, while the G6 grew at just 4%. They reached half the G6’s GDP by 2017, not 2025. In 2021, the IMF projects, BRIC GDP will be worth about 57% of the G6’s (see chart 1 on next page). Last year China announced that it had eradicated extreme poverty. As of 2018 the number of people living in extreme poverty in India had fallen below the estimated 99m people living in extreme poverty in Nigeria. It is a historic achievement.

The 2040 prediction looks more troubled. Growth in advanced economies and developing ones slowed a lot in the 2010s. From 2011 to 2019, G6 growth fell by more than half to below 2% per year. Growth across the BRICS, on the other hand, dropped by nearly 70%, to just 5% per year.

The picture across other low- and middle-income countries looks broadly similar. From 2000 to 2011, the weighted average annual growth rate of GDP, in US dollar terms, was a robust 9% for emerging economies when the BRICS were excluded. Real income per person in developing countries as a fraction of real incomes in America (generally considered the *ne plus ultra* in economics) was 12.1% in 2001. By 2011 it was almost half again as much: 17.8% (see chart 2 on next page).

But by the time that measure reached its peak—18.4% in 2013—incomes in the Middle East, Central Asia and Latin America were already in decline relative to those in the United States. By the next year incomes in Africa were dropping further behind those in America, too. Only South and East Asia and the emerging parts of Europe have kept gaining on American incomes. For the developing world as a whole, real income per person has fallen back to 18.1% of what it is in America; not a terrible reverse, but definitely a stagnation.

### Playing catch-up

The 2010s were hardly a terrible decade. Indeed in terms of emerging-market growth they were the second-best decade in history. The problem is that the 2000s were so much better. In terms of the impact on human lives, there can be few bigger questions than whether growth in the 2020s will return to the heights of the startling 2000s, hang around the levels seen in the adequate 2010s, or continue its downward ▶▶

▶ trend. Such a trajectory would make talk of any significant part of the developing world “catching up” with the advanced economies look increasingly foolish.

Economists once thought that poorer countries ought naturally to catch up with richer ones. Becoming rich seemed little more than a matter of borrowing technologies from more mature economies and equipping workers with more capital, of both the physical and human sort.

Yet in the aftermath of the second world war joining the ranks of the rich was revealed to be harder for the previously colonised world than had been thought. Investors occasionally grew enthusiastic about the prospects for poorer countries, as in 1981, when a World Bank employee named Antoine van Agtmael coined “emerging markets” as an eye- (and money-)catching name for a new third-world investment fund. But only a few countries made the leap from poor to rich over the latter decades of the 20th century: a South Korea here and a Taiwan there.

It was against this background that the rise of the BRICS seemed truly startling. But it was hardly an overnight success. In the late 1970s China began a long process of economic liberalisation; India started relaxing state control over its economy in 1991. Debt and financial crises which had dealt devastating setbacks to growth from the 1970s saw a broad-based shift in policy across the developing world towards what is often referred to as the “Washington consensus”: becoming more open to trade and keeping government borrowing and inflation in check.

To this already healthy soil three further fertilisers were added. One was the arrival of persistently low interest rates and globalised finance, which provided a lot of money willing to seek out opportunities in emerging markets judged to be more stable than they had been. Another was a broad and sustained rise in commodity prices, which boosted the fortunes of many developing-world economies.

The third was explosive growth in trade.

Manufacturing for export, a time-tested route to catching up, had once required the slow and difficult process of building up an indigenous industrial base. But as production processes once contained within a single plant or country spread out along global supply chains it became possible for poorer economies to begin producing for export by grabbing hold of small pieces of production networks, rather than recapitulating everything.

As a share of global GDP, trade rose from 39% in 1990 to 51% in 2000, eventually reaching a peak of 61% in 2008. China, through which most of the new supply chains ran, saw its share of global exports rise from about 2% to 9% over the same period. Its share of global GDP rose from 4% to 12%.

The added effects of two of the three fertilisers, the commodities boom and the boom in trade, both wore off in the 2010s. The IMF’s index of commodity prices roughly tripled from 2000 to 2011. After that it began to fall, and in doing so exposed those economies which had enjoyed a superficial boom built on higher prices for their resource exports and easy credit.

Trade growth also slowed. Having recovered encouragingly after the global financial crisis of 2007-09, in the mid 2010s trade began to decline slightly as a share of global GDP (see chart 3 on next page). There were a number of reasons for this, but an important one was a decisive shift in Chinese policy. The pace of reform slackened; state intervention increased as the government made a push for self-sufficiency.

### Slowdown boat to China

The Communist Party’s interest in reducing the role of state-owned enterprises, key to the dramatic increase in the size and importance of privately owned firms during the boom years, waned in the 2010s. Such firms generate lower returns on their assets than their private cousins while carrying higher levels of debt.

China’s failure to go on liberalising has slowed traffic on the most desirable path to development for the rest of the emerging world. If China had grown more and its consumption patterns had converged with those of advanced economies it would have become an ever greater market for other developing countries. But insufficient reform has also left consumption well short of the level common in economies with comparable incomes (like Mexico and Thailand), to say nothing of those in the rich world.

China’s domestic market, while still enormous, is thus substantially less massive than it might have been, and its imports a lot less than they could have been. To exacerbate matters China remains much more dependent on manufacturing than many comparably rich economies.

## A long way to go

GDP per person as % of US GDP per person



Countries typically begin to shed some industrial production as incomes rise and producers seek out low-wage workers elsewhere. But China has resisted this trend, thanks partly to its stalled progress on reform and partly to a deliberate effort to become more self-sufficient.

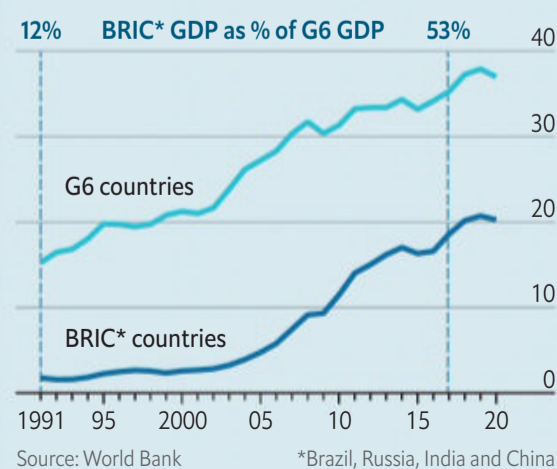
An analysis by Shoumitro Chatterjee of Pennsylvania State University and Arvind Subramanian of the Centre for Global Development notes that, though China has not given up ground in terms of manufacturing exports in aggregate, it has ceded some market space in particularly labour-intensive manufacturing industries such as production of footwear, clothing and furniture. And yet its losses have, on the whole, been quite small, and have led to limited and concentrated gains in export-market share for other economies. China’s share of global footwear exports declined from 40% to 32.5% between 2008 and 2018, for example; Vietnam—the biggest beneficiary of changes in China’s export profile—captured 5.9 of the 7.5 percentage points in export space vacated by China.

China’s failure to import manufactured goods on the scale that might have been expected exacerbates what Dani Rodrik of Harvard University has dubbed premature de-industrialisation. Producing goods for export no longer seems able to propel a developing economy as far down the road towards rich-world incomes as was once the case. Low Chinese demand is far from the only factor. Greater manufacturing productivity has pushed the global price of manufactured goods down. It is increasingly common for even low-income countries to import them rather than learn to make them for others.

Very poor countries in Africa could still enjoy a big boost to productivity and incomes by increasing the role of manufacturing in their economies. But as Mr Subramanian notes, the development of machines which can handle ever more of the tasks now done by human workers at ever lower costs cannot help but limit the scope ▶▶

## A game of two halves

Nominal GDP, \$trn, at market exchange rates



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With the boosting effects of commodity prices and trade growth in abeyance, what of the third factor that kicked off the glory years of the 2000s: interest rates? They remain low. But a post-covid-19 rich-world boom, which would in general be a good thing for developing countries, carries some risks on that front. Some economists warn that big spending in America threatens to unleash inflation in a way which could force the Federal Reserve to raise interest rates earlier, and perhaps more sharply, than currently expected. The spread of high interest rates could wreak havoc, leading to crashing asset prices and drawing a lot of capital away from the emerging world.

Even a modest rise in American interest rates in coming years, prompted by healthy growth and falling unemployment, could catch out some overstretched governments, much as the Fed's decision to stop stimulating the economy by buying assets led to acute discomfort for a "fragile five" nations (Brazil, India, Indonesia, South Africa and Turkey) in 2013.

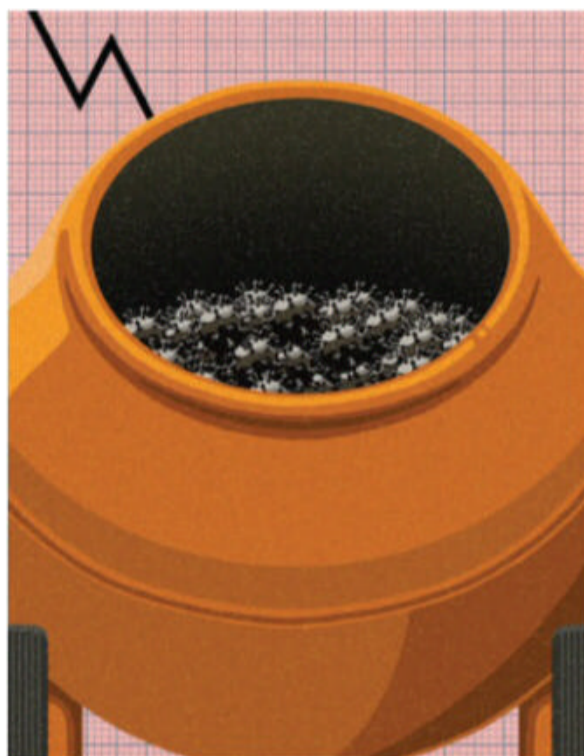
But for now the risk of calamity seems to be low. Interest rates are an unreliable guide to future inflation, but yields on American government bonds have actually declined in recent weeks at all maturities. A robust recovery across advanced economies without a long-term shift towards higher interest rates is quite plausible as well as highly desirable.

### Delta blues

If the effects of covid-19 are not felt in the form of developed-world monetary policy, though, they will still be devastating. In 2020 output across the emerging world fell by 2.1%. That average is skewed upwards, however, by the fact that China, having managed to contain its initial outbreak, actually saw its economy expand. Other major emerging markets fared far worse. India's economy shrank by 7.3%, Brazil's by 4.1%, South Africa's by 7%. The World Bank estimates that the ranks of those living in extreme poverty are likely to have swollen by 150m.

Hopes for a robust turnaround in 2021 have foundered on the spread of the Delta variant and the slow pace of vaccination outside rich countries; more than half the developing-world population may still not be vaccinated by the end of this year. On July 27th the IMF, which in April had expected India to grow by more than 12% this year, cut that estimate to 9.5%. Across the emerging world as a whole it expects 6.3% growth this year and 5.2% in 2022.

And the effects will linger. One of the conditions for catching up is investment in human capital; that has been badly hit by the pandemic. Although students around the world lost schooling time to the



interruptions caused by the pandemic, those in the poorest nations suffered most. While children in advanced economies missed the equivalent of 15 or so days of instruction on average in 2020, those in emerging markets missed about 45 and children in low-income countries 70. Poor economies can scarcely avoid educational setbacks. The pandemic has also exacerbated problems of governance and political instability in much of the emerging world (see International section).

In the 1990s and 2000s, rapid growth in trade and output was associated with a decline in inequality between countries but a rise in inequality within them, emerging markets very much included. When growth slowed in the 2010s, the distribution of economic gains within economies became relatively more important in determining whether living standards continued to improve, stagnated or fell. A more fractious politics became the norm around the world, and countries slid either towards or further into autocracy. The democracy index produced by The Economist Intelligence Unit, a sister company, has declined every year from 2015 to 2020.



Politicians from the political fringes have enjoyed surprising success, often on the back of unrealistic promises. The policies they have pursued frequently undermine growth, from the surprisingly abstemious fiscal policy of Mexico's Andrés Manuel López Obrador to the unexpected enthusiasm for welfare spending on the part of India's Narendra Modi. Mr Subramanian sees increasing evidence that slower growth contributes to political instability, feeding a vicious cycle.

The costs of instability are likely to rise further before they fall. Unrest will in some cases limit governments' ability to tackle pressing policy problems and could deter foreign investment. Reforms aimed at business at home, which have already declined, may become yet more rare. Across low- and middle-income countries, the cost of starting a new business, as a share of income per person, declined steadily in the 2000s, according to the World Bank's Ease of Doing Business report. But it bottomed out in the 2010s well above that in rich economies and has not shifted since.

Should global financial markets turn on stressed economies, an absence of social consensus could prevent leaders from taking the macroeconomic steps needed to fend off a crisis. In the worst cases, political instability could deteriorate into internal or even interstate violence.

And this is before one accounts for climate change. Its economic costs are already detectable, will only grow, and are generally felt most heavily in poor countries. Emerging-market governments will face loss and damage, the fiscal burden of adaptation and, often, refugee flows. Both political instability and interstate tensions may well increase.

### The winds of climate change

The first two decades of the millennium demonstrated that sustained, broad-based growth in developing economies was possible—a big surprise to some, and a boon for hundreds of millions. In the absence of the particular boosts it received in the 2000s, growth has slowed, and it now faces both the stumbling block of the pandemic and the persistent headwinds of climate change. But the last of those only serves to stress the moral case for the world as a whole to try to do better; development is at the heart of adaptation.

The catch-up pace of the 2000s may never be seen again. But if things do not worsen further it is still possible for the BRICS to match the output of the G6 by 2040 and for associated growth to spread out quite widely. The gate which was opened at the end of the 20th century has narrowed, but it has not shut. The challenges of passing through it, though, are undeniably greater than they were. ■



The unvaccinated

## Beyond the pandemic blame game

LITTLE ROCK, ARKANSAS

**Poor health literacy, not just divisive politics, holds back inoculation efforts**

ARKANSAS, LIKE many other American states, is in the middle of another wave of the covid-19 pandemic. Its only health-sciences university hospital, the University of Arkansas for Medical Sciences (UAMS), is near capacity as it battles severe covid-19 infections, mostly among the unvaccinated. Across the state, covid-19 infections are worryingly high: the positivity rate, the percentage of all tests that are positive for covid-19, is five times the national average, according to a UAMS report. And vaccination rates are low: only 41% among people aged 12 and older, compared with the nationwide average of 58%, the Arkansas Department of Health said on July 27th. UAMS researchers describe the situation as “a raging forest fire”.

Yet restaurants in Little Rock, the state capital, are packed with diners, most of them unmasked. (The state’s Republican governor, Asa Hutchinson, signed a law in April banning public institutions, but not private businesses, from requiring masks.)

Customers chatter away inside air-conditioned restaurants, ignoring the patios outside. Some establishments post signs encouraging face coverings: “Consistent with CDC guidelines, unvaccinated guests and customers should wear masks,” says one sign in a hotel lobby. But that same lobby was filled with unmasked visitors.

The contrast between the situation inside hospitals and life elsewhere in Little Rock is striking. “The truth is, walking around here, you should be seeing people who are masked up,” says Cam Patterson,

the chancellor of UAMS. “What you’re seeing is actually part of what is causing this forest fire to rage.”

Throughout the United States covid-19 is spreading rapidly, mostly owing to the highly contagious Delta variant. According to the Centres for Disease Control and Prevention (CDC), the seven-day moving average of daily new cases on July 23rd (40,246) was 47% higher than the average a week earlier—and 251% higher than the lowest average in the past 12 months, recorded on June 19th.

Areas with the lowest vaccination rates are being hit the hardest. Arkansas has had 359 new cases per 100,000 residents over the past week. About 45% of its adults are fully vaccinated. Louisiana has 441 new cases per 100,000 people and a 47% vaccination rate among adults. By contrast, Vermont, with a vaccination rate of 78%, has only 26 new cases per 100,000 residents, and New Hampshire, where 68% of adults are vaccinated, has 24.

Many Democrats have been quick to blame Republican politics for the soaring infections. Republicans are less likely than Democrats to get vaccinated. Prominent Republican leaders have long politicised the jab and other covid-19 prevention methods, such as masks and social distancing. In Texas, where new cases are running at 121 per 100,000 residents, the governor has decreed that people cannot be ob-

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► liged to wear masks in public spaces. Several Republican-run states, including Arkansas and Florida, have imposed some form of ban on vaccine passports. Republican legislators in Tennessee have pressed their state health department to stop outreach to teens for any vaccinations, covid or otherwise.

Fox News, America's most-watched cable news outlet, has been a forum for vaccine scepticism for months, though it recently began encouraging the jab during prime time. Former President Donald Trump hid his vaccination status for weeks before touting inoculation.

But the problem goes beyond disinformation and poor leadership. The roots of vaccine hesitancy run deep (see box). And the barrage of scepticism would have been much less effective had people been equipped with a better understanding of health. "We have really struggled with health literacy over the years—this is not new," explains Jennifer Dillaha of the Arkansas Department of Health. "People struggle with how to get good health information and apply it to their lives. And this existed as a problem in our state, long before the previous administration."

Covid-19 is not the only health epidemic raging across America. The states struggling the most with covid-19 infections also have the least healthy populations. About two out of five American adults are obese, according to the CDC. America is the fattest country in the OECD, a club of mostly rich countries. Heart disease accounts for one in four deaths. Almost half of Americans have high blood pressure, and 12% have high cholesterol. About one in ten has type 2 diabetes. For all these diseases, states with the highest prevalence also tend to have the lowest vaccination rates.

Many Americans have trouble staying healthy because they lack access to resources. Only 23% of people get enough exercise and only one in ten eats enough fruit and vegetables, says the CDC. But more than half of Americans do not live within one mile of a park, and 40% of all households do not live within a mile of shops where they can buy fresh produce.

For many, illiteracy is also part of the trouble. Less than half of Americans are proficient readers, and only 12% are considered by the country's health department to be "health-literate". Over one-third struggle with basic health tasks, such as following prescription-drug directions. Couple this with a lack of access to consistent health care (one in eight adults reports not going to a doctor in the past year because of the cost), and America was bound to have a vaccination problem.

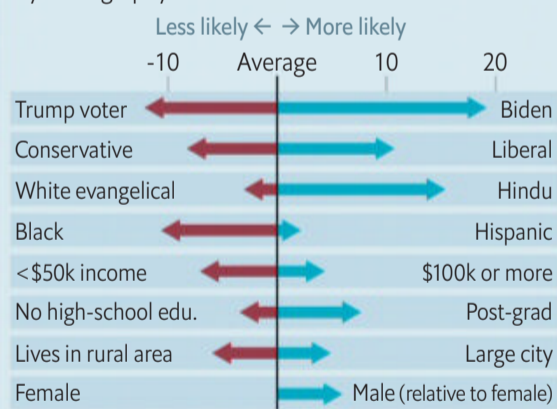
In the short term, policymakers are implementing pandemic-mitigation measures. California and New York City are requiring public employees to be vaccinated,

**A** FOURTH WAVE of covid-19 infections is sweeping across America. It is strongest in the heartland and southern states: cases per 100,000 people are highest in Louisiana, Florida and Arkansas; Missouri has the highest hospitalisations. But the rapidly spreading Delta variant threatens other places, too. Since vaccinations have stalled at around 155m adults, or 60% of the population aged 18 or over, few if any parts of the country have reached herd immunity. The new wave is likely to crash everywhere.

Identifying the causes of vaccine hesitancy can help policymakers decide where to target their efforts. *The Economist* has collaborated with YouGov, a pollster, to collect weekly surveys on Americans' intent to get vaccinated for covid-19. Using the demographic profiles of some 24,000 Americans, we have built a statistical model to estimate how likely each respondent is to say they have received, or will get, their jab—and to reveal the biggest causes of hesitancy.

### Jabs v jab-nots

US, covid-19, difference in likelihood of being/intending to get vaccinated\*, % points, 2021  
By demography



\*Relative to the profile of the average American  
Source: YouGov/The Economist

or tested regularly. The Department of Veterans Affairs announced vaccination requirements for its medical employees on July 26th. The next day President Joe Biden said the federal government was considering similar rules for its employees.

Masks are also returning for the vaccinated. Los Angeles county reimposed its mask-wearing requirement on July 22nd, and the CDC advised on July 27th that everyone (jabbed or not) should wear masks indoors in areas with high covid-19 transmission. In Arkansas the mayor of Little Rock is prepared to defy the state's ban on mask mandates. "I took an oath to

## Attitudes to the vaccine

# Hesitancy in numbers

WASHINGTON, DC

Our statistical model highlights who's most and least likely to get the shot

According to our modelling, the single greatest predictor of whether an American has been vaccinated is whether they voted for Joe Biden or Donald Trump last November. Relative to the profile for the average American—a white, 49-year-old female with some college education who earns a middle-class income, lives in a Midwestern suburb and did not vote in 2020—the impact of voting for Mr Trump is a 13 percentage-point reduction in vaccine probability. Holding everything else equal, Mr Biden's supporters were 18 points likelier to get their jabs. Whether someone was a self-proclaimed conservative or liberal ranked second.


But many other factors also matter. African-Americans were disproportionately less likely than other racial and ethnic groups to receive their shots; Hispanics and Hindus were more likely to do so. Geographic factors mostly cut along expected lines: people in blue-state cities were likelier to get a vaccine, those in rural, redder regions were disproportionately hesitant.

Prominent conservative television hosts, such as Fox News's Sean Hannity, made a spectacle of endorsing the covid-19 vaccine last week. Yet according to YouGov's most recent poll, conducted on July 24th-27th, the share of Republican adults who say they will not get the jab has held steady at 30%. The phase of the pandemic where Americans would listen to such messaging might well be over. After all, they have been seeing adverts about jabs for months. Instead of focusing on partisans, public-health policy could be designed to increase access for poor and rural Americans, and focus on outreach and information-dissemination for the uneducated.

serve and protect the public health, safety, and welfare of every resident of Little Rock," says Frank Scott junior, a Democrat. "And so if it gets to the point that we need to do something, we will. Even if it means we go against the state."

In the longer term, education—along with access to better health care—will be vital in overcoming disinformation, raising vaccination rates and improving America's overall health. "I'm not finding that blame is very useful," says Dr Dillaha. "No one is choosing to not get vaccinated because they're wanting to make a bad decision for themselves." ■



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## American forces in the Middle East

## Eyeing the exits

## Fed up with its “forever wars”, America is changing its posture in the region

WHEN THE first American bombs began falling on Iraq on March 19th 2003, President George W. Bush predicted a hard slog, requiring “sustained commitment”. Yet even he might not have imagined that American combat soldiers would remain in Iraq 18 years later, fathers and sons serving in the same war.

That era is now drawing to a symbolic close. On July 26th President Joe Biden said that the American combat mission in Iraq would conclude by the end of the year. The wind-down—just as America is also withdrawing from Afghanistan—comes nearly a decade after Barack Obama withdrew troops from Iraq, only to rush them back in 2014 after Islamic State (IS, also known as ISIS) blitzed through Iraqi cities.

The jihadists are down, but not out. A UN report published on July 21st warned of an “entrenched insurgency”. Yet Iraqi politicians were outraged last year by American air strikes ordered by Donald Trump against Qassem Suleimani, a senior Iranian general visiting Iraq. Iraq’s parliament called for the departure of foreign troops.

In fact, America is not really leaving. Mr Biden says that Americans will continue to train and advise Iraqi troops, and “to deal with ISIS as it arises”. Most of the 2,500 American troops in Iraq will thus stay there, their mission largely unchanged—few, apart from special forces, have seen real action in the past year anyway.

The contrast with Afghanistan is stark. Mr Biden announced a withdrawal from that country in April, barring a few hundred troops to guard the embassy in Kabul. That process is nearly complete, and has been accompanied by Taliban advances. The difference in approach reflects the distinct threats posed by the two groups. The Taliban’s ambitions lie within Afghanistan; IS loyalists have mounted attacks and built franchises around the world.

Mr Biden’s moves represent the start of a larger transformation in America’s posture. “There’s a working hypothesis...that we’re probably overinvested in the Middle East,” says Michèle Flournoy, a former Pentagon official. “Despite discussions of prioritising the Asia-Pacific, we haven’t actually shifted all that much of our weight in that direction,” she adds. The vast Al-Udeid air base in southern Qatar actually expanded in the Trump years. It is thought still to house more than 10,000 American troops, part of a presence amounting to some



A long goodbye in Iraq

60,000 troops in the Middle East.

Now, as part of its first Global Posture Review in over a decade, the Pentagon is taking stock of its forces around the world. There are signs of pruning across the region. In June the Biden administration withdrew eight Patriot missile-defence batteries from Iraq, Kuwait, Jordan and Saudi Arabia, and a separate missile shield from Saudi Arabia. One question, says Ms Flournoy, is whether America still wants to maintain an aircraft-carrier in the Middle East permanently, a commitment that has put a huge strain on the navy.

Yet the point is not simply to free up military forces, but also to change the nature of America’s presence. “There’s a push away from larger bases,” says Becca Wasser of the Centre for a New American Security, a think-tank in Washington, “because larger isn’t needed any more.” Instead, the Pentagon wants to shift to what it calls a distributed posture: smaller bases spread out over a larger area, and thus better able to withstand missile attacks—like the Iranian



barrage on American troops in Iraq that followed Suleimani’s assassination.

Ms Wasser points to the example of the Western Sustainment Network, a set of new logistics routes running from the Red Sea and Mediterranean to Persian Gulf ports, making it easier for America to supply forces and project power if Iran closes the Bab al-Mandab or Hormuz straits (see map), or attacks existing bases in Kuwait and Qatar. As part of that effort, America has expanded the use of ports and airfields in western Saudi Arabia, out of reach of most Iranian missiles. It has also shut three facilities in Qatar, moving equipment farther west to Jordan.

“For a couple of decades, our presence in the Middle East has been guided by large standing task-forces, in some cases with hundreds of thousands of troops devoted to a mission,” says Joseph Votel, a retired general who headed the Pentagon’s Central Command and is now at the Middle East Institute, another think-tank. The future, he says, will involve advising and assisting regional partners to do the heavy lifting, with American troops surging only when required. “And that doesn’t take thousands and thousands of troops.” ■

## The infrastructure bill

## It’s a deal

NEW YORK

## Joe Biden’s bipartisan dream stays alive, for now

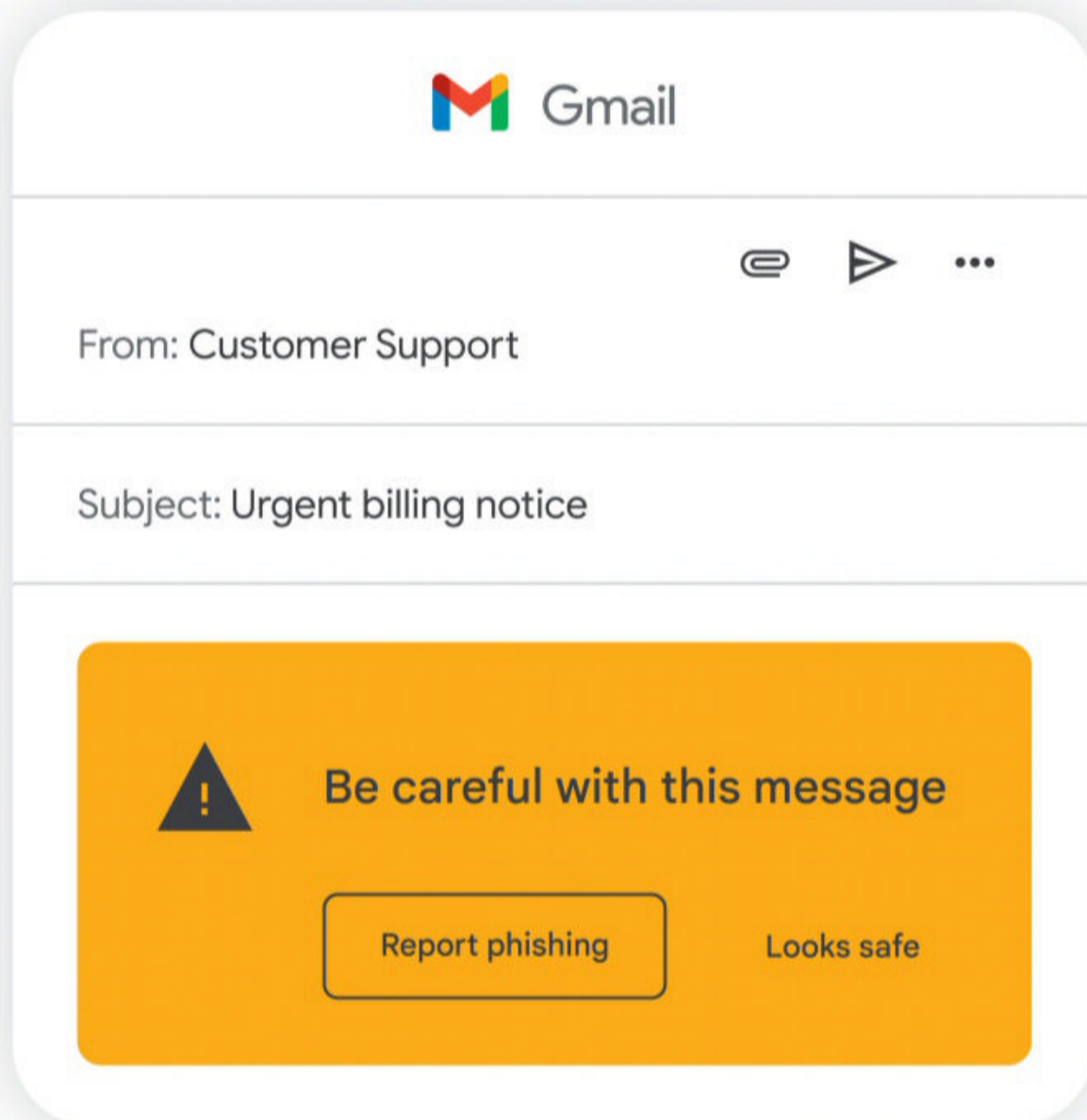
EVEN BEFORE the Senate voted overwhelmingly to advance a bipartisan \$1.2trn infrastructure agreement, President Joe Biden hailed it as proof “that our democracy can function, deliver and do big things”. In fact, given the legislative hurdles ahead, the deal supplied evidence—tentative at that—for just the first claim. Yet for a country aghast at its own toxic partisanship, that is significant progress.

In a procedural step required to prevent a filibuster, all 50 Senate Democrats were joined by 17 Republicans, including their leader, Mitch McConnell, who has called himself the Grim Reaper for his opposition to Democratic policymaking. During the presidency of Donald Trump, Mr McConnell resisted Mr Trump’s own hopes of investing in infrastructure.

But Mr Trump’s infrastructure initiative was so inchoate it became a national punchline. This time, months of painstaking negotiation among a small group of Democrats and Republicans, coaxed with compromises from Mr Biden, resulted in a package likely to be broadly popular with the public, if not with activists of either



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▶ party. In contrast to the dysfunctional policymaking under Mr Trump, “in this case you had the Biden White House, the Senate Republicans and the Senate Democrats,” says Scott Jennings, a Republican consultant and longtime adviser to Mr McConnell, “they all had the appetite and the attention span to work things out.” This is, he adds, how the Senate is meant to work, patiently shaping consensus.

In all, the bill would add some \$550bn in spending across eight years on top of other projected infrastructure investments. There would be \$110bn for roads, bridges and other such projects, \$73bn for the electric grid, \$65bn for universal broadband access, \$55bn for clean drinking water, \$42bn for ports and airports, and \$7.5bn for a national network of charging stations for electric vehicles. The deal also includes \$39bn for public transit. Democrats and Republicans say the spending would be paid for with a mix of sources including unused pandemic-relief money, unspent unemployment benefits and changes to prescription-drug rules.

Yet legislation encoding this deal has yet to be written, much less passed. Chuck Schumer, the Senate majority leader, said after the filibuster was evaded that he wanted the infrastructure bill and a budget resolution to pass before the August recess. The budget resolution is necessary for the Democrats to begin the filibuster-proof process known as reconciliation, by which they want to enact a \$3.5trn bill to finance child care and education and to confront climate change.

Republican senators do not want to be seen as enabling the budget bill by supporting the infrastructure one. Yet for many Democrats, including the House speaker, Nancy Pelosi, the two are yoked together. Ms Pelosi has said she will not consider the bipartisan bill until the Senate passes the reconciliation package.

For Mr Biden, the challenge ahead within his party is formidable. Alexandria Ocasio-Cortez, a progressive force in the House, reacted with fury on Twitter, threatening to torpedo the infrastructure deal and noting the Senate negotiators were all white: “Good luck tanking your own party’s investment on childcare, climate action, and infrastructure while presuming you’ll survive a 3 vote House margin—especially after choosing to exclude members of colour from negotiations and calling that a ‘bipartisan accomplishment,’” she wrote.

Now, Mr Jennings notes, “Joe Biden is going to Alexandria Ocasio-Cortez and saying, ‘I need you to vote for this thing that Mitch McConnell is for.’” If the infrastructure bill then fails, it will be the progressives, not Mr McConnell and his Republicans, who will have crushed Mr Biden’s bipartisan dream. ■

## Cocktails-to-go

## Fancy a Fauci Pouchy?

WASHINGTON, DC

## Looser rules for takeaway tipples

**A**MONG THE many emergency measures introduced by state governments when the covid-19 pandemic hit, one stood out for the jollity it heralded: a change in the law to allow bars and restaurants to sell cocktails-to-go. Within weeks, Americans were walking out of empty bars with drinks that reminded them of lost pleasures—Daniel Barreto, head bartender at Barmini in Washington, DC, says his greatest hit was the Polynesian Vacation, a blend of citrus vodka, fruit and yellow chartreuse. Despite open-container laws that prohibit drinking outside, many people developed an evening “walktail” (strolling and drinking) habit.

The change in states’ alcohol laws, which Mike Whatley of the National Restaurant Association, an industry lobby, describes as “arguably the biggest since the end of Prohibition” in 1933, looks set to stay. At least 35 states legalised takeaway (some of them also allowed for the takeout and delivery of glass-size portions of wine), and 16 have passed laws making the change permanent. Another 12 have extended it for at least a year. Without the pandemic, Mr Whatley reckons this liberalisation would have taken at least a decade.

As the Delta variant of the virus spreads and many people continue to avoid bars, takeout cocktails remain an important source of revenue. Cocktails have higher profit margins than food and other drinks. Freshly “crafted” mixed drinks elude the price-check compari-

sons customers make between restaurant- and shop-sold wine and beer. Whipping up big batches is quick and easy. Rohit Malhotra, beverage director of Capo Italian Deli, a bar hidden behind a sandwich shop in Washington (thus mimicking the illicit speakeasy joints of the Prohibition era), says healthy sales of his Fauci Pouchy, cocktails sold in plastic bags stamped with an image of the White House’s coronavirus expert, meant “not just the difference between keeping a skeletal staff and a full staff but also being able to survive”.

