The Economist

Rise of the creator economy

Spam, scam: organised crime online

Why Warren Buffett should let go

Time to recognise Somaliland

MAY 8TH–14TH 2021

# Govcoins

## The digital currencies that will transform finance

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Protests in **Colombia** raged on, despite the scrapping of an unpopular tax reform that had sparked them and the resignation of the finance minister who championed it. The government responded harshly; the protesters became increasingly violent in turn. At least 24 people have died and more than 800 civilians and police officers have been injured.

**El Salvador's** president, Nayib Bukele, once again displayed his authoritarian tendencies. The legislative assembly, which his party controls, sacked five Supreme Court judges and the attorney-general. Their replacements have links to Mr Bukele, who now controls all three branches of the state. American officials complained, but softly. President Joe Biden's administration wants Central American governments to help it curb migration to the United States.

For the first time since 2005 members of the opposition in **Venezuela** were allowed onto the National Electoral Council. Nicolás Maduro, the dictator, wants to persuade the United States that his regime no longer deserves the sanctions imposed on it.

An election for the regional government of Madrid was a blow for **Spain's** prime minister, Pedro Sánchez. His Socialist party slumped to third place as the conservative People's Party triumphed. The result was even worse for Pablo Iglesias, the national leader of the radical-left Podemos; he had resigned as a deputy prime minister to run in the election, but his party came fifth. The pony-tailed Mr Iglesias said he would quit politics.

The **European Commission** said it would put its efforts to secure the ratification of an investment deal with **China** on hold. The European Parliament is refusing to consider ratification until China lifts sanctions on several of its members, after the EU imposed sanctions on China for abuses against the Uyghurs.

In a nasty row over post-Brexit fishing rights, **France** threatened to cut off the electricity supply to the island of **Jersey**, a British dependency that lies close to the French coast. Britain sent two navy vessels to Jersey to monitor a protest by a flotilla of French fishing boats.

The deadline for Binyamin Netanyahu, **Israel's** prime minister, to form a new government passed, putting his political future in doubt. President Reuven Rivlin asked Yair Lapid, Mr Netanyahu's rival, to try to assemble a coalition.

Ace Magashule, the secretary-general of **South Africa's** ruling party, was suspended from it while he answers charges of graft. Mr Magashule was the focus of resistance to President Cyril Ramaphosa, who has pledged to fight what he called "corrosive corruption" within the party.

The **Democratic Republic of Congo** is imposing military rule on two conflict-ridden provinces in the east following a surge in attacks by militias. Governors and provincial assemblies were suspended for 30 days and replaced by military governors with extensive powers.

Joe Biden raised the cap on the number of **refugees** allowed into America to 62,500 for the fiscal year ending September 30th. The president had been chided by his fellow Democrats when last month he left the cap at 15,000, a historically low bar introduced by Donald Trump. Mr Biden said he would lift the cap again next year. Between October 1st 2020 and March 31st this year, only 2,050 refugees were admitted.

Several companies, including American Airlines and Microsoft, urged the Texas legislature to drop a bill that critics say would make it harder for Texans to vote. Businesses are becoming more vocal in their support for **voting rights** as a number of Republican-leaning states consider similar measures. Florida's legislature recently passed one such bill.

Joshua Wong, a democracy activist in **Hong Kong**, was sentenced to another ten months in prison, this time for taking part in an annual vigil marking the Tiananmen Square massacre. The vigil was banned last year, ostensibly because of covid-19. Mr Wong is already serving time for separate charges. Three others were also sentenced. The vigil is banned again this year.

Results from **elections** in four Indian states revealed that voters are turning away from the ruling Bharatiya Janata Party. Though it won Assam, in the north-east, the party performed abysmally in the important state of West Bengal, where Narendra Modi, the prime minister, had campaigned extensively. The party also lost its only seat in Kerala.

**India's covid crisis** continued to worsen. The country registered its highest daily number of new infections, over 412,000, on May 5th. Half the world's daily reported cases now come from India, as well as a quarter of deaths.

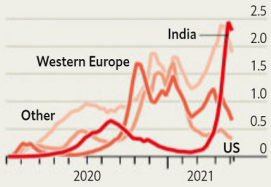
Cases are also rising across **South-East Asia**, with spikes in Cambodia, Laos, Malaysia and Thailand, as well as a handful of locally transmitted cases in Singapore, causing the city to restrict gatherings.

Teodoro "Teddy Boy" Locsin, the **Philippines'** foreign minister, issued a tweet asking China to "get the fuck out" of waters claimed by both countries. Mr Locsin later apologised, after his equally plain-spoken president, Rodrigo Duterte, said that there was no need to be rude.

## Coronavirus briefs

To 6am GMT May 6th 2021

Weekly confirmed cases by area, m




Vaccination doses

| | Total '000 | % of adults with 1st dose | 2nd |
|---|---|---|---|
| Israel | 10,476 | 97 | 91 |
| Bhutan | 481 | 94 | 0 |
| UAE | 10,779 | 82 | 52 |
| Maldives | 413 | 73 | 28 |
| Malta | 352 | 67 | 31 |
| Britain | 50,683 | 67 | 30 |
| United States | 247,769 | 59 | 40 |
| Chile | 15,133 | 58 | 49 |
| Bahrain | 1,302 | 57 | 43 |
| Mongolia | 1,661 | 55 | 26 |

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

The entire Indian delegation to the **G7 summit** in London went into self-isolation when some of their team tested positive for covid-19. The meeting marked a return to face-to-face diplomacy, albeit with distancing measures in place. The **Indian Premier League**, the world's biggest cricket tournament, was suspended after several players tested positive.

Canada approved the Pfizer jab for 12-15 year olds, the first country to endorse a **vaccine for children** under 16. America is ready to do the same.

This month Connecticut, New Jersey, New York and Pennsylvania will end most limits on the **number of people** allowed in shops, offices and so on. Rules on face masks and distancing will remain.

As an incentive to increase the state's vaccination rate, New Jersey is offering a **free beer** to anyone over 21 who gets a first jab in May.

→ *For our latest coverage of the virus please visit economist.com/coronavirus or download the Economist app.*

After 56 years at the helm of Berkshire Hathaway, **Warren Buffett** named Greg Abel to succeed him as chief executive. It is not clear when the 90-year-old Mr Buffett will actually vacate the job. Berkshire's share price underperformed the S&P 500 over the past two years, but has rebounded in the first quarter of 2021, pleasing its legions of investors. Quarterly net income came in at $11.8bn, in part because of the soaring value of investments in Apple and other stockmarket stars.

The announcement by **Bill and Melinda Gates** that they are to divorce after 27 years of marriage sent shockwaves through the world of philanthropy. The deep pockets of the Bill and Melinda Gates Foundation have funded many global public-health projects, often reshaping policy discussions. It invested early in vaccines for covid-19, working with the COVAX initiative to send doses to poor countries.

The Biden administration said it would support an effort to suspend patents for **covid-19 vaccines**, a change in policy that the head of the WHO described as a "monumental moment". Suspending patents might help countries such as India and South Africa to produce generic doses. Drug companies are not happy. They claim this would put more strain on supply chains and hand new technology to China and Russia.

**Facebook's** Oversight Board found that its ban on **Donald Trump** was right, but that the decision should be reviewed in six months. Mr Trump was removed from Facebook after the assault on Congress by his supporters on January 6th. The board said that Facebook's actions against Mr Trump should be proportionate to other users' transgressions.

General Electric's shareholders rejected a **pay package** possibly worth up to $230m for Larry Culp, the chief executive. The vote was not binding, but highlights growing investor frustration at the high rewards some blue-chip companies dished out to executives during the pandemic. AT&T said less than half its shareholders approved a compensation plan for executives. Similar fights are brewing at Amazon, ExxonMobil and elsewhere.

## Loose lips

Janet Yellen, America's treasury secretary, made a swift about-turn and said she was not recommending or predicting a rise in **interest rates**, after she had remarked that rates would have "to rise somewhat to make sure that our economy doesn't overheat". Ms Yellen's initial seeming support for an increase spooked markets. She offered further assurances that she is not worried about persistent inflation, but does think prices will rise in the short term as economic activity picks up.

**America's GDP** grew by 1.6% in the first quarter over the preceding three months, and is virtually back to its pre-pandemic level. With lockdowns reimposed in many places, the **euro zone's economy** shrank by 0.6% in the quarter following a contraction of 0.7% towards the end of 2020, which is technically a recession. Germany's economy was 1.7% smaller in the quarter.


America's **deficit in goods and services** jumped to $74.4bn in March, a monthly record. Imported goods from China soared to $48.2bn, as households flush with stimulus cheques splashed out.

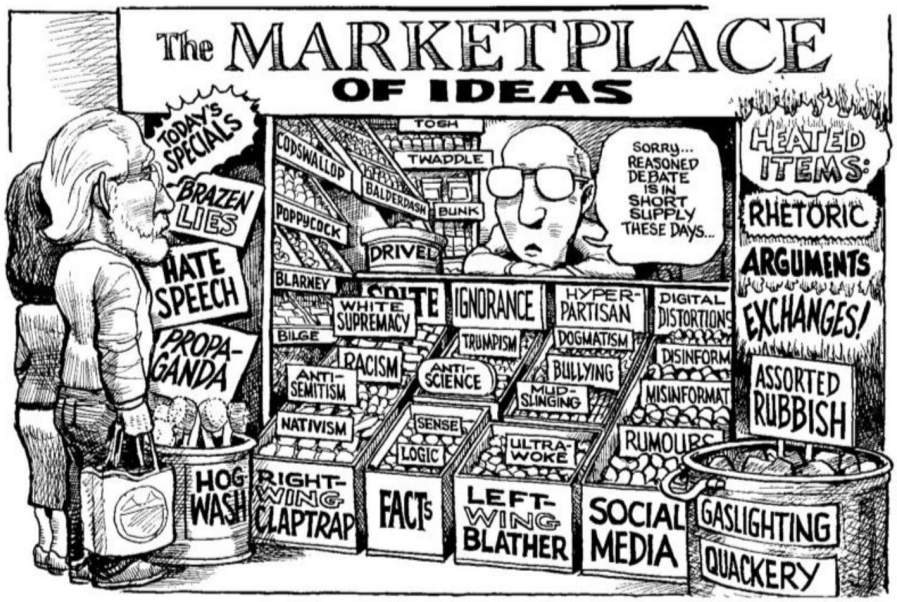
**Telenor**, a telecoms company backed by the Norwegian government, wrote off its entire investment in **Myanmar**, where it is one of the biggest providers of phone services. It blamed the deteriorating security situation since the military coup on February 1st, but said it was not leaving and would continue to operate in the country.

A trial got under way in California to decide whether **Apple** abused its market dominance when it booted Fortnite off its app store last year after the game's owner, **Epic Games**, tried to offer an alternative payment system for enhanced features. The case comes soon after Apple was accused by the **European Commission** of distorting competition in the market for music streaming, following a complaint from Spotify. The tech giant has 12 weeks to respond.

**Darktrace** made a successful stockmarket debut on the London Stock Exchange: the cyber-security company's share price rose by a third, giving it a market value of £2.2bn ($3.1bn). Unconditional trading began on May 6th. The IPO was seen as a test of the demand for tech offerings in the City, after Deliveroo's dud listing a month ago.

## A blast from the past

Still knocking around from their early days as internet trailblazers, **AOL** and **Yahoo** were sold by their current owner, Verizon, for $5bn to Apollo, a private-equity firm. Despite their outmoded image the pair continue to generate sizeable revenues, providing Verizon with $1.9bn-worth in the first quarter. Apollo may try to enhance the sports-related bits of the platforms.