Not everyone is a fan. A handful of states never allowed cocktails-to-go and in a couple that did—New York and Pennsylvania—the old ban came back into force this summer. Opposition has come from liquor retailers, which have increased their own sales of (cheaper, less tasty) canned and bottled cocktails. And public-health groups have warned that making it easier to buy alcohol will increase under-age drinking. It is hard to ensure that delivery drivers, in particular, check customers’ ID.

Yet the higher price of cocktails makes them less of a public-health hazard than shop-bought booze. Many bars and restaurants continue to struggle. Linden Pride, the owner of Dante, a bar in Manhattan, says businesses in New York had invested in weeks’ worth of bottling kit and labels when they learned cocktails-to-go were gone. He hopes the state, one of the first to allow them, will soon pass a law bringing them back.

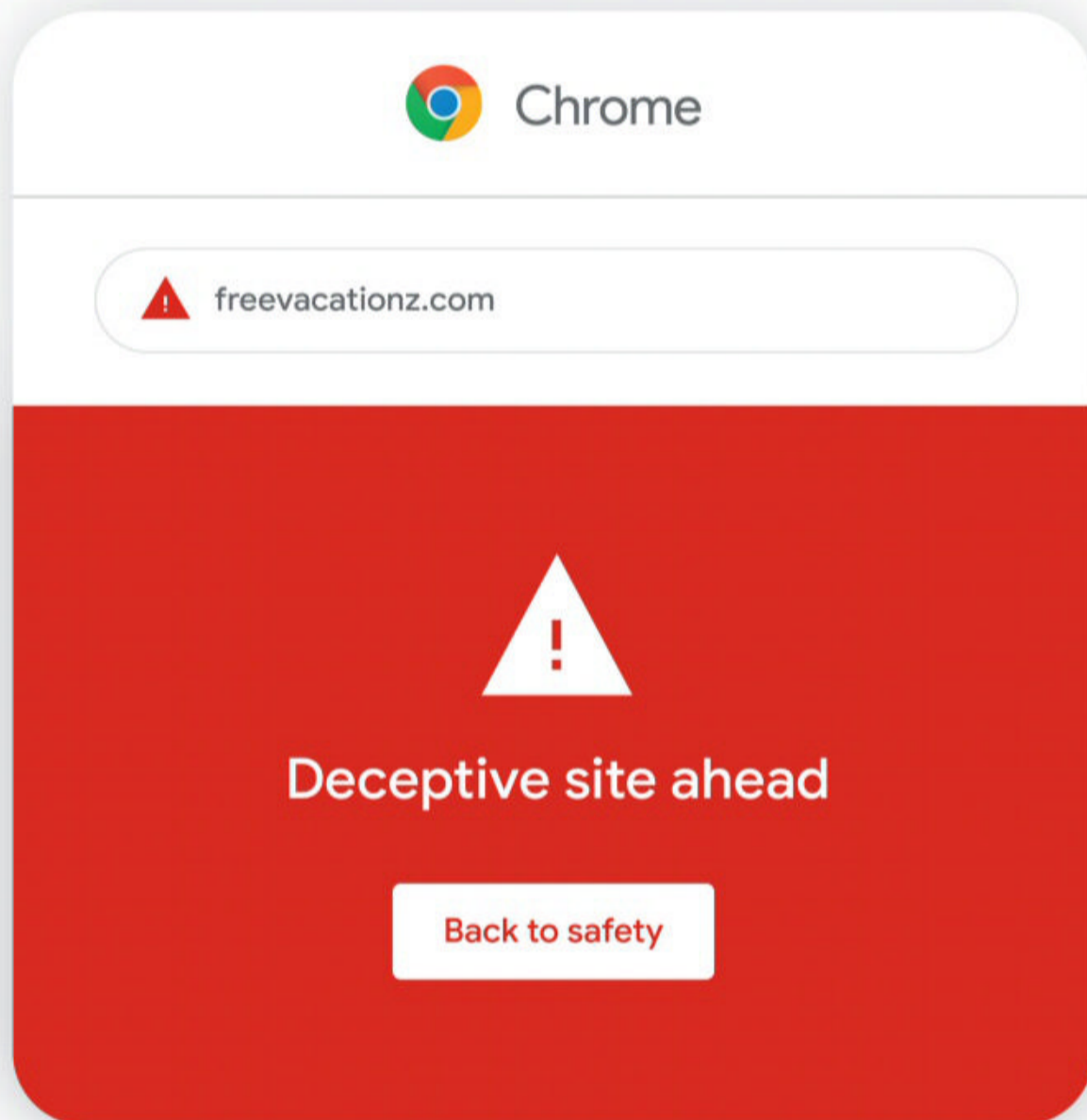


Lining up the emergency relief





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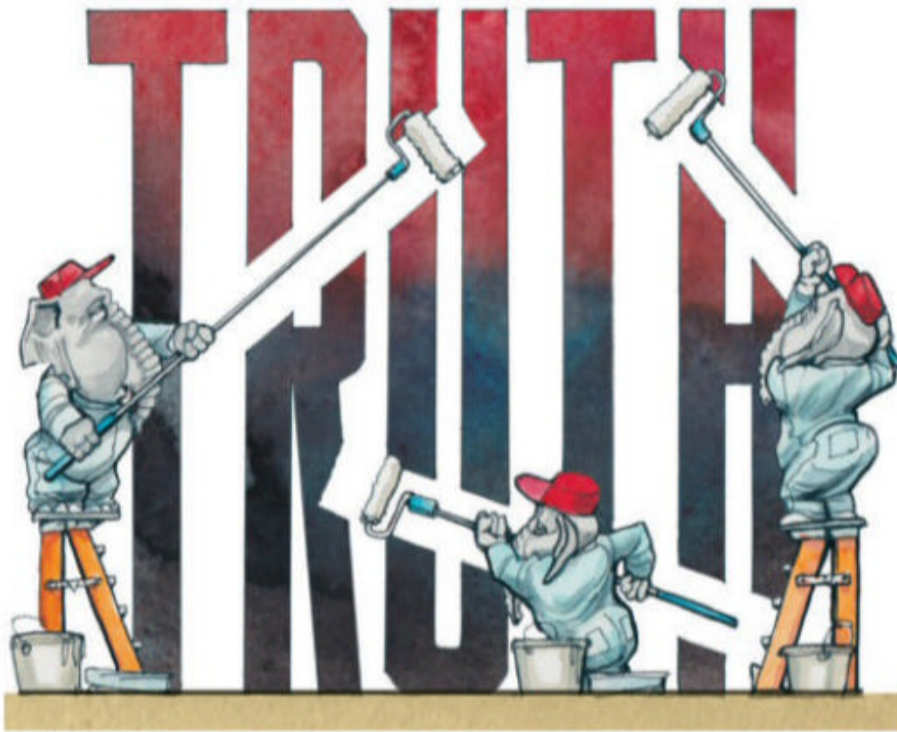
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## Lexington | Insurrection revisionism

*Efforts to whitewash the Capitol Hill riot are another step down a dark road*



**A** WEEK AFTER a mob of Donald Trump supporters attacked the Capitol, Kevin McCarthy was still sufficiently shocked by the experience to represent it accurately. “The president bears responsibility for Wednesday’s attack on Congress by mob rioters,” said the Californian leader of House Republicans, who was reported to have screamed expletives down his phone at Mr Trump on January 6th even as MAGA thugs clambered through his office windows. “A fact-finding mission would be prudent.”

But after a trip to see Mr Trump in Florida Mr McCarthy recanted. He suggested the former president had done all he could to stop the riot and, on reflection, felt the only fact-finding necessary was to establish why the Capitol was not better prepared for an invasion of 10,000 insurrectionists. He opposed a Democratic proposal for a bipartisan investigation, modelled on the 9/11 commission. After his Democratic counterpart, Nancy Pelosi, invited him last week to nominate five Republicans to a lesser House inquiry, Mr McCarthy’s picks included two Trump conspiracy theorists who had helped spread the stolen-election lie on which the insurrection was based, and who promptly lambasted the inquiry as a stunt. When Ms Pelosi rejected them, Mr McCarthy pulled his other three nominees, condemned the inquiry and denounced two Republican House members who were independently willing to take part in it—Liz Cheney and Adam Kinzinger, both staunch conservatives—as “Pelosi Republicans”. On the inquiry’s opening day this week Mr McCarthy’s third-in-command, Elise Stefanik, said the insurrection was Ms Pelosi’s fault.

Though it includes elements of past partisan games, this is ground-breaking. It recalls, for example, a previous conservative effort to delegitimise a Democratic president: millions believed Barack Obama was a foreign-born Muslim. Yet that lie was not embraced by Republican leaders. By contrast, the fantasy that Joe Biden stole the election from Mr Trump has been actively promoted or quietly acquiesced to by most of them. Only a handful, including Ms Cheney and Mr Kinzinger, have firmly repudiated it.

Similarly, Mr McCarthy and his House colleagues once hounded Hillary Clinton over a mendacious claim that she was responsible for an attack on American officials, just as they are now hounding Ms Pelosi. Yet few Americans knew or cared about the earlier

incident in faraway Benghazi, in Libya. The violence that Mr McCarthy and most House Republicans are now misrepresenting or wishing away in an effort to minimise Mr Trump’s hand in it could not have been more conspicuous or significant. Nor could it have been more graphically documented, as was underlined by the inquiry’s opening testimonies, given by four police officers who battled the rioters.

Hollywood action flicks have been less dramatic than the scenes they described. Aquilino Gonell, an Iraq veteran, described a “medieval battle” in which, blood pouring from two lacerated hands, he fought for survival. Harry Dunn recalled the rioters advancing on him, chanting “Boo fucking nigger”, close by us democracy’s holy of holies, the Capitol’s Rotunda. Michael Fanone described, with recourse to his body camera to fill in the blanks, being dragged through the mob, electrocuted until he suffered a heart attack, then beaten unconscious. All the officers—black, white and brown—stated or implied that Mr Trump was responsible; “Trump sent us,” one recalled the rioters telling him.

More harrowing testimony is rarely heard on Capitol Hill—and the events described took place there. Yet most Republican voters believe there has already been too much focus on the insurrection, that Mr Biden was chiefly to blame for it and, as Mr McCarthy knows, the inquiry has little chance of changing that. Denialism of this kind is again familiar—it got Mr Trump through two impeachment trials—yet, on this scale and issue, also unprecedented. It is evidence for what Jonathan Rauch describes in a new book, “The Constitution of Knowledge”, as an “epistemological crisis” to which the future of American democracy is now hostage.

Mr Rauch (once of this newspaper, now with the Brookings Institution) acknowledges that the crisis has many causes, from the decline of deference to the anarchy of the internet, and that it is to some degree also evident in left-wing cancel culture. Yet he diagnoses it mainly on the right, where he attributes it to a deliberate five-year assault by Mr Trump on Republicans’ perception of reality. The former president’s daily barrage of small or ludicrous lies, from the numbers who attend his rallies to the path of a hurricane off the coast of Alabama, wore away at his supporters’ attachment to truth. He also rubbished all experts and institutions—cogs in the process of cross-checking and corroboration by which shared facts are produced—that might try to repudiate him.

By the time Mr Trump began predicting—fully seven months before the election—that his opponents would steal it, the Republican base had become vulnerable to whatever delusion he proposed. The fact that many liberals did not take his truth-bending as seriously as they should have done was further testament to his genius for scrambling America’s senses. Writing even before the success of Mr Trump’s stolen-election lie had become clear, Mr Rauch cites the most dreadful sentences George Orwell ever wrote to describe its effect: “The party told you to reject the evidence of your eyes and ears. It was their final, most essential command.”

### **Vandals at the gate**

It is possible that matters will improve. Next year’s mid-terms may show that moderate Republicans find Mr Trump’s distortions and violence, in the end, intolerable. That could create space for stronger leaders than Mr McCarthy to redirect the party to reality. Yet it must be acknowledged, in the week that four visibly traumatised police officers described a mortal fight against Mr Trump’s supporters, and his party shrugged, that most of the evidence is pointing the other way. ■



Peru

## A gallop into the unknown

LIMA

**Pedro Castillo pushes for a new constitution, and a more modest palace**

IT WAS AN inauguration like no other in Peru's recent history. Pedro Castillo, the new left-wing president, took office on July 28th following the narrowest of electoral victories in a bitterly divided country. But he delayed naming his cabinet until the following days, leaving Peru temporarily without a government. His inaugural speech was generally moderate in tone, promising "responsible change" in the economy and more money for health care and education. But he insisted that he will seek to install a constituent assembly to draw up a new constitution—the device used by left-wing populist strongmen such as Hugo Chávez in Venezuela and Evo Morales in Bolivia to concentrate power and hang on to it. For his inauguration he wore a collarless indigo jacket, seemingly copied from Mr Morales, as well as his trademark hat of cream-coloured palm fibre.

Mr Castillo's inauguration took place on the 200th anniversary of Peru's independence from Spanish colonial rule. In a populist gesture, he said he would not gov-

ern from the presidential palace, built on the site of the house of Francisco Pizarro, the Spanish conquistador of Peru. Instead, his office will be in Lima's convention centre. A farmer, schoolteacher and union leader from Peru's northern Andes, Mr Castillo is for some a symbol of those often ignored in the country's political life.

In fact he is not the first *mestizo* (mixed-race) president, nor is he the first political outsider to secure the role. But of all Peru's presidents, he was elected on the most left-wing platform, is the least experienced and has the weakest mandate, having won just 15% of the total vote in the election's first round in April. He won a run-off election on June 6th by just 44,000 votes out of

17.5m, and only because many centrist Peruvians could not bring themselves to vote for his opponent, Keiko Fujimori, a conservative whose father Alberto ruled Peru as an autocrat in the 1990s.

It was not Mr Castillo's fault that he was not declared the winner until July 19th. The delay was because Ms Fujimori cried fraud; her allegations were eventually dismissed by the electoral tribunal. But Mr Castillo has known for weeks that this was a near-certainty. He could have moved far more quickly to offer the country reassurance about his plans. He has said little in public since the election, and avoids media interviews. He appears mistrustful by nature. His closest aides are members of his large extended family and comrades from the teachers' union.

The delay in naming a cabinet suggested Mr Castillo finds it hard to take decisions, and pointed to infighting between him and Vladimir Cerrón, the Marxist-Leninist political boss who runs Perú Libre, the hard-left party for which Mr Castillo stood. Everything suggests that Mr Castillo is drawing from a shallow talent pool.

He takes over in difficult circumstances. Peru has suffered greatly in the pandemic, with more officially recorded deaths as a share of population than any other country. Its feeble health system was overwhelmed. The economy shrank by 11% last year, while the official poverty rate rose from 20% to 30%. That fuelled rage ▶▶

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— Bello is away

▶ against the political establishment, and was a factor in Mr Castillo's victory.

Francisco Sagasti, the caretaker president since November, has laid the foundations for recovery, organising vaccinations. The economy may this year regain most of the lost ground. But the foundations remain fragile. "We have political polarisation instead of political leadership," says Liliana Rojas-Suarez, an economist. The private sector is suspicious, especially of the idea of a constituent assembly.

The biggest question-mark is over the influence of Mr Cerrón, a Cuban-educated doctor. Only because he was prevented from running by a conviction for corruption when he was a regional governor did Perú Libre turn to Mr Castillo. More than half of Perú Libre's 37 legislators in the 130-seat Congress answer to Mr Cerrón.

Mr Castillo has made some gestures of moderation. He has said he would retain the central-bank president, a respected professional. Pedro Francke, the probable new economy minister, is a moderate. Mr Cerrón has criticised him for sounding like "a Chicago boy—those who have failed for decades". In fact Peru's free-market economy delivered rapid growth, though political instability has eroded this since 2016. The poverty rate fell from over 50% in 2001 to 20% in 2019. The failures have been an unreformed state and public services.

To govern effectively Mr Castillo "needs to moderate in every way and Cerrón doesn't let him", says Gino Costa, an outgoing legislator for the centrist Morado party. Two polls this month found that only around 30% of Peruvians want a new constitution and radical changes in economic policy. Right-wing and centre parties have a majority in the new Congress. Mr Castillo said he would obey the existing constitution, which requires a majority in Congress and a referendum to amend it. It is not clear how he would reconcile this with his proposal for a constituent assembly.

Many on the right reject Mr Castillo's presidency. Ms Fujimori said she would accept the election result but in the same breath that her supporters would work "to re-establish legitimacy", a veiled threat to bring down the new government. The previous Congress had a taste for impeachment, trying it four times in three years. It forced the resignation of one president and impeached another. The opposition is not far from the 87 votes required.

Will Mr Castillo survive or self-destruct? His chief assets are plausible populist rhetoric and an image of honesty and authenticity in a country crying out for these qualities. "If he lasts a year he can probably last five" and complete his term, ventures a former minister. But that, and what those years would mean for Peru, will depend on the choices he makes in the coming weeks. ■

## Argentina

# Gender-setters

**The country secures its unlikely place as a global leader in trans rights**

**P**AMELA ROCCHI was born a boy, but felt from an early age she was a girl. At 16 she was kicked out of school for responding angrily when a teacher called her by her birth name. She moved to a city far from her home town of Alcorta in central Argentina and worked for two years as a prostitute. Now, aged 35, she is back in Alcorta, where she works in local government and is running to be the town's president.

Although trans people are often poor and occasionally the victims of hate crimes, life has lately become much easier for them. In 2012 Argentina became the first country in the world to allow individuals to change their gender on legal documents without permission from a doctor or judge—a process known as gender self-identification. Argentina's law is "still considered the gold standard among activists around the world", says Maria Sjödín of OutRight Action International, an advocacy group. Gender-reassignment surgery and hormone therapy are paid for by medical insurance.

Now Argentina's president, Alberto Fernández, is going further. On June 25th Congress approved an earlier decree that established a quota for trans people in the public sector. One per cent of newly hired bureaucrats must be transgender. They need not have changed their appearance or their names in official documents. The same measure provides tax incentives for private firms that hire trans people and gives them preference in public procurement.



All for affirmative action

On July 21st Mr Fernández announced the issuing of the first ID cards that give holders the option to tick x, meaning they are "non-binary".

It is not clear how Argentina arrived at the quota of 1%. No one knows how many trans people there are. Rosario, a city in central Argentina, has tried to hire 25 trans people (five a year) since 2016. So far it has recruited 15. Uruguay, which also has a hiring quota, has failed to fill it.

Some feminists fear that Argentina's rush to expand rights for trans people will undermine hard-won rights for people who were born women. Maria Binetti, an academic, says the accumulation of trans-rights laws aims to "erase women and the category of sex". Yet it has encountered little of the opposition from feminist groups that has sprung up in other countries, such as Britain. Popular resistance has been mild. Indeed, polls suggest that Argentines are especially keen to let people change their gender, perhaps without realising how easy the government has made it. In a survey in 2016 by BuzzFeed News, Ipsos, a polling firm, and the Williams Institute at UCLA Law School, almost half of Argentine respondents supported self-identification without restrictions, compared with 27% of Brits and 23% of Americans.

Such nonchalance seems surprising in a macho land of gauchos and red meat. One explanation seems to be that Argentina's brutal military dictatorship, which ruled from 1976 to 1983, led to the rise of an unusually strong human-rights movement. After democratisation it championed the rights of all sorts of disadvantaged groups, including trans people.

Another factor is religion's weak role in politics. Although much of the countryside remains God-fearing, religion has lost clout in the cities. Argentina does not have strong political parties that cater to socially conservative evangelical churchgoers. So it differs from Brazil and the countries of Central America, where many more people resist the idea of expanding trans people's rights.

As a result of all this, Argentine politicians think they have something to gain by promoting socially liberal policies of all sorts. In 2010 under then-President Cristina Fernández de Kirchner, who is now vice-president, Argentina became the first country in the Americas to legalise same-sex marriage and adoption by same-sex couples. Mr Fernández, whose son identifies as non-binary, says he wants "to beat Cristina" by being more liberal than she was. His government legalised abortion.

Some trans activists are now urging schools to teach about sexual diversity and the government to pay reparations to trans people who were persecuted by the dictatorship. In trans-friendly Argentina, that may well happen. ■



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## Continental defence

## Eyes in the ice

## North America's Arctic radar shield is due for an upgrade

THE VAST spheres rest on a desolate ridge at Cape Kiglapait in Labrador, one atop a tower and two others on the ground like a toppled snowman abandoned by giants. Each is a radome enclosing radar antennae that spew invisible waves across the Labrador sea. They are the electromechanical sentries of the Arctic. Strung across the northern fringes of Canadian territory from Labrador to Yukon, then into Alaska, the Kiglapait station and its many siblings form a picket line known as the North Warning System, or NWS (see map).

Since the early days of the cold war, Canada has served as North America's first line of defence from Russian bombers and, later, intercontinental ballistic missiles (ICBMs), whose quickest path to North America lies over the poles. To detect such threats, the United States and Canada jointly built a line of radar stations in the 1950s that stretched 5,000km (3,100 miles), known as the Distant Early Warning (DEW) line, and established a North American Aerospace Defence Command (Norad) in Colorado. The DEW line was replaced with new radars in the late 1980s, creating the NWS. Now the two countries are contemplating its renewal. That is far from simple.

One issue is that the radars' targets are changing. The shift from DEW line to NWS reflected a shift from ICBMs, which loop high into space, and can thus be spotted easily, to cruise missiles, which fly slower but lower. Now Russian air-launched cruise missiles fly faster and farther, which means that the bombers which carry them must be spotted at greater distance.

In March the commander of Norad warned that missiles could probably strike America from "launch sites on Russian soil". The collapse of the Intermediate-Range Nuclear Forces treaty in 2019 means that Russia could also deploy ground-based cruise missiles in the Arctic. New hypersonic gliders, with the speed of ballistic missiles and the manoeuvrability of cruise missiles, could fly around the NWS.

Updating the picket to cope with such threats poses a challenge. The Canadian Arctic is a forbidding place. The radar stations are uninhabited, with contractors visiting occasionally for maintenance. When entrances freeze up crews smash their way in with sledgehammers, says Colonel Walter Norquay, director of the North Warning System Office in Ottawa. Inquisitive polar bears are not uncommon.

Another challenge is that the radar stations are built on land populated by the Inuit and other indigenous peoples. The federal government has ceded powers to the Arctic region and is a signatory to a UN declaration that requires it to consult indigenous groups before using their land for military purposes. "We don't want to make the past mistakes that we did," says Andrea Charron of the University of Manitoba. One was leaving five tonnes of PCBs, toxic chemicals, at Resolution island.

Today, the Inuit are closely involved. The Canadian Rangers, an army unit whose recruits are largely indigenous people, inspect many of the most desolate sites. "We are the ears and the eyes of the military," says Harry Flaherty of the Qikiqtaaluk Corporation, the for-profit development agency of the 15,500 Qikiti people.

America and Canada split the costs of the NWS in a 60-40 ratio, but would need to negotiate how to pay for any successor. Canada's latest budget allocated C\$163m (\$131m) over five years for Norad modernisation, though some experts reckon the total bill may eventually run to \$1bn. Successive American governments have been irked by Canada's low spending on defence, which at 1.39% of GDP is well below NATO's 2% target.

More broadly, the two countries do not always agree on Arctic matters. One dispute is over the status of the Northwest

passage, which Canada maintains are "historic internal waters". America insists that the passage is an "international strait". Differences like these are managed amicably. But American officials view the Arctic as a zone of competition with Russia and, to an increasing extent, China. Canada prefers a softer approach. Though happy to track nuclear threats, it has been wary of joining American plans to parry them with interceptors in Alaska and California, fearing that would upset nuclear stability.

Part of modernising the NWS is making better use of what is there now. Its radars collect "a whole bunch of data that previously has just not been used", says Whitney Lackenbauer of Trent University. In Colorado, Norad is using a system called Pathfinder, which uses machine learning to analyse data not just from military sensors, like the NWS, but also commercial ones to spot threats amid the flow of civilian air traffic and the clutter of weather.

The biggest question is whether a network of ground-based radars is still the best way to shield the continent. In "Norad: beyond modernisation", a report published in 2019, Dr Charron and Jim Ferguson, a colleague, argue that even longer-ranged radars deployed farther north would struggle against the new Russian missiles. Building new radars in melting permafrost and cleaning up old sites would also be expensive.

Canada thus hopes to eke out the life of the NWS for as long as possible. One way of doing so is to augment ground-based radar with radar aboard ships, planes, blimps and satellites. In 2019 Canada launched a trio of radar satellites in polar orbit that can provide excellent coverage of the Arctic. More may need to follow. North America's tripwire may steadily migrate to space, and into the virtual cloud. ■





## Race relations in Singapore

# Imperfect harmony

SINGAPORE

**A spate of racist incidents forces a reckoning with a delicate subject**

**D**AVE PARKASH and his girlfriend were strolling down the street one evening in June when an irate man accosted them. Tan Boon Lee accused Mr Parkash of “preying” on his girlfriend, whom Mr Tan, a Chinese-Singaporean, believed was also Chinese, unlike Mr Parkash, who is ethnic Indian-Filipino. He urged the couple to date “people of our own race”. A video of the confrontation went viral and made Singaporeans uneasy. For the country is diverse—nearly three-quarters of Singapore’s residents are ethnic Chinese, 13.5% are Malay, and 9% Indian. It prides itself on how well everybody gets along.

Yet over the past few months several racist incidents have seized public attention. The rising tide of ugliness has provoked a reckoning over race—until recently a taboo subject—which has penetrated even the halls of power. After the episode involving Mr Parkash, a cabinet minister said he was “not so sure any more” that Singapore is “moving in the right direction on racial tolerance and harmony”.

His comment caused a stir. The ruling party sees itself as the guardian of “racial

harmony”. It stepped into that role in the 1960s, when deadly riots pitting Chinese against Malays threatened to destabilise the fledgling nation. The city-state’s founding fathers became convinced that they must intervene to defuse tensions. They criminalised racism and anything that would stir up hatred between the races, and designated Chinese, Tamil, English and Malay the four official languages.

They also began funnelling Singaporeans into four categories: Chinese, Malay, Indian or “Other”, depending on the race of their parents. The government was worried about racial enclaves forming in public housing, where some 80% of Singaporeans live. This classification system enabled it to set ethnic quotas in public hous-

ing and calibrate the racial make-up of Parliament and even, by controlling immigration, society as a whole.

On one level, the government’s assiduous management of race relations has worked. Racial violence is rare; so too is overt discrimination. Nine in ten Singaporeans surveyed in 2018 by the Institute of Policy Studies, a local think-tank, reported that the level of racial harmony in the city-state was moderate to very high.

Yet tensions between the races have simmered for decades. Chinese chauvinism has deep roots in Singapore, watered by Lee Kuan Yew, Singapore’s first prime minister who remained influential until his death in 2015. He believed that Chinese were physically and mentally superior to Indians and Malays. He tried to make Chinese Singaporeans more Chinese, by encouraging people to speak Mandarin and insisting all ethnic Chinese study it at school (though almost all their parents spoke other dialects as their first language). The government opened numerous elite Chinese-medium schools, which were given much more government funding than other public schools. Mr Lee’s Sincisation programme was intended for ethnic Chinese, but minorities felt pressure to espouse “Chinese” values too, according to Michael Barr, a historian of Singapore.

His successors tread more carefully. Yet they have sustained Chinese privilege. All three prime ministers since independence have been Chinese, and in 2019 a leading politician insisted that is unlikely to ▶▶

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change because, he said, older generations are not ready for an ethnic-minority prime minister. The government regulates immigration to ensure that the racial make-up remains stable, which has the effect of maintaining ethnic-Chinese dominance.

For generations, Chinese Singaporeans have been told that they are special, says Mr Barr. “That element has been internalised by a lot of people,” including minorities. Sharvesh Leatchmanan, a 24-year-old student and co-founder of *Minority Voices*, a website, is ethnic Tamil but grew up wishing he were Chinese. “I changed the way I spoke, I changed the way I dressed, I never had Indian friends, I never spoke Tamil,” he says. He would tell new friends he was mixed-race “so I could say I was ethnically ambiguous, to be included”.

Mr Leatchmanan’s discomfort in his own skin stemmed in part from his experience of being discriminated against as a Tamil. Many minorities say they are treated unfairly. Almost half of Indians and a third of Malays surveyed in 2019 said they faced discrimination when renting a property. More than a third of Malays and Indians polled in 2018 encountered prejudice at work “sometimes” or “often”. Job adverts often solicit applications exclusively from people who speak Mandarin.

Malays, in particular, are marginalised. According to the census of 2020, just 11% went to university, compared with 35% of Chinese and 41% of Indians. The median Malay household income is S\$5,700 (\$4,200), compared with S\$8,000 for Chinese and S\$8,500 for Indians.

Stereotypes of Malays as lazy may play a role. In 2019 Peter Chew of James Cook University found that Chinese Singaporean undergraduates rated Malay job applicants as less competent than equally qualified Chinese applicants, and recommended lower salaries. Mr Lee believed that racial differences in performance at school were genetic—an attitude that has lingered, writes Cherian George, a Singaporean scholar at Hong Kong Baptist University.

The government admits that racial harmony is a work in progress but insists that it has protected minorities and improved their lot in life. They are guaranteed representation in Parliament and, periodically, the largely ceremonial presidency (the current occupant, Halimah Yacob, is of Indian and Malay descent). “Self-help” organisations—one for each race—assist needy members of their communities; these groups are chaired by cabinet ministers and partially funded by the government (the rest is paid with contributions automatically deducted from the monthly salaries of working adults). The current soul-searching over racism in itself is a sign of progress; such discussion was *verboden* until recently.

However, enthusiasm for celebrating

South Korea’s cultural exports

## Striding the universe

SEOUL

Web-based comics are soaring above their humble origins

MOON JAE-IN briefly assumed the face of a badly bruised schoolboy. But it was not because he had botched a diplomatic mission or caused a political scandal. Rather, the reason was celebratory. South Korea’s president had donned a mask showing the protagonist of a popular web-based comic about bullied teenagers, to mark *manhwa* (comic) day and popularise his country’s latest export hit: webtoons, serialised comic strips that people can read on their phones.

Webtoons began life in the early 2000s when Naver and Daum, the country’s biggest search engines, hired cartoon artists to design online comic strips. They were supposed to attract more visitors to their websites rather than generate income. But over the past decade the market has grown tenfold, making webtoons a vital source of income for the internet companies. More strikingly, they have begun to attain a

degree of influence over global culture that belies their humble origins.

For readers of webtoons, the advantage over more traditional comics lies in the variety of storylines and in the interactive features, animations and dramatic background music. After finishing an episode, fans can hit the comments section and debate the twists and turns of the plot with others. Lim Hyun-gee, a 26-year-old from Seoul, likes being able to read new episodes on her phone on her way to work rather than lug around hefty volumes of Japanese manga (comics or graphic novels), which she also enjoys. Jacqueline, a 21-year-old fan in Canada, says plots about girls discovering make-up and meeting hot guys make a nice change from standard superhero fare.

But the success of webtoons is not restricted to comic lovers, says Jang Min-gi from Kyungnam University. Some of the cartoonists who started with Naver and Daum years ago have found themselves consulting on films and television dramas, raking in thousands of dollars. “Sweet Home”, a horror webtoon about a man surviving a virus that turns humans into monsters, was made into a drama last year and became the most-watched show on Netflix in eleven countries (a scene is pictured). Shows like “Itaewon Class”, about an ex-con trying to sort out his life, or “Cheese in the Trap”, which follows the romantic troubles of a group of students, have had success too.

Ms Jang thinks this will eventually draw even more people to webtoons, as film versions of Spider-Man or Black Panther did for Marvel comics. “Most of today’s Marvel fans saw the films before the comics. It’s the same with webtoons. They are creating their own universe.”



Webtoon characters on the loose

cultural differences sometimes wanes where Malays are concerned. Malays share the same ethnicity and religion (Islam) as the majority races in Malaysia and Indonesia, neighbours with whom Singapore has sometimes had testy relations. Until 1977 Malays were excluded from serving in the military because Mr Lee doubted that their loyalty could be relied upon should they fight a war against Malaysia. Today Muslim women in certain public-sector jobs are not allowed to wear headscarves, though Sikh men in the same roles can wear turbans. A Malay-Muslim nurse wonders why this kind of discrimination is needed. She

suffers spiritual turmoil each time she removes her veil before starting a shift: “I try to reassure myself that I’m not doing something wrong.”

Far from soothing racial inflammations, the government’s methods may exacerbate them. It is not just that its policies put Chinese on a pedestal. The racial classification system “encourages us to think along those communitarian lines,” says Laavanya Kathiravelu, a sociologist. The nurse, for example, sees herself not as Singaporean but as Malay. In a country where minorities feel belittled by the majority, that’s a recipe for discord, not harmony. ■



## Politics in the Philippines

## Preparing for posterity

MANILA

## Rodrigo Duterte hopes to outlast his term as president

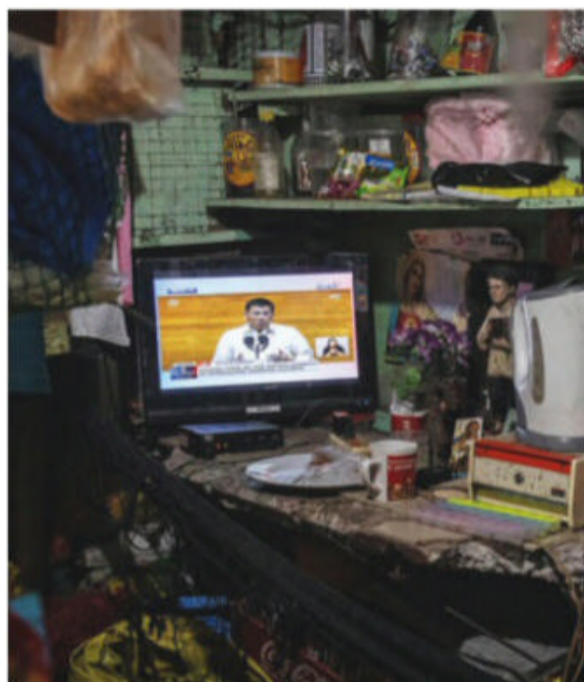
RODRIGO DUTERTE seemed determined not to appear like a man about to retire. “This is by no means my swansong,” the Philippine president told Congress in his final speech on the state of the nation on July 26th, presenting legislators with a list of laws to pass in the remaining 11 months of his six-year term.

Despite his protestations, the president may struggle to prevent a descent into lame-duckery. Opinion surveys indicate that the tough-talking Mr Duterte is the most popular president since the overthrow in 1986 of the despotic Ferdinand Marcos. But if legislators come to believe that he will retire once his successor is elected next year, his authority may quickly evaporate. To retain it, Mr Duterte needs to show that he will somehow still wield political influence once he has left the presidential palace. That may require some Marcos-style scheming.

There are four areas in which Mr Duterte must consolidate his influence. Grappling with a looming third wave of covid-19 and ensuring that Filipinos can return to work and to school will require persistence from his government as well as the next one. Jihadists affiliated with Islamic State, pushed back after they seized the southern city of Marawi in 2017, must be kept at bay. In the South China Sea he must curb Chinese encroachment on Philippine claims without risking a suicidal conflict. And he must ensure that he remains shielded from legal consequences for the killing of thousands of Filipinos in his campaign against the trade in illegal drugs.