# The digital currencies that matter

**Government-run virtual currencies are coming. They are a giant risk that is worth taking**

TECHNOLOGICAL CHANGE is upending finance. Bitcoin has gone from being an obsession of anarchists to a $1trn asset class that many fund managers insist belongs in any balanced portfolio. Swarms of digital day-traders have become a force on Wall Street. PayPal has 392m users, a sign that America is catching up with China's digital-payments giants. Yet, as our special report explains, the least noticed disruption on the frontier between technology and finance may end up as the most revolutionary: the creation of government digital currencies, which typically aim to let people deposit funds directly with a central bank, bypassing conventional lenders.

These "govcoins" are a new incarnation of money. They promise to make finance work better but also to shift power from individuals to the state, alter geopolitics and change how capital is allocated. They are to be treated with optimism, and humility.

A decade or so ago, amid the wreckage of Lehman Brothers, Paul Volcker, a former head of the Federal Reserve, grumbled that banking's last useful innovation was the ATM. Since the crisis, the industry has raised its game. Banks have modernised their creaking IT systems. Entrepreneurs have built an experimental world of "decentralised finance", of which bitcoin is the most famous part and which contains a riot of tokens, databases and conduits that interact to varying degrees with traditional finance. Meanwhile, financial "platform" firms now have over 3bn customers who use e-wallets and payments apps. Alongside PayPal are other specialists such as Ant Group, Grab and Mercado Pago, established firms such as Visa, and Silicon Valley wannabes such as Facebook.


Government or central-bank digital currencies are the next step but they come with a twist, because they would centralise power in the state rather than spread it through networks or give it to private monopolies. The idea behind them is simple. Instead of holding an account with a retail bank, you would do so direct with a central bank through an interface resembling apps such as Alipay or Venmo. Rather than writing cheques or paying online with a card, you could use the central bank's cheap plumbing. And your money would be guaranteed by the full faith of the state, not a fallible bank. Want to buy a pizza or help a broke sibling? No need to deal with Citigroup's call centre or pay Mastercard's fees: the Bank of England and the Fed are at your service.

This metamorphosis of central banks from the aristocrats of finance to its labourers sounds far-fetched, but it is under way. Over 50 monetary authorities, representing the bulk of global GDP, are exploring digital currencies. The Bahamas has issued digital money. China has rolled out its e-yuan pilot to over 500,000 people (see Finance section). The EU wants a virtual euro by 2025, Britain has launched a task-force, and America, the world's financial hegemon, is building a hypothetical e-dollar.

One motivation for governments and central banks is a fear of losing control. Today central banks harness the banking system to amplify monetary policy. If payments, deposits and loans migrate from banks into privately run digital realms, central banks will struggle to manage the economic cycle and inject funds into the system during a crisis. Unsupervised private networks could become a Wild West of fraud and privacy abuses.

The other motivation is the promise of a better financial system. Ideally money provides a reliable store of value, a stable unit of account and an efficient means of payment. Today's money gets mixed marks. Uninsured depositors can suffer if banks fail, bitcoin is not widely accepted and credit cards are expensive. Government e-currencies would score highly, since they are state-guaranteed and use a cheap, central payments hub.

As a result, govcoins could cut the operating expenses of the global financial industry, which amount to over $350 a year for every person on Earth. That could make finance accessible for the 1.7bn people who lack bank accounts. Government digital currencies could also expand governments' toolkits by letting them make instant payments to citizens and cut interest rates below zero. For ordinary users, the appeal of a free, safe, instant, universal means of payment is obvious.

It is this appeal, though, that creates dangers. Unconstrained, govcoins could fast become a dominant force in finance, particularly if network effects made it hard for people to opt out. They could destabilise banks, because if most people and firms stashed their cash at the central banks, lenders would have to find other sources of funding with which to back their loans.

If retail banks were sucked dry of funding, someone else would have to do the lending that fuels business creation. This raises the queasy prospect of bureaucrats influencing credit allocation. In a crisis, a digital stampede of savers to the central bank could cause bank runs.

Once ascendant, govcoins could become panopticons for the state to control citizens: think of instant e-fines for bad behaviour. They could alter geopolitics, too, by providing a conduit for cross-border payments and alternatives to the dollar, the world's reserve currency and a linchpin of American influence. The greenback's reign is based partly on America's open capital markets and property rights, which China cannot rival. But it also relies on old payments systems, invoicing conventions and inertia—making it ripe for disruption. Small countries fear that, instead of using local money, people might switch to foreign e-currencies, causing chaos at home.

### New money, new problems

Such a vast spectrum of opportunities and dangers is daunting. It is revealing that China's autocrats, who value control above all else, are limiting the size of the e-yuan and clamping down on private platforms such as Ant. Open societies should also proceed cautiously by, say, capping digital-currency accounts.

Governments and financial firms need to prepare for a long-term shift in how money works, as momentous as the leap to metallic coins or payment cards. That means beefing up privacy laws, reforming how central banks are run and preparing retail banks for a more peripheral role. State digital currencies are the next great experiment in finance, and they promise to be a lot more consequential than the humble ATM. ■

Gun laws in America

# Bearing harms

**Permitless-carry gun laws are misguided and should be scrapped**

EVERY AMERICAN state requires you to have a licence to drive a car, hunt or become a barber. Yet by the end of this year at least 20 states will allow you to carry a handgun in public without a permit. So far in 2021 five have already passed "permitless carry" laws, and five more, including Texas and Louisiana, are considering them. If these became law, around a third of Americans would live in states where it was legal to carry guns around without any need for a licence or training.