Mr Duterte’s main source of power has been his popularity. The Philippine constitution, drafted in 1986 with a view to preventing a despot in the Marcos mould from ever again clinging to power, limits the presidency to one term. But it failed to restore the two-party system that Marcos demolished. Today weak political parties tend to coalesce not around sets of policies, which stir little debate, but around leaders with vivid personalities, who win elections. Thus Mr Duterte’s Partido Demokratiko Pilipino-Lakas ng Bayan (“people’s power”) is at the centre of a loose pro-government coalition which dominates Congress because voters like Mr Duterte’s tough-guy act. Lawmakers expect their support for him to benefit them at the ballot box.

This arrangement is in danger of fray-



Not quite part of the furniture

ing in Mr Duterte’s final year as president. Members of Congress, unlike the president, can serve more than one term. Many will switch their allegiance to whichever candidate shows a personality compelling enough to win the next election. One way to maintain political influence might have been for Mr Duterte to get Congress to change the constitution. But his attempt to have the unitary state replaced with a federation was frustrated by lawmakers, who suspected that his real purpose was to extend his grip on power.

Mr Duterte could enlist his daughter, Sara Duterte, mayor of his home town in the south, to run for president. An early opinion poll indicated that she would win more votes than any other presumed candidate. She says she will consider running. Although Mr Duterte has officially expressed disapproval, his spokesman has said that he secretly approves.

Alternatively, Mr Duterte could run for the vice-presidency, as he has said he plans to, possibly in the hope that holding the office would give him immunity from prosecution for the killings in his war against the drug trade. The vice-president has no function unless the president resigns, dies or becomes incapacitated. But sympathetic top dogs sometimes throw their deputies a bone in the form of a more substantial government job.

Mr Duterte’s best bet, however, may be to endorse whomever he expects to succeed him as president, in the hope that his own popularity would give that candidate a boost. If the ploy worked, Mr Duterte might have the ear of the new president.

For any of these strategies to succeed, voters must elect a presidential candidate amenable to the influence of Mr Duterte. There is no guarantee that they will. Even if they do, the new president may turn out to be less friendly than Mr Duterte may hope. Either way, it is safe to assume that he will not waddle off quietly. ■

## Samoa’s new government

## Slow ride to FAST rule

WELLINGTON

## The island nation’s rightful prime minister can at last take office

IT TOOK THREE and a half months and a constitutional crisis, but Samoa at last has its first change of governing party in 33 years, as well as its first female prime minister. On July 23rd the country’s court of appeal ruled that Fiame Naomi Mata’afa’s FAST party, which narrowly won an election in April, was the legitimate government of Samoa, an island nation of 200,000 people 2,900 km north-east of New Zealand. The judges emphatically rejected the protracted efforts by Tuilaepa Sailele Malielegaoi, the outgoing prime minister, and the *O le Ao o le Malo*, Samoa’s head of state, to thwart the election outcome. On July 26th Mr Tuilaepa at last conceded defeat.

That the saga has at last ended and the opposition has been able to form a government is no thanks to him, but to the judiciary, one of the few state institutions that he had not managed to compromise during his lengthy stint in office. In power since 1988, Mr Tuilaepa’s Human Rights Protection Party (HRPP) had become too accustomed to the trappings of government. So had Mr Tuilaepa himself, who had been prime minister since 1998 and claimed to have been chosen by God.

His purported divine mandate inspired him to dominate vast parts of the state apparatus, as is apparent from the number of institutions affected by recent court rulings. After Mr Tuilaepa’s party lost the election in April, the electoral commissioner sought to manufacture an extra parliamentary seat for the HRPP by arguing that the composition of Parliament failed to meet the country’s minimum 10% quota for women legislators. The attempt was declared unlawful by the Supreme Court. When the former speaker locked the doors of Parliament in May to prevent the new government from being sworn in, he too was rebuked by the court.

The *O le Ao o le Malo* at first obeyed a court order to call Parliament to sit, but then revoked it for reasons he never explained. He has belatedly accepted the new government, but still maintains that the judges usurped his role in convening Parliament. The judges point out that the *O le Ao o le Malo* forfeited those powers after failing to do so within 45 days after a general election, as the constitution requires.

The new administration faces several immediate challenges. For a start, the prime minister needs an emergency bud- ▶▶

▶ get to replace the potentially unlawful one passed by the caretaker administration in June. Ms Mata'afa has suggested a constitutional review to close some of the loopholes exposed by the recent political crisis. She resigned as deputy prime minister, left the HRPP and joined the new FAST party as its leader because of a schism in the HRPP caused by disagreement over proposed legal changes curbing the power of the Supreme Court. These reforms are now likely to be ditched. Plans for a \$100m port paid for by China but disliked by Australia will probably be shelved as well.

Other changes may prove trickier. Ms Mata'afa may be inclined to remove the deeply compromised *O le Ao o le Malo* from office. He can potentially be dislodged by Parliament, though it may be easier to allow him to serve out his first five-year term, which expires in 2022. Even then, replacing him would be a delicate matter, as he is the holder of one of Samoa's four much-venerated paramount *Tama a 'Agai* chiefly titles. It may help that Ms Mata'afa holds one, too.

Ms Mata'afa is likely to reinforce Samoa's close relations with New Zealand

and Australia and remain a strong advocate for the rule of law. But those who expect radical change are likely to be disappointed. Despite her recent switch to the opposition, the new prime minister spent many years as a loyal HRPP politician, and five years as Mr Tuilaepa's deputy.

Still, she won partly thanks to spirited campaigning by the Congregational Christian Church of Samoa on behalf of the opposition. On the off-chance that she feels imbued with a divine mandate, she may be inclined to interpret it less expansively than her predecessor did. ■

## Banyan Seven-headed scandal

*The Pegasus hacking revelations throw a spotlight on India's troubled democracy*

IN ANCIENT HINDU lore a winged horse emerges from the milky churn of primeval oceans to become the trusted mount of Indra, king of the heavens. A later tradition says it was instead Mahabali, lord of the demons, who rode the fabulous stallion. Both versions picture a creature strikingly like Pegasus, the flying horse of Greek myth, except that the Indian model is fancier. It sports not one but seven heads.

Contemporary India's most powerful men could have used those extra heads. Relying on Pegasus—not the mythical horse but a very modern brand of electronic spyware—they seem to have ridden recklessly into danger. A global investigation by a clutch of newspapers and NGOs, triggered by the leak of some 50,000 phone numbers in ten countries, casts the government of Narendra Modi in an ugly light as a presumed client of Pegasus's Israeli creator, the NSO Group.

The evidence strongly suggests that Indian spooks may have slipped the eavesdropping software into the mobile phones of hundreds of unsuspecting fellow citizens. The problem is not just that the government may have broken Indian law to do so, or that it may have used the tool to pry on intimate private relations. Most disturbing, if true, is the choice of targets.

The leaked Pegasus file contains some 1,000 Indian numbers, around 150 of which have so far been identified. Only a handful belong to people who might conceivably endanger the state, such as activists in ethnic separatist groups. The list includes numbers used by some 40 journalists who share nothing but a critical stance towards Mr Modi's government. Some belong to Rahul Gandhi, leader of the opposition Congress party, and his personal friends. Others belong

to a political consultant credited with state-level wins against Mr Modi's Bharatiya Janata party (BJP), and to a former top election official who had recommended penalising Mr Modi for flouting rules during the 2019 general election, as well as to members of his family. Figures from inside the government may have been targeted, too, among them at least two BJP ministers, senior civil servants and a number of senior security officers.

In another democracy, such a scandal could topple a government. Richard Nixon was disgraced for transgressions that are puny compared with what Pegasus is capable of and may already have been used for. But in Mr Modi's India things are not so simple.

For sure, the liberal commentariat has erupted in predictable outrage, decrying the alleged snooping as a further lurch into dictatorship. Congress wants Amit Shah, the home minister, to resign. United for a change, opposition MPs have disrupted the lower house of Parliament for more than a week with calls for a debate and an investigation of Pegasus. Petitions

have been submitted to the Supreme Court demanding an inquiry. One opposition-ruled state, West Bengal, has opened one of its own.

But the government, snug in its parliamentary majority, has so far refused any debate. Mr Modi as usual remains aloof, leaving it to spokesmen to deny any link to Pegasus. BJP attack dogs dismiss the affair as a malicious hoax. Most of India's press, beholden in one way or another to government influence, has obediently played the story down.

No wonder they stayed in line. Dainik Bhaskar is a media group with newspapers widely read in the Hindi-speaking heartlands where the BJP dominates and which have recently been critical of the government's handling of covid-19. After they put the scandal on the front page, tax inspectors raided the company.

Perhaps, as so often in Mr Modi's seven-year tenure, cries for accountability will be drowned in India's turbulent public life. Attention has indeed already shifted to new dramas, such as a land dispute between two BJP-ruled states that erupted into shooting on July 26th, leaving five policemen dead. But it would be sad for India to miss this chance to patch some of the holes in its democracy.

India's spooks have operated behind an unusually thick veil of secrecy since long before Mr Modi began to gather undue executive powers. The Intelligence Bureau, one of several security agencies, was created in 1887 to snuff out opposition to the British Raj. Its functions seem to have scarcely changed. It is cocooned from democratic oversight.

Alas, in the age of Mr Modi, to call for greater public scrutiny, if only by empowering a parliamentary committee to monitor intelligence officials, seems as fanciful as to dream of winged horses.





## Nuclear weapons

# Xi's shells?

### China is rapidly building new nuclear-missile silos. America is worried

ON A HOT and sticky day in the northern city of Tianjin, America and China held their highest-level meeting on Chinese soil since Joe Biden was sworn in as America's president in January. But the encounter on July 26th between Wendy Sherman, America's deputy secretary of state, and counterparts from China's foreign ministry failed to clear the air. Instead, it merely deepened the gloom that hangs over the world's most critical great-power relationship.

According to an American spokesman, Ms Sherman promised "stiff competition" with China and raised its "ongoing genocide" in the far-western region of Xinjiang, among other sore issues. She suggested cooperation on tackling problems such as climate change, narcotics and Afghanistan. But that olive branch was snapped by Xie Feng, a deputy foreign minister, who said relations were at a "stalemate" and thundered that America's aim was to "bring China down". His boss, Wang Yi, told America to choose between improving ties or

"clashes and confrontation".

Mercifully, the two nuclear-armed countries do not appear as close to military conflict as the Soviet Union and America sometimes did during the cold war. But as the diplomats were sparring in Tianjin, the Federation of American Scientists (FAS), a research group, said it had spotted China building as many as 110 silos for intercontinental ballistic missiles (ICBMs) near the city of Hami, in eastern Xinjiang (see picture). A month earlier, the James Martin Centre for Nonproliferation Studies, an NGO in California, had identified 120 silos being built in Yumen, in the desert of Gansu, a neighbouring province. Both outfits found the sites by poring over satellite imagery from Planet, an American firm.

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Nuclear wonks were shocked. For decades, China has hewed to a policy of "minimum deterrence", involving the maintenance of a relatively small arsenal that would allow it to hit back at aggressors but not wage an elaborate nuclear war. The Pentagon reckons the country has 200 or so operational warheads—about the same number as Britain or France—and only 100 or so ICBMs. (America and Russia have nearly 12,000 warheads between them.)

The FAS says the satellite pictures suggest the "most extensive" building of silos since the construction of them by America and the Soviet Union during the cold war. On July 27th America's Strategic Command, which is in charge of nuclear weapons, reacted with a tweet: "This is the second time in two months the public has discovered what we have been saying all along about the growing threat the world faces and the veil of secrecy that surrounds it." America's State Department said the discoveries were "deeply concerning" and demonstrated that China was "deviating" from its long-established nuclear strategy.

Experts believe the silos are designed for China's newest ICBM, the DF-41, which can reach most of America's mainland (see map on next page). The question is why so many are needed. One theory is that they allow China to play a "shell game" with its missiles—an old conjuring trick in which a ball is placed under one of three cups that

▶ are shuffled to conceal where it is.

China would have good reason to bamboozle others about the precise whereabouts of its missiles. It has long feared that, in a crisis, America could use its large arsenal—or even a new generation of highly accurate conventional missiles—to wipe out China’s meagre forces on the ground. If some Chinese missiles were able to survive such an onslaught, they could be disabled in flight by America’s burgeoning missile defences, including interceptors in Alaska and California (see Americas section). In other words, China’s nuclear arsenal could be rendered useless. America stresses that its missile-defence systems are not directed at Russia, but makes no such commitment about their use against China.

If, however, missiles could be moved underground between silos, America would have no way of knowing which ones to strike. America’s “MX” programme, launched in the 1970s, could have inspired China to use such trickery. The idea was to shuffle 200 missiles among almost 5,000 bunkers in Utah and Nevada. The plan was shelved in 1981 by America’s then president, Ronald Reagan. He mocked it as a needlessly complex “Rube Goldberg scheme”—a reference to that American cartoonist’s drawings of fanciful contraptions for accomplishing simple tasks.

The layout of the Chinese silos may suggest a similar aim, says James Acton of the Carnegie Endowment, an American think-tank. He points out that China’s older silos, in the northern region of Inner Mongolia, are tens of kilometres apart, whereas the ones in Gansu are only about 3km from each other. Mr Acton also argues that because most DF-41s would probably have more than one warhead, China would not have enough fissile material to fill all the new silos with them, not least because of competing demand for its use in other nuclear weapons. The country is thought to have stopped producing plutonium in the 1980s. There is little evidence that it has resumed, although new nuclear-power reactors being built in Fujian, a coastal province, could do so in future.

Not everyone is convinced that China is merely planning a shell game. In theory, and in the long term, 230 new silos could support the deployment of 230 new missiles with several hundred warheads, since each missile can carry at least two of them and perhaps many more. American officials have long been arguing that China is rapidly expanding its nuclear forces. In its most recent annual report on China’s military power, published last September, the Pentagon said the country’s stockpile of warheads was projected to “at least double in size” over the next decade. In April the head of Strategic Command, Admiral Charles Richard, presumably aware of the silo fields, said that China’s programme



was advancing so quickly that intelligence was becoming out of date within a month.

The discovery of the silo-building projects raises two broader questions. One is whether they will prompt a change in China’s nuclear posture. America and Russia keep some weapons on high alert, ready to launch at a moment’s notice. China does not. But silo-based ICBMs can be launched more quickly than those on mobile launchers, which have to be erected and, in some cases, fuelled. American officials argue that with plenty of instantly ready missiles to hand, and with the more advanced

early-warning radar that China is beginning to develop (with Russia’s help), along with an early-warning satellite already in polar orbit, the country may adopt a policy of “launch on warning”. That means it would be ready to fire missiles at the first sign of a nuclear strike.

The other question is whether this will affect nuclear-arms control. The last remaining pact between America and Russia, the New START treaty, was renewed in February and will expire in five years. If the White House sees the new silos as confirmation of a rapid nuclear expansion, it may adopt the former Trump administration’s view that any future arms-control measures must involve all three powers.

For now, the State Department says that the construction of the silos “reinforces the importance of pursuing practical measures to reduce nuclear risks”. But China is reticent about exposing its arsenal to scrutiny. And the fractious meetings in Tianjin suggest there is little likelihood of negotiations over such a contentious matter, let alone a productive outcome.

Ironically, the most benign interpretation of the new structures—as a shell game—is in one sense the least encouraging for arms control. America and Russia verify New START by sending inspectors to peer into one another’s silos. If China’s plan is indeed to shuffle missiles around, it would become much harder for others to be certain of its deployments. “So the best case,” says James Cameron of the University of Oslo, “is that China has gone some way to confirming how uninterested in arms control it is.” ■



### Hong Kong’s national-security law

On July 27th a juryless court in Hong Kong convicted Tong Ying-kit, a 24-year-old waiter, of terrorism and inciting secession. He was the first to be found guilty under a sweeping national-security law, introduced last year. Just after the bill took effect, Mr Tong had ridden a motorcycle while displaying a flag saying “Liberate Hong Kong, Revolution of our Times”, and had crashed into several policemen. In effect, the ruling has criminalised the most popular slogan used by anti-government protesters in 2019.

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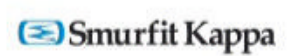
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## Chaguan | The politics of floods

*Why China's rulers don't want their public to debate climate change*



**E**VEN A SHORT spell submerged in floodwaters is enough to transform a car into an eerie, unfamiliar object. A week after ferocious rains first battered the central province of Henan, the hulk of a white Toyota—fronds of waterweed wrapped round its buckled frame—lay on a muddy street in Mihe, a hard-hit riverside town, like a long-lost shipwreck. Just finding the car had taken several days, its owners explained. It had been carried two kilometres downstream by the Sishui river, storm-swollen into a murderous torrent many times its normal width.

Scores died in the floods across Henan province, some of them in subway trains and road tunnels that remained open long after meteorologists issued a red-alert warning of lethal weather. China's propaganda machine is on the defensive. It has cast this terrible human tragedy as a "sudden act of nature": an exceptional event that could not be planned for. State media have lined up scientists to describe how air filled with water vapour by a summer typhoon was concentrated and forced upwards by two mountain ranges. It dumped a year's worth of rain in four days over flat plains crossed by several rivers, at one point dropping over 200mm of rain on the city of Zhengzhou in a single hour.

Alongside technical talk about the storm's rarity, officials have stressed how it fits into China's long history of summer floods. Nodding to the centuries-old tradition that successful flood control is a mark of virtuous rule, Communist Party newspapers have praised "important instructions" on disaster prevention and relief issued by the supreme leader, President Xi Jinping. Television has filled with images of soldiers shoring up dykes, people being rescued in small boats, and party members organising patriotic volunteers. At least in the main party and government-run news outlets, one possible cause of the rains has been hardly discussed at all: climate change. All summer, extreme weather has sparked loud public debate from Canada to Germany and Japan about whether a climate emergency has begun. Not in China.

Talking to locals in Mihe on a recent weekday, Chaguan met many who called the floods a one-off event. The fatalists included the young couple who owned that shipwrecked Toyota Corolla, encountered as they fished in its waterlogged interior for valuables. There is no reason to think such a disaster will strike again,

said the young man, examining a weed-covered set of keys and a bank card. It was "a once-in-a-1,000-year rainstorm", he declared. That same phrase came up time and again in Mihe, reflecting its prominence in approved accounts of the deluge.

Yet in China, public opinion is seldom quite as constrained by the official line as it first appears. Asked whether the weather had changed in their lifetimes, several locals said that it had. They described summers that have grown hotter, and the vanishing of heavy winter snows. Some linked those changes to the storm that had just smashed through their town, reducing bridges to jumbled slabs of concrete. Locals said they dared not talk to a foreign reporter about how many died in the floods in or around Mihe, in case they said something forbidden. But a few volunteered that the government needed to do more to tackle climate change. "This weather nowadays, nobody can navigate it," said a man who sells plastic-cloth rain covers for cars.

If opinion in Mihe is not monolithic, it is distinctively Chinese. Those calling for climate action often went on to describe large-scale engineering works, of the sort dear to party bosses. A shopkeeper drying mud-encrusted stock in the sun suggested that the Sishui's channel needed widening. "The river is too narrow, the water could not drain away fast enough," he ventured. Others, when asked about the climate, replied with praise for the government for cleaning up air pollution in Mihe, notably by closing a dirty local coal mine. "The environment now is much better than in the past," said a young man riding on a forklift-truck with his grandfather, a wrecked micro-car balanced on its prongs.

What could not be heard in Mihe were calls for citizens' campaigns to lobby the government. "This is a one-party state," explained a local, flatly. Asked about young people's views of the climate, a teenager suggested that in China, individuals do not believe that their actions will affect the environment at large.

It is no surprise that official media are not rushing to explore connections between extreme weather and climate change, says Li Shuo, a policy expert at Greenpeace, a campaign group. The media's job is to mobilise public opinion, and Chinese leaders do not expect the people to drive climate policy. Nor do they welcome pressure, including from natural disasters, to alter their carefully laid plans. "They don't have much tolerance of any external event setting their agenda," says Mr Li.

### **Change in China must come from within**

Outsiders may be tempted to shrug at China's relative lack of grassroots debate. After all, Mr Xi has promised that Chinese carbon emissions will peak in 2030, then decline to net zero by 2060, and his word is final. Top-down policies are already seeing solar panels and wind farms installed at a prodigious rate.

In fact, outsiders should hope for more debate at China's grassroots. The country's climate plans, though bold on paper, are not urgent enough. The world needs Chinese carbon emissions to peak years earlier than 2030 to avoid catastrophic warming. China cannot safely continue to invest in new coal-fired power plants at home or abroad. Alas, growing resentment of America and the West means that international pressure has an ever-smaller effect. In contrast, when the Chinese public grows really impatient, leaders pay heed, as when they cleaned up smog-choked skies over Beijing and other big cities. In the face of crushing losses, the resilience and grit of Mihe's residents is something to behold. If allowed a more informed debate about why disaster struck, some of that same energy might just help to save the world. ■



## Tunisia

## Arab democracy's fading star

TUNIS

**Tunisia's political system totters as the president suspends parliament**

SOME CHEERED it as a necessary intervention into a broken political system. Others called it a “coup”, the possible end of Tunisian democracy. No one is playing down the significance of President Kais Saied's decision to enact Article 80 of the constitution, under which he suspended parliament for 30 days and dismissed the prime minister, Hichem Mechichi.

The president's decision, delivered late on July 25th in his customarily awkward style, came after a day of widespread protests. Tens of thousands of Tunisians, defying a covid-19 lockdown, called for the downfall of the government. Some attacked the offices of Ennahda, the biggest party in parliament. After Mr Saied's announcement many of the protesters again took to the streets—to celebrate (pictured).

Tunisia is the one true democracy to emerge from the Arab spring protests of 2010-11 that toppled dictators in a handful of countries. But it has struggled in the decade since. Ten governments in ten years have failed to stem corruption or revitalise the economy, which shrunk by 8.6% last year. Covid-19 has added to the strain. The

government declared victory over the virus a year ago. Now Tunisia is suffering a new spike in cases. The health service has collapsed. Oxygen supplies are at a premium. About 200 people (out of a population of 12m) are dying each day from the disease (see chart on next page).

Earlier this month the government opened dozens of centres offering covid-19 vaccines. Large crowds showed up expecting to be jabbed, only to find chaos, confusion and rumours of vaccine shortages. The dismissal of the health minister did little to appease an angry public—nor did the prime minister's claim of ignorance over the operation. In a harbinger of things to come, Mr Saied stepped in, asking the army to assume management of the coun-

→ Also in this section

38 Learning Arabic in Jordan

39 Regulating Israeli spyware

39 Cooking with locust beans

40 The Tigrayan advance

try's pandemic response.

The president's power grab was condemned by the largest parties in parliament. But Mr Saied seems unswayed. He has since fired the defence minister and acting justice minister, while lengthening an existing curfew and banning public gatherings of more than three people. The police raided the office of Al Jazeera, a media outlet seen as sympathetic to Ennahda.

Mr Saied was elected two years ago as a protest against the political class. A former constitutional-law professor with no previous political experience, he won with 73% of the vote, drawing support from young Tunisians and others who viewed him as incorruptible. The same election produced a fractious parliament, with no party or coalition claiming a majority. Mr Saied has thus attempted to play a larger role in domestic policy, previously the preserve of the prime minister and government. Since January the president has refused to swear in 11 new ministers.

It is no secret that Mr Saied, who helped to write Tunisia's constitution (but later criticised it), wants to upend the political system. He would like the president to have more power and to do away with political parties and some elections. Instead, he suggests that Tunisians should elect local delegates, based on their merit, not their ideology. These delegates would appoint regional representatives, who would then appoint members of a national assembly. According to the constitution, two-thirds of parliament would need to ▶▶

▶ approve any revision of the charter.

What Mr Saied has planned for the near term is unclear. He has claimed the power to extend the 30-day suspension of parliament “until the situation settles down”. For now he says he will assume executive authority with the help of a new prime minister, whom he will appoint. Mr Mechichi released a statement saying he would not be a “disruptive element” and would hand over power to whomever Mr Saied selected.

Ennahda, a party with roots in the Muslim Brotherhood (a regional Islamist movement) which now styles itself “Muslim democratic”, has also tried to calm things down. It has been a political force ever since the revolution, and many Tunisians blame it for the country’s woes. But its leader, Rachid Ghannouchi, who is also speaker of parliament, helped get Tunisia through its last big political crisis, in 2013-14, by joining a national dialogue. His party has suggested holding another one and withdrew calls for protest.

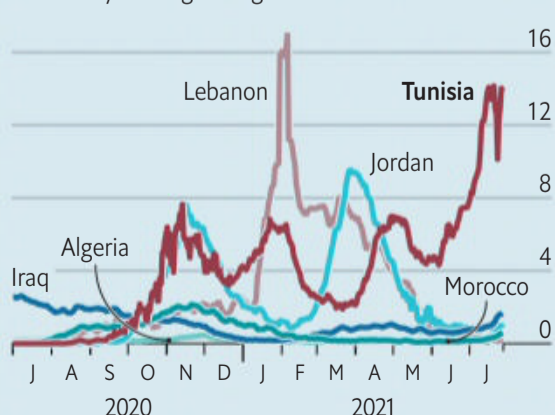
America and European democracies have expressed concern over Mr Saied’s move. But Tunisians say they have not done enough to support their country over the past decade. The president faces an immediate challenge in managing Tunisia’s relationship with the IMF. The government had been negotiating a much-needed loan from the fund, which may now think twice about making any commitment.

Tunisia is also caught up in a regional rivalry that pits countries such as Turkey and Qatar, which supported the Arab spring and the Islamist groups that benefited, against those such as Saudi Arabia and the United Arab Emirates, which opposed the uprisings. Saudi and Emirati commentators were quick to hail Mr Saied’s actions as a blow to political Islam.

In meetings with civil-society groups Mr Saied has promised to protect Tunisian democracy. Yet he seems likely to try to reshape it in a way that gives him more power. Tunisia will not emerge from the crisis looking like Saudi Arabia. But it will probably be a little less democratic. ■

### A deadly distinction

Covid-19, confirmed daily deaths per 1m people  
Seven-day moving average



Source: Johns Hopkins University CSSE



### Jordan

## Being boring has its advantages

AMMAN

### Why the kingdom leads the way in Arabic-language training

THE COUNTER of Fahad Subeihi’s falafel stand is stacked with piles of sliced tomatoes, onions and pickled turnips dyed pink. “The students love it,” he says. Mr Subeihi’s stand is located in the Jabal Amman neighbourhood of Jordan’s capital, Amman, amid a bevy of Arabic-language schools. Mr Subeihi estimates that, before the pandemic, half of his customers were foreigners, mostly Western students.

Jordan has cornered the market in Arabic-language training in the region. Unlike many of its neighbours, it is relatively stable and at peace. Its nickname, the “Hashemite Kingdom of Boredom”, may turn off thrill-seekers. But it attracts Western universities and grant programmes, which have largely stopped sending students to more volatile countries.

“Amman has become our largest centre,” says Pauline Koetschet of the French Institute of the Near East (IFPO), which teaches mainly European students. IFPO used to have centres in Aleppo and Damascus, but closed them because of Syria’s civil war. It still has a centre in Beirut, Lebanon’s unruly capital, but schools are increasingly worried about sending students there. “We have universities that tend to prefer Amman for security,” she says.

Oman and Morocco also offer stability, but Jordan has other advantages. Unlike Oman, at the tip of the Arabian peninsula, Jordan is in the heart of the Arab world. And although Morocco is still a popular destination, its dialect, called *darija*, is difficult to understand. Jordan’s, on the other

hand, is close to the Modern Standard Arabic taught in most Western classrooms.

“I feel like Amman has a monopoly on Arabic-language students from America,” says Patrick, who studied Arabic on a grant from Boren, a language programme funded by America’s Defence Department. In normal times Jordan is Boren’s second-most popular destination for grant recipients after Taiwan. (Arabic and Mandarin are languages the programme deems crucial to national security.) Students on Boren grants cannot train in countries for which the State Department has issued high-level travel advisories, which have become common during the pandemic. Even before, though, the rule meant nearly all of Jordan’s neighbours were out of luck.

The pandemic has cut into the number of Arabic-language students travelling to the region, so Jordan has been hit particularly hard. Katy Whiting of the Sijal Institute, an Arabic-language school in Jabal Amman, says that normally over 200 students would be enrolled at Sijal during the summer. As it is, 30 are attending classes in person and another 30 are studying online.

The absence of students has hurt neighbourhoods like Jabal Amman, which is eerily quiet. Muhammad Zuher says his restaurant, Kmajeh, near the popular Rainbow Street, used to draw a steady crowd of Western students. Now it is largely empty. Still, he is confident the students will return. “They want security, safety and to practise Arabic with locals,” he says. “Welcome to Jordan.” ■



## Israel

## Letting Pegasus fly

JERUSALEM

## The government is loth to regulate spyware exports

WHEN INTERNATIONAL news organisations revealed that at least ten governments had used Pegasus, a powerful software tool created by Israel's NSO Group, to hack into the smartphones of thousands of people around the world, including politicians, human-rights activists and journalists, the Israeli government shrugged. None of its ministers has publicly commented. A humdrum official statement insisted that all Israeli cyber-exports were regulated by the government in "adherence to international arrangements". Export licences were granted "exclusively to governmental entities, for lawful use, and only for the purpose of preventing and investigating crime and counter-terrorism".

Israeli defence exporters privately expressed ridicule. "Arms companies can't keep track of every rifle and bullet they sell to legitimate customers," said one. "Why should we have higher expectations when it comes to software?...Israeli spying is a sexy subject and these reports are the price for doing business."

In any case, the Pegasus customer list correlates neatly with many of the governments courted by Israel's former prime minister, Binyamin Netanyahu, who lost his job in June. These include like-minded populists such as the rulers of Brazil, Hungary and India (see Asia section), along with Sunni Arab regimes with whom Israel recently established diplomatic relations: Bahrain, Morocco and the United Arab Emirates. Saudi Arabia, a fellow enemy of Iran, is listed, too. "Deals on cyber-surveillance are the kind of sweetener you can throw into a diplomatic package with a foreign leader," says a former NSO consultant.

Israel's new government, too, has close ties to the cyber-industry. The prime minister, Naftali Bennett, made a fortune as a founder of an online-banking security company and is a cyber-defence aficionado. His interior minister and right-hand woman, Ayeled Shaked, is a former tech executive with friends at NSO; she supported awarding the firm government contracts. The new defence minister, Benny Gantz, chaired a company that specialised in data-mining for policing and counter-terror purposes. The head of that (now defunct) company, Ram Ben Barak, a former Mossad bigwig, currently chairs the foreign-affairs and defence committee, which monitors cyber-exports. A hearing on the NSO affair is scheduled, but only in a secretive sub-

Nigeria's cuisine

## Locust beans are back

IBADAN

The unlikely star of a Nigerian stew is taking the diaspora by storm

THE FERMENTED African locust bean, known in Yoruba as *iru*, has an unmistakable cheesy tang that hits you before you see it. "*Iru* isn't just a flavour on the tongue," says Ozoz Sokoh, a food blogger. After an elaborate process of fermentation, the smell is essential to its flavour. *Iru* is further enriched once tossed in smoky, bleached palm oil.

Long before Nestlé came to Nigeria with its Maggi bouillon cubes, *iru* was flavouring soups, stews and rice dishes. After independence the cube, with its monosodium glutamate seasoning, became more popular than *iru*, particularly in cities. But *iru* is making a worldwide comeback, thanks to a dish called *ayamase* which is packed with it.

A decade ago you would have been hard-pressed to find *ayamase* on a party menu. Instead you might have found *ofada*, a dish named after a town in south-western Nigeria close to Lagos, the commercial capital. It consists of unpolished rice and a spicy fried red-pep-

per beef stew. But now *ayamase*, the green-pepper rival of *ofada*, is wherever you find Nigerians, at home or abroad.

Bilikisu Raji, who lives in Ibadan, another big city in the south-west, was taught to ferment *iru* by her mother-in-law. The *iru* enterprise is run by women because, she jokes in Yoruba, the men aren't up to it. She buys the yellow-tinged seeds in the market and boils them for 12 hours in a cauldron. She removes the chaff to reveal black-brown beans, peels them with the balls of her feet, washes them through a sieve, then boils them again. Eventually she dry-roasts them and covers them with a raffia tray to let them ferment overnight. Finally she rubs the *iru* in salt, then rolls it up in dry leaves, ready to sell. A small wrap weighing 20 grams goes for only 50 naira (an American dime). She survives on the patronage of foreign customers who buy as much as \$25-worth at a time to use in *ayamase* abroad.

Nowadays you can find *iru* on shelves across the world. Ms Sokoh, who has lived in the Netherlands and Canada, has seen it in shops everywhere. "You find frozen *iru*, fresh *iru*, powdered *iru*, dried *iru* on the shelves in ways you couldn't ten years ago," she says. Suffering from high blood pressure, she steers clear of stock cubes in favour of *iru*. "There's definitely a saltiness without being sodium-heavy," she says.

To non-West Africans, *iru* is likely to remain a niche ingredient "like fish sauce", sighs Tunde Wey, a popular Nigerian chef based in New Orleans. He has collaborated with an American company to sell *iru* in sleek jars, hoping to boost small farmers back home while getting fellow cooks abroad to appreciate its versatility. Whether or not Western foodies catch on to this superbean rich in probiotics, *iru* is fuelling Nigerian party-goers around the world.



Making that cheesy tang

committee behind closed doors.

Israel's Defence Export Control Law of 2007 requires companies to undergo a rigorous licensing process. It was passed after America, Israel's chief patron, complained about Israel selling arms to China. But defence officials and human-rights campaigners admit that once a licence has been obtained, the Israeli government prefers not to know how the tools are used.

Some firms have set up in-house ethics committees, fearing that otherwise they

might become tainted, making it harder to do business in the West. "The more progressive-minded workforce coming to the fore in America's tech giants could treat Israel as a pariah, object to having research centres in Israel and collaborating with Israeli companies," says a veteran dealmaker. Stung by the Pegasus revelations, investors in Novalpina Capital, a private-equity firm that owns NSO, are thinking of liquidating the fund. But Israel's rulers, old and new, have fewer qualms. ■

## War in Tigray

## Down from the mountains

DESSIE

**Ethiopia's civil war has entered its most dangerous phase yet**

THE STREETS of Dessie, in Ethiopia's Amhara region, are loud and bustling. So are its restaurants and bars. But as Ethiopia's civil war edges closer, the mood is darkening. In the past week military-training camps have sprung up. Outside a hospital a tent has been erected; wounded soldiers lie on stretchers. Through mountain fog come the screams of ambulance sirens. Such is the tension gripping the place that when your correspondent visited, he was arrested almost immediately and held for several hours.

The jitters are because rebels from Tigray are advancing fast and meeting weak resistance. As *The Economist* went to press, the fighting was drawing near to Weldiya, a strategically important town about 80km north of Dessie. To the west they have penetrated to within perhaps 80km of Gondar, Ethiopia's historic capital (see map).