Anyone who considers the 181 mass shootings that have taken place in America since January, or the recent spike in violent crime, would be forgiven for wondering why some states want fewer restrictions on guns, rather than more. The pro-gun lobby, including the National Rifle Association (NRA), argues that having more armed civilians will help boost public safety, making it more likely that "good guys" with guns can intercept "bad guys" with guns. With the help of Republican state legislators, they are advancing an interpretation of the Second Amendment which imagines that America's founders intended no restrictions on guns or gun ownership whatsoever. Backers of permitless carry call it "constitutional carry" to make it seem legitimate and to appear to give it a pedigree.


Do not be fooled. Permitless carry is a radical departure from tradition and should be opposed. One reason is that the gains to gun owners are trivial. In most of the states considering permitless carry, it is already possible to be armed with a handgun concealed in public if you have a licence (see United States section).

Obtaining a licence is hardly onerous, given what guns are capable of. Applicants are often required to do training and to pass a shooting test. Searches help screen out people who should not be trusted with a gun, such as those who have committed violent crimes or who have a history of mental illness.

Doing away with these conditions is not in the public interest. Just as communities are made safer by drivers being required to pass tests before they can legally operate a car, so it makes sense for people to learn how to use a lethal weapon and impose restrictions on when, where and how they can carry guns around. In most places where permitless carry is being considered, police forces have spoken out against it, because it would make their jobs harder and more dangerous.

The NRA has spent the past 20 years successfully loosening gun laws. The latest wave of deregulation was "shall issue" requirements for gun licences, giving officials less discretion about when to withhold them. A study of these laws by researchers at Stanford found that they resulted in a 13-15% increase in violent crime in the decade after they came into force. By the same logic, permitless carry would also probably cost lives.

Permitless carry is also a misreading of history. Romanticising America as a country that intended no restrictions on guns is incorrect. In the 19th century, most Southern states had stricter gun laws than they do today. Even in Wild West settlements like Tombstone, Arizona, newcomers had to leave their guns on the outskirts of town or register them with the sheriff. A century ago the NRA backed permitting laws as a way to promote responsible gun ownership and helped draft the country's first federal gun-control laws in the 1930s. By arguing for permitless carry, it is not faithfully adhering to the past but drifting further towards an extreme.

America is the world leader in gun-ownership, with about six times the rate of France and Germany, and more than double war-torn Yemen, which comes second. The rate of violent gun-deaths is perhaps 100 times higher than in Britain. Most of America's peers impose stricter laws—even gun-friendly Switzerland and Canada. Because of the near-permanent deadlock in Congress, the federal government will not pass sensible gun reforms. It is up to the states to take responsibility for the welfare of their citizens. Permitless carry will only do them harm. ■

Warren Buffett

# Time's up

**The Oracle of Omaha should look to the future and step aside at Berkshire Hathaway**

AT 90, WARREN BUFFETT continues to lead Berkshire Hathaway, wearing the three hats of chief executive, chairman and chief investment officer. For years, the question of whom the feted investor would anoint as his successor to run the giant conglomerate has been the subject of boardroom gossip. The world now knows the answer, though only because of a slip of the tongue by Mr Buffett's 97-year-old right-hand man, Charlie Munger, at the annual shareholders' meeting on May 1st (see Business section). That forced Mr Buffett to confirm that his heir apparent as chief executive is Greg Abel, 58, a trusted lieutenant who runs Berkshire's non-insurance businesses.

The cack-handed way in which the succession plan became public fits a bigger pattern. Berkshire is a huge public company, with a stockmarket value of $645bn and an army of devoted retail investors. It is, though, structured and run in much the way it was when Mr Buffett took it over in the 1960s. He has never hidden his reluctance to retire. He once joked that he'll step down five years after he dies. However, Berkshire needs to make changes if it is to keep up with the times—and that includes having a new person at the top.

That is not to denigrate Mr Buffett or his achievements. In his 56 years in charge, Berkshire's total returns have been double ▸▸

those of the S&P 500 index. He can claim to be the greatest value-investor who ever lived. He has instilled an admirable trust-based culture at Berkshire. The dozens of fawning books he has inspired constitute their own genre of business publishing.

However, cracks have started to appear. One is Berkshire's financial performance, which has been mediocre over the past decade. Mr Buffett has made some costly mistakes, such as bad bets on airlines and Kraft Heinz, a consumer-goods giant. He has admitted to overpaying for acquisitions, including a big metal-parts-maker that later wrote off $11bn. Were it not for a valuable stake in Apple, the bottom line would have looked limper still. Suspicion is growing that Mr Buffett has lost his magic touch in allocating capital, perhaps because, like other star fund managers, he is too big to outperform the market by much.

Berkshire's governance needs rethinking, too. For all the autonomy its divisions enjoy, Mr Buffett still has to sign off on the big decisions. He has special shares with greatly enhanced voting power. The board is stacked with Friends of Warren; five of its 14 members are 89 or over. Berkshire's failure to write or disclose its policies on investor priorities such as climate risk and diversity irks some shareholders, including big institutions like BlackRock. When investors called Buffett-style governance "unique" they used to mean it as a compliment. No longer.

The company's lousy disclosure looks out of step with the times, too. Berkshire offers little beyond mandatory filings and the occasional press release. It does not hold analyst meetings or investor days; it does not even have a functioning investor-relations department. The closest thing to outside scrutiny it tolerates is the three hours of friendly shareholders' questions, teed up by a genial reporter from CNBC, at the annual conclave.

The company needs to start dealing with these deficiencies now, or face the increased risk of a drama—such as an attempt by activist investors to break up Berkshire, or a regulatory rumble—when Mr Buffett does eventually leave. There is no need to stoop to the box-ticking corporate conformity that he so loathes, an aversion reflected in his public criticism of the metrics and questionnaires wielded by ESG campaigners.

**Get the job done, Warren**

New blood and greater openness would be a good start. Naming a successor is a first step. The next should be to replenish the board with outside appointments. Investors must get the information they need to make informed decisions, including analysis of where the firm is creating value, and the tax and other synergies that justify keeping the conglomerate intact.