A few weeks ago, when the insurgents captured most of the Tigray region, including Mekelle, the capital, there may have been a chance for a negotiated end to Ethiopia's civil war and accompanying humanitarian crisis. Instead, the war may be entering its most dangerous phase yet.

On June 28th Abiy Ahmed, Ethiopia's prime minister, announced a unilateral ceasefire and withdrew his troops from Tigray. Yet instead of using the opportunity to open talks with the rebels led by the Tigrayan People's Liberation Front (TPLF), the region's ruling party, Abiy tightened a blockade. Ignoring calls to join the ceasefire the TPLF has sent its forces well beyond Tigray's borders. As well as into Amhara, they have marched east into the Afar region in what seems like a bid to control the road and rail link to Djibouti, through which about 95% of landlocked Ethiopia's trade flows. The TPLF may even be mulling a march on Addis Ababa, the federal capital, to remove Abiy by force.

Abiy has responded with a call for total war, invoking the battle of Adwa, when Ethiopians from all corners defeated Italian invaders in 1896. The president of Amhara has ordered all armed residents to mobilise in a "campaign for survival", while the president of Afar has called on his people to protect their land "whether by guns, sticks or stones". Other regions have also sent in paramilitary forces.

The tactics on both sides are risky. The government's mobilisation of ethnic militias is a recipe for bloodletting: most of



their members are poorly trained and have been whipped up by allegations of Tigrayan atrocities. "Everyone is ready with anything they have, from machetes to Kalashnikovs," says Teqil Nigusse, a merchant in Weldiya. In Addis Ababa and elsewhere, ordinary Tigrayans are being treated as fifth-columnists. Hundreds have been arrested and scores of Tigrayan-owned businesses, including hotels and bars, have been closed, in some cases simply for playing Tigrayan music.

For now, though, the Tigrayan forces have the upper hand. As the Ethiopian army has retreated, they have captured its heavy artillery. And they have turned their once-disorganised ranks into an effective fighting force, motivated by the murders and rapes committed by Ethiopian and Eri-

trea soldiers. The insurgents' counterparts in Amhara, by contrast, lack training and have been hastily assembled. The Tigrayans "have the military advantage now", frets a young policeman in Dessie.

Even so, the Tigrayans' gamble is also risky. Rather than focus on reclaiming disputed territory occupied by Amhara forces in the west, they are attacking on many fronts—and risk overstressing themselves. Tigrayans make up only about 7% of Ethiopia's population. Amharas alone outnumber them four to one.

Securing the road to Djibouti, moreover, is no easy feat. The scorching deserts of Afar are harsh terrain and, beyond their own borders, Tigrayan forces cannot rely on widespread local support. The fighting in Afar has already forced tens of thousands of civilians from their homes. The resistance may be stiffening. Federal troops backed by Afar paramilitary forces seem to have halted the Tigrayan advance in the east. "Invading Afar was a historic mistake," argues Dawud Mohammed Ali, a local academic.

The second risk is political. When the TPLF arrived in Addis Ababa in 1991 as a band of guerrillas who had toppled Ethiopia's then military dictatorship, it could count on support from many of Ethiopia's more than 80 ethnic groups. But after almost three decades in charge of the government in Addis Ababa, it has few friends left. Many would regard any move towards the capital as a brazen attempt to put itself back on the throne.

Despite the dangers, neither side in the war appears especially interested in talks to end it. The TPLF, believing it can smell victory, wants a transitional government to replace Abiy. The prime minister, for his part, insists that the TPLF must be defeated entirely. Many Ethiopians agree with him. Yet much blood has been spilled trying to do this, even as the government's prospects have inexorably worsened. ■



Against a darkening sky



The south of France

## California dreaming

BRIGNOLES

Why Provence and the Riviera are so right-wing

WITH ITS palm-fringed beaches, ribbon of coastal cities, inland vineyards and year-round sunshine, the south of France feels in some ways like a southern California *à la française*. The region of Provence-Alpes-Côte d'Azur (PACA) is home to nearly 200,000 students and a tech hub at Sophia Antipolis, near Nice. Car-dependent, it boasts outside Marseille one of the biggest cases in France of urban commercial sprawl. Cosmetic surgeons are plentiful. Super-yachts fill marinas. The region even indulges Hollywood each year in Cannes. American stars favour multi-million-euro chateaux in the neighbourhood.

Politically, however, the south of France could scarcely be more different from liberal California. This is not a destination for young people seeking alternative living or counterculture. With a few exceptions, notably Marseille, almost the entire coastal and inland fringe leans to the right, or hard right. Most small towns and villages, as well as seven of its biggest ten cities, including Nice, Cannes and Aix-en-Provence, are run by centre-right mayors. The tenth-biggest, Fréjus, is held by Marine Le

Pen's hard-right National Rally (the RN, formerly the National Front). At first-round voting for the presidential election in 2017, PACA was the only region in mainland France that put Emmanuel Macron behind both Ms Le Pen and François Fillon, the centre-right Republican candidate.

This right-wing tendency has some specific historical roots. When Algeria won independence from France in 1962, nearly 700,000 *pieds-noirs* (French settlers) stepped off the boat in Marseille and other southern ports furious with Charles de Gaulle for ceding the territory. At the same time, North African immigrants, recruited to work on building sites or in factories, began to settle in the region. Xenophobic nationalism was a potent force used by

Jean-Marie Le Pen, the National Front's founder, to build support. He secured his highest early scores in PACA, scoring 19% there at elections to the European Parliament in 1984. Ten years later, the party's first three town halls—Toulon, Orange and Marignane—were all in the region.

Over time, says Vincent Martigny at the University of Nice, this has "oriented the mainstream right in the region towards a more hardline position than elsewhere in France". The right and far-right alike have pushed immigration and security to the fore. Politicians rail against illegal migrants, and the leaky border with Italy. Indeed, Ms Le Pen recruited Thierry Mariani, a former centre-right Republican deputy from Provence, as her candidate in PACA at regional elections in June. He lost in a runoff to the Republicans.

A second reason for the right-wing vote is demographic. The southern climate has long attracted retirees. There are proportionately more over-65s in the region than in France as a whole, as well-attended *boules* games attest. The ratio of private to public care homes in PACA is twice the national average. Les Senioriales, a gated residence of bungalows for "seniors" in the village of Les Mées, offers a swimming pool and cardio-training for what the industry describes as *papy-boomers*. The over-65s vote more, and tend to favour the right.

Inequality is another factor, argues Christèle Lagier, a political scientist at the University of Avignon. After Paris, the region has the country's biggest income gap ▶▶

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▶ between the richest 10% and the poorest. Property prices are high. Philippe Aldrin, a political scientist at Sciences Po-Aix, says the decline of industrial employment, which used to organise workers in unions, and the rise of jobs in services such as care homes and supermarkets have loosened links to the parties of the left. The RN may thrive mostly on anti-immigrant sentiment in the south, and on industrial decline in the north. Yet in PACA too it lures voters who feel traditional parties have let them down. “RN voters are not a constant stock,” says Ms Lagier: “There are a lot of voters here who hesitate between the Republicans and the RN.”

This hesitation is encapsulated in Brignoles, a small town that lies amid Mediterranean-pine forest between the motorway and the coast. With its narrow medieval streets and terracotta-tiled roofs, its Provençal air is partly of the faded variety. The last nearby bauxite mine, once a provider of jobs, closed in 1989. On the main street, “For Sale” signs are pasted to a boarded-up hairdresser, shoe shop and *boulangerie*. Drab supermarkets lie along its ring-road. The town’s population of immigrant origin is mostly found in low-rise housing on the edge of town.

Yet, at the same time, in the shade of old plane trees and beside a fountain, terrace cafés on the main square are busy. Newly pedestrianised streets have been scrubbed clean, and softer street lighting installed. The town is holding a jazz festival this summer, and yoga classes in a public park. Word has it that even George Clooney has bought a chateau nearby.

Historically Brignoles voted on the left, electing a Communist mayor as recently as 2008. Eight years ago it grabbed headlines when the National Front won a local by-election, raising the spectre of a swing to the extreme right. Yet at municipal elections last year Brignoles defied the image that has clung to it ever since, and backed Didier Brémond, the outgoing centre-right mayor, with a thumping 79% of the vote. The RN did not even field a candidate.

Catherine Delzers, the centre-right candidate who lost in Brignoles to the National Front back in 2013, puts this triumph down to the fact that the mayor “listens to people”. The mayor himself is generous about his fellow townfolks’ motives, arguing that the hard-right vote in the past was one of “*ras-le-bol* (fed-upness)” rather than genuine extremist feeling. Getting on with improving life in the town, says Mr Brémond, a local businessman, has proved the best way to fight back: “Brignoles had lost its footing; today we are reviving it.”

Other towns in the region have also evolved, but in different ways. The south of France is filled not only with ageing conservatives drinking *pastis*. Aix-en-Provence, home to lots of students, has an em-

bryonic tech scene. Marseille, an edgy multicultural city, has recently attracted an arty younger population fleeing the high rents of Paris and elsewhere. Last year a Green-left candidate replaced its longtime Republican mayor. If *télétravail* (working from home) survives, this too could bring in younger sun-seekers, and perhaps shift regional politics. Until then, lifestyles in the south of France may feel Californian—but the region’s politics will remain more like that of equally sun-soaked, pensioner-heavy Florida. ■

## Albania

# Unimpeded flows the Vjosa

KALIVAC AND VJOSA-NARTA

**Albanian environmentalists are blocking a torrent of dams**

**T**HE SILOS at the building site at Kalivac once held concrete for what was to have been a big hydroelectric plant. Now they echo with the squawks of the many birds that have taken up residence on them. Cement-mixers and earth-movers still stand ready to roll. But a court ruling in late May may keep them stationary for ever. The plaintiffs in the case included ecologists who have been battling against the plant for years. They are trying to prevent new dams from being built along the Vjosa, Albania’s second-longest river.

The Vjosa is still flowing freely, but Albania’s increasingly influential green activists are not cracking open the champagne yet. “We have won some legal battles, but we have not won the war,” says Besjana Guri, of EcoAlbania. In Kalivac the steep hills that fall down to the river have been scarred by terracing for the dam. The original concession was granted in 1997. Tens of millions of euros have been spent on preparatory works.

In 1997 Albania was on the verge of civil war. Protecting the environment was not

on anyone’s agenda. Today in Albania, as in the rest of the Balkans, it is a different world. Green groups and angry locals are joining forces to oppose new hydroelectric plants, more than 3,400 of which are planned around the region.

The Vjosa rises in Greece, then flows for 135 miles (220km) through Albania. In places it is 2.5km wide. Unusually for a European river, its course is obstructed by only a single dam, near its headwaters. In Kute, from where 38 villagers went to court alongside EcoAlbania to stop their lands being flooded, Xhemal Goxhaj, aged 84, clicks his worry-beads and says, “We were going to lose everything...all the fields where the sheep go to graze, the olive trees and the vines.”

Even though there may be money to be made by damming the Vjosa, says Ulrich Eichelmann of the Save the Blue Heart of Europe campaign, which co-ordinates resistance against Balkan hydroelectric projects, that is not a good reason to do it. Londoners would not knock down Big Ben to build a shopping centre, he says, simply “to make more money”.

Fully 90% of Albania’s electricity comes from hydropower plants. But the future, environmentalists say, is solar. They point out that the country has 300 days of sun a year, and plenty of room for solar panels. Sali Berisha, a former prime minister and president, wanted Albania to become a big energy exporter. Now, though, the government emphasises tourism as a way of earning foreign exchange. Before the pandemic Tirana, the capital, had acquired a reputation for trendy nightspots. Albania also has miles of scarcely developed coastline.

Edi Rama, the prime minister, is visibly irritated by the Vjosa issue. Environmentalists are “making a fuss about nothing”, he says, because he has said before that the river will not be dammed on his watch. The problem is that the environmentalists do not trust him, because back in 2015 he had promised that the area would be declared a national park. In the end he granted it only “protected” status, which is less development-proof. The area can be properly protected only by becoming a national park, activists say. And even that would not cover all the Vjosa’s many tributaries, along which 37 dams are planned.

Mr Rama says those plans have been frozen; the problem, he insists, is how to cancel them completely without having to pay “half the country’s GDP” in compensation. In future the river will be protected by a patchwork of parks and protected areas. Albania is one of the poorest countries in Europe, notes Mr Rama: “You cannot ask a country that needs to develop to just enjoy wildness. We need to find a balance.”

Environmentalists still have plenty of concerns. Shell, an oil giant, is prospecting for oil close to the Vjosa. But activists’ at-



►tention is shifting to the river's delta, near the town of Vlora. In the Narta lagoon, flamingos step gingerly and stately pelicans patrol their stretch of water, while fishermen grumble about how little they earn. Nearby, miles of empty, sandy beaches stretch into the distance.

Later this year construction should begin on Vlora's new international airport, on the site of an abandoned military airfield. It was last used by drug-runners flying cannabis to Italy, just across the Adriatic Sea. In 2015 trenches were dug across the runway to stop them. Unlike the villagers upstream, the locals here are gung-ho about the future. Dams upriver may diminish that area's appeal for tourists, but an airport here would be a boon. Preparing his fishing net, Pellumb Bala says that in his village there are "24 families with 24 men without jobs. We need the jobs." Mr Rama says the birds in the area will be protected, but adds tartly, "Albania cannot be the zoo of Europe." ■

## Afghans in Turkey

# Point of no return

ISTANBUL

**Refugees from Afghanistan are reaching Turkey in greater numbers**

**H**AMMAD PASSED out from exhaustion, but continued walking after he recovered. Crossing from northern Iran into Turkey took three days. Smugglers guided Gharibullah and his group remotely, sending them photos and videos of the route. Their associates occasionally appeared on horseback near the mountaintops to offer directions. Habib was captured by Turkish border guards, but escaped. The guards assaulted one of his companions, he says, breaking bones in his back.

Today those three young men, who arrived from Afghanistan this summer, are

scattered across Turkey—searching for jobs, or a way to reach Europe, and hiding from the authorities. Turkey is already home to anywhere between 200,000 and 600,000 Afghans, most of whom have arrived in the past decade, fleeing violence and poverty. But as the Taliban captures more of Afghanistan following America's withdrawal, many more are trying to enter. Around a thousand Afghans are believed to be crossing into Turkey every day, after gruelling journeys across Iran.

Unlike the 3.6m Syrian refugees in Turkey, only a minority of Afghans are safe from deportation and offered some access to public services. Most of them have never registered with authorities, or else they have had their applications for international protection rejected. "We are in constant fear of being caught by the police and deported," says Gharibullah, who worked as a teacher in a district of Afghanistan recently captured by Taliban fighters. Hammad, a computer technician from a district where the Taliban and Islamic State have been fighting each other, works 12-hour shifts, six days a week, at a sweatshop in Istanbul for a monthly salary of 2,500 lira (\$290), less than the minimum wage. Habib, who fled his village after the Taliban killed four of his friends, worked for two weeks at an iron foundry in Kayseri, a Turkish city, but was then denied pay.

Turkey's opposition is seizing on growing resentment towards all refugees. A leading opposition lawmaker recently called Syrians and Afghans, who now account for roughly 5% of the country's population, "the number-one issue for Turkey's survival." The mayor of Bolu, a city in the north, said he would increase water bills for refugees tenfold. Frustration with European governments is mounting. "Turkey will not be the EU's border guard or refugee camp," snapped the foreign ministry on July 26th, after Sebastian Kurz, Austria's chancellor, said Turkey was "a more suitable place" for Afghans than his country.

The influx could indeed become a problem for the EU soon. In 2015 over 850,000 people, most of them Syrians, reached Europe by way of Turkey and the Greek islands, crammed into cheap rubber boats. The number making this crossing dropped dramatically after Turkey pledged to keep the migrants on its side of the Aegean, in exchange for €6bn (\$7.1bn) of assistance from the EU. (None of this money has been earmarked for Afghans.) It fell further this year, after Greek border and coast guards began turning back migrants without allowing them to apply for asylum.

But of all those who have recently succeeded in reaching Greek shores, Afghan nationals make up the largest share. Most see few prospects in Turkey. "We've come here," says Hammad, "because this is the place where we decide where to go next." ■

## Dry bars of Ireland

# Filling in the craics

An Irish pub refreshes parts that others cannot reach

**F**OR YEARS themed pubs have bolstered Ireland's soft power around the world. But their reach is limited to those who like a drink. And in many places youngsters are quaffing less than their parents did. Influencers promote "sober curious" lifestyles on social media, noting that cutting back on alcohol can bring benefits such as better sleep, not just a happier liver. By 2024 sales of "low- and no-alcohol" tipples will increase by almost one-third in ten big countries, according to the IWSR, a British company that analyses the international drinks market.

These trends are mother's milk to the owners of The Virgin Mary, a pub in Dublin that serves no booze of any kind. Vaughan Yates, who opened it in 2019, says his bar appeals to all sorts of people but that women are especially keen. He says that even pub-crawlers sometimes stop by for respite. Now the team behind it is seeking to set up duplicates abroad. If an alcohol-free bar can work in Dublin, it can work anywhere, says Sarah Connolly, a co-owner.

The first stop is the Middle East. A franchised outlet will open in Abu Dhabi later this summer under a secular name, tvM; another may follow in Saudi Arabia. The bar in Abu Dhabi will help promote Irish culture outside the usual watering holes, says Niveen Ibrahim, head of the restaurant-management group that is opening it. Bars there are largely re-



stricted to hotels and intended for use by foreigners. Because it serves no alcohol, tvM will be allowed to open in a shopping centre.

Mr Yates thinks the dry pub will appeal to Emiratis who would never enter establishments that serve alcohol, but thirst for something other than humdrum coffee shops and juice bars. He promises it will feel distinctly Irish, though punters will be spared a "guy on a fiddle in the corner". Employees at the original bar in Dublin say their customers are the nicest in the trade. "And the toilets are the cleanest."

# Charlemagne | Meet the proverbial voters

*How Europe's imaginary voters explain the continent's politics*



**T**HE IRISH breakfast roll is a feat of culinary engineering. Take a baguette, slice lengthways and butter it. Add a sausage, two fried eggs, two rashers of bacon, hash browns and some black or white pudding, cover in ketchup, then serve. At around 1,300 calories, it is nearly half the recommended daily allowance for a man, and is traditionally consumed while hungover.

It has a curious hold on the Irish psyche. A homage to the “Jumbo Breakfast Roll” was the best-selling song in 2006, beating Shakira’s “Hips Don’t Lie”. One academic produced a sociological study: “The Rise and Fall of the Jumbo Breakfast Roll: How a Sandwich Survived the Decline of the Irish Economy”. But it was in politics that the breakfast roll truly dominated.

Breakfast Roll Man was a symbol of the Celtic Tiger. A hungover construction worker gorging on one after a big night out was a common sight in the boom years. These were the cash-rich workers, argued David McWilliams, an Irish commentator who devised the term, who came out and guaranteed a victory for Bertie Ahern in 2007 just before the Irish economy came crashing down.

Every European country has its Breakfast Roll Man, a proverbial voter who sums up the political zeitgeist. For decades the housewife of Voghera, a town in Lombardy, has been a shorthand for middle-of-the-road voters in Italy. In Denmark it is Mr and Mrs Kakkeltbord, named after the ubiquitous coffee tables found in Danish suburbia. The couple emerged after a politician unintentionally insulted the furniture choice of the common voter. From the Swabian housewife, an image favoured by Angela Merkel in her austerity days, to the Mondeo Man of Tony Blair’s era, each proverb is revealing in its own way.

Sometimes proverbial voters are used as a political weapon, rather than a tool of analysis. Populists use figurative voters to frame their base as the true voice of the nation. In the Netherlands an imaginary couple called Henk and Ingrid dominate. Invented by Geert Wilders, the bleached-blond anti-immigration politician, they are the ordinary supporters of the Party for Freedom (PVV). Alexander Pechtold, then the leader of the liberal D66, even wrote a book—“Henk, Ingrid and Alexander”—arguing with the imaginary couple. During the pandemic, Mr Wilders blamed “Mohammed and Fatima”, the immigrant antithesis of Henk and In-

grid, for blocking beds in hospitals from the native Dutch. It sparked another round of discourse on Mr Wilders’s terms.

Repeating a rival’s framework only helps the rival, argues Tom van der Meer, a professor at the University of Amsterdam. Mr Wilders wields influence in Dutch politics by an ability to drag parties towards his more radical positions. Although his party is usually the second or third-largest in the Netherlands, there is little chance of his entering government. Bluntly, there are not enough Henks or Ingrids to put him there. Yet so long as Henk and Ingrid loom over the debate as the archetypal voter, politicians end up spreading Mr Wilders’s message.

Where life is good, so is the life of the proverbial voter. Complaining about life in Scandinavia, one of the richest regions on the planet, is the equivalent of moaning about having stubbed a toe while celebrating a lottery win. Where Henk and Ingrid struggle along, proverbial voters in Scandinavia are content. In Sweden, politicians speak of Medelvennsons, who are concerned with “villa, Volvo, vovve” (house, Volvo, dog). If those categories are fulfilled, then they are happy. Things for “Bla Bjarne”—a well-paid, middle-aged, Danish craftsman—are rather good. So good, in fact, that he can be tempted to the right by the promise of tax cuts.

Where life is worse, so is the life of the proverbial voter. Janusz and Grazyna, an imagined Polish couple from the country’s provincial hinterland, offer the cruellest example. Janusz is a middle-aged man who drinks to excess, watches too much television, wears socks with sandals and has a moustache. Online, he is often depicted as a proboscis monkey. His wife, Grazyna, is dim, enjoys gossip and shopping. Their son, Sebastian, is a ne’er-do-well.

If the stereotype is nasty, it is a reflection of Poland’s brutal politics. The country is the sharpest example of the most important schism in European politics: the increasing gap between the centre and the periphery. Poland’s liberal cities bristle under the government of the staunchly conservative Law and Justice party (Pis), who rely on the likes of Janusz and Grazyna for support. In turn, Pis loyalists suggest that city dwellers look down on them. Given the portrait of Janusz and Grazyna, this is fair enough.

## Charging at windmills

A problem with imaginary voters is that they are imaginary. Social democrats are panicking about plunging vote shares across Europe. But their imagined target voter is outdated, says Tarik Abou-Chadi of the University of Zurich. Rather than engage with the potential voters who actually exist they pitch themselves towards voters who have disappeared, conjuring images of manly miners whom they must win back. This has turned some politicians into political Don Quixotes, charging towards voters that, like the Spaniard’s windmills, are not at all as expected.

Proverbial voters can blur political reality as often as reveal it. On the left, the same proverbial voter pops up repeatedly: male, middle-aged and a manufacturer. Young people in dead-end call-centre jobs are rarely represented. The Swabian housewife may be the epitome of Christian Democratic values in the eyes of Angela Merkel. But the party should also focus on those second- and third-generation Turkish-German voters tempted to the centre-right. Yet when it comes to proverbial voters, these groups are invisible. Even when the proverbial voter rings true, politicians must remember to move on. Breakfast Roll Man has had his day. He probably moved to America after the crash, suggests Mr McWilliams. A new voter, hopefully with a better diet, will take his place. When politics changes, so should the proverbial voter. ■



### Northern Ireland's segregated schools

## Pick and mix

BELFAST

**In a divided community, efforts to teach Catholic and Protestant children together face formidable obstacles**

WHEN THE autumn term starts, a school at the north-eastern edge of Northern Ireland will make a little piece of history. Seaview Primary in Glenarm, a coastal village where the accents are a constant reminder of the nearness of Scotland, will become the province's first to leave the Catholic education system run independently from the state and overseen by Catholic bishops. The little school will become "integrated", seeking to draw pupils and teachers from both sides of the province's sectarian divide. Liam Neeson, a film star who grew up nearby and who now holds American citizenship, praised his former compatriots for "taking courageous steps to ensure that children from different traditions will get to learn and play together, every day, in the same school".

The job of healing Northern Ireland's deep social rifts is getting more urgent, and harder. When both the United Kingdom and Republic of Ireland were in the European Union, practical issues of trade and borders did not matter; when the UK left in January they became nigh-insoluble. The deal struck means that Northern

Ireland has, in effect, remained inside the EU's customs and trade union in order to avoid a trade border on the island of Ireland. That meant creating one in the Irish Sea, dividing the province from the mainland, and ratcheting up tensions in politics and on the street.

As politicians in both Northern Ireland and Westminster argue about the minutiae of customs and standards, they have lost focus on the bigger issue. The uneasy truce that had held since the signing of the Good Friday Agreement in 1998 is coming under pressure. The province's nastiest rioting for many years broke out in March. Before

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Brexit it had seemed that settling Northern Ireland's final status was something to be shelved for future generations, when decades of peace would have washed away the legacy of centuries of hatred. That happy confidence has been erased.

All this adds new significance to the question of who should educate Northern Irish children, and alongside whom. About 90% go to schools where one religious tradition dominates both intake and atmosphere. The Catholic system accounts for about half of pupils; in state-run schools Protestants predominate. Only around 7% go to the 60 or so integrated schools, and 2% to Irish-language ones. Since most neighbourhoods are segregated, children may rarely meet anyone from outside their own religious community. Even those in mixed classrooms go home to places where one camp controls the streets and supposedly defunct paramilitary forces still hold great sway.

Education is also a microcosm of the mutual resentment that feeds tribalism. Although a rising share of Northern Irish adults, especially young ones, say they feel neither "Protestant unionist" nor "Catholic nationalist" in culture and identity, those who still strongly identify with one side or other tend to vote accordingly—and to feel that when it comes to schooling it is their lot who are being squeezed.

Some Protestants grumble that "our schools"—those run by the state, where pictures of the Queen used to adorn walls and the British national anthem was ▶▶

► sung—have adapted to Catholic sensibilities, even as Catholic schools remain devotional and therefore unwelcoming to them. Some nationalists, for their part, resist integrated schooling because they think the history of British colonisation and oppression will be glossed over. Meanwhile the opening of a handful of Irish-language schools has made them more confident that the tide is turning in their direction, and unionists more defensive still.

At a recent stormy debate in Northern Ireland's assembly, a bill that would make integrated education the default for new schools was passed on second reading and sent to committee. But the Democratic Unionist Party, the largest of those that back the union with Great Britain, condemned it as an attack on parental choice. Sinn Féin, the largest party seeking a united Ireland, endorsed it half-heartedly, saying that integrated schools did too little to promote the Irish language, or Gaelic music and sports. (Advocates say they teach about both communities' traditions and histories, not neither.)

Well over half of integrated schools are new institutions set up by parents who see them as an essential part of a desegregated and more peaceful future. Existing schools can join their number, however, if 20% of parents demand a ballot. If half of all parents with children in attendance vote, and of those half say yes, the education minister has the final say, depending on whether the school in its new form will attract enough pupils to remain viable.

Two small Catholic schools recently failed that test. But there is clearly an appetite for integrated schooling: once Glenarm said it planned to switch, pupil numbers doubled from 40 as Protestants enrolled. Integrated Education Fund, a charity, says it has set a precedent that many other small village schools may seek to follow.

Embedding an integrated ethos is a "long but worthwhile process", says Sean Pettis of the Northern Ireland Council for Integration Education, a government-funded body. But it will not become the norm any time soon. Some of the Catholic schools seeking to switch are deciding between integration and closure; large, flourishing institutions are unlikely to follow their example.

These include prestigious grammar schools that selected pupils by competitive examination until covid-19 made that impossible, and which feature near the top of countrywide league tables. St Columb's in Derry, for example, counts two Nobel laureates among its old boys. Others, in poor areas, have a record of turning around academic failure and thus boosting social mobility. Among the province's schools that do not select by academic prowess, Catholic ones produce the best results. All these institutions are held in high regard by

alumni who, even if they have lost their faith, tend to think their alma mater helped keep a beleaguered community's culture alive through dark times.

"In a mixed system, all we are seeking is a place at the table," says Donal McKeown, the Derry-based bishop who chairs the Catholic educational authority. He and others say that Catholic schools already do their bit for community relations. A couple of well-known ones are religiously and racially diverse; many share classes in some subjects with nearby schools that have

mainly Protestant intakes.

Northern Ireland's schools themselves do not foment sectarian prejudice. But that misses an important point: they are part of a system where cross-cultural ignorance allows prejudice to flourish. Schools cannot fix that alone; but it will surely be harder to tackle while children live and learn apart. Padraig O'Tuama, a theologian and poet, recalls a classroom discussion in a Catholic school in Belfast. One earnest little girl asked him a tough question: why did a loving God make Protestants? ■

## Catholic culture

# Loose and lacy

DERRY

### Northern Irish Catholicism is becoming less devout and more cultural

**A**MONG THE nine-year-old girls of Derry, demand for frilly white frocks that resemble mini-wedding dresses remains strong. The first time a child takes part in the Eucharist, the holiest of Christian rites, is an important milestone that features not only a fancy new outfit, but a big party (covid-19 permitting), and cash gifts that are splurged on toys and computer games.

By some measures Northern Ireland's Catholic community is thriving. The census taken earlier this year is expected to show a rough demographic balance between Catholics and once-dominant Protestants—reinforcing the sense that the united Ireland desired by most Catholics is all but certain.

But communal affiliation does not equate to personal faith. Preparation for first communion is woven into the curriculum of Catholic primary schools, and few families opt out. Unlike some of their parents and most of their grandpar-

ents, however, these children are unlikely to grow up devout Mass-goers.

Thirty years ago, Northern Irish Catholics were among the Western world's most observant religious groups, more so even than Catholics in the Irish Republic. Nine out of ten claimed to attend Mass regularly; now just 46% say they go at least once a month, with younger generations less pious than older ones.

Parents who do not attend Mass still often label their children as Catholic for the purposes of schooling. Lukewarm Protestants, by contrast, are shifting towards the "no religion" category. For about a decade, the share of Northern Irish schoolchildren registered as Catholic has hovered around 51%, with 33% now registered as Protestant and the rest as "other", which includes many lapsed Protestants.

Northern Ireland also has a cohort of conservative young Protestants who resemble American evangelicals, says Gladys Ganiel, a scholar of religion at Queen's University Belfast. But there is no Catholic equivalent (Derry, where pious lay movements have some traction, is an exception). Generally, attachment to Catholicism is loose and extensive; evangelical Protestantism is tighter and more zealous.

Ever since Ireland was partitioned a century ago, the Catholic church has shared stewardship of Irish culture with the Gaelic Athletic Association (GAA). This promotes not only traditional Irish sports, such as hurling and Gaelic football, but also Irish music and dance. Nowadays it can feel like the GAA, originally the junior partner, is calling the shots. Once Catholics prayed and only afterwards headed for the pitch, says Brian D'Arcy, a maverick priest. Today Gaelic football practice often clashes with Mass and few complain.



Not so old-fashioned



# Bagehot | The new normal

*A strange era in British politics is coming to an end*



THE BREAK-UP of Parliament for summer recess has seen the revival, after last year's lockdown, of one of Conservative Westminster's great traditions, the summer party. As usual the *Spectator*, the Tory house journal, had the best drinks. Policy Exchange, a right-leaning think-tank, had the best warm-up act in the form of Tory MP Michael Gove. A third event, a book launch for "Greater" by Penny Mordaunt, the paymaster-general, and Chris Lewis, was a veritable festival of Britishness. Guests were served scotch eggs and fish and chips. The whole social whirl felt as if Brexit and covid-19 had never happened.

The sense of normality returning goes beyond Westminster. Glance at the headlines and you will see a familiar world: the Liberal Democrats won a by-election and proclaimed a new era in politics; the tabloids published a picture of a minister kissing a woman who was not his wife, wrecking his marriage and career; the government announced it would get tough on law and order. And after being given an easy ride by voters who saw it almost as a government of national unity, the Conservative Party is falling back to earth. The latest Survation poll puts Labour just two points behind (37 to 39). Labour's leader, Sir Keir Starmer, is narrowing the gap with the prime minister on whom to favour for the top job (33 for Sir Keir to Boris Johnson's 40). Sir Keir has resurrected some talent from Labour's last stint in office, under Tony Blair and then Gordon Brown, and launched a grand tour to reintroduce himself to Britain, this time in person rather than over Zoom.

Two years ago Britain seemed dangerously unstable. The Labour Party was in the hands of Jeremy Corbyn and his clique of Stalin-apologists. Dominic Cummings, the mastermind of Vote Leave, was preparing shock therapy for Britain, in the manner of the IMF dealing with an eastern European country emerging from communism, or a spendthrift Latin American one. Two new outfits, the Brexit Party and Change UK, were promising to blow open an ossified political system. Parliament Square was the scene of perpetual protest and the destination of marches and counter-marches. MPs required police protection after death threats.

Such nastiness is still in evidence. George Galloway, a provocateur who has stalked Labour's fringes seemingly for ever, brought his distinctive brand of poison to the Batley and Spennings by-election

in early July. Later that month Kate Shemirani, a former nurse turned anti-vaxxer conspiracist, told thousands of protesters in Trafalgar Square that "at the Nuremberg trials doctors and nurses stood trial and they hung". But the nasty tendency is in retreat. Sir Keir is scraping Labour's hull clean of Marxist barnacles. Now out of Downing Street, Mr Cummings is dwindling into a pantomime villain who makes occasional television appearances to cackle and preen. The United Kingdom Independence Party, which played a big role in bringing about Brexit, is almost defunct and its former leader, Nigel Farage, is reduced to appearances on an ailing new television channel, GB News. Parliament Square is being retaken by its rightful owners: foreign tourists.

The laws of economics are also reasserting themselves. During the covid-19 crisis the chancellor, Rishi Sunak, agreed to "spend what it takes" and Mr Johnson scattered money on the populace like a latter-day Roman emperor. Now the Treasury is flexing its muscles. Mr Sunak has played Scrooge with some high-profile demands, including a new Royal yacht and catch-up classes for children whose schooling was set back by lockdown.

Set against recent history, the new normal will look idiosyncratic. The bumbling, unpredictable Mr Johnson is not a normal prime minister, and the effects of covid-19 and Brexit are likely to last. Although cases are falling, more lockdowns are possible; politicians, whose business is meeting people, are particularly vulnerable to the "pingdemic" (being ordered by the national tracing app to stay home after having contact with someone infected). Both Mr Johnson and Mr Sunak had to sit out the summer parties. Still, two outlines can be spied looming in the post-covid mist.

The first is that the return to normal will be better for Labour than for the Conservatives. Sir Keir will be able to criticise Mr Johnson in ways that would have seemed churlish at the height of the crisis (a promised inquiry into the government's handling of the pandemic will give him plenty of material). Meanwhile, contradictions within the Conservative coalition will become more apparent. So far Mr Johnson has been able to promise more spending for the poorer north without higher taxes on the richer south. That cannot continue for ever: eventually he will have to infuriate the Shire Tories or disappoint the Red Wall converts. "Having to make real choices is not compatible with the political coalition we've put together," says one of the party's more cerebral MPs.

## Back to life, back to reality

The second is that it will mean a return to drift and waffle—to 1990s John Major rather than 1980s Margaret Thatcher. On bread-and-butter issues, Mr Johnson will rely on government by headline rather than substance. On Scottish Independence, he will offer prevarication and delay. The Conservative Party will lurch between its big-government and Thatcherite personae. Meanwhile the Labour Party will reconcile itself to a leader who is too good to dump but not good enough to make the political weather.