The biggest question of all is when Mr Buffett should go. He may want to die at his desk, but the longer he stays, the more he risks becoming a liability. He said at this year's AGM that bad leaders are the biggest risk companies face. Good leaders who stay too long are not far behind. Mr Buffett has had a wonderful run. But now that the succession is out in the open, it is time to move aside and let Mr Abel fix what isn't working. ■

Somaliland

# A state of one's own

**After 30 years of running itself, Somaliland deserves international recognition**

SOMALILAND'S FIRST stab at independence lasted less than a week. Pipers of the Royal Highland Fusiliers were ordered to play the new state's national anthem at a ceremony in Hargeisa, the capital, marking the end of British colonial rule in June 1960. On discovering that it did not have one, the bandmaster cobbled together a medley of local folk tunes, and conducted it with brio. A day later, however, Somaliland's parliament passed an act of union with Somalia, a former Italian colony to its south, and Somaliland officially was no more.

It was a catastrophic mistake. Within a decade the new Somali Republic had collapsed. Its president was assassinated by his bodyguards. A Marxist junta seized power, led by Siad Barre, a general-turned-dictator. He abolished democracy and wrecked the economy by nationalising nearly everything except camel herds. He also launched a disastrous war against Ethiopia. When the northerners rebelled, he bombed Hargeisa, killing thousands of civilians. As Somalia disintegrated into clan warfare, Barre refused to negotiate, saying: "When I leave Somalia, I will leave behind buildings but no people." He was not far off the mark. By the time he fled, in 1991, the country had plunged into chaos from which it has yet to emerge.


Somaliland unsurprisingly wanted out. Its elders agreed to break away from the rest of Somalia in 1991 at a "Grand Shir", or gathering of clans, held in a small town in the desert. Since then, Somaliland has become a functioning state in all but name, with 4.5m people on an area bigger than Florida. It has been largely peaceful (see Middle East & Africa section). It controls its borders and its territory, unlike Somalia's government, which controls little more than its capital city, and that only thanks to 20,000 foreign peacekeepers. Whereas Somalia has not held a direct election since the 1960s, Somaliland periodically votes for its president and lawmakers, even if polls are marred by attacks on the press and take place less often than they should.

Yet in the eyes of the world Somaliland remains part of Somalia. For longer than most of its people have been alive, its pleas for recognition as an independent state have been ignored. The world defers on this to the African Union, the continental arbiter. It, in turn, argues that Somaliland can win independence only with the consent of Somalia, which says no.

The obvious objection to recognising Somaliland is that redrawing maps is perilous. This is especially so in Africa, where borders thoughtlessly imposed in colonial times separate countless clans and ethnic groups from their kin. Untangling this mess would be so tricky that a consensus long ago emerged: leave the map as it is.

Once you start moving borders or creating new states for this or that group, others will demand their own homelands, too, and blood will surely flow. Witness Africa's two newest breakaway countries, Eritrea and South Sudan, which have become a gulag state and a war zone. Were Somaliland to win independence,

people in other bits of Somalia might try to break away, too, as would ethnic groups in Ethiopia, the regional power.

For all these reasons, Somaliland's case will not prevail soon. Yet it deserves a hearing. It is not seeking to redraw borders from scratch, but to revert to old ones. Some 97% of its people supported independence in a referendum in 2001. Scottish and Catalan nationalists can only dream of such unanimity. Most Somalilanders have known nothing but self-rule and would never consent to reintegrate with their bloody, anarchic suzerain.

Meanwhile, denying them recognition imposes severe human costs. Somalilanders cannot travel freely, since few countries accept Somaliland passports. They are poorer than they should be, since their government does not have the status to make trade deals or borrow directly from the World Bank or the IMF. Statehood would help fix some of these problems.

Ideally, Somaliland's separation should be achieved with the agreement of Somalia. For the time being this seems far-fetched. But Somalia should be encouraged to grant a divorce with promises of aid and debt relief from the donors who already bankroll its government and pay for the peacekeepers who prop it up. If, like an abusive spouse, Somalia refuses to let go, Somaliland should not be held hostage. Other countries should recognise it, and international organisations should treat it like a state.

Were Somaliland to win formal independence again, its road ahead would be hard. But the odds of flourishing would be much better this time. It now has not only a breezy national anthem but also a 30-year record of reasonably successful self-rule. To recognise that is to recognise reality. ■

German law and climate policy

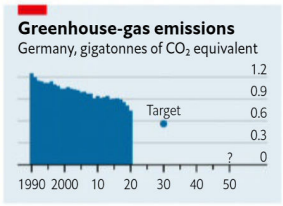
# The power of negative thinking

**How to make long-term emissions pledges add up**

THE CLIMATE law that the German government passed in 2019 required a cut in greenhouse-gas emissions of 55%, from levels in 1990, by 2030. Climate activists saw this as insufficient. They took the government to court on the basis that, by not treating climate action seriously enough, it was denying basic rights to citizens of the future.

The court has now rejected the more ambitious aspects of that complaint. But its ruling at the end of last month did nevertheless find fault with the law. Although the target for 2030 was not in itself deemed to be inadequate, the court decided that it does pose a problem in the context of the law's longer-term aspiration to "net zero" emissions in 2050. The combination of the two pledges seemed to allow governments to impose a greater share of the total burden of decarbonisation on the future. The burden is all the heavier when you consider that the low-hanging apples are usually the first to be picked.

For justice to be done, the court ruled, there must be intermediate targets. It asked for details of them by the end of 2022. The immediate response, across all parties, was to talk of increasing ambition both in the near term and the longer term: a 65% cut by 2030, net zero by 2045 (see Europe section).




To achieve that would presumably require a quick end to the internal-combustion engine, long a wellspring of national engineering pride—and exports. Germany's coal phase-out would have to accelerate. And massive infrastructure development would be needed to support the Achilles heel of the country's renewable-energy infrastructure: its vulnerability to *kalte Dunkelflaute*, the cold, dark doldrums in which sun and wind abandon the land but the hearth must stay warm.

Germans—rich, green and technically adept—may find ways to accomplish all this. Or they may not. Over the past decade they have been quite happy to close down their fleet of emissions-sparing nuclear power plants. It would be odd if a long-standing aversion to nuclear power should prove to be the only political objective the country turns out to put ahead of its commitment to climate action.

However, the court's reservation also applies well beyond Germany. A near-term goal, expressed as a reduction in emissions with respect to some historical baseline, and a longer-term goal expressed as a date at which they intend to reach net-zero emissions, is increasingly the norm for countries seeking to take the climate seriously. These net-zero goals do not commit a country to a specific level of emissions, but to developing "negative emissions" on a scale that will cover whatever it does end up emitting. This makes what is actually being called for in terms of reduction between 2030 and 2050, or in some cases 2060, impossible to assess. It thus makes the fairness of requiring that effort from future generations impossible to judge.

This is a gateway to endless fudge. Notional negative emissions are based on forestry, new agricultural practices, rewilding and various technologies that suck carbon from the atmosphere and store it underground. Because they can be invoked to make up any shortfall in emission cuts, some activists are sceptical of including them in targets.

Blanket doubt is unreasonable. Net-zero thinking makes geophysical and economic sense. Some emissions will surely prove so hard to abate that it will be cheaper to develop technologies to suck an equivalent amount of warming potential out of the air. And if that balance can be achieved globally, the concentration of greenhouse gases in the atmosphere will stabilise and the warming stop. That is why the Paris agreement of 2015 treats net-zero as a second-half-of-the-century goal.

But net-zero thinking is troublesome, even so. It allows the ultimate scope of emission cuts to remain undefined and sweeps all the uncertainties under a carpet of techno-optimism. To keep governments honest, voters and activists around the world need to echo the German court's order.

They should insist that governments show how they will create negative emissions in just and robust ways—so, no afforestation on poor people's land simply because you can and no double counting or leaky carbon reservoirs. And they must insist on good-faith estimates of the negative emissions governments are banking on. That way they can tell if they are feasible and see what cuts will be needed in five, ten or 15 years' time. ■

### A necessary relationship

Business has always been entwined with politics in America ("The political CEO", April 17th). Our cultural narrative likes to view politics as being separate, and for only fair pursuits. But take the constitution. Michael Klarman's "The Framers' Coup" sketches the urgent commercial interests of the colonies, which ditched freedoms that obstructed trade from the preceding Articles of Confederation. And Sam Thomas, the curator of the T.R.R. Cobb House museum in Athens, Georgia, reminded us in *Harper's* recently that slavery was not always a predominately moral issue. For many people in the 1800s it was the economics that mattered. An equally racist north bristled at the business advantage of free slave labour in the south, which limited the north on everything from international trade to westward expansion.

Trying to put a border between business and government is a non-starter. It is critical we understand this if we want to tackle ethical issues like climate change and racism; solving them is not the preserve of government.

MARTIN GIESBRECHT
*Villa Hills, Kentucky*

It's a little rich to write, after the past several decades of American political life, that businesses are suddenly too involved in politics. The Clear-Channel Radio network organised nationwide pro-war rallies before the invasion of Iraq, and led a boycott of the Dixie Chicks when the singers dared say they were embarrassed by George W. Bush. Hobby Lobby fought to remove contraception from corporate health care. Agriculture and oil firms co-write legislation in Congress. That a few companies pay lip service to voting rights is notable only as PR.

Treason is bad for the brand. Racism is bad for the brand. Businesses are distancing themselves from politicians now because they see that the majority of consumers overwhelmingly oppose Republican attacks on fair elections. The real question is why companies are more accountable to the opinions of the electorate than Republican lawmakers.

CHRISTOPHER BENZ
*Portland, Oregon*

Myths have persisted about what Milton Friedman said in his famous essay in the *New York Times*. American executives in fact were already well aware in 1970 that generating profits for shareholders was the primary objective of the corporate enterprise. The famous *Dodge v Ford Motor Co* case in 1919 made this point clearly. Friedman himself said very little about what executives should seek to achieve and did not mention shareholder value. His essay instead focused on what corporate executives should not be doing—spending their corporations' money in accordance with supposed social responsibilities. The points he made on this count remain as salient now as they did 50 years ago.

BRIAN CHEFFINS
Professor of corporate law
University of Cambridge

I found much of the argument made by Sherrilyn Ifill to be rather disingenuous (By invitation, April 16th, digital editions). Ms Ifill wants to add issues to the corporate social responsibility agenda, including voting rights. But her list plainly does not embrace opposition to the policies of the Marxist groups that have sprung to prominence since the death of George Floyd. Nor will it include the religiously minded stand against late-term abortion, nor the constitutional position of supporting gun rights, nor any right-of-centre position held by millions of Americans.

What Ms Ifill wants is a fallacy of companies pushing for a better democracy, but in practice for her side only. Ms Ifill must accept that mixing business with politics cuts both ways, not just her way.

LUKE CLAPSON
*Sydney*

### Investment in Saudi Arabia

Referring to $106bn of foreign direct investment into Saudi Arabia over the past decade ("The prince's big bet", April 24th) obscures the fact that from 2015 to 2019 net inflows from FDI totalled a paltry $26bn, according to the World Bank. The recently announced FDI target of $500bn over ten years appears an even steeper sand dune to climb. In addition, the Saudi sovereign-wealth fund aims to generate 1.8m direct and indirect jobs by 2025. The government wants to do this in part by replacing expatriate workers with Saudi jobseekers. A directive announced in April required shopping malls to hire only Saudi citizens, a scary policy.