The expulsion of extremists from mainstream political parties is worth celebrating. Yet something has been lost in the waning of revolutionary fervour. Mr Cummings was widely regarded as a "nightmare", but he was also right about some important things. Britain's political parties are increasingly feeble; the administrative machinery of Whitehall is rusty; and the broader culture is complacent and backward-looking. Though infinitely preferable to the paralysis that seized the political system after the Brexit vote, the new normal will be far from what Mr Johnson and his fellow insurrectionists once promised: a national renaissance. ■



### Protests and covid-19

## It's catching

BOGOTÁ, DURBAN, SÃO PAULO AND SINGAPORE

**People in middle-income countries were already fed up with their governments. The pandemic has made that worse**

A PILE OF fake corpses littered the heart of Bangkok. The bodies—white sacks stuffed with hay and spattered with red paint—symbolised Thai victims of covid-19. “They’re dead because of the failure of this government,” a protester bellowed into a megaphone. To underscore the point, protesters had laid the “corpses” across a giant portrait of the prime minister, which they then set ablaze.

In many countries around the world, from Brazil to Belarus, the pandemic is stirring unrest. People are angry about the economic hardships they face. They have seen how the rich and well-connected go to the front of the queue for vaccinations, medical treatment and government help. They are angry that their leaders have not done a better job of containing the coronavirus. At the same time, people’s suffering has created a sense of solidarity which is fanning grievances that smouldered long before anyone had heard of covid-19.

Thailand’s protests flared up on July 18th as the Delta variant was running

amok, leading to the country’s worst wave of covid-19 so far. Hospitals are swamped. Just 5% of the Thai population is fully vaccinated. Thais had hoped for a swift economic rebound, after GDP shrank by 6.1% in 2020, but that now seems unlikely. The Bank of Thailand recently reduced its growth forecast for 2021 from 3% to 1.8%.

Many Thais berate their government for failing to secure enough vaccines soon enough, or for reopening the country too quickly to foreign tourists, which they fear may have contributed to the current wave. Some grumble that the government has relied too much on Chinese-made vaccines rather than Pfizer’s or Moderna’s which they believe offer more protection.

Globally, you might expect covid-19 to make unrest less common. Before the pandemic, big protest movements had been increasing around the world, growing 2.5 times between 2011 and 2019, according to the Institute for Economics and Peace (IEP), a think-tank in Sydney. However, dense crowds of angry people, all shouting

slogans and spraying each other with spit, could easily transmit the virus. Sure enough, in the early weeks of the pandemic the number of protests around the world dwindled in such places as India, Pakistan, Chile, Iraq and Nicaragua.

It didn’t last. Discontent has once again bubbled up in countries including Colombia, South Africa and Myanmar, even as the virus has continued to do its worst. In Tunisia this week, amid violent mass demonstrations which were sparked by the government’s mishandling of the pandemic, the president sacked the prime minister and suspended parliament (see Middle East & Africa section).

The IEP found that in 2020, civil unrest rose by 10%. It counted 5,000 instances of pandemic-related violence in 158 countries. Violent demonstrations are more common than at any time since 2008. A broader measure that includes peaceful protests also rose, according to the Armed Conflict Location & Event Data Project, an NGO. In the year to March 1st 2021, ACLED logged 51,549 demonstrations or riots. Counting only countries surveyed in both years, it detected a significant increase.

In this, the pandemic looks as if it is following the pattern set by earlier outbreaks of infectious disease. In a paper published last year, Tahsin Saadi Sedik and Rui Xu of the IMF analysed data from 133 countries between 2001 and 2018 and found that social unrest starts to increase 12-14 months ▶▶

▶ after the onset of an epidemic, such as Zika, a mosquito-borne virus, and peaks after two years. The covid-19 pandemic has been incomparably more severe and longer-lasting than those epidemics in almost every country. The disruption it causes could well be, too.

One direct cause of protests, the IMF data suggested, is economic hardship. A good example is Cuba, where a vast network of secret police and informers usually spot and crush dissidents before they cause trouble. Yet on July 11th thousands marched in more than 50 towns and cities, risking the dictatorship's wrath to chant "freedom!" and overturn a few police cars. It was perhaps the biggest display of anti-government fury in Cuba in six decades.

Cubans are angry because the shops are empty, they have nothing for dinner, the electricity keeps failing and they are not allowed to vote out the people in charge. Covid-19 has aggravated these perennial grievances by devastating the Cuban economy. Tourists, the main source of hard currency, have stopped coming. GDP shrank by 10.9% in 2020 and slid further this year.

### Nothing to lose but their groceries

The closure of Cuba's borders to keep out the virus has cut connections with the capitalist world that made life more bearable. Everyday things like soap and coffee are usually brought in by relatives who made it abroad or by mules who travel to places like Panama, Mexico, Russia or Miami to buy supplies and resell them on the black market. The severing of this supply chain has stoked inflation, lengthened queues and reminded Cubans of how poorly the government caters for their basic needs.

The collapse of tourism has had knock-on effects on the health system. Without the dollars holidaymakers used to splurge on hotel rooms and rum cocktails, the government is struggling to buy the ingredients it needs to make drugs. Painkillers, antibiotics, insulin, asthma medicine and diagnostic tests have become scarce, so people with easily treatable illnesses are

forced to suffer. Good medical care is supposed to be one of the pillars of the revolution. "Many people in Cuba were once content to accept that, while they might never be able to take an extravagant holiday, they at least had the guarantee of good health care," says a Cuban doctor.

Pandemic-aggravated unrest strikes rich and poor countries alike, but middle-income countries are most vulnerable both to the disease and its social effects. Rich countries are protected by vaccination—even if some of their citizens hesitate to be jabbed. In the poorest places, the coronavirus is one burden among many, states are often too weak to enforce lockdowns, and the population's youth offers a high degree of protection from covid-19.

In middle-income countries, by contrast, vaccination is patchy and lockdowns are common (see charts). Many of their people are old enough and fat enough to be especially vulnerable to the virus. What's more, people in middle-income countries have expectations of their governments.

Too often, as in South Africa, those expectations have been dashed. The protests there earlier this month were stirred up at first by supporters of a justly jailed ex-president, Jacob Zuma, in an attempt to secure his release. But one of the reasons they snowballed into mass looting and the burning of shops and businesses was that so many South Africans are poor, jobless and furious about the corruption and rotten government that keeps them that way.

Covid-19 has put all of that on display. Lockdowns have been exceptionally tough, and many South Africans find the rules irksome. A spray-painted slogan on a looted shop in Edendale, in KwaZulu-Natal, the worst-hit of South Africa's nine provinces in the riots, read "Level 4 to hell"—a reference to the country's second-highest level of pandemic alert, during which the government imposes "extreme precautions".

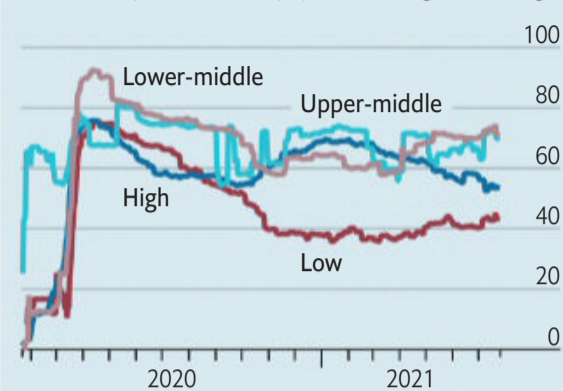
A short-lived ban on buying open-toed sandals was baffling. Periodic bans on the sale of alcohol struck many as unfair. Rich people with wine cellars have carried on tipting behind their high walls, but the poor have been deprived of one of life's pleasures, and harassed by police when they indulge. During the riots, liquor stores were among the first to be looted.

When covid-19 hit, "everything came to a stop; my business couldn't function," says Patrick Dlamini, who fixes cars, which fewer people are driving because of covid-related curfews, and recycles bottles, which fewer people are draining because of the booze ban. "There's no money," he frets. The looting, he reckons, was caused by "a combination of Zuma and covid".

The tensions in South Africa have been aggravated by inequality (see Free exchange). Pandemics expose the gulf between the haves and have-nots. What is

### Strictly come lockdown

Lockdown stringency index, 100=most strict  
Countries by income level, population-weighted average



Sources: Blavatnik School of Government, University of Oxford; World Bank; *The Economist*

more, the IMF's analysis shows that when pandemics impose economic hardship, the burden falls most heavily on the poor. At a time when everyone should be in it together, it rankles when ordinary people see how the privileged both escape hardship and enjoy special treatment into the bargain. It brings the angry into the streets.

Colombia shows how the sense of injustice can overwhelm the government's efforts to help. One of the world's most unequal places, it has also spent longer under lockdown than most countries. GDP dropped by 6.8% in 2020 and 2.8m people fell into destitution. A decade of progress in eradicating poverty was wiped out. The pain was shared unequally. Youth unemployment from May to July last year was 30%, compared with overall unemployment of 20%, and 12 percentage points higher than it had been a year earlier. In a place where half of the economy is off the books, informal workers had nothing to fall back on.

### Sorry isn't good enough

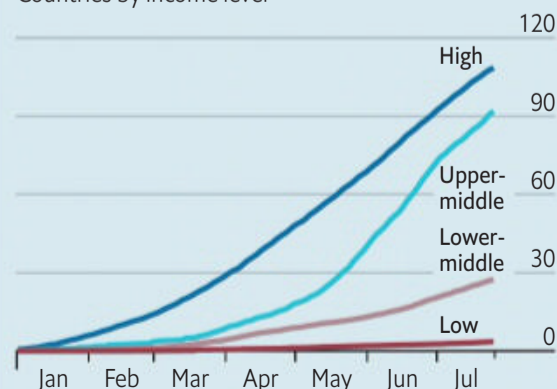
The government tried to make amends. It introduced a fund called Ingreso Solidario to help the poor survive during lockdowns, but many families still did not have enough money to get by. In April this year it introduced a tax reform that set out to redistribute money to the poorest half of Colombians, partly by eliminating VAT exemptions that help the rich and widening the net of income tax.

But Colombians, struggling to cope with the pandemic, assumed that the reform would load them up with more taxes. Coming at the start of April, just as the disease was mounting and most cities were reimposing lockdowns, the tax bill brought people onto the streets—especially the jobless young. Over several days in May, protesters manned barricades, attacked police stations and looted businesses in Cali, the country's third-largest city.

Once protests have started to take hold, more tend to follow. Again, hardship is a factor. A paper published in May by Meto-

### A world divided

Covid-19 vaccine doses administered, % of people aged 12 and over, 2021  
Countries by income level



Sources: Our World in Data; World Bank; *The Economist*

► dij Hadzi-Vaskov, Samuel Pienknagura and Luca Antonio Ricci, of the IMF, analysed an index of social upheaval in 130 countries. It concluded that unrest is followed by a fall in economic output of 0.2 percentage points after 18 months—and that the effect in emerging markets is twice that in advanced economies.

What's more, the very act of protesting can generate a sense of solidarity. In Belarus, for example, the coronavirus inspired people to stand up to the regime. They got a taste for rebellion. The spark came in the spring of 2020 when Alexander Lukashenko, the country's despotic leader, dismissed covid-19 as a "mass psychosis" and blamed his citizens for dying of it. The EU's members advised citizens to stay at home and offered financial help. Mr Lukashenko told his to have a shot of liquor, indulge in a *banya* (steam bath) and ride a tractor.

Mr Lukashenko, who has ruled Belarus since 1994, likes to portray himself as the father of the nation. He has boasted about the country's broad system of social support, which harks back to the Soviet Union. When he stumbled over covid-19 Belarusian activists sensed a rare opening.

A team of IT specialists launched #By-Covid19, a social-media movement that stepped into the void left by the state. In a few weeks it attracted hundreds of thousands of volunteers across the country and supplied personal-protection gear for doctors and machinery for hospitals. Andrei Strizhak, one of its founders, says that it proved to Belarusians that they could act together. After Mr Lukashenko rigged an election in August, they did just that by taking to the streets in huge numbers.

Something similar may be starting in Brazil. Early in the pandemic, supporters of President Jair Bolsonaro dominated the

streets. Unmasked and dressed in green and yellow, thousands of *bolsonaristas* gathered roughly every two weeks to back the president's denouncement of governors' lockdowns. In August 2020, 37% of Brazilians approved of Mr Bolsonaro, according to Datafolha, a pollster, partly because the government was paying 600 reais (\$110) per month in emergency aid to a third of the population.

Today the emergency aid has been slashed and big crowds are calling for his impeachment. In May a senate inquiry into the government's handling of the pandemic revealed that Mr Bolsonaro had rebuffed offers to buy vaccines last year, and later ignored possible corruption. One in seven Brazilians is out of work and one in ten is going hungry. In recent polls less than 30% of Brazilians backed the president and a record 51% disapproved of his government.

Three times in just over a month starting in late May, all the states of the country were protesting at once, uniting thousands of people in many cities. Former allies of Mr Bolsonaro have joined the marches, spurred on by the death toll from covid-19, currently at more than 550,000. "The glass is almost full," says Creomar de Souza of Dharma, a Brasilia-based consultancy. "We will see what is the last drop that might make it overflow."

Plenty of countries have avoided covid-related protests. India has been relatively quiet, in spite of its government's mistakes. So has Malaysia, which coped well with covid-19 in 2020. But in these places, too, discontent is stirring. Critics of the Modi government in India have become louder, and now include fellow-travellers from his own Hindu-nationalist power-base. One example is the formation of a group of retired senior civil servants—

some of them once very high-powered—that has taken to berating the government.

In recent weeks Malaysia has suffered a wave of infections, taking the total to over 1m. Poor ethnic Malays, unprotected by the country's patchy social safety-net, have watched ministers and the business elites flout health rules that carry swingeing penalties for ordinary offenders. The factories of well-connected owners have been allowed to continue to operate—despite being superspreading venues for employees. Around 18% of the population have secured a job, but among the well-connected the share is much higher.

Households have taken to hanging white flags from their windows as a call for help. Increasingly, black flags flutter beside them, hoisted mainly by younger, educated Malaysians signalling frustration at the government's mistakes. The black-flag, or *Bendera Hitam*, movement has unnerved the authorities, who are probing it for evidence of sedition. Bridget Welsh of the University of Nottingham, Malaysia thinks this wider mobilisation highlights how a country proud to consider itself uniformly middle-class is in reality a country of haves and have-nots.

#### It ain't over 'til it's over

The pandemic is far from over. Covax, the global vaccine-sharing initiative, aims to provide developing countries with enough jabs to inoculate a fifth of their populations by the end of 2021, but that target is very unlikely to be met. So far, almost 4bn doses of vaccines have been put into arms. To get to 70% coverage, the world needs to give another 7bn—more, if booster shots are required. That is unlikely before 2022.

In the meantime, governments will attempt to control the disease with rules and regulations—including measures to restrict dissent. According to Freedom House, a watchdog, at least 158 out of 192 countries have placed new curbs on public protests. Some governments have done so impartially and temporarily, to protect public health. Others have seized on covid-19 as a pretext, locking up their opposition for supposedly violating social-distancing rules while letting the governing party hold huge rallies.

In the long run political repression is often a recipe for trouble. The pandemic suggests that people's anger does not dissipate while they are cooped up indoors. It simmers like water in a saucepan, even as governments do their best to hold down the lid. In Thailand gatherings of more than five are banned, officially to reduce the spread of the virus. The protesters on July 18th were met with tear-gas and rubber bullets. But that only makes them angrier. "We just want to get vaccinated," says one. "Covid-19 is breathing down our neck but the government is doing nothing at all." ■



Is it too much to ask?



## Big tech

## Faceworld

SAN FRANCISCO

**Advertising has made Facebook into a trillion-dollar company. Can new ventures take it further?**

FACEBOOK HAS always had two faces. One is the grimace of a firm that many people, in particular politicians, love to hate. President Joe Biden recently accused the social-media giant of “killing people” by spreading misinformation about vaccines against covid-19. (He later rowed back a bit after Facebook pointed out it does quite a lot to stop the spread of such content and to promote legitimate vaccine advice.)

The other face is a happy one of a firm that users, advertisers and investors cannot live without. It was grinning again on July 28th, when it presented second-quarter results. Revenues rose by 56%, year on year, to \$29bn—despite Apple’s update in April to its iPhone operating system that let users easily opt out of being tracked around the web by apps like Facebook. That puts it on track to exceed \$100bn in sales this financial year. Quarterly net profit hit \$10.4bn, double that of a year ago. Despite a wobble in late trading after Facebook warned of slowing sales growth in coming quarters, it looks poised to become a paid-up member of the exclusive club of companies with a market capitalisation

above \$1trn, which it joined earlier this year (see chart on next page).

How can a firm with such baggage be so successful? The answer also has two faces to it. With 2.9bn daily global users, Facebook’s main offerings—its flagship social network (known internally as Blue), photo-sharing on Instagram and messaging on WhatsApp and Messenger—are a digital magnifying glass of human nature. This glass amplifies the good (neighbourly help amid the pandemic) as well as the bad (conspiracy theories and quack cures). It also serves as a remarkable lens for advertisers to focus on the world’s consumers. And the two-facedness is likely to become more pronounced if Facebook succeeds with its biggest project yet: creating a

“metaverse” that would combine a 3D digital world with the 3D physical one.

At its core Facebook is a giant advertising machine. Ads generate 98% of revenue. Blue is a dominant ad platform internationally, raking in some \$55bn last year, estimates KeyBanc Capital Markets, an investment firm (Facebook does not break out results by service). Instagram, which Facebook bought in 2012 for \$1bn, now chips in another \$20bn or more, taking its share of overall ad revenues to nearly 30%, from just over 10% in 2017.

Debra Aho Williamson of eMarketer, a data provider, calls Facebook’s ability to target ads “incredibly precise”. Advertisers value this precision highly: Facebook earns \$8 a quarter for every one of its users, nearly twice as much as Twitter. The firm watches what its users do not only on its own services, but almost everywhere else online. This lets it pick which products to offer to a given user, identify others with similar interests and determine whether they buy anything after seeing an ad.

Even before the pandemic hit, this was hard to resist: for smaller firms with fewer resources to run sophisticated marketing operations, which make up the bulk of Facebook’s 10m advertisers, but also for big global brands. Even Chinese sellers are spending billions of dollars on Facebook, says Brian Wieser of GroupM, which places ads on behalf of brands. Facebook’s apps may be banned in China, but Chinese merchants can plug their wares to Western consumers thanks to firms such as Wish, ▶▶

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▶ an American online marketplace that helps arrange ads, payment and shipping.

Covid-19 has turbocharged Facebook's machine. Self-isolating American adults spent on average nearly 35 minutes per day on Blue in 2020, according to eMarketer, two minutes more than the year before. That adds up to more than 10,000 additional years of collective attention. While some firms went belly-up or cut ad spending in last year's recession, others were born: 6.6m in America alone since the start of the pandemic. Many crave some of the extra attention. Today it is as unthinkable to run an online consumer business without targeted ads as it once was to run one with no shopfront, says Mark Shmulik of Bernstein, a broker. A bigger slug of such firms' budgets will be spent on Facebook and its fellow ad-tech giant, Google, he says. Admen are calling it "the new rent".

Facebook has added more than 2m renters in the past 15 months. It will add more as economies reopen and digital ads, which now make up 60% of overall ad spending in America, keep chipping away at old media. Facebook has warned of a "greater impact" of Apple's tracking opt-out in the current quarter; Flurry, a data firm, estimates that four in five iPhone users have opted out. But even if this makes Facebook's targeting a bit less effective, it will still be at least as good as its rivals', predicts Mark Mahaney of Evercore ISI, an investment bank.

And though on July 23rd American trustbusters got another three weeks to refile a lawsuit against Facebook, which had been thrown out last month for lack of evidence, they will struggle to prove that it is a social-networking monopolist under current competition law. For all the anti-tech bluster in Washington, law is unlikely to change as long as Congress stays polarised.

The bigger threat to Facebook's prospects, which has long preoccupied Mark Zuckerberg, its co-founder and boss, is that the virtual masses tire of its apps and move elsewhere, pulling advertisers with them. In the past two years a new generation of

social media has emerged that poses just this threat. Although Facebook's share of American digital advertising has continued to grow, its global social-media advertising has been edging down since 2016. The challengers range from specialists such as Clubhouse and Discord, two audio-chat services, to Snapchat and TikTok, which take on Blue and especially Instagram more directly. TikTok fans in America now spend more than 21 hours a month on the video app, compared with less than 18 hours that users spend on Blue, according to App Annie, a market-research firm.

In the past Facebook might have bought smaller rivals, as it did with Instagram. With trustbusters looking on, it is instead placing a series of big bets. The first is on the "creator economy", where people make money from digital works. This is an extension of its ad business, but one in which it has fallen behind. TikTok and YouTube, in particular, have been better at attracting creators who keep users glued to their screens. In April Facebook said it was developing new audio features, including Clubhouse-like chat rooms where listeners can tip performers. In June it launched Bulletin, a newsletter-hosting service similar to Substack, which popularised the genre. This month Mr Zuckerberg vowed to shower creators on Blue and Instagram with \$1bn by the end of next year (he didn't say what form the payments would take).

Facebook's second bet looks beyond advertising to e-commerce. It already hosts 1.2m online shops on Blue and Instagram. That puts it in the same league as Shopify, a fast-growing rival to Amazon, which has 1.7m. A month ago Facebook introduced a new way to let buyers try on clothes virtually. It also plans to link its "Shops" offering with Marketplace, its existing peer-to-peer trading service, and WhatsApp, which it wants to turn into a vehicle for chat-based "conversational commerce", the latest thing in online shopping. Later this year it wants to phase in Diem, its controversial cryptocurrency, which would beef up its payments infrastructure.

For now Facebook has waived seller fees, but they could add a few billion dollars to its turnover as soon as next year. Besides bringing in non-advertising revenues, an e-commerce business would also help the firm with its tracking problem. If shoppers spend more time and leave more data on its platform the inability to follow them elsewhere on the web becomes less important. Mr Shmulik expects e-commerce to fragment into such walled gardens, each combining shopping and advertising, and operated by a tech giant.

Mr Zuckerberg's grandest gamble concerns the metaverse. When he spent \$2bn in 2014 to buy Oculus, a maker of virtual-reality (VR) gear, many thought he was buying himself a toy. But in recent years Facebook has made other VR acquisitions, most recently BigBox VR, developer of "Population: One", a shooter game similar to "Fortnite". This hands Facebook control of a hardware platform for VR and "augmented reality" (AR), which serves users digital information as they survey the real world through smart spectacles and the like.

As with e-commerce, part of Facebook's rationale may be to lessen its dependence on the whims of hardware-makers such as Apple. The potential prize is large. Sales of Oculus headsets contributed around \$1bn to Facebook's revenues last year. If the technology keeps improving, VR and AR are the obvious next phase of gaming, which has matured into an industry with global revenues of \$180bn.

### Meta-morphosis

Mr Zuckerberg's ambitions do not stop there, however. He doesn't see the metaverse, which now has its own division within the firm, merely as a place to enjoy games or other immersive entertainment. Instead, he envisages it as a virtual space where people live and work, in keeping with a dream that geeks have harboured since 1992, when the term "metaverse" was coined by Neal Stephenson, a science-fiction author. In five years' time, Mr Zuckerberg has said, he would like Facebook no longer to be seen primarily as a social-media company but as a metaverse company.

That would make Facebook cool again. It would also bring more scrutiny from critics worried about the firm's power. If users start spending 35 hours a week immersed in its virtual world, rather than 35 minutes a day, this may invite regulation that actually bites. For now, the metaverse is inviting something Mr Zuckerberg fears more: competition. Others are sizing up the field, from video-game firms like Roblox and Epic Games, to other tech giants. Apple is reportedly planning its own AR glasses; Microsoft already sells AR goggles. If Facebook beats them to metaverse supremacy, it will have plenty to grin about. Otherwise, expect grimacing. ■

### How to count friends and influence people

Facebook

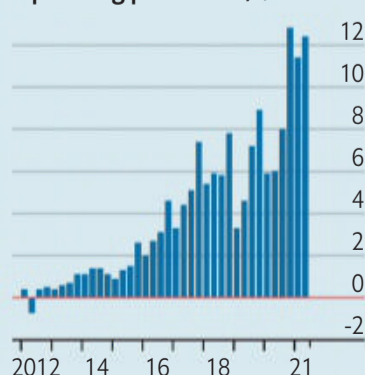
Market capitalisation, \$trn



Revenues, \$bn



Operating profit/loss, \$bn



Source: Bloomberg

## Big agriculture

## Field day

## Agricultural merchants are milking it as food prices rise

**T**ROUBLE IS BREWING in America. The reopening economy's hunger for goods from China, and for the containers that carry them, has left importers of coffee, of which the average American guzzles two cups a day, struggling to ship the stuff from Brazil. They are using whatever they can get, says Janine Mansour of Port of New Orleans, where much of America's raw coffee lands. That includes much bigger boxes, which reach the maximum allowed weight before they are full. Importing part-empty containers adds extra costs, Ms Mansour says, and these will ultimately be swallowed by consumers.

It isn't just coffee prices in America that are rising. Transport logjams and paltry harvests in producing regions have conspired with surging demand to stoke food inflation across the smorgasbord. The UN Food and Agriculture Organisation (FAO) expects the value of global food imports to reach nearly \$1.9trn this year, up from \$1.6trn in 2019 (see chart). In May its index of main soft commodities hit its highest value since 2011, after rising for 12 straight months. Another benchmark index, by

S&P Global, a research firm, has risen by over 50% since July 2020. On July 22nd the boss of Unilever, the Anglo-Dutch maker of everything from Ben & Jerry's ice cream to Hellmann's mayonnaise, said that pricier raw materials have caused his firm's costs to swell at their fastest pace in a decade.

Central bankers warn that the price spikes could feed broader inflation, which is already on the rise in many countries. That would be bad for consumers. But their loss is a gain for the giant firms that source, store and ship foodstuffs on behalf of state buyers and multinational companies. These opaque traders, which possess the networks of silos, railways and vessels, as well as the data and relationships, necessary to redraw supply routes, thrive on volatility. The four biggest—ADM, Bunge, Cargill and Louis Dreyfus, collectively known as the ABCDs—have been adding to their total workforce of 240,000 and ploughing billions of dollars into new businesses that rely less on cycles of feast and famine. Their prospects offer a foretaste of global food markets in decades to come.

The ABCDs have been matching buyers

and sellers of foodstuffs for more than a century. The youngest of the four, ADM, was founded in 1902. The oldest, Bunge, dates back 84 years before that. In the decades to the early 2010s they thrived on the back of population growth, rising prosperity and accelerating globalisation.

Then they began to wilt. A prolonged glut of crops kept prices low and stable, squeezing margins. Smartphones and other technology put real-time data on local conditions and global prices at farmers' fingertips, reducing the middlemen's market power. Producers bought storage to ride out price swings, which decreased opportunities for arbitrage. Challengers emerged, including Viterra, the agricultural arm of Glencore, a large commodity-trader-turned-miner, and COFCO International (CIL), the overseas trading arm of China's state-owned food giant. Between 2013 and 2016 the ABCDs' combined sales plummeted from \$351bn to \$250bn.

The revenues have stayed flat since. Yet last year was a bumper one for the ABCDs, whose combined net profits more than doubled, to \$6.3bn. Analysts expect ADM and Bunge, which reported solid second-quarter results this week, to do even better in 2021. All four benefit from changing patterns of demand for crops and of supply.

Start with demand. As covid-19 spread in early 2020, it altered diets. Lockdowns and crimped incomes led people to eat out less and cook more at home. Meat, fish and dairy gave way to vegetables and cheaper packaged foods. As restaurants, canteens and cafés reopen, and wages rise thanks to the economic rebound, the reverse is happening. "A year ago we were trying to get rid of milk," says Alain Goubau, a farmer in Ontario. "Now we are adding as many cows as we can." China has been rebuilding its vast pig herd, which an epidemic of swine flu in 2018 had chopped by half.

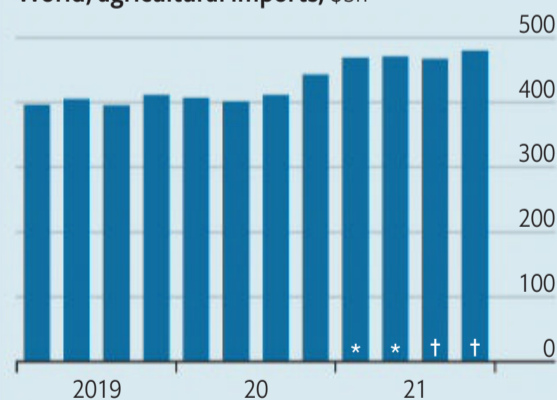
This has had a multiplier effect on demand for crops, since more grain is needed to produce an animal calorie than if the plant were consumed directly, says Sebastian Popik of Aqua Capital, an agribusiness buyout firm in Brazil. Alfonso Romero of CIL expects China to buy a record 30m tonnes of corn (maize), one of the world's most-traded crops, this year, in part to feed all its new pigs. That is up from 11m tonnes in 2020, itself an all-time high.

At the same time, high oil prices make energy crops look like an attractive alternative. And the more crops are turned into fuel, the less is left in the food system. The volume of American soyabean oil used to produce energy could rise by 39% between 2020 and 2022, reckons the US Department of Agriculture (USDA). Brazil's production of ethanol from corn shot up by more than half last year and is forecast to increase by another quarter in 2021.

Even as hunger for crops has surged, ▶▶

## Cereal entrepreneurs

World, agricultural imports, \$bn



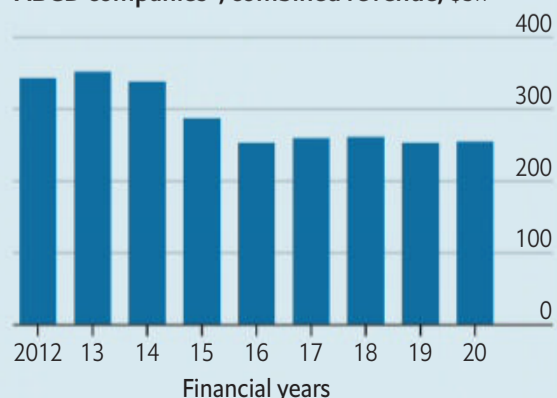
Share prices, January 1st 2019=100



Sources: FAO; Refinitiv Datastream; Bloomberg; company reports

S&amp;P GSCI soft-commodities index

January 1st 2019=100, \$ terms

ABCD companies<sup>‡</sup>, combined revenue, \$bn

\*Estimate †Forecast ‡ADM, Bunge, Cargill and Louis Dreyfus

## Bartleby Jargon abhors a vacuum

*The reasons behind management gobbledegook*

NO CHILD ASPIRES to a life talking the kind of nonsense that many executives speak. But it seems that, as soon as managers start to climb the corporate ladder, they begin to lose the ability to talk or write clearly. They instead become entangled in a forest of gobbledegook.

The first explanation for this phenomenon is that “jargon abhors a vacuum”. All too often, executives know they have nothing significant to say in a speech or a memo. They could confine their remarks to something like “profits are up (or down)”, which would be relevant information. But executives would rather make some grand statement about team spirit or the corporate ethos. They aim to make the business sound more inspirational than “selling more stuff at less cost”. So they use long words, obscure jargon, and buzzwords like “holistic” to fill the space.

Another reason why managers indulge in waffle relates to the nature of the modern economy. In the past, work was largely about producing, or selling, physical things such as bricks or electrical gadgets. A service-based economy involves tasks that are difficult to define. When it is hard to describe what you do, it is natural to resort to imprecise terms.

Such terms can have a purpose but still be irritating. Take “onboarding”. A single word to describe the process of a company assimilating a new employee could be useful. But “to board” would do the trick (at least in American English, which is more comfortable than British English with “a plane boarding passengers” and not just “passengers boarding a plane”). The only purpose of adding “on” seems to be to allow the creation of an equally ugly word, “offboarding”, the process of leaving a firm.

Overblown language is also used

when the actual business is prosaic. *Private Eye*, a British satirical magazine that often mocks corporate flimflam, used to have a regular column pointing out the absurd tendency of companies to tag the word “solutions” onto a product; carpets became “floor-covering solutions”. (Bartleby has long wanted to start a business devoted to dissolving items in water so it could be called “Solution Solutions”.) Nowadays, the target for mockery is the use of the term DNA, as in “perfect customer service is in our DNA”.

In her book about life in the tech industry, “Uncanny Valley”, Anna Wiener used the term “garbage language” to describe “a sort of nonlanguage which was neither beautiful nor especially efficient”. Tech executives spouted a very grand vision of how they would reshape society but their rhetoric often clashed with the hard reality of what they were doing, which was to sell advertising or monopolise users’ time. It is a variation on the old Ralph Waldo Emerson dictum: “The louder he mentioned his honour, the faster we counted our spoons.”



The third reason why managers use jargon is to establish their credentials. What makes one person fit to manage another? It is hard to identify any obvious attributes; managers are not like doctors, who prove their expertise through passing exams and practical training. If you can speak the language of management, you appear qualified to rule. If others don’t understand terms like “synergy” and “paradigm”, that only demonstrates their ignorance. In a sense, managers are acting rather like medieval priests, who conducted services in Latin rather than in the local language, adding to the mystical nature of the process.

Once corporate jargon is established, it is hard for managers to avoid using it. The terms are ever-present in PowerPoint slides, speeches and annual reports. Not to use them would suggest a manager is not sufficiently committed to the job. Junior staff, for their part, dare not question the language for fear of damaging their promotion prospects.

Of course, new words will inevitably be coined in the world of business, as in other areas of life. Technology has ushered in a range of terms, such as hardware and software, which were once unfamiliar but are now widely understood. But a lot of the more irritating jargon has been brought in from other areas of life, like the self-help movement.

All this matters because the continued use of obscure language is a sign that the speaker is not thinking clearly. And if those in charge aren’t thinking clearly, that’s bad for the business. People who are in real command of the detail are able to explain things in a way that is easily understood. And if a manager’s colleagues understand the message, they are more likely to get the right things done. Jargon gets in the way.

▶ other factors have squeezed supply. Droughts in the Americas have curtailed output. Brazil’s winter-wheat harvest is down by a fifth—and that fifth was meant for export. Besides the container crunch that affects speciality crops such as coffee, the grounding of commercial flights is stranding fresh fruit and vegetables. Higher bulk-shipping rates, up by 150% this year, are affecting grain freight. Part of that is the result of rising oil prices, which also raise the cost of petroleum-derived fertiliser and of running farm equipment.

The cocktail of forces is boosting global

wholesale prices. Soyabeans and corn are, respectively, 56% and 68% more expensive than a year ago. This has filtered through to consumer prices: the cost of a home-grilled cheeseburger is up by 11 cents from 2019, says the USDA. The uncertainty and shrinking stockpiles are creating volatility. IFPRI, a think-tank, has had corn on high “excess price variability” alert for nearly four months. The prices of wheat and coffee have been volatile, too.

Big traders are enjoying the ride. Higher prices give the ABCDs more margin to play with. Bigger volumes, as farmers sell more

to lock in the high rates, let them recoup fixed costs more quickly. And more volatility allows them to exploit price discrepancies across time and space. Despite a recent dip, the share prices of ADM and Bunge are still up by around 45% since 2019. Rumours of Bunge’s takeover by rivals, which swirled in 2018 as it embarked on a restructuring, have subsided. Dreyfus, the most troubled of the four, has been steadied by market conditions (and by Abu Dhabi’s sovereign-wealth fund, which bought a 45% stake in the family business). Cargill has not reported its annual profit for last ▶▶





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▶ year, but was heading for record earnings after the first three quarters of 2020.

In the short run, conditions will help the traders. Demand is likely to stay strong. Josef Schmidhuber and Bing Qiao of the FAO reckon trade volumes will grow by 4-5% in each of the next two quarters, year on year. Though prices have softened in the past two months, thanks to better planting forecasts in big regions and the winding-down of China's pig splurge, they are higher than before the pandemic.

They will probably stay that way until at least next year, thinks Carlos Mera of Rabobank, a Dutch lender. Mr Popik says that the food businesses in Aqua Capital's portfolio, which export to 45 countries, must finance two months of stock instead of the usual one. This implies that it will take time to iron out supply-chain wrinkles. And meteorologists place a high probability on another La Niña—a weather event of the sort that caused droughts in late 2020 and early 2021—before the end the year.

To deal with the longer-term challenges, the ABCDs are diversifying. ADM's recent capital spending has gone into less cyclical and more lucrative businesses such as flavouring and colouring for fast food, soft drinks or vitamin supplements, says Seth Goldstein of Morningstar, a research firm. In the second quarter its nutrition-ingredients unit generated \$201m in operating profit on revenues of \$1.7bn. That is 8% of total sales, and ADM expects it to expand twice as fast as its core business, which tracks global GDP.

Bunge has sold dozens of mills, elevators and other assets to invest in plant-protein and edible-oil factories. Cargill now derives most of its profits from animal feed and animal protein. Its food-production facilities include a fish farm in Norway, a poultry farm in the Philippines and cultured-protein factories in America and Israel. It has become one of America's largest meat processors, and a big venture-capital investor in food and life sciences. Dreyfus has backed Leong Hup International, a big integrated producer of poultry, eggs and livestock feed in South-East Asia.

As the traders become ever-larger producers of foodstuffs and consumers of crops, they may welcome a bit more stability. But not too much. As the populations of Asia and Africa grow bigger and richer, the middlemen will be called on to supply them with crops from countries in surplus, says Jos Boeren, a former Bunge executive now at Stafford Capital, an investment firm. The policies of big hoarders such as China, India and Russia look more unpredictable and their stocks less transparent. Climate change will ensure mismatches between supply and demand of foodstuffs. With six centuries of experience between them, the ABCDs will be evening out soft-commodity cycles well into the future. ■

## Chinese capitalism

# Marxism v markets

HONG KONG

**Online education will not be the last victim of China's anti-business turn**

FIRST IT WAS fintech. Last November China's Communist rulers abruptly suspended the \$37bn initial public offering (IPO) of Ant Group, a financial-technology titan, and forced it to modify its asset-light business into something more like a bank. Since then they have pursued other internet giants. The two biggest, Alibaba and Tencent, have been targeted by trustbusters. This month regulators banned Didi Global's ride-hailing app over data transgressions, days after the firm's \$4bn IPO in New York. And on July 24th, in the clearest sign yet that the government wants to revise its state-capitalist model into something with less global capitalism and more Chinese state, online-education companies were told they can no longer make a profit or use offshore vehicles that enable their shares to be traded abroad.

Global capitalists are spooked. The share prices of three big online tutors listed in New York, TAL Education, New Orient and Gaotu, are down by two-thirds, wiping out \$18bn in shareholder value. The panic has engulfed other Chinese firms with American listings, which were collectively worth over \$2trn not long ago (and often also use the offending offshore structures). The Nasdaq Golden Dragon China Index, which tracks nearly 100 of the biggest such stocks, fell by a record 19% in three trading days. Fear spread to Hong Kong, where it has pulled the territory's benchmark tech-stocks index down by 16%, and even to



Looming ever larger

mainland China. Foreigners have dumped enough mainland-traded shares to cause a surge in currency outflows that pushed down the value of the yuan on July 27th, according to Natixis, an investment bank. Policy uncertainty may have reached a point at which outsiders just stop buying Chinese stocks, says Zhang Zhiwei of Pinpoint Asset Management, a hedge fund.

The squeeze reflects the government's "overriding concern" that it has less control over the internet than it would wish, says Mark Hawtin of GAM, an asset manager. Online education is a case in point. It has been one of China's most innovative and fastest-growing industries in recent years. Firms have used clever software to offer individualised courses to millions of pupils, many of whom are poor. In 2019 and 2020, the industry saw 27 IPOs. Three-quarters of the proceeds funded firms offering services to schoolchildren rather than university students.

This ferment proved too much for the government, which prizes stability above all else. The authorities began to view the industry's fees as an extra burden on parents, potentially discouraging them from having more children—an increasingly pressing problem as China's population begins to decline. State media, channelling their inner Marx, talk of an end to "the era of barbaric growth". The simplest way to curb this barbarism? Do away with the profit motive. Many companies serving school-age children will now have to become non-profit organisations. Their lucrative businesses suddenly seem about to "be worth almost nothing", says Travis Lundy of Smartkarma, a research outfit.

As Peter Milliken of Deutsche Bank puts it, in China "the profit pool [investors] chase exists within parameters set by the state." Where will these shift next? One place may be video-gaming. Games firms collect lots of data on users, many of whom are minors, and gaming addiction is a Beijing bugbear, notes Chelsey Tam of Morningstar, a research firm. The industry titan, Tencent, has already been censured. In July alone it was fined twice, by the cyber-regulator for sexually explicit content and by antitrust authorities for unfair practices, and ordered to end exclusive music-licensing deals. On July 27th it suspended registrations for new users of WeChat, a ubiquitous messaging app, to align itself with new regulations. Its market value has sunk from \$950bn in January to \$550bn.

Other targets include internet-connected cars and online health care, which both suck in reams of sensitive data. A private-equity investor in the health business says his firm is adjusting its portfolio to reflect new risks. In a meeting with banks on July 28th the government tried to restore calm. But its message is clear: the Marxist pursuit of power trumps market logic. ■



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Retail investing

## Robinhood and the merry mob

NEW YORK

**The trading platform that brought retail investing to the masses goes public via retail investors**

IT WOULD BE hard for a firm that describes itself as “democratising investing” to go public in any other way. When Robinhood lists on the Nasdaq on July 29th, after *The Economist* goes to press, institutional investors will, as is usual, be able to buy and trade shares on the exchange. Less conventionally, the broker also plans to sell a third of the shares in itself to its users.

Your correspondent felt a frisson of excitement as she took part in an initial public offering (IPO) for the first time, bidding for a single share in Robinhood. The slick graphics explained how IPO shares are allocated, and reassured punters that—as is not the case at other brokers—order size, assets and the age of the account would play no part in whether a bid was accepted or not. Before most firms go public they do a roadshow, which typically involves investment bankers compiling snazzy slide-shows, donning their sharpest suits and fanning out to meeting rooms in big cities to canvass support from pension funds, asset managers and other institutional investors. Robinhood instead made its 40-

minute pitch online to anyone who wanted to listen, on the Saturday afternoon ahead of its debut.

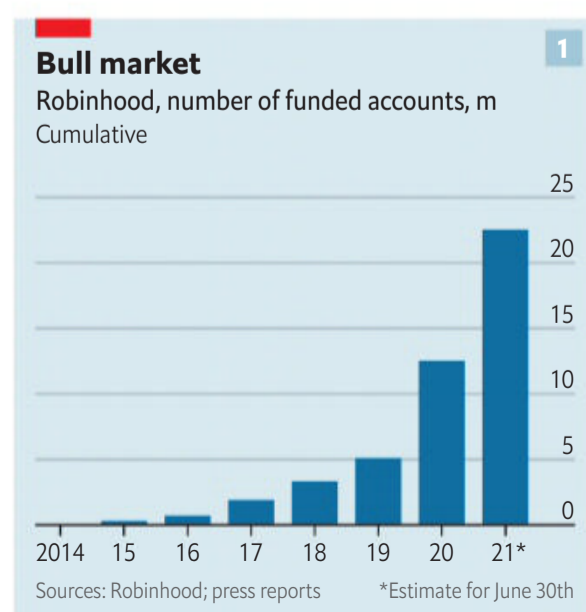
The anti-establishment approach is all too fitting. No other company’s fortunes have been as tied to the craze for meme stocks, fuelled by online forums and lockdown-induced spare time. Robinhood,

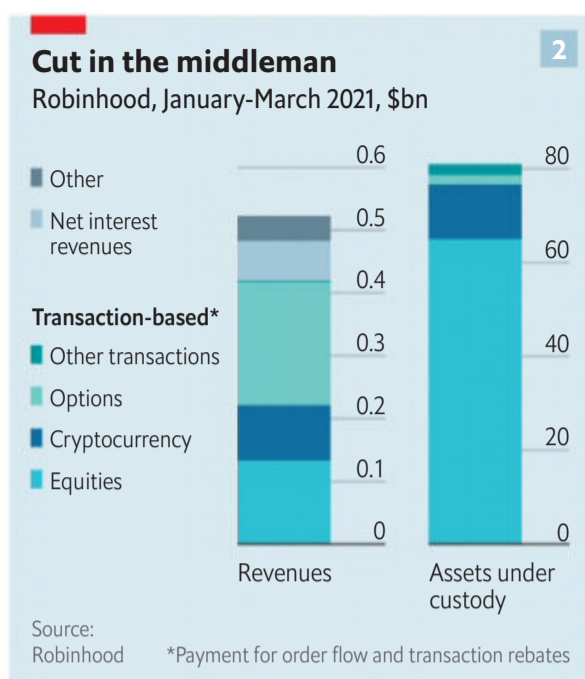
which will go public at a valuation of \$32bn, has seen its user base explode during the pandemic (see chart 1). Its prospects are likely to be determined by wherever the retail mania, the subject of much regulatory hand-wringing, goes next.

For decades retail investors were overlooked and underserved. The rich might have dabbled in trading stocks directly, but most workers earned defined-benefit pensions, which kicked any portfolio-management decisions regarding their biggest pot of savings to pension funds. The transition to self-directed 401k retirement plans, registered investment advisers and retail brokers was at first accompanied by wide trading spreads and meaty fees.

Then the adoption of new technologies—such as computerised trading and wicked-fast marketmaking algorithms—helped erode spreads. In 2013 Baiju Bhatt and Vlad Tenev, Robinhood’s founders and former employees of marketmakers, saw that it might be possible for a retail broker to make money by offering consumers commission-free stock trading. It could instead earn revenues through “payment for order flow”. This is the practice by which a high-frequency marketmaker pays a broker a cut of the spread it earns from trading in exchange for the broker directing its customers’ trades to the marketmaker.

For a time the big retail brokers ignored the plucky upstart and continued to charge commissions and fees. But by 2019 the writing was on the wall. A quick, brutal ▶▶





price war broke out. Charles Schwab, followed by E\*Trade, TD Ameritrade and eventually the biggest broker of all, Fidelity, succumbed, scrapping their commissions and trading fees.

Lower costs for investors are a laudable thing. At Robinhood's roadshow Mr Tenev claimed that his firm helped people buy shares in firms they love and got them excited about investing. By Robinhood's reckoning, half of all brokerage accounts opened in America since 2015 have been set up on its platform. But the broker has also been at the centre of unease about the retail revolution, which peaked during the speculative frenzy in GameStop, a struggling video-game retailer, earlier this year. The company's share price spiked from \$17 in January to more than \$450 two weeks later. So much of the trading volume came from retail investors, and so much of it was directed through Robinhood, that the broker was forced to suspend trading in GameStop because it lacked the capital to cover the two-day lag between its users' trades and their settlement.

The queasiness over Robinhood's success stems from two sources. For a start, when the price of something falls, people tend to do more of it. According to data in the firm's IPO filing, around half of its users check their investments on its app every day. But plenty of research papers find that the more people trade, the worse their returns. Another concern is that Robinhood exposes its users to risky products. Its profit margins are slimmest for the vanilla stuff, like stock trading, but rise as its customers dabble in riskier, more complicated markets, such as trading derivatives or buying cryptocurrencies. Although options and cryptocurrencies make up about 17% of the \$80bn in assets that Robinhood oversees, more than half of its transaction revenues come from these categories (see chart 2).

These worries have led lawmakers to question whether retail investors stand to

make any gains from Robinhood. Summoned to Congress after the GameStop affair, Mr Tenev claimed that its users had earned more than \$35bn in profits by buying stocks and investments, compared with what they had deposited with the broker. But Jim Himes, a congressman from Connecticut and a former banker, skewered him. "\$35bn is a meaningless number unless you convert it to a rate of return so that I can compare it to Treasuries, so I can compare it to the S&P 500." Mr Tenev deflected, claiming the right comparison was the lower bar of "not investing at all" because many of Robinhood's customers were new to trading.

Whether the firm's empowerment of retail investors has been desirable or not is more than a philosophical matter. It is also the key question that any investor in Robinhood, institutional or retail, will have to wrestle with, because it pertains to where the potential risks and rewards lie. It is also a subject on which punters and regulators seem to disagree.

The downside for potential shareholders is that Robinhood is unlikely to escape the scrutiny of regulators. Much of the broker's 300-page prospectus discusses the main risks to its business. These include the possible introduction of a financial-transaction tax, which might scupper its ability to offer free trading and deter customers from trading every day. It also allows for the possibility that payment for order flow, which accounts for 80% of Robinhood's revenues, might be restricted or banned by regulators.

Indeed, Gary Gensler, the head of the Securities and Exchange Commission, has said his agency is looking closely into whether the current market structure creates conflicts of interest. The financial-services committee of the House of Representatives, which hosted the GameStop hearing, has drafted a bill that bans payment for order flow.

Retail punters, however, remain far more enthusiastic about Robinhood than regulators, which provides potential investors with an upside. It was common (including in the pages of *The Economist*) to expect that the GameStop episode could be the undoing of Robinhood; that its original adopters might feel betrayed by the firm's suspension of trading in GameStop and junk the app. But the company's user numbers suggest that the adage "all publicity is good publicity" still holds. In the first half of 2021 alone more than 10m funded trading accounts were opened on Robinhood, boosting the total number of accounts by 80%. If there is one constant about the retail mania, it is its sheer unpredictability. That might be why your correspondent feels comfortable with her bid for just a single share, content mainly to watch from the sidelines. ■

## Fossil fuels

# Fired up

NEW YORK

## Despite climate concerns, demand for dirty fuels is surging

GREEN TYPES had hoped that the recovery from the pandemic might jumpstart the world's decarbonisation efforts. Governments say they want to build back better and greener, and have announced ambitious plans to kick the fossil-fuel habit. In Europe, officials have unveiled policies to achieve a 55% reduction in greenhouse-gas emissions, compared with their level in 1990, by the end of this decade. On July 21st Japan announced plans for fossil fuels to fall from 76% of its power-generation mix in 2019 to 41% by 2030.

Despite the grand talk, though, fossil fuels are resurgent. A recent report from the International Energy Agency makes for sobering reading. Global electricity demand is forecast to grow by nearly 5% in 2021 and by 4% in 2022. Fossil-fuel-based power will probably make up 45% of the extra demand this year and 40% next year. (By contrast, it made up about a quarter of new power generation in 2019.)

The revival of the American economy has led to strong demand for natural gas from industrial firms. In Asia and Europe, a hot summer has boosted demand for imports of liquefied natural gas. Citigroup, a bank, calculates that European gas-storage levels, an indicator of the tightness of the global market, are below those seen in the past five years. S&P Global Platts, a research firm, reckons that demand in parts of Asia and Europe partly reflects the need to replenish stores ahead of the winter.

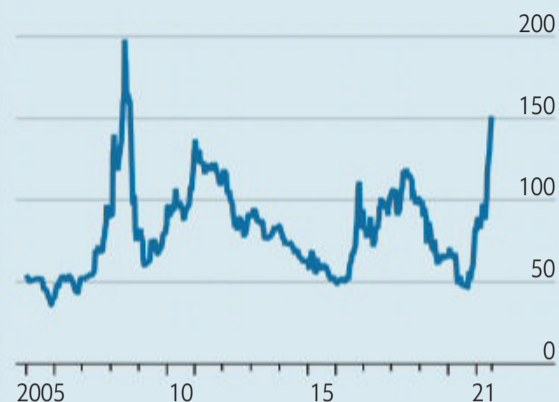
Coal markets are heating up, too: the price of one benchmark has nearly trebled so far this year. Chinese electricity de- ▶▶



Full steam ahead

**Stoked**

Australian high-energy thermal-coal price  
\$ per tonne



Source: Argus Media

mand, which relies heavily on the sooty stuff, shot up to a record in mid-July. Production bottlenecks in South Africa and Colombia have not helped. Anastacia Dialynas of BloombergNEF, a data outfit, reckons that high natural-gas prices may encourage power producers to favour coal-burning plants over gas-fired generators. America's Energy Information Administration forecasts that coal's share of domestic electricity production will rise to 26% this year, from 22% in 2020. Steelmaking, which uses a lot of coal, provides another boost. Commerzbank, a German lender, predicts that global steel output could hit a record high this year.

Politics has added fuel to the fire. In October China banned coal imports from Australia. Some 70% of its usual imports of seaborne metallurgical coal (used to make steel) became off-limits, says Jim Truman of Wood Mackenzie, a consultancy. Steel mills along China's coast rushed to find alternatives. But local sources proved insufficient, and imports from Mongolia were curtailed by covid-related border closures.

The price spike may ease over time. In May China's central government ordered provinces to curb electricity use, which should reduce the demand for fuel. Supply bottlenecks will be overcome. An expected boost to American gas production should eventually refill storage units worldwide.

Even so, the fossil-fuel surge offers a warning. Hopes that the world would permanently lower its energy use after the global financial crisis of 2007-09 came to nothing. In late July this year a gathering of environment ministers from the G20 group of countries in Italy turned into farce, with officials from China, India, Russia and Saudi Arabia blocking an agreement to end fossil-fuel subsidies and phase out the use of coal. Build back better, come back greener may be an admirable goal, observes David Fyfe of Argus Media, an industry publisher, but unless it is accompanied by serious policies, "coal will remain the default fuel for base-load power in many countries." ■

**Inflation in Turkey****Pick a number**

ISTANBUL

**Prices are surging. But by how much?**

EARLIER THIS summer Turkey's president, Recep Tayyip Erdogan, announced that he had asked his central-bank governor, the fourth he has appointed in two years, to begin slashing interest rates. Mr Erdogan even provided a date for the start of the easing cycle. "We need to see July, August for interest rates to start coming down," he said. He may have to wait much longer. A week ahead of the bank's monetary-policy meeting on July 14th, the country's statistical authority (TUIK) revealed that inflation had swollen to 17.5% in June, beating even the most pessimistic forecasts. That is more than three times the central bank's inflation target of 5%, and close to the benchmark lending rate, 19%. In the event, the bank had no choice but to keep rates unchanged. It will almost certainly do the same in August.

Many Turks are convinced that the situation is even worse than the data suggest. According to a recent poll, a whopping 83% believe the true inflation rate is higher than the official one. The Inflation Research Group, an independent group of academics, believes it to be in the region of 40%. The group's own index relies on price data gathered from online retailers and updated several times a day, says Veysel Ulu-

soy, the academic heading the project. Its basket of goods overlaps largely with TUIK's, but excludes items like alcohol, education and health, where the government is able to control prices. Mr Ulusoy insists his price index is more consistent with consumer and market sentiment.

For their troubles, he and his colleagues may face charges. In May TUIK filed a criminal complaint against the researchers, claiming that the metadata on their website did not meet legal standards. The group has been "misinforming the public" and "undermining trust in official statistics", the complaint says. That trust appears to be long gone.

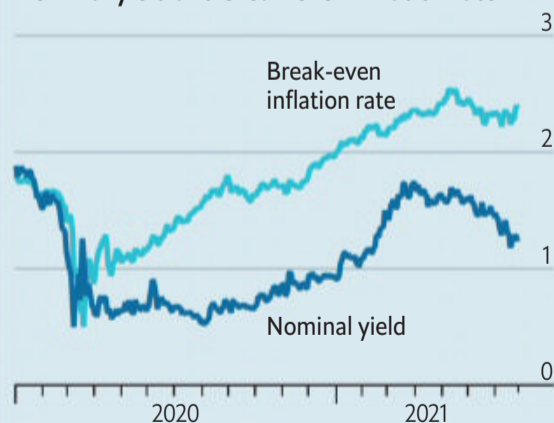
Powered by stimulus spending and booming demand, inflation is mounting across most economies. But Turkey's problem has much deeper roots. Double-digit inflation took hold four years ago, the result of cheap credit, bad monetary policy and a currency crisis, and has not relaxed its grip since. This has revived fears of a return to the 1970s, when inflation hovered near 20% for a few years, only to explode into triple digits. It took three more decades, and a painful economic crisis in 2001, to bring it below 10%.

The central bank has pledged to keep prices in check. But under pressure from Mr Erdogan, it will raise rates only as a last resort, and possibly too late. "If we can't control inflation at the current levels, we may lose control," warns Kerim Rota, a former treasury official and one of the founders of a fledgling opposition party. Mr Rota says he retains some faith in the official data. "But even with the TUIK figures", he says, "this is a disaster." ■

**Down in the dumps**

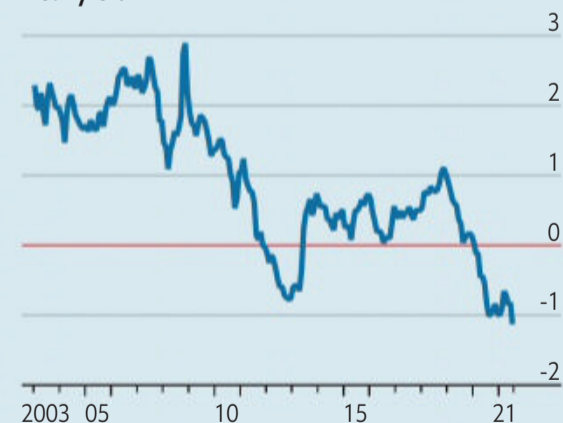
United States, ten-year Treasuries, %

Nominal yield and break-even inflation rate



Sources: Federal Reserve Bank of St Louis; Refinitiv Datastream

Real yield\*



\*On Treasury Inflation Protected Securities (TIPS)

**Plumbing the depths**

Investors rush to American Treasuries when they get anxious. In spring 2020, as the severity of the pandemic became clear, yields on ten-year Treasuries sank. That comprised a fall in both expected inflation and real yields, as investors became gloomy about both price and GDP growth. In recent weeks yields have drifted down again, reflecting worries about the strength of the economic recovery. On July 26th the real yield fell to a record low. Investors' expectations of inflation, though, have held up.

## Bankruptcy in China

## Sympathy for the debtor

HONG KONG

## A welcome increase in moral hazard

SEVEN OR EIGHT times a day, aggrieved creditors would call Liang Wenjin demanding payment. A resident of Shenzhen, an entrepreneurial Chinese city bordering Hong Kong, Mr Liang had started a business in 2018 making Bluetooth headsets. But his company failed to connect with the market, and covid-19 dealt a final blow. Mr Liang returned to work as an engineer. But his debt of 750,000 yuan (\$115,000) remained, a lingering weight on his finances and his mind.

Debts like Mr Liang's have risen quickly. From less than 40% of GDP in 2015, household loans exceeded 62% at the end of last year. The biggest chunk was mortgage debt, a by-product of China's runaway property market. "Operating loans" of the kind weighing on Mr Liang accounted for about a fifth of the total.

These debts are now complicating the government's efforts to sustain China's growth. Having fought a tough battle against financial risk, policymakers are vowing to remain "vigilant in times of peace". To this end, they want to stabilise debt and cool the housing market. But they also have a third goal of spurring consumption to support a recovery that cannot rely on continued strength in exports.

The first two goals may be at odds with the third. On July 23rd the ministry of housing and seven other departments released tighter financial rules for the property sector. These come on top of the "three red lines" drawn last year, which limit the size of developers' debts relative to their assets, equity and cash. Mortgage costs have risen. And the ratio of household debt has stabilised for now. But sales of cars and household appliances have lagged behind.

High debt does not prevent China's state-owned enterprises (SOEs) from splashing out when the economy requires it. They can count on banks to roll over their loans in a pinch. But households are not so lucky. The country has no bankruptcy law for overstretched individuals, who can face harassment, intimidation and blacklisting. Under the Qing dynasty, those who were late repaying their debts could be whipped with bamboo. (An extra stroke was added for each additional month of delinquency.) Nothing like that happens today. But the stigma remains.

Hence the interest in Mr Liang's fate. This month he became the first debtor to benefit from a law introduced in Shenzhen

in March, which allows long-time residents to seek bankruptcy protection from creditors. He has promised to repay the principal he owes over three years. During that period, his household will live on no more than 7,700 yuan a month. He cannot travel in first-class on high-speed rail, patronise golf clubs or stay in hotels with more than three stars. But he will be spared interest, fees and incessant phone calls. The law, which should inspire similar innovations elsewhere in the country, represents a welcome step forward. China is not as "fabulously forgiving" as America, but it is starting to look more like Europe, says Jason Kilborn of the University of Illinois Chicago. China's policymakers have traditionally worried too little about the moral hazard posed by corporate borrowers. But they have worried too much about the hazard posed by people like Mr Liang. ■

## Nigerian fintech

## Out of the slump

LAGOS

## Despite a dire economy, fintech is booming. Can that last?

THE BUZZ about fintech in Lagos, the commercial capital of Nigeria, is so loud that even those without access to the internet cannot miss it. Flashing billboards advertising Kuda, a digital bank, loom over traffic jams, and signs for Paga, a mobile-payments company, adorn thousands of corner shops. Investment has been flowing in, too. In March Flutterwave, a digital-payments firm, raised \$170m, making it Africa's latest unicorn (ie, a startup valued at more than \$1bn). Interswitch, a payments processor, acquired its horn in 2019 when it sold a 20% stake to Visa, a



Phoning it in

credit-card company. Last October Stripe, the most valuable private fintech in the West, snapped up Paystack, a Nigerian digital-payments company, for \$200m.

Whereas the three big successes enable online payments, a crop of newer fintechs offers products direct to consumers. FairMoney, which provides instant loans, recently raised \$42m in a round led by Tiger Global Management, a New York hedge fund. PiggyVest helps people save; Bamboo lets Nigerians invest overseas, despite a scarcity of dollars in the country. People should be "very excited" about fintech in Africa, says Makhtar Diop, the head of the International Finance Corporation, the private-sector arm of the World Bank, which has pumped \$200m into the sector.

The long-run potential is vast: Nigeria's population, now roughly 200m, is projected to pass America's by 2050; about 95% of transactions still involve wads of crumpled naira. Even so, some Nigerian investors worry that the excitement is overdone, considering the country's unpredictable regulators and its economic malaise.

Running a fintech in Nigeria is tough. Electricity and the internet are unreliable. Regulators simply ban things they do not understand, complain some founders. In April apps that help Nigerians invest in stocks listed overseas were suddenly told by the regulator on Twitter that they were breaking the rules. (The government later banned Twitter, too.) Earlier in the year the central bank upset fintechs by banning dealing in cryptocurrencies, which had surged in popularity as the naira lost value. "Fear of the Central Bank of Nigeria is the beginning of wisdom," jokes Eghosa Omoigui of Echovc, a venture-capital fund.

Perhaps the biggest challenge to fintechs is the grim state of the economy. Panglossian pitches are common for startups anywhere, and those in Nigeria are no exception, stressing the country's large population. Yet with more than 40% of Nigerians living on less than \$1.90 per day, inflation at 18%, and population growth outstripping that of GDP, the real market for many fintechs is far smaller.

Falling income per head limits the ways in which fintechs can grow. Payments firms can still convince more people to convert existing cash transactions to digital ones. Other fintechs, which target the smaller pool of Nigerians with savings to invest, may win business for a time by poaching disgruntled customers from banks. But if these firms are to sustain profits, they need existing customers to transact more. That is harder if people are getting poorer. The average transfer value at a leading payments firm, for instance, is almost stagnant, despite inflation. Some fintechs, such as Bankly, target the roughly 60m Nigerians who are unbanked. Yet signing up these often very poor custom- ▶▶

ers takes more time and investment than many investors realise, says Tomilola Makodunmi, its chief executive.

Savvy fintechs try to escape the bind by looking beyond Nigeria. “The goal is, as quickly as possible, to diversify,” says Nichole Yembra of Chrysalis Capital, a Lagos-based tech investor. Many founders like Lagos for its energetic workforce but also see it as a gateway to Africa. Diversification helps avoid regulatory risk, too. Bamboo is expanding into Ghana and talking of Kenya. Flutterwave operates in more than 15 African countries.

Still, even Nigerian investors who believe in fintech’s potential worry that the excitement is out of hand. Eric Idiahi of Verod Capital Management, a private-equity firm, sees “crazy valuations” and warns of “huge losses”. There are consumer fintechs with talk of “over \$500m valuations, and I don’t know anyone who uses the product”, says Maya Horgan Famodu of Ingressive Capital, a venture-capital firm. Foreign investors may underestimate how hard it is to expand into new markets, each with its own regulator.

Losses are part of any tech ecosystem,

and the exuberance at least allows customers to benefit from financial innovation today. But Ms Horgan Famodu worries that because so much of the funding for Nigeria’s fintechs comes from abroad, losses may lead the market to “overcorrect”. If foreign capital flees, that could cripple firms with sound business models, too. Yet quitting Africa need not be the only option if fintech hits trouble. Many other tech sectors on the continent are “completely unaddressed”, says Mr Omoigui. Furthermore, “the margins can be so much better.” One sector’s loss may be another’s gain. ■

## Buttonwood Pulling tight

*The case for a further narrowing of euro-zone bond spreads*

IT WAS BUSINESS as usual at the European Central Bank (ECB). At the press conference on July 22nd that followed its regular monetary-policy meeting, Christine Lagarde, the bank’s boss, might have been hoping for a few plaudits. The ECB had recently announced that it was changing to a symmetric inflation target, bringing it into line with practice everywhere else. No such luck. Many of the questions were critical in nature. Why is the ECB not doing more? How split are its members? And so on.

As dispiriting as this was for Ms Lagarde, the focus on issues of fine-tuning is rather cheering. Mario Draghi, her predecessor as ECB president, spent a lot of time fighting to keep the euro zone together. These days it looks a lot more solid, a lot more normal. The new inflation target is only one sign of this. Another is that the active use of fiscal policy is no longer anathema. The next-generation EU fund (NGEU), which will disburse €750bn (\$880bn) to member states, affords a degree of burden-sharing between countries. And the politics of “Europe” are notably less ugly. Populists in France and Italy no longer talk about leaving the euro or the EU.

This is progress. Only a few years ago a common opinion among American investors was that the euro would break up. If the euro zone is to become truly normal, though, a corollary is that the bonds issued by its members’ governments should be almost interchangeable. For some countries, the spread (or excess yield) over German bunds has already narrowed considerably. France trades at 30 basis points (0.3 percentage points) over ten-year bunds. Ireland’s spread is 45 basis points. The widest spreads are found on Italy’s government bonds, or BTPs. A ten-year BTP has a spread of

around 110 basis points over the equivalent bund. But a case can be made that these will narrow further.

It begins with the changes at the ECB. After the completion of a recent strategy review, the central bank tweaked its inflation goal. Instead of “below, but close to, 2%”, it will aim at a symmetric target. Inflation below 2% will be as undesirable as inflation above it. Reasonable people might have expected the bank to further relax monetary policy as a consequence. Its most recent forecast, made in June, was for sub-2% inflation over much of the next few years.

What the bank offered instead was a fresh dose of “forward guidance”—a pledge that it would keep interest rates at their present level, or lower, until it saw durable 2% inflation on the horizon. This did not imply that interest rates would be “lower for longer”, said Ms Lagarde. Rather, it was a commitment that they would not be increased prematurely. Any expansion of its various bond-buying schemes would have to wait until fresh inflation forecasts were made in September.



Perhaps it is prudent to wait. After all, the reopening of America’s economy has brought with it a string of big upside surprises to inflation. But the betting is that things will be different in the euro zone. Fiscal support there has been in the form of job subsidies rather than the cash transfers that fuelled a surge of spending in America. And there has been nothing quite on the scale of the \$1.9trn package that Congress passed in March. A reasonable bet, then, is that the ECB will extend its bond purchases to meet the new target, or at least not curtail them abruptly.

If it does, spreads are likely to narrow. Italy’s have the furthest to go. Its bonds have been an outlier for a reason. Italy is a big, sluggish economy with a heavy public-debt burden. A wider spread is justified by the greater risk of default.

Yet a state of affairs in which euro-zone bonds, bar Italy’s, look more like bunds would be an odd one. It would imply that the euro could survive a default or exit by Italy. That is a bold assumption. If Italy blows up, other countries would be at risk, too. Indeed if you believe the euro is doomed, the last bonds you should sell are BTPs, because at least you’ll get a higher yield while you wait. And there are lots of investors who are obliged to own Italy. For those that track a benchmark euro index, being underweight Italy is costly.

Moreover, Italy is coming into the fold. It is a big beneficiary of the NGEU fund. Mr Draghi is now the prime minister, and is trusted in Brussels and in Berlin to use the money well. But what about after that? Well, here’s a thought. Every year the euro survives, it becomes harder to imagine an alternative. The longer it lasts, the longer-lasting it appears to be.

## Free exchange | Establishing the cause of death

*Why have some places suffered more from covid than others? Inequality is a big part of the answer*



**S**EVENTEEN MONTHS into the covid-19 pandemic, plenty of questions about the catastrophe remain unanswered. It is still unclear how SARS-COV-2 originated, for instance. Another puzzle is why some areas have had less destructive epidemics than others. Why has Florida had fewer deaths per person from covid-19 than the American average, even though restrictions there have been looser for longer? But researchers are getting closer to the “magic” variable: the factor that does most to explain variance in deaths from the virus. It turns out that this has little to do with health measures, climate or geography. Instead it relates to economics.

The huge literature on the determinants of covid-19 infections and deaths finds that many widely assumed relationships do not always hold in the real world. Everyone knows that the old are most at risk; but Japan, where 28% of people are over the age of 65 compared with 9% globally, has seen remarkably few deaths so far. Some studies suggest that places that had bad flu seasons before the pandemic suffered less since; but other researchers have called that conclusion into question. There is no consistent correlation between the toughness of lockdowns and cases or deaths.

Faced with these surprising results, a hunt has begun that is as morbid as it is nerdy. Wonks are searching for less obvious variables that do more to explain variation in deaths from covid-19. And so far the most powerful of them all is inequality—usually measured as the Gini coefficient of income, where zero represents perfect equality and one represents perfect inequality.