ROBERT MOGIELNICKI
Resident scholar
Arab Gulf States Institute
*Washington, DC*

### Crowds and cattle

Francis Galton's description of an ox-weight guessing contest at a livestock show in 1907 is often misrepresented as an early step in crowdsourcing ("Welcome to the Cosmic Bazaar", April 17th). Galton did not make a case for the wisdom of crowds. He used the median estimate because it "expresses the vox populi", not because it was accurate. In fact, 40-60 of the guesses in that contest were more accurate than the median.

DAVE SIEV
*Ames, Iowa*

### What is it good for?

Should women also be required to register for the military draft in America ("Gender war", April 10th)? A better question is why anyone should register? The draft was abolished in 1973, but the government still spends millions of dollars each year retaining a database of young men of fighting age. If this isn't an example of a useless government programme that refuses to die, I don't know what is.

DAVID PERRY
*Chicago*

### Football crazy

Well done. You scored three goals against the European Super League in just one issue (April 24th). Bagehot opened the scoring by pandering to Boris Johnson's populist instincts against the league, Lexington put the second in the net by raving on against the Americanisation of European sports and you sealed your hat-trick by making a case against the ESL in "They think it's all over", your business piece. Liberalism and capitalism must truly be on their way out when even *The Economist* rages against "greed". You romanticised a model of football that no longer exists.

ANDREJ BELOGLAVEC
*Ljubljana, Slovenia*

You used a typical English eye-rolling reference to football as "what Americans insist on calling soccer". In fact, the term originated in England. Elite students in the mid-19th century called association football "assoccer" to distinguish it from "rugger", rugby football. The term was shortened to soccer and took off in America to differentiate it from American football. One might ask the publishers of Britain's oldest football magazine why they insist on calling it *World Soccer*.

BOB GOUDREAU
*Cary, North Carolina*

Lexington compared a cold football night in Stoke to a corresponding baseball game in Pittsburgh. As a native of Pittsburgh, I should be offended. However, as it was not long ago that the Pittsburgh Pirates set a North American record for any professional sports team of 20 consecutive losing seasons, I guess I have to go softly into the night.

ED ARNOLD
*Pittsburgh*

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# Serfing the web

**Social-media platforms used to get most of their content for free. Now creators command a price, and online power is shifting**

"Look at you down there, trying to run for your life," jeers Summer Solesis, peering down at the camera. "You don't stand a chance against my giant, size 11 feet!" Standing over her phone, she pretends to stamp on the viewer, who gets the effect—sort of—that Ms Solesis is a "giantess with dirty feet getting rid of the tiny men infesting my house", as one video is captioned. The production quality is low-fi, but viewers seem not to mind. "Unforgettable sweet crushing," swoons one fan, Sven, in the comments below.

The pseudonymous Ms Solesis, a personable 26-year-old Floridian, reinvented herself as an online "foot goddess" last March after covid-19 did for her restaurant job. "My mom's just always told me I had pretty feet," she says. So "I was just like, well, let's see if the internet thinks I have pretty feet." It did. On Instagram she gained 20,000 followers. Some offered money for personalised photos and videos. A few months later she joined OnlyFans, a London-based subscription platform. About 50 people around the world pay $10 a month for Ms Solesis's newsfeed, adding up to around $5,000 a year after OnlyFans takes its 20% cut. She roughly doubles that with tips and merchandise, including unwashed socks ($10 per day worn).

In the past decade anyone with a phone has become a potential content creator. Cameras have got sharper, processors more powerful and networks faster. Apps can improve even the shoddiest content. Instagram, launched in 2010, provided filters that made ordinary photos look cool. TikTok has made it as simple to edit video. In April Facebook unveiled recording tools that aim to do for amateur podcasters what Instagram did for bad photographers. The internet's limitless, free distribution and searchability has made it possible for this output—videos, music, jokes, rants and all manner of things that defy categorisation—to find an audience, however niche.

Yet apart from a few megastar "influencers", most creators receive no reward beyond the thrill of notching up "likes". Facebook, the world's largest social network, has built a $92bn-per-year advertising business by selling space alongside posts by its 2.8bn happily unpaid user-suppliers. Twitter makes $3.4bn a year flogging ads among the free editorial typed by its 350m contributors. Being on the platform can feel like "the greatest unpaid internship of all", Samhita Mukhopadhyay, an American journalist, recently tweeted.

But the serfs tilling the internet are increasingly finding that their output can command a price, with the effect that some of the internet's most successful companies are being forced to adapt their business model. New platforms are offering creators ways to capture the value of their output for themselves, as Ms Solesis did when she moved from Instagram to OnlyFans. Bloggers and tweeters are moving their musings to paid newsletter services like Substack; amateur video-game makers are selling their pixelated creations on platforms like Roblox; viewers are paying to watch experts play them on streaming services like Twitch, owned by Amazon.

The upstarts are forcing incumbents such as Facebook to compensate users for the unpaid work they may not have realised they were doing. And they are helping professional creators, who once relied on middlemen, reach their audience directly.

The abundance of content in the internet age has meant that the success of online media platforms has depended on

their ability to help users discover it. Rather than commissioning videos or articles, they have focused on building algorithms or content-management systems which serve users the best of others' creations.

One consequence of the internet is that "value has shifted away from companies that control the distribution of scarce resources to those that control demand for abundant ones," writes Ben Thompson, author of the tech newsletter, Stratechery, who calls such firms "aggregators". Because the platform sets the conditions for a piece of content's success, via its algorithm, suppliers have to adapt to its rules, thus commoditising themselves. In this world of abundant supply, content providers become as interchangeable, and have as little bargaining power, as Uber drivers.