In a recent exercise Youyang Gu, a data scientist, ran multiple versions of a model that seeks to find correlations between 41 different variables and American state-level deaths from covid-19. Only three variables “consistently have non-zero coefficients”, he finds: inequality, population density and nursing-home residents per person. And of those three, inequality has the biggest effect.

Look around the world, and it seems that Mr Gu may be on to something. Deaths from covid-19 have been lower in egalitarian Scandinavia (even in Sweden, which imposed few restrictions) than for Europe as a whole. France, where the Gini is 0.29, has seen far fewer excess deaths than neighbouring Britain, where it is 0.34. New York state has both extremely high inequality and a huge covid-19 death toll; Florida is less exceptional on both counts.

Few other researchers rank the variables in the way that Mr Gu does. Yet our survey of the dozens of papers investigating the determinants of the toll from covid-19 finds that inequality has consistently high explanatory power. A recent study by Frank Elgar of McGill University and colleagues, looking at 84 countries, finds that a 1% increase in the Gini coefficient is associated with a 0.67% increase in the mortality rate from covid-19. Another, by Annabel Tan, Jessica Hinman and Hoda Abdel Magid of Stanford University, looks at American counties. They find that the association between income inequality and covid-19 cases and deaths varied over 2020 but was generally positive; higher inequality tends to lead to more suffering.

There is a lot less research on the potential reasons behind this intriguing relationship. Three sound plausible. The first relates to pre-existing health. A study in 2016 by Beth Truesdale and Christopher Jencks of Harvard University found “modest evidence” of a link between higher income inequality and lower life expectancy. This may be because of what economists call a “concave” relationship between health and income: giving a rich woman an extra dollar in income probably improves her health by less than removing a dollar from a poor man harms his. People in worse health tend to suffer more from covid-19 (and indeed some other research has drawn links between inequality and pre-existing conditions that may aggravate the disease, such as obesity).

The second potential factor is workplace relations. Workers in relatively egalitarian countries tend to have more bargaining power, and may therefore find it easier to air and redress concerns with employers. This can have its disadvantages, but it may help stop practices that aid the spread of covid-19. In Sweden, a country with strong workers’ rights, frontline (or “essential”) workers, such as meat-packers and police officers, have not on average faced a higher risk of dying from covid-19 than others, potentially limiting the overall number of deaths. This is in contrast to results from America, Britain and Canada, which are more lightly regulated. One study in California found that people in some jobs were much more likely to die of covid-19 than those in other occupations. Chefs and taxi drivers saw among the biggest increases in excess deaths in 2020.

The third factor relates to social capital. In areas of high inequality people are more likely to say they distrust strangers or to have little interest in civic engagement. Research published by the IMF in 2016 suggests why: in places where people have very different lifestyles, they see little in common with each other. Weak social capital almost certainly reduces people’s willingness to comply with virus-control measures, such as self-isolation or mask mandates, for which the private incentives to obey are weak.

### Equal opportunity

There were already good reasons to think that inequality, at least in some countries, was too high. This is another. Yet turning around the income-distribution supertanker can hardly be done overnight, and some solutions to income inequality, such as raising taxes, bring trade-offs of their own. In the meantime, governments need to tailor their pandemic response to take account of inequalities. That could include, for instance, changing the economic incentives to stay at home if infectious—say, by using self-isolation payments—or investing more in poor children’s health to make them healthier adults. Without these improvements, high inequality is likely to continue to mean greater vulnerability to pandemics. ■





### Proteins and nucleic acids

## Chains and reactions

In the first of six briefs on biology as seen at different scales we look at the distinctive molecules on which life is based

EVERYTHING ON Earth is made of atoms, most of which are closely packed together in the form of minerals. Life has its uses for minerals—ask a coral reef—but its essence lies in atoms arranged as distinct molecules and the way they interact.

Biological molecules are distinctive in various ways. One is that they can be very large indeed. The simple inorganic molecules that make up the air and the oceans typically contain only a few atoms, and often just two or three. Many biological molecules contain thousands. A few contain billions. These molecules are not just large, they are also precisely structured. Furthermore, those structures can be re-created with atom-by-atom accuracy.

These distinctly lifelike qualities stem from the fact that biological molecules have purposes bestowed on them by evolution. For example, life needs molecules which can catalyse chemical reactions and molecules which can store and transmit

the genetic information needed to make those catalysts. Those requirements are met by two sorts of large molecule: proteins, which do most of the catalysis, as well as much else, and nucleic acids, which mostly store and transmit information.

Nucleic acids and proteins are both linear polymers; long, unbranched strings of similar-looking components, like paper chains at a child's party or beads on a necklace. In both cases the range of component

“monomers”—the paper-chain links, or the beads—is limited. Nucleic acids are made from just five different monomers, known as nucleotides; proteins are typically made from 20 different varieties of amino acid. In both cases the assembly of the chains takes place one link at a time using a specific type of chemical reaction. Nucleotides are strung together using what are called ester bonds; proteins using what are called peptide bonds.

This linear, modular approach means that the same machinery can make lots of different molecules. All that is required is a system which can catalyse the addition of a new monomer to the lengthening chain, a way of telling that system which sort of monomer to add next, and a certain dogged persistence. A typical human protein is about 400 amino acids long; some are a lot longer. Molecules of DNA, one of life's two types of nucleic acid, are far longer still. The shortest DNA molecules found in humans are about 17,000 nucleotides long; the longest consist of over 100m.

The order in which those nucleotides appear determines what information is stored in the DNA. The order of the various amino acids determines the shape of the protein created from them by controlling the way in which the chain folds itself up. The process can create a remarkable number of shapes and capabilities, all of which are dependent on just the order of the amino acids.

The fact that both proteins and DNA are ordered modular chains does not just reflect the ease with which such molecules can be made. It is also what makes possible the single most important thing anyone needs to know about molecular biology. The order of nucleotides in specific DNA sequences—genes—determines the order of amino acids in specific proteins.

In DNA the system which catalyses the creation of a new polymer is a mechanism called a DNA polymerase which is made of a number of protein subunits. It gets its instructions as to which sort of nucleotide to add next from a pre-existing piece of DNA used as a template.

The four different nucleotides used in DNA differ in the chemical “base” that they carry; the bases are adenine (A), cytosine (C), guanine (G) and thymine (T). One of the findings which led Francis Crick and James Watson to their double-helix model of DNA in 1953 was that DNA always contains the same number of Cs as Gs, and As as Ts.

A nucleotide carrying guanine can loosely pair itself to one on another DNA strand carrying cytosine; nucleotides carrying adenine and thymine can do likewise. This is the basis of the double helix, which consists of two DNA molecules wrapped around each other. Where one has a thymine the other has an adenine, ▶▶

#### → In this series on the levels of life

- 1 **Biology's big molecules**
- 2 Cells and how to power them
- 3 Making organs
- 4 The story of a life
- 5 What is a species, anyway?
- 6 Finding living planets

▶ and where one has a guanine the other has a cytosine; the attraction between these paired bases holds the two strands together. It also explains why there are the same number of Gs as there are Cs and As as Ts.

The end of the paper in which that structure was unveiled boasts one of the greatest understated asides of all time: “It has not escaped our notice that the specific pairing we have postulated immediately suggests a possible copying mechanism for the genetic material.” Unzip the double helix and each of the two strands provides a template for remaking the other. When a polymerase comes across a T on the existing strand it adds an A, and vice versa; it swaps Gs for Cs in a similar way.

Copying DNA this way produces two double helices both containing the same sequence of base pairs—that is, the same information. When one of the new double helices goes into an egg or sperm cell all the information recorded on it, the Watson-and-Crick “genetic material”, gets passed on to the next generation.

What is more, if the message changes—perhaps because of a mutation in which a stray bit of cosmic radiation turns an A into a G—the new sequence can normally be copied just as well as the old one could. The fact that how reproducible a bit of DNA is does not depend on what it says allows mutations to persist long enough for evolution to find those which confer benefits.

Steven Benner, a biochemist, sums this fundamental and vital property of DNA up with the natty acronym COSMIC LOPER: “Capable Of Searching Mutation-space Independent of Concern over Loss of Properties Essential for Replication.” Without a COSMIC-LOPER way of storing a genome, life in anything like its Earthly form could not exist.

### Bulking up

The manufacture of proteins also requires a system to catalyse the addition of the next monomer to the lengthening chain and a way of knowing which monomer to add next. This time the catalyst is a complex piece of molecular machinery called a ribosome and the what-monomer-next cheat-sheet is an edited copy of some of the sequence information stored in the genome’s nucleotides.

This process requires an intermediary: RNA, a nucleic acid very closely related to DNA but which does not form double helices and has a fifth base, called uracil (U), instead of DNA’s thymine. First a system called an RNA polymerase uses a DNA sequence as a template for making a piece of RNA in the same way as a DNA polymerase makes a new strand in replication. That transcript is then tidied up into what is called a messenger RNA (mRNA).

This message is then read by the ribosome. Every triplet of letters in the mRNA

tells the translation mechanism which of the different varieties of amino acid to add next. The relationship between these various nucleotide triplets and the amino acids they refer to is the genetic code, which is why the triplets are called codons.

Decoding an mRNA to make a protein is a lot more complex than just matching a new nucleotide to an existing one, as DNA and RNA polymerases do. As a result the ribosome is a much larger and more complex piece of molecular machinery. While the DNA polymerase is made just of proteins, the ribosome has some RNA mixed into it too, and uses other little bits of the stuff, tRNAs, to recognise the codons and add the appropriate amino acids. As the chain lengthens, the attractions and repulsions between its various amino acids lead it to fold into the shape required (though other proteins, called chaperonins, sometimes help).

In humans the genome has more than 21,000 DNA sequences which describe proteins, and human cells have the ability to edit the RNA made from some of those sequences to produce a number of different mRNAs, allowing them to make at least four times that many proteins and maybe ten times as many. In *Escherichia coli*, the bacterium most studied in laboratories, the genome describes just 4,285 different proteins. But that is still enough to provide all the proteins used in the ribosomes and the various polymerases, to catalyse all the reactions that build up the other molecules the bacterium needs—such as those which make up its outer surface—and to break down the food it uses to provide the energy which drives everything else.

In a happily growing *E. coli* there are some 3m individual protein molecules, making up 55% of the organism’s dry mass. There are just 300,000 RNA molecules—mostly tRNAs by number and mostly ribosomal RNA by weight—which make up 20% of the dry mass. The millions of molecules involved in making the membranes and the cell wall which define the outer surface of the cell account for 15% of the dry mass. Everything else—the pool of molecules involved in generating energy from food and storing it, the components needed to build the bigger molecules, various other gubbins and the DNA itself—together make up the last 10%.

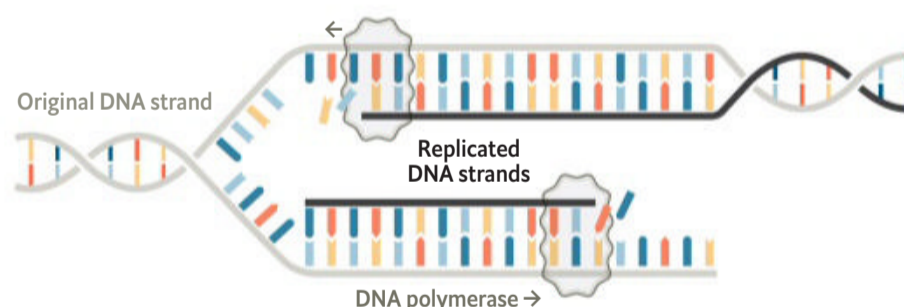
It is worth remembering, though, that there is one last vital molecule, and that is the one present in the greatest quantity. The dry mass of a cell as measured in the lab is just a third of the total mass it has when alive. The remaining two-thirds is good old H<sub>2</sub>O, the solvent in which everything else sits and which allows most of the necessary chemistry to take place. Big complex molecules are the unique and wonderful stuff of life. But life needs its water, too. ■

## → How to make the polymers of life

### Replicating DNA

DNA polymerase enzymes replicate the original sequence of base pairs as they create new strands of DNA

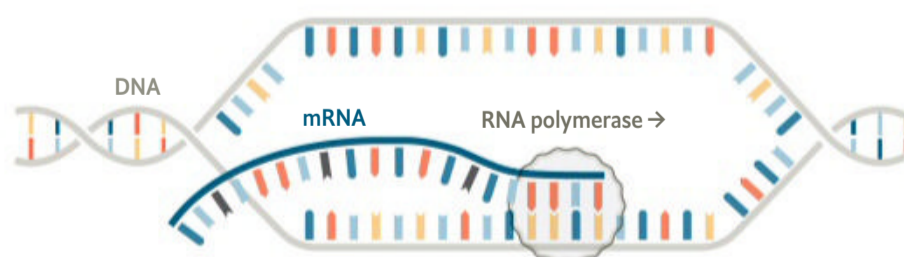
Base pairs  
Adenine Cytosine  
Thymine Guanine



### Transcribing DNA into RNA

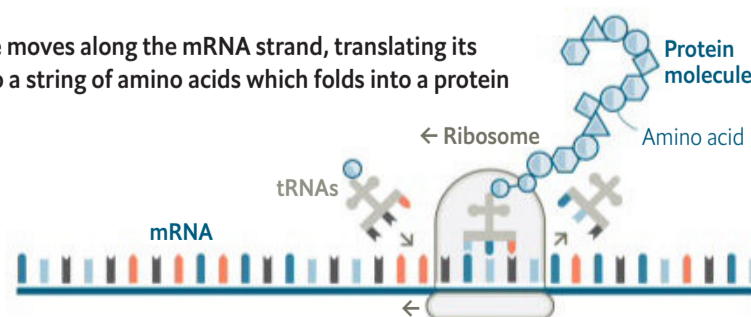
RNA polymerase uses DNA as a template to create a single-stranded RNA

Uracil replaces thymine



### Translating RNA into protein

The ribosome moves along the mRNA strand, translating its sequence into a string of amino acids which folds into a protein





### Aircraft engines

## Back to prop swinging

**A new kind of aircraft engine aims to combine the efficiency of propellers with the speed of jets**

WHEN A MODIFIED MD-80 airliner flew at the 1988 Farnborough air show in Britain, it was supposed to represent the future of air travel. One of its rear-mounted jet engines had been replaced with an unusual form of propulsion. This consisted of two rings of short propeller-like blades mounted in the open air, immediately behind the jet housing and spinning in opposite directions. Some called it a propfan, others an unducted fan or open rotor. Whatever the name, many said it marked the return of the propeller for large passenger aircraft.

It was not to be. Although the propfan promised a big reduction in fuel consumption the engine failed to enter commercial service, mostly because oil prices fell, but also because conventional jet engines became more efficient. But the idea never went away completely. Engineers in America and Europe continued to tinker with propfans. In the 1990s Antonov, a Ukrainian firm, launched a military transport plane called the AN-70 with four forward-

facing contra-rotating propfans under its wing, although only two prototypes were made. Now, in a more environmentally conscious world where cutting aviation emissions is of increasing importance, propfans may be staging a comeback.

#### Fan-tastic

The idea behind a propfan is to combine the fuel economy of a propeller with the speed of a jet engine. Because it is more efficient to move a large volume of air slowly than a small amount rapidly, the fans at the front of modern jet engines have been made progressively bigger. Removing the housing allows the fan to be bigger still.

A fan rather than a propeller (as on a turboprop aircraft) is used because aerodynamic effects cause propellers to lose effi-

ciency at high speed. This happens when the moving tips of a large propeller blade reach supersonic speeds, setting off shock waves which disrupt the airflow. The fans on jet engines, however, have more numerous blades and they are specially shaped, a bit like scimitars, to avoid creating shock waves. This should allow an aircraft using propfans to match the speed of a conventional jet airliner.

The propfan fitted to the experimental MD-80 was made by CFM International, a joint venture between GE, an American engineering group, and Safran, a French company then called Snecma. The pair are now developing a new version, which they reckon could reduce fuel consumption and CO<sub>2</sub> emissions by more than 20% compared with the best jet engines currently in use. And the new propfan will be capable of running on unconventional sources of energy, such as synthetic aviation fuel, hydrogen or a hybrid-electric system. Flight tests are scheduled for 2025.

The new CFM propfan differs from older designs in various ways. Like the engines on the AN-70, it will sit under the wings, with an open fan at the front. Unlike the AN-70's engines, though, it will use a single rotating open-fan. It does have a second ring of blades immediately behind the front fan, but these do not spin. Instead, they act as vanes that guide the flow of air backwards. The new arrangement is less complicated than the older one, and ▶▶

→ Also in this section

66 Data and disagreement

67 Creepy-crawlies and disease screening

▶ should be easier to maintain.

The new propfan is also lighter, which itself saves fuel and hence emissions. This is not just because the fan housing has been eliminated. The thrust reverser—which on a conventional jet engine uses a series of deflectors to slow an aircraft once it has touched down on the runway—has also gone. Instead of deflectors, the pitches of both the rotating blades and the static vanes can be adjusted on the new propfan to reverse its thrust.

One problem with propfans, though, is noise. This was particularly high inside the cabin of the modified MD-80. The combination of a single ring of blades, and advances in acoustic design should let the engine meet current and anticipated noise regulations, says CFM.

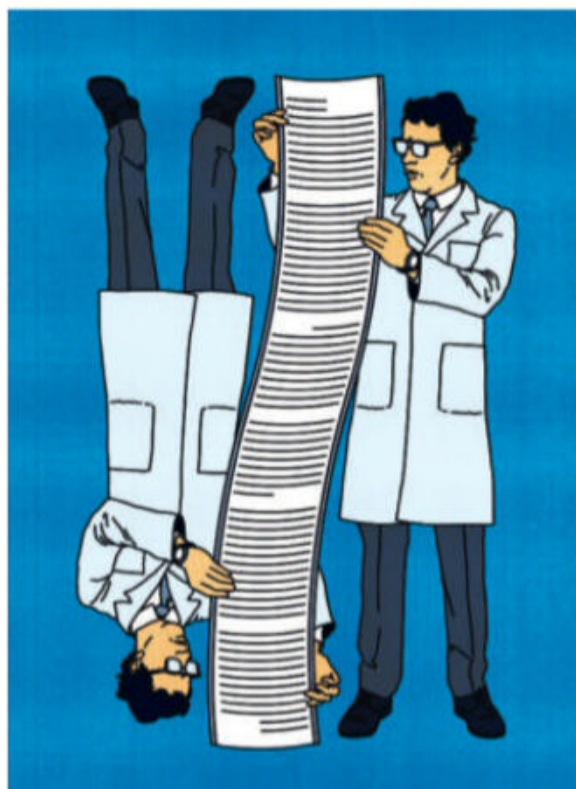
There has been concern about what would happen if a propfan blade broke off. A conventional jet engine is designed to contain a breakaway blade within the fan housing. With no such housing, there is nothing to stop such a breakaway striking the aircraft's fuselage or wing, with potentially catastrophic results. That could mean parts of the aircraft near the open blades will need to be reinforced.

The best thing, though, is to stop the blades breaking in the first place. For that, new materials will help. One legacy of the MD-80 propfan was the pioneering use of extremely strong blades made from carbon-fibre composites. This technology has progressed, and the fan blades in jet engines and the propellers of modern turboprops are now routinely made from composites. These blades are proving their durability by safely notching up millions of flight hours, says a spokeswoman for CFM.

Mounting the propfans under the wings of an aircraft is more in keeping with the way modern airliners are built. It also makes maintenance and safety checks easier. However, the consortium says it can produce a “pusher” version if an aircraft-maker wants to design a plane with its engines at the rear, like the old MD-80.

New aircraft designs are in the works, but the two main builders of airliners, Boeing and Airbus, have yet to commit themselves to any big, new projects. CFM hopes the propfan will be a contender for a new generation of short- and medium-haul aircraft, although it could be used on large wide-body aircraft, too. If flight tests go well, in a decade or so travellers might find the aircraft they are boarding is once again powered by propellers. ■

**Correction** Sharp-eyed readers have pointed out that both Richard Branson and Jeff Bezos have been beaten to the title of “first billionaire in space” (“Mr Bezos goes into space”, July 24th). Other billionaires have flown to the International Space Station courtesy of Russian rockets. We should have framed the competition as “first billionaire in space in a vehicle of his own devising”.



How science works

## Methods and madness

**Data don't lie—but they can lead scientists to opposite conclusions**

ONE OF THE biggest concerns in science is bias—that scientists themselves, consciously or unconsciously, may put their thumbs on the scales and influence the outcomes of experiments. Boffins have come up with all sorts of tactics to try to eliminate it, from having their colleagues repeat their work to the “double blinding” common in clinical trials, when even the experimenters do not know which patients are receiving an experimental drug and which are getting a sugar-pill placebo.

But gathering the data and running an experiment is not the only part of the process that can go awry. The methods chosen to analyse the data can also influence results. The point was dramatically demonstrated by two recent papers published in a journal called *Surgery*. Despite being based on the same dataset, they drew opposite conclusions about whether using a particular piece of kit during appendix-removal surgery reduced or increased the chances of infection.

A new paper, from a large team of researchers headed by Martin Schweinsberg, a psychologist at the European School of Management and Technology, in Berlin, helps shed some light on why. Dr Schweinsberg gathered 49 different researchers by advertising his project on social media. Each was handed a copy of a dataset consisting of 3.9m words of text from nearly 8,000 comments made on Edge.org, an online forum for chatty intellectuals.

Dr Schweinsberg asked his guinea pigs to explore two seemingly straightforward hypotheses. The first was that a woman's tendency to participate would rise as the number of other women in a conversation increased. The second was that high-status participants would talk more than their low-status counterparts. Crucially, the researchers were asked to describe their analysis in detail by posting their methods and workflows to a website called DataExplained. That allowed Dr Schweinsberg to see exactly what they were up to.

In the end, 37 analyses were deemed sufficiently detailed to include. As it turned out, no two analysts employed exactly the same methods, and none got the same results. Some 29% of analysts reported that high-status participants were more likely to contribute. But 21% reported the opposite. (The remainder found no significant difference.) Things were less finely balanced with the first hypothesis, with 64% reporting that women do indeed participate more, if plenty of other women are present. But 21% concluded that the opposite was true.

The problem was not that any of the analyses were “wrong” in any objective sense. The differences arose because researchers chose different definitions of what they were studying, and applied different techniques. When it came to defining how much women spoke, for instance, some analysts plumped for the number of words in each woman's comment. Others chose the number of characters. Still others defined it by the number of conversations that a woman participated in, irrespective of how much she actually said.

Academic status, meanwhile, was defined variously by job title, the number of citations a researcher had accrued, or their “h-index”, a number beloved by university managers which attempts to combine citation counts with the importance of the journals those citations appear in. The statistical techniques chosen also had an impact, though less than the choice of definitions. Some researchers chose linear-regression analysis; others went for logistic regression or a Kendall correlation.

Truth, in other words, can be a slippery customer, even for simple-sounding questions. What to do? One conclusion is that experimental design is critically important. Dr Schweinsberg hopes that platforms such as DataExplained can help solve the problem as well as revealing it, by allowing scientists to specify exactly how they chose to perform their analysis, allowing those decisions to be reviewed by others. It is probably not practical, he concedes, to check and re-check every result. But if many different analytical approaches point in the same direction, then scientists can be confident that their conclusion is the right one. ■

## Screening for disease

## The nose knows

## Flies, worms and bees offer a novel approach to detecting illness

DOGS CAN smell things at concentrations of one part in a trillion—equivalent to a single drop in a pond the size of 20 Olympic swimming pools. That ability is put to good use by human beings. Trained dogs can sniff out explosives and drugs, track missing people, and even guide truffle-hunters to their prizes. They can also detect illnesses, including cancer, malaria, Parkinson's disease and covid-19, before obvious symptoms appear. A study published in 2019, for example, suggested that trained dogs were able, 97% of the time, to identify blood samples taken from patients with lung cancer. A group of researchers in Germany recently trained dogs to pick out saliva samples collected from those infected with SARS-COV-2, the covid-causing virus, from uninfected samples, with a success rate of 94%.

Training dogs, however, takes time. Handlers must be paid. The animals themselves get tired and bored. In past studies on cancer detection, less than half of canines entered for training made the grade. Dogs are not, then, a practical answer to the question of how to detect illness quickly, before it gets a grip.

But fruit flies might be. And so might tiny nematode worms called *Caenorhabditis elegans*. And so, indeed, might bees. Unlike dogs, all are cheap and expendable—and their senses are just as good. Along with technology tailored to their talents, they could provide economical, easy and non-invasive ways of detecting cancer, and also offer an alternative to laboratory tests for covid that might be welcome in countries with limited budgets.

At the moment, only four cancers—of the breast, cervix, colon and rectum, and sometimes the prostate—are screened for routinely, and only in places that can afford it. Between them they account for only a quarter of the world's cancer deaths. For many unscreened-for tumours—for example, cancers of the pancreas, stomach and oesophagus—early detection is vital. Animal-based diagnostics could extend the range of screening tests available.

Fruit-fly-wise, one leading researcher is Giovanni Galizia of the University of Konstanz, in Germany. Fruit flies smell things using their antennae, and Dr Galizia has genetically modified his flies so that when they detect odiferous molecules, the resulting brain activity generates fluorescence under a microscope.

The exact pattern depends on what the fly is smelling. With the help of machine learning, Dr Galizia can recognise the patterns generated by odours from healthy cells and those generated by cancerous ones. Indeed, he can now tell between cells from different types of breast cancer.

For his experiments, Dr Galizia is using cancerous cells grown in a dish. Collecting such cells from people would require a biopsy. That would only be done if there was already suspicion that something was wrong—rather defeating the point of a screening test. Dr Galizia's ambition is therefore to detect cancer in urine rather than cells. He is also keen to dispense with the flies, for looking at fly brains down a microscope is fiddly. Instead, he hopes to find combinations of chemical-receptor proteins that can distinguish between urine from people with and without cancer. Those proteins could be integrated into sensors on silicon chips. If Dr Galizia can make this work for breast cancer, it will probably work for other cancers, too.

Detection by worm, by contrast, relies on whole organisms—though the detection itself is automated. In 2015 Hirotsu Takaaki, then a researcher at Kyushu University, in Japan, tested whether *C. elegans* could distinguish between the urine of people who had cancer and those who did not. He found that the worms tended to crawl towards urine from cancer patients and shy away from urine from the healthy.

The following year Dr Hirotsu founded a company to automate the process.

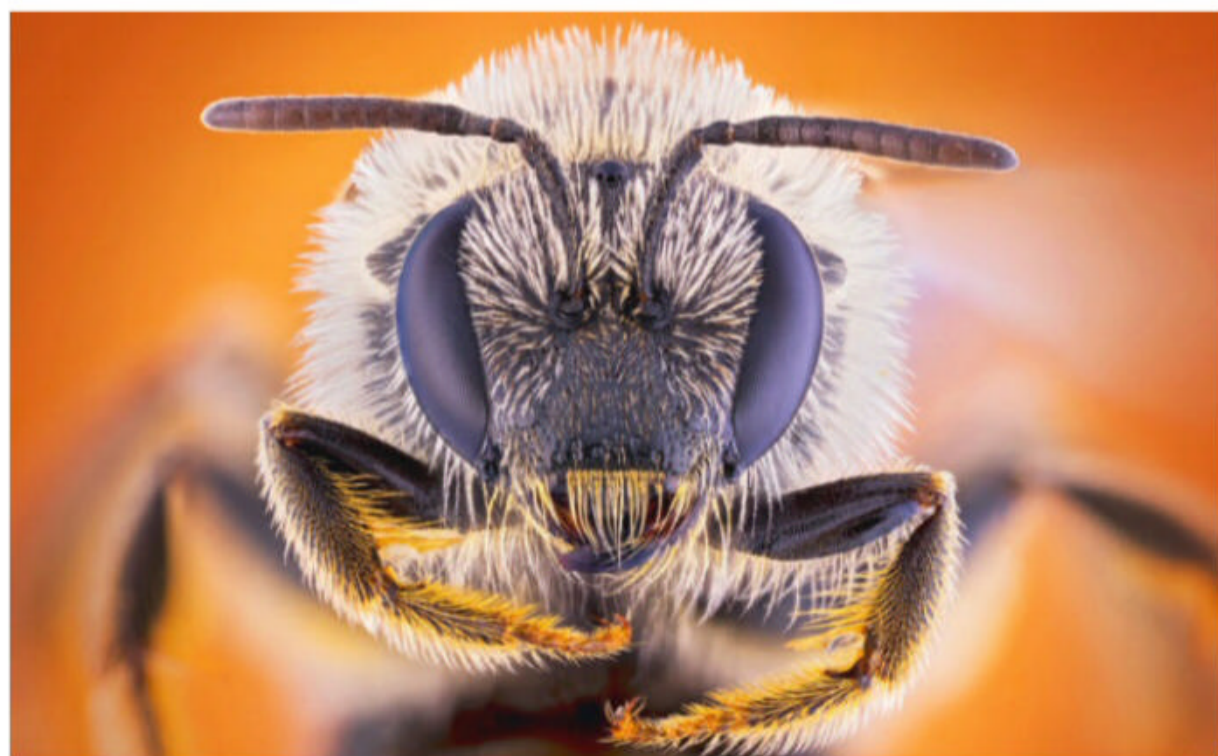
Five years on Hirotsu Bio Science has three test centres around Japan. In each of these, robots drop spots of urine onto the edges of Petri dishes, and then add clusters of worms at the centre. This process is repeated dozens of times per patient. If most of the worms crawl towards the urine, then the patient in question is likely to have one of 15 kinds of cancer—though Dr Hirotsu cannot yet say which. The firm hopes to change that by using genetic engineering to tweak the worms' senses. Eric di Luccio, its head of research and development, says the company plans to offer a test specific to pancreatic cancer next year.

## The smell of success?

Detecting covid with bees, meanwhile, involves a method that goes back to Ivan Pavlov and his dogs. The insects are offered sugar-water alongside SARS-COV-2-infected saliva samples, but not with uninfected samples. They thus learn to extend their probosces when they sniff covid.

Aria Samimi, boss of InsectSense, the Dutch firm that developed this approach, imagines local apiarists providing armies of bees for the firm's training machines, just one of which can train more than 100 bees a day. Potential partners in Zimbabwe and India have expressed interest, Mr Samimi says. And, intriguingly, researchers in both the Netherlands and Denmark are keen to see if bees can detect cancers, too.

Which, if any, of these ideas will come to fruition remains to be seen. Medical regulators will have to be convinced that what may seem wacky at first glance is actually sensible. But doctors have been encouraged to use their noses to assist diagnosis since the time of Hippocrates. Having a little olfactory assistance from invertebrates might be no bad thing. ■



The pathologist will see you now



### Creativity and identity

## A sculptor's world

TOKYO

**In his work Isamu Noguchi, a Japanese-American artist, explored what it means to be a global citizen**

THERE ARE many ghosts in Hiroshima. One is the ghost of a sculpture that was never built. A black granite arch was designed to rise above the city's peace park, recalling the roofs of *haniwa*, the clay funerary objects of ancient Japan. The form of the arch would continue underground, filling a womb-like cenotaph alongside a granite box containing the names of those killed by America's atomic bomb.

Isamu Noguchi, a Japanese-American artist, considered the unrealised monument one of his greatest works. He reckoned one reason the arch was never built, despite being invited to create it by the architect in charge of the park, was that he was, in Japanese eyes, ultimately American, just as in American eyes he was ultimately Japanese. As a new exhibition of Noguchi's sculptures at the Tokyo Metropolitan Art Museum demonstrates, the work he did bring to life during his illustrious career grapples in beautiful and profound ways with his split identity, or what his father, Noguchi Yonejiro, a poet, once called "the tragedy of being neither the one

nor the other". Scheduled to coincide with the Tokyo Olympics, the exhibition was intended to tap into the global attention the games were supposed to bring. Though the pandemic has kept the crowds away, Noguchi stands as a welcome reminder of the internationalist spirit.

The elder Noguchi left Japan for America during the Meiji era in the late 19th century. He made a name for himself writing as "Yone" in a broken English that gave him both an "exotic" charm and a modernist style. He fathered a child with Léonie Gilmour, his editor, but returned to Japan before she gave birth. Gilmour soon followed, though she had few illusions about her lover. Rather, as she wrote to a friend at the time, she wanted to "make a little Japa-

nese boy out of my son," and reckoned that doing so in America would be difficult. In the early 1900s, anti-Asian sentiment swept California, where lawmakers made marriage between "whites" and "Mongolians" illegal. Yet in Japan, young Noguchi found that he stuck out too, like "an irregular verb", as he later put it.

Gilmour sent Noguchi back to America for high school, where an encounter with Rodin's work inspired him to pursue sculpture. A Guggenheim Fellowship took him to Paris in 1927, where he became an assistant to Constantin Brancusi, an influential Romanian artist. Noguchi's early sculptures bear Brancusi's stamp, as polished planes and rounded shapes come together in abstract yet evocative forms. Sheets of aluminium, folded and warped, confuse the boundaries between inner and outer. These works can also be read as an attempt, in metal, to bring the disparate pieces of himself into contact.

After leaving Paris, Noguchi travelled to China, where he studied ink painting with a master, Qi Baishi, and Japan, where he reconnected with his absent father. In the ensuing decades he became an international superstar: he designed sculptures, gardens and buildings around the world; he created sets for Martha Graham's ballet and furniture for the Herman Miller company; he painted murals with Diego Rivera in Mexico, where he also had an affair with Frida Kahlo. (Noguchi once disappeared out of a window when the pair learned that ▶▶

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Rivera was on his way.) Yet he could never escape awkward questions about his identity. As he wondered in an autobiography published in 1968: “With my double nationality and double upbringing, where was my home? Where were my affections? Where my identity? Japan or America, either, both—or the world?”

Noguchi may never have satisfied his yearning to belong to a national community. But in retrospect, he helped define a different kind of identity, one determined not by blood and soil, but by shared sensibilities and values. He was the archetype of the global citizen so disdained by today’s nationalists. It is but one of many ways that Noguchi was an artist ahead of his time. As he wrote in an unpublished essay in 1942, with America and Japan at war, “To be hybrid anticipates the future.”

Around the same time, he voluntarily entered a detention camp for Japanese-Americans in Arizona, seeking to raise awareness of their plight. He returned to Japan again after the war ended, and found a country chastened and chasing Western fashions. Noguchi offered some unexpected advice: “I suggested that to be modern did not mean to copy us but to be themselves, looking to their own roots for strength and inspiration.” His appreciation for Japanese aesthetics influenced the generation of Japanese artists that followed. The designer Miyake Issey once told the architect Tadao Ando that Noguchi was “the man I most respect”.

Noguchi also found his own new inspirations in Japanese traditions. He turned the paper lamps of the Gifu region into a series of “light sculptures” that he called “Akari”. He entered into a decades-long collaboration with a young stonecutter, Izumi Masatoshi, on the island of Shikoku. He worked for the rest of his life on a final body of sculptures: mesmerising columns of rough stone with smooth planes carved into their sides; rocks split and polished into mirror-like surfaces; boulders fractured and reassembled into perfect forms. The exhibition in Tokyo displays some of these pieces from his Shikoku studio, which has been preserved as a posthumous museum.

It makes for an illuminating contrast with his earlier, Brancusi-inspired work. In Western sculpture, the concept of the self is central, says Nakahara Atsuyuki, the show’s curator. Sculptures articulate the voice of the artist, who sees forms inside the marble. In Japanese art, there is “the absence of the self,” Mr Nakahara argues. The sculptor instead gives form to the voice of the material. The approach echoes artistic traditions going back to the *Sakuteiki*, an 11th-century treatise that instructs readers to “obey the request of the stone”. Or as Noguchi, perhaps tired of searching for a self of his own, once put it, “I tried to look into a rock and find a rock.” ■

Leïla Slimani’s new novel

## Land and freedom

**In the Country of Others.** By Leïla Slimani. Translated by Sam Taylor. *Penguin*; 320 pages; \$26. Published in Britain as “*The Country of Others*”; *Faber*; £14.99

LEÏLA SLIMANI, one of France’s brightest literary stars, has made her name fictionalising real events. “*Adèle*” followed a woman addicted to extramarital sex; the novel was partly inspired by a scandal that surrounded Dominique Strauss-Kahn, a French politician and economist, in 2011. “*The Perfect Nanny*” (published in Britain as “*Lullaby*”) was based on a true story of a childminder who killed the youngsters in her care. The chilling tale won the Prix Goncourt, the most prestigious award for literature in French, in 2016 and Ms Slimani became the first Moroccan woman to earn the accolade.

The author sticks to this mode for her new novel—only this time she is reimagining the story of her own forebears, particularly her grandmother, who fell in love with a Moroccan soldier in 1944. “*In the Country of Others*” is the first instalment in a trilogy which will cover three generations of one family between 1946 and 2016. Ending in 1955, the book’s domestic narrative unfolds against a backdrop of national politics, as Morocco evolves from French colony to independent state.

In 1947 Mathilde is taken by her new husband, Amine, to the farm he has inherited outside the city of Meknes in northern Morocco. Mathilde and Amine had been living with his mother, Mouilala, for a year and Mathilde is excited about the prospect



The lie of the land

of a home of her own. When they arrive, however, they find a “small, charmless little building with a corrugated-iron roof”.

Amine struggles to make his farm thrive. Subject to sporadic periods of silence, violence and passion from her husband, Mathilde learns Arabic and tries to adapt to the harsh, beautiful landscape. Their daughter, Aïcha, first opposes then seeks refuge in her strict Catholic school, while Amine’s younger brother, Omar, contemptuous of the medals his sibling earned fighting for France during the second world war, joins a revolutionary militia. Their sister, Selma, strikes out with her own short-lived rebellion against Morocco’s conservative codes of conduct.

Translated by Sam Taylor, Ms Slimani’s novel thrums with nervous energy. Mathilde’s and Amine’s relationship as a mixed-race couple is minutely observed, as is their shared ambivalence towards the struggle for independence. Though her use of multiple viewpoints can be disorientating, Ms Slimani excels at evoking this time and place. Readers will end the first volume of the trilogy with high expectations for the next. ■

China’s grand strategy

## Seeking world domination

**The Long Game.** By Rush Doshi. *Oxford University Press*; 432 pages; \$27.95. To be published in Britain in September; £21.99

AS THE BIDEN administration crafts a plan for dealing with the rapid rise of an authoritarian, America-scoring China, its officials must answer two crucial questions: “What does China want?” and “What can it achieve?” Western analysts are divided. Some say that China wants a world in which the Communist Party can prosper and not feel threatened, but that it is not sure whether striving to surpass America is worth the risks. Others believe that China is intent on displacing America as the world’s pre-eminent power and is fast acquiring the means to do so.

In a new book, “*The Long Game*”, Rush Doshi paints a particularly gloomy picture: China aims to achieve global supremacy by 2049, when the Communist Party hopes to celebrate 100 years in power. Mr Doshi is one of Mr Biden’s advisers on China policy in the National Security Council, having been a specialist in Chinese strategy at the Brookings Institution, a think-tank in Washington. His views carry weight.

Mr Doshi admits there is debate in the ▶▶

West not only over whether there is such a deadline, but also over whether China has a grand strategy. But he makes his own case powerfully, with reference to an impressive array of highly authoritative Chinese texts (although one of the most vivid descriptions of how this Chinese order might look—with America reduced to a “deindustrialised, English-speaking version of a Latin American republic, specialising in commodities, real estate, tourism and perhaps transnational tax evasion”—uses the words of an American scholar).

As Mr Doshi describes it, the crucible of China’s grand strategy was the “traumatic trifecta”: the Tiananmen Square protests of 1989, the first Gulf war of 1991 and, also that year, the collapse of the Soviet Union. These events convinced China that America posed the biggest threat ideologically, militarily and geopolitically. China responded by devising a plan to blunt American power. This was to be low-key: Deng Xiaoping, then retired as a party leader but still highly influential, suggested China should “hide its capabilities and bide its time”. The country focused on developing weapons that would keep America at bay and on joining multilateral organisations such as the World Trade Organisation, hoping to use these institutions’ rules to constrain America.

Then came the financial crisis of 2007–09. According to Mr Doshi, this meltdown convinced China that America was waning and that the time was ripe to start building China’s own power more actively. China began acquiring aircraft-carriers and, under Xi Jinping, who took over in 2012, creating regional institutions to establish a China-centred order. Mr Xi launched the Belt and Road Initiative to help China achieve the same goal globally.

A “new trifecta”—Donald Trump’s winning of the American presidential election of 2016, Britain’s withdrawal from the European Union and the West’s faltering response to the covid-19 pandemic—persuaded China that Western power was in irreversible decline. China decided that, given these and other “great changes unseen in a century”, world dominance could be achieved by 2049, argues Mr Doshi.

There is no conclusive evidence of this. The texts Mr Doshi cites provide only hints. But those who disagree with his analysis may still support his proposals for an American response. He calls for tactics similar to China’s, such as joining Chinese-led institutions in order (in this case) to try to improve them. He also says America should reinforce the attributes that have helped it to “attract the allies, immigrants and capital that underpin liberal order”, such as openness and the rule of law. That is surely the right conclusion, even though Western scholars will still disagree over China’s grand plans. ■

## The Congo-Océan Railway

# Blood on the tracks

**In the Forest of No Joy.** By J.P. Daughton. W.W. Norton; 384 pages; \$30

THE STATUE of King Leopold II of Belgium that stands in sight of the royal palace in Brussels has been defaced dozens of times in recent years. Activists have painted its hands and eyes red as a reminder of the brutality that Leopold unleashed in the Congo Free State, a territory in central Africa, at the end of the 19th century. As many as 10m Congolese—or half of the population—might have perished as Europeans forced entire villages to collect rubber and ivory for export.

Leopold’s exploitation of Congo was a scandal. In 1908, after years of campaigning by journalists, the Belgian state stripped the king of his private possession. The Belgian Congo joined other European colonies in Africa where wanton extraction was to be replaced by a supposedly civilising mission. Yet though less transparently murderous, the “benign” colonialism of elsewhere was often not that different from what happened under Leopold. A new book, “In the Forest of No Joy”, by J.P. Daughton, an American historian, exposes how forced labour in the French Congo (now the Republic of Congo), on the other side of the river from Leopold’s possession (now the Democratic Republic), led to the deaths of tens of thousands of Africans.

The book is a masterful, if relentlessly bleak, account of the construction of the Congo-Océan Railway, a route designed to connect the central African interior to the Atlantic. What makes it so compelling is



In the trenches

the divide it exposes between the often admirable intentions of colonial bureaucrats, who did genuinely think they were lifting Africans out of poverty, and the grim reality that they enabled. The application of “modern” government to conquered people could be almost as savage as plunder, Mr Daughton shows.

The railway was the idea of Pietro Paolo Savorgnan di Brazza, an Italian-born French explorer who conquered much of central Africa for France “by exclusively peaceful means”. The French state imagined itself as a bringer of civilisation to Africa, and the railway was to provide a way for the Congolese to take part in world trade. Yet Mr Daughton shows how the colonial administration in Congo had little capacity to build a railway without violence: it claimed to be recruiting paid volunteers while its agents forced Africans to work at gunpoint. Many were marched hundreds of kilometres to the tracks chained at the neck, as slaves had been a century before. Whatever work had to be done, reported Albert Londres, a French journalist, “it’s captives who do it.”

The evil caused by perverse incentives recurs throughout the book. The Société de Construction des Batignolles, a contractor, was assigned the job of producing the railway and paid a fixed fee. But whereas it had to provide machinery and skilled labour itself, the unskilled labour of Africans was given to it by the colonial state, practically free. It was cheaper to replace workers who died with new ones than to keep them healthy. In 1925 one doctor estimated nearly a quarter of new workers would not survive a year.

Surprisingly, the French state documented these abuses diligently (the archives provide the source of much of Mr Daughton’s information). In 1926 one inspector, Jean-Noël-Paul Pegourier, compared the treatment of workers on the railway to the German genocide of the Herero in Namibia before the first world war. Yet unlike the reports of Leopold’s abuses, these observations had little effect, not least because orders issued from Paris or even Brazzaville were simply ignored. Raphaël Antonetti, the colonial governor, fought back with an avalanche of legalese.

The railway was a masterpiece of engineering, as Mr Daughton readily admits. For decades it provided the only means of transporting goods within Congo. The wealth of Brazzaville, still so named, was built on it. In Britain and France, the infrastructure bequeathed to former colonies is often cited as an argument for its benefits. But to build it, a weak and stingy state had to rely on brutality. As Mr Daughton reports, “the Congo-Océan provides an all-too-useful case in point for how the language of humanity could be invoked to explain the deaths of thousands.” ■



**M | LSA MIDDLE EAST STUDIES**  
UNIVERSITY OF MICHIGAN

The Department of Middle East Studies at the University of Michigan invites applications for the James A. Bellamy Professorship, with an anticipated start date of Fall 2023.

We seek a professor or advanced associate professor with a substantial publication record in the fields of early Arabic language or literature, textual traditions and Islamic culture to fill the James A. Bellamy Professorship at the University of Michigan.

The successful candidate is expected to teach a range of courses in Arabic and Islamic studies, from introductory undergraduate lecture courses through graduate seminars; to supervise doctoral dissertations; and to participate actively in the programs of the department as well as in area studies initiatives within a larger university community that encourages interdisciplinary efforts.

Please go to <http://apply.interfolio.com/90190> to apply.

Candidates will be asked to upload a letter of application, CV, statement of current and future research plans, statement of teaching philosophy and experience, diversity statement, evidence of teaching excellence, and names and email addresses of potential reviewers.

Questions about the application or materials may be directed to Patrice Whitney ([mes-admin@umich.edu](mailto:mes-admin@umich.edu)). Applications must be received by November 1, 2021 to be assured of consideration.

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The International Monetary Fund (the "Fund") is seeking to fill two vacancies on its Administrative Tribunal (the "Tribunal"). The Tribunal is an independent judicial body, which hears and passes judgment on cases involving employment-related disputes between the Fund and its staff members.

Article VII of the Tribunal Statute provides that the Tribunal shall be composed of five Members, including the President, who **"shall have no prior or present employment relationship with the Fund, must be nationals of a member country of the Fund at the time of their appointments and must possess the qualifications required for appointment to high judicial office or be jurisconsults of recognized competence."** Article VIII further provides that the Members of the Tribunal "shall be completely independent in the exercise of their duties...[and] shall not be eligible for staff employment with the Fund following the end of their service with the Tribunal."

Members of the Tribunal are appointed for a four-year term by the Managing Director after appropriate consultation, and they may be reappointed for a maximum of two additional four-year terms. The Fund intends that the new Tribunal Members will commence their first terms of office on January 1, 2022.

Decisions of the Tribunal are taken by panels composed of the President and two other Members designated by the President. Sessions of the Tribunal are ordinarily held at the Fund's Washington, D.C. headquarters, approximately twice a year. The Tribunal handles a caseload of approximately two to five cases per year. Tribunal Members are compensated for time spent on the work of the Tribunal. The Tribunal is served by a headquarters-based Registry. Tribunal Judgments are published on the Tribunal website [www.imf.org/tribunal](http://www.imf.org/tribunal). The working language of the Tribunal is English.

Qualified persons who wish to be considered for this vacancy should submit their applications (*Cover Letter and CV*) to [IMFTribunalVacancy@imf.org](mailto:IMFTribunalVacancy@imf.org) by August 23, 2021.

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## Economic data

	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago latest	quarter*	2021†	% change on year ago latest	2021†	%		% of GDP, 2021†	% of GDP, 2021†	10-yr gov't bonds latest,%	change on year ago, bp	per \$ Jul 28th	% change on year ago		
United States	0.4	Q1	6.4	6.0	5.4	Jun	3.6	5.9	Jun	-2.7		-12.7	1.3	67.0	-
China	7.9	Q2	5.3	8.5	1.1	Jun	1.6	5.0	Jun <sup>§</sup>	2.8		-4.7	2.7	10.0	6.50 7.8
Japan	-1.6	Q1	-3.9	2.2	0.2	Jun	-0.2	3.0	May	3.5		-8.9	nil	-8.0	110 -4.7
Britain	-6.1	Q1	-6.2	5.7	2.5	Jun	3.1	4.8	Apr <sup>††</sup>	-4.5		-10.8	0.7	45.0	0.72 6.9
Canada	0.3	Q1	5.6	5.4	3.1	Jun	2.3	7.8	Jun	-2.0		-8.8	1.2	69.0	1.26 6.3
Euro area	-1.3	Q1	-1.3	4.4	1.9	Jun	1.8	7.9	May	3.3		-7.1	-0.5	6.0	0.85 nil
Austria	-5.5	Q1	-12.6	3.4	2.8	Jun	2.2	6.9	May	3.0		-7.6	-0.2	9.0	0.85 nil
Belgium	-0.5	Q1	4.5	4.3	1.6	Jun	1.5	6.5	May	-0.7		-6.6	-0.1	8.0	0.85 nil
France	1.2	Q1	-0.4	5.5	1.5	Jun	1.6	7.5	May	-1.3		-8.7	-0.1	7.0	0.85 nil
Germany	-3.1	Q1	-7.0	3.5	2.3	Jun	2.5	3.7	May	6.8		-5.4	-0.5	6.0	0.85 nil
Greece	-1.4	Q1	18.9	5.4	1.0	Jun	nil	15.4	May	-3.7		-5.8	0.6	-45.0	0.85 nil
Italy	-0.8	Q1	0.6	5.0	1.3	Jun	1.3	10.5	May	3.4		-11.8	0.6	-46.0	0.85 nil
Netherlands	-2.4	Q1	-3.1	3.4	2.0	Jun	2.1	3.2	Jun	10.3		-1.7	-0.5	-2.0	0.85 nil
Spain	-4.2	Q1	-1.7	6.1	2.7	Jun	2.0	15.3	May	0.9		-8.6	0.3	-7.0	0.85 nil
Czech Republic	-2.6	Q1	-1.4	3.6	2.8	Jun	2.6	3.4	May <sup>‡</sup>	2.6		-5.6	1.7	90.0	21.7 3.3
Denmark	-0.9	Q1	-3.9	2.8	1.7	Jun	1.4	4.0	May	7.8		-0.5	-0.1	23.0	6.30 0.8
Norway	-1.4	Q1	-2.5	2.6	2.9	Jun	2.9	4.9	Apr <sup>††</sup>	2.5		-1.0	1.4	76.0	8.85 2.9
Poland	-1.3	Q1	4.5	4.6	4.4	Jun	4.1	5.9	Jun <sup>§</sup>	2.2		-6.9	1.7	34.0	3.90 -3.6
Russia	-0.7	Q1	na	3.4	6.5	Jun	5.7	4.8	Jun <sup>§</sup>	3.8		-1.8	7.0	96.0	73.7 -1.5
Sweden	-0.1	Q1	3.4	3.9	1.3	Jun	1.9	9.8	May <sup>§</sup>	4.8		-2.2	0.1	19.0	8.63 1.5
Switzerland	-0.5	Q1	-2.0	3.4	0.6	Jun	0.3	3.1	Jun	7.1		-3.8	-0.4	13.0	0.91 1.1
Turkey	7.0	Q1	na	3.9	17.5	Jun	14.5	12.4	May <sup>§</sup>	-2.2		-2.8	17.0	456	8.57 -18.9
Australia	1.1	Q1	7.3	4.3	3.8	Q2	2.6	4.9	Jun	1.9		-6.1	1.1	20.0	1.36 2.9
Hong Kong	7.9	Q1	23.5	4.9	0.7	Jun	1.6	5.5	Jun <sup>††</sup>	3.2		-4.1	0.9	45.0	7.78 -0.4
India	1.6	Q1	6.0	10.4	6.3	Jun	5.2	9.2	Jun	-0.9		-7.2	6.2	34.0	74.4 0.6
Indonesia	-0.7	Q1	na	3.9	1.3	Jun	2.4	6.3	Q1 <sup>§</sup>	-0.1		-5.7	6.3	-51.0	14,488 0.3
Malaysia	-0.5	Q1	na	4.4	3.4	Jun	2.4	4.5	May <sup>§</sup>	4.4		-5.8	3.2	50.0	4.24 0.2
Pakistan	4.7	2021**	na	3.8	9.7	Jun	9.0	5.8	2018	-1.8		-7.1	9.9	78.0	162 3.1
Philippines	-4.2	Q1	1.2	5.1	4.1	Jun	4.2	8.7	Q2 <sup>§</sup>	-1.1		-7.5	3.8	101	50.4 -2.4
Singapore	14.3	Q2	-7.7	4.6	2.4	Jun	1.8	2.9	Q1	17.8		-4.4	1.3	43.0	1.36 1.5
South Korea	5.9	Q2	2.7	3.8	2.4	Jun	2.0	3.8	Jun <sup>§</sup>	4.6		-3.2	1.9	53.0	1,155 3.7
Taiwan	8.9	Q1	12.8	5.9	1.9	Jun	1.7	4.8	Jun	15.6		-0.7	0.4	-3.0	28.0 4.7
Thailand	-2.6	Q1	0.7	2.8	1.2	Jun	1.5	1.5	Dec <sup>§</sup>	3.7		-6.5	1.3	33.0	33.0 -3.9
Argentina	2.5	Q1	11.0	7.0	50.2	Jun	47.3	10.2	Q1 <sup>§</sup>	1.6		-5.9	na	na	96.6 -25.4
Brazil	1.0	Q1	4.9	5.5	8.3	Jun	7.1	14.7	Apr <sup>§††</sup>	-0.2		-2.0	9.3	283	5.17 nil
Chile	0.3	Q1	13.4	7.5	3.8	Jun	3.6	10.0	May <sup>§††</sup>	-0.4		-7.1	4.4	193	765 0.1
Colombia	2.0	Q1	11.9	7.8	3.6	Jun	3.1	15.6	May <sup>§</sup>	-3.6		-8.9	7.0	172	3,904 -4.8
Mexico	-3.6	Q1	3.1	5.9	5.9	Jun	4.9	4.0	Jun	1.4		-2.8	6.9	127	19.9 10.0
Peru	3.8	Q1	8.3	10.1	3.3	Jun	2.9	8.8	Jun <sup>§</sup>	-0.2		-5.8	5.4	206	3.93 -10.4
Egypt	2.9	Q1	na	3.3	4.9	Jun	5.6	7.4	Q1 <sup>§</sup>	-3.8		-8.0	na	na	15.7 1.8
Israel	-1.0	Q1	-5.8	4.2	1.7	Jun	1.8	5.2	Jun	3.9		-7.6	1.0	37.0	3.26 4.6
Saudi Arabia	-4.1	2020	na	2.2	6.2	Jun	2.9	6.5	Q1	3.4		-2.1	na	na	3.75 nil
South Africa	-3.2	Q1	4.6	3.0	5.1	Jun	4.0	32.6	Q1 <sup>§</sup>	1.2		-9.4	8.9	-28.0	14.8 11.5

Source: Haver Analytics. \*% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. \*\*Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

## Markets

In local currency	Index Jul 28th	% change on:	
		one week	Dec 31st 2020
United States S&P 500	4,400.6	1.0	17.2
United States NAScomp	14,762.6	0.9	14.5
China Shanghai Comp	3,361.6	-5.6	-3.2
China Shenzhen Comp	2,313.2	-7.2	-0.7
Japan Nikkei 225	27,581.7	0.1	0.5
Japan Topix	1,919.7	0.8	6.4
Britain FTSE 100	7,016.6	0.3	8.6
Canada S&P TSX	20,230.4	0.6	16.0
Euro area EURO STOXX 50	4,103.0	1.9	15.5
France CAC 40	6,609.3	2.2	19.1
Germany DAX*	15,570.4	1.0	13.5
Italy FTSE/MIB	25,261.7	2.4	13.6
Netherlands AEX	747.7	1.9	19.7
Spain IBEX 35	8,733.7	1.9	8.2
Poland WIG	67,346.2	0.4	18.1
Russia RTS, \$ terms	1,616.3	1.9	16.5
Switzerland SMI	12,073.2	0.4	12.8
Turkey BIST	1,360.8	0.7	-7.9
Australia All Ord.	7,649.6	0.9	11.7
Hong Kong Hang Seng	25,473.9	-6.4	-6.5
India BSE	52,443.7	0.5	9.8
Indonesia IDX	6,088.5	1.0	1.8
Malaysia KLSE	1,515.4	-0.1	-6.9

	index Jul 28th	% change on:	
		one week	Dec 31st 2020
Pakistan KSE	47,318.0	-1.2	8.1
Singapore STI	3,141.8	0.7	10.5
South Korea KOSPI	3,236.9	0.7	12.6
Taiwan TWI	17,135.2	-1.9	16.3
Thailand SET	1,537.6	-0.2	6.1
Argentina MERV	66,553.4	1.1	29.9
Brazil BVSP	126,285.6	0.3	6.1
Mexico IPC	51,344.1	2.6	16.5
Egypt EGX 30	10,769.2	1.1	-0.7
Israel TA-125	1,755.0	1.3	11.9
Saudi Arabia Tadawul	10,933.7	1.3	25.8
South Africa JSE AS	68,525.6	3.0	15.3
World, dev'd MSCI	3,069.5	1.1	14.1
Emerging markets MSCI	1,268.2	-3.3	-1.8

## US corporate bonds, spread over Treasuries

	Basis points	
	latest	Dec 31st 2020
Investment grade	117	136
High-yield	352	429

Sources: Refinitiv Datastream; Standard & Poor's Global Fixed Income Research. \*Total return index.

## Commodities

The Economist commodity-price index	% change on			
	2015=100	Jul 20th	Jul 27th*	month year
<b>Dollar Index</b>				
All Items	184.0	179.2	-1.5	55.5
Food	130.8	129.7	0.6	40.4
<b>Industrials</b>				
All	233.6	225.5	-2.6	65.1
Non-food agriculturals	142.9	144.8	-4.5	50.4
Metals	260.5	249.4	-2.2	67.9
<b>Sterling Index</b>				
All items	206.3	197.0	-1.8	45.0
<b>Euro Index</b>				
All items	173.5	168.1	-0.8	54.2
<b>Gold</b>				
\$ per oz	1,810.1	1,797.5	2.2	-7.8
<b>Brent</b>				
\$ per barrel	69.5	74.6	-0.5	72.5

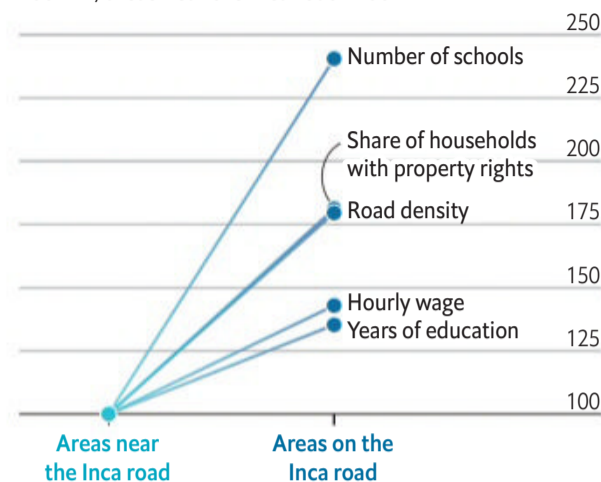
Sources: Bloomberg; CME Group; Cotlook; Refinitiv Datastream; Fastmarkets; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. \*Provisional.

For more countries and additional data, visit [Economist.com/indicators](https://www.economist.com/indicators)

→ Living standards are unusually high in a narrow strip of land along the Incas' main thoroughfare



**Living conditions on the Inca road**  
2007-17, areas near the Inca road=100



**Wage, soles per hour\*, 2007-17**



**Years of education\*, 2007-17**



\*Modelled estimate to isolate the impact of the Inca road, adjusting for all other factors †One standard deviation above average  
Source: "Long-term effects of the Inca road" by A. P. Franco, S. Galiani and P. Lavado, National Bureau of Economic Research, 2021

## Old town road

### A highway built for the Inca empire still benefits people living nearby

SPAIN'S CONQUEST of the Inca empire in the 16th century was catastrophic for the Incas. Within four decades the native population fell by 75-90%. Old-world diseases were mostly to blame, but forced labour played a part. Missionaries coerced Spain's new subjects to convert to Catholicism, while viceroys razed Inca buildings.

Yet Inca culture proved persistent. Some 10m people in Peru and nearby countries speak Quechua, the Incas' language of empire, whose use the Spaniards discouraged. Peruvians still hand-weave textiles with bright patterns. A new paper, by Ana Paula Franco of Harvard, Sebastian Galiani of the University of Maryland and Pablo Lavado of the University of the Pacific in Lima, unearths another example of the Incas' durable achievements: Peruvians still benefit from 15th-century infrastructure.

The Incas ruled over 10m square km

(3.8m square miles). To collect taxes, deploy troops and exchange messages with remote lands, they built 30,000km of stone roads, dotted with warehouses to store food and water. The biggest cities in modern Peru are on or near the coast, far from the Incas' most important routes. This makes it possible to study the effects of pre-Columbian infrastructure with little distortion from later urbanisation.

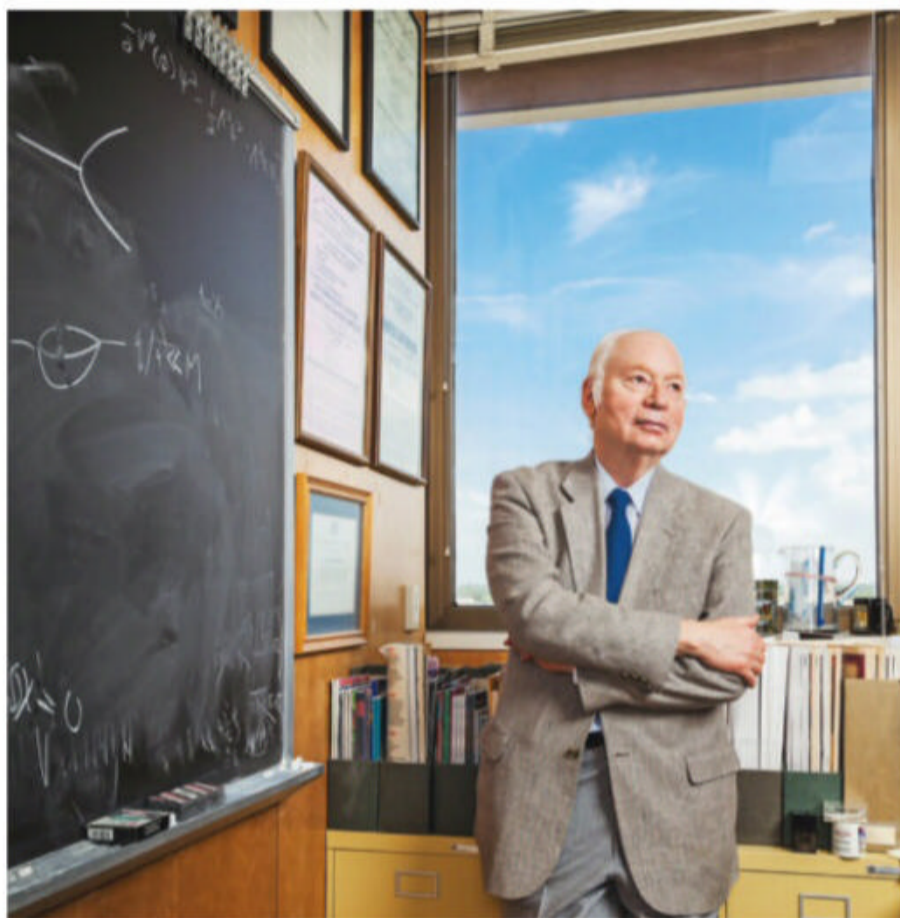
To test if the Inca road, the Incas' main thoroughfare, has boosted modern living standards, the authors split the map into small squares. For four indicators of welfare—wages, nutrition, maths-test scores and years of schooling—they compared levels from 2007-17 in squares crossed by the road with those in neighbouring squares not on its route. On every measure, residents of roadside squares fared better than those in adjacent ones, even after controlling for differences in such factors as the slope of terrain and the presence of rivers. Women gained more than men.

How did the road grant such long-lived blessings? The Spaniards used it to ship silver and turned the warehouses into profit-making shops, often staffed by women (possibly inculcating more equal gender roles). This made land near the road

unusually valuable, encouraging colonisers to settle there. The authors argue that Spaniards who moved in claimed legal title to their landholdings and built schools and new roads in the vicinity, creating enduring property rights and public goods. Today, the presence of the Inca road alone accounts for a third of the observed difference in levels of formal land ownership between dwellers on the road and those in nearby areas. It explains half the difference in the number of schools.

Might modern roads along the corridor explain more of that uplift in welfare than the ancient one? The scholars investigated that, too. The Inca-road squares do have twice as many kilometres of road as adjacent ones do. However, on average, even when comparing squares with similar densities of road, people living in those along the old route earned more money and had more years of schooling.

The builders of the Inca road might be pleased that the areas they improved remain relatively prosperous (though they are poorer than the coast). They would be less happy that one reason is the usefulness of their handiwork to colonisers. But today, the Incas' descendants are also among the beneficiaries of their labour. ■



## Nature's laws

**Steven Weinberg, theoretical physicist, died on July 23rd, aged 88**

AS HE LIKED to tell it, there were three epiphanies in Steven Weinberg's life. The first came in a wooden box. It was a chemistry set, passed on by a cousin who was tired of it. As he played with the chemicals in it, and found that each reacted differently because of atoms, a vast thought struck him: if he learned about atoms, he would know how the whole world worked.

The second epiphany came when, as a teenager, he paid a routine visit to his local library in New York. On the table was a book called "Heat", open to a page of equations. Among them was the elegant, unknown swirl of an integral sign. It showed that with a mathematical formula, and a magic symbol, science could express something as rudimentary as the glow of a candle flame. His third awakening, when he was in his 20s and already a professor of physics, was the discovery that a mathematical theory could be applied to the whole dazzling array of stars and planets, dark space beyond them and, he concluded, everything.

All regularities in nature followed from a few simple laws. Not all were known yet; but they would be. In the end he was sure they would combine into a set of equations simple enough to put on a T-shirt, like Einstein's  $E=mc^2$ . It was just a matter of continually querying and searching. In the strange circumstance of finding himself conscious and intelligent on a rare patch of ordinary matter that was able to sustain life, doggedly asking questions was the least he could do.

His signal achievement was to discover, in the 1960s, a new level of simplicity in the universe. There were then four known universal forces—gravity and electromagnetism, both of which operate at large scales, and the strong and weak nuclear forces, both of which are appreciable only at small scales. Electromagnetism was explained by a quantum field theory; similar theories for the nuclear forces were eagerly being sought.

In quantum field theories, forces are mediated by particles

called bosons; the boson involved in electromagnetism is the photon, the basic particle of light. He and others showed that a theory of the weak force required three bosons: the  $W^+$  and the  $W^-$ , which carried electric charges, and the  $Z^0$ , which did not. The  $W$  particles were at play in the observable universe; they were responsible for some sorts of radioactive decay. The  $Z$  was notional until, in 1973, researchers at CERN, Europe's great particle-physics lab, observed "neutral currents" between the particles they were knocking together. These had never been seen before, and could be explained only by the  $Z$ . In 1979 the Nobel prize duly followed.

In his understated way, he called his contribution "very satisfactory". It was not just that the weak force and the electromagnetic force could be explained by similar tools. At high energies they were basically the same thing.

That triumph of unification increased his curiosity about the only point where such high energies were known to have existed: the Big Bang. In his book "The First Three Minutes", in 1977, he described the immediate aftermath, to the point where the hyper-hot cosmic soup had cooled enough for atomic nuclei to form. He saw early on how deeply particle physics and cosmology were intertwined, and became fascinated by the idea of a universe dominated by unobservable dark energy and dark matter in which ordinary matter ("the stars and the planets and us") was merely "a small contamination". He longed for CERN's Large Hadron Collider to find evidence of dark matter. It caused him lasting frustration that Congress in 1993 had cancelled the Superconducting Super Collider, which was to have been even bigger.

Whatever was found, he was sure it would fit into the simple scheme of nature's laws. Quantum mechanics, however, troubled him. He worried that its determinism implied that the world was endlessly splitting, generating myriad parallel histories and universes in which the "constants" in nature would have different values. Goodbye to a unified theory of everything, if that were so.

Such a unified law would have given him satisfaction but, he knew, no comfort. Nature's laws were impersonal, cold and devoid of purpose. Certainly there was no God-directed plan. As he wrote at the end of "The First Three Minutes", the more the universe seemed comprehensible, the more it seemed pointless. No saying of his became more famous, but the next paragraph softened it: humans gave the universe their own point and purpose by the way they lived, by loving each other and by creating art.

He set the example by marrying Louise, his college sweetheart, devouring opera and theatre, revelling in the quirky liberalism of Austin, where he taught at the University of Texas for almost four decades, and looking for theories in physics that would carry the same sense of inevitability he found so beautiful in chamber music, or in poetry. He still thought of human existence as accidental and tragic, fundamentally. But from his own little island of warmth and love, art and science, he managed a wry smile.

What angered him most was the persistence of religion. It had not only obstructed and undermined science in the age of Galileo and Copernicus; it had also survived Darwin, whose theory of evolution had shocked it more sharply than anything physics did. And it was still there, an alternative theory of the world that corroded free inquiry. For even if the laws of nature could be reduced to one, scientists would still ask: Why? Why this theory, not another? Why in this universe, and not another?

There was, he reflected, no end to the chain of whys. So he did not stop asking or wondering. He liked to review and grade his predecessors, from the ancient Greeks onwards, chastising them for failing to use the data they had, but also sympathising with their lack of machines advanced enough to prove their ideas. The human tragedy was never to understand why things were as they were. Yet, for all that, he could echo Ptolemy: "I know that I am mortal and the creature of a day, but when I search out the massed wheeling circles of the stars, my feet no longer touch the Earth...I take my fill of ambrosia, the food of the gods." ■

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