### All things are become new

Yet something in this model is changing. Though there is more content than ever, platforms are competing harder than ever to get it. "There's an arms race to acquire creators," says Li Jin, founder of Atelier Ventures, a venture-capital firm. Startups are developing new ways for creators to monetise their work. Substack gives writers 90% of the subscription fees they charge for newsletters; together its top ten authors earn more than $15m a year. Twitch gives its game streamers more than half of its subscription fees, plus a cut of ad revenue and the money paid to "cheer" their performance. Cameo, a platform on which 40,000 celebrities sell personalised videos to fans, passes 75% of the spoils to contributors. Brian Baumgartner, an actor in "The Office", an American sitcom, was its top earner last year, making over $1m. Clubhouse, a social-audio app, allows tips and has an "accelerator programme" for promising hosts. It plans to test features such as tickets and subscriptions.

In response, platforms that once paid little or nothing to creators are ponying up. Companies "need to either offer some way to monetise that content on-platform, or...they'll become just a promotional hub, where people essentially advertise the content that they're monetising on other platforms," says Josh Constine of SignalFire, another venture-capital firm.

Twitter was in danger of becoming a promotional tool for Substack writers and Clubhouse broadcasters. It is now trying to beat both at their own game. In January it bought Revue, a newsletter firm, and cut its commission to 5%, half Substack's. On May 3rd it added Spaces, a Clubhouse-like audio feature; soon it will let users sell tickets to chats they host. The ability to sign up for a newsletter or join an audio room directly from Twitter, without the friction of moving apps, gives the company an edge over its startup rivals, says Mark Shmulik of Bernstein, a research firm.

Facebook is also trying to make creators stick around. Last year it made paid subscriptions widely available and enabled tips. It is now testing a Cameo-like feature called "Super", a Substack-esque newsletter platform, and is paying gamers big bucks to join Facebook Gaming, its tribute to Twitch. In all, it says, the number of content-makers earning over $1,000 a month on the platform almost doubled in 2020.

"In developing all of these things, we're actually really focused on the creator side, even more than on the consumption side," said Mark Zuckerberg, Facebook's boss, in a recent interview with Casey Newton, author of the Platformer newsletter. In an effort to attract more of them, it is offering creators not just money but power: newsletter authors will own their recipient list and be able to take it to another platform, the equivalent of being allowed to move one's Facebook friends over to Twitter.

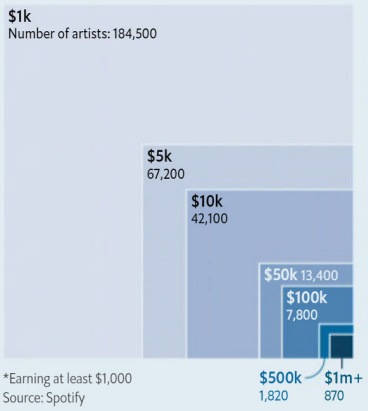
YouTube, which has long given regular video-posters a 55% cut of ad revenue, is developing new features including tips in the form of paid "applause". It says the number of channels joining its paid "partner programme" in 2020 was more than double that in 2019. In all it has paid contributors $30bn in ad-revenue shares and subscription fees in the past three years, far more than any other social platform. Last year TikTok, a short-video app, launched a "creator fund" which it says will dispense more than $2bn to users in its first three years. Douyin, its Chinese twin, is investing $1.5bn with the aim of doubling its creators' revenues. Snapchat, another social-video app, last year launched Spotlight, a sharing feature through which it is paying $1m a day to the creators of its most popular clips.

Newer types of media are joining in. Douyu and Huya, China's largest game-streaming platforms, each paid out ¥7.1bn ($1.1bn) to streamers last year, 31% more than in 2019. Spotify and Apple, the two biggest podcast platforms, are wooing amateur broadcasters. Last month Apple announced that it would let podcasters charge subscription fees, of which it would take a 30% cut for the first year, then dropping to 15%; days later Spotify followed suit—but said creators could keep the lot (from 2023 it will take 5%).

As platforms fight over the most popular content, bargaining power is being transferred to the people who make it. Simon Kemp of Kepios, an internet research firm, compares platforms' negotiations with top creators to TV networks' wrangling with the cast of "Friends" over each season's contracts. Many offer better terms to their most successful creators: Twitch reportedly pays a higher share of subscription revenues to its top streamers; Substack offers advances to writers it believes will be a hit. The share of revenue that creators can earn seems to depend on how easily they could leave. Moving one's email list away from Substack is simple, so the firm lets writers keep 90% of their revenues. Game-makers on Roblox, who are

**Sing a song for sixpence**

Spotify, number of artists* by value of annual royalties, 2020

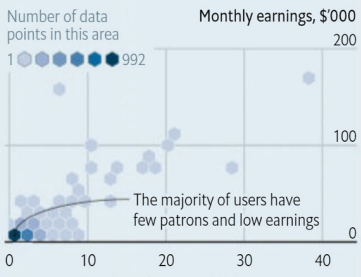



**Winner takes all**

Roblox, share of players by game, % of total

May 5th 2021


Patreon, number of patrons* and earnings




Sources: Ran Mo; Roblox; Graphtreon

*Users with over 500 patrons. March 24th 2021

basically stuck there, keep about 25%.

The dancers of TikTok and pranksters of YouTube, whose popularity rises or falls on the tweak of a recommendation algorithm, may seem easily replaceable. In reality, the opportunities for interaction with online stars may make their audiences more loyal than those of other celebrities, Mr Kemp points out. Jennifer Aniston and her buddies were in people's sitting rooms for half an hour a week. Charli D'Amelio, TikTok's top bopper, is in their pockets all day. "After a decade of building their audiences, a class of Super Creators have emerged that have leverage over their aggregators," wrote Rameez Tase, head of Antenna, an audience-measurement company, in a recent blog post. "They simply built such large, engaged audiences that those audiences would follow them anywhere."

### A great multitude

Yet what of those creators with more modest followings? A few online stars earn megabucks, but the tail is long (see charts on previous page). Spotify says it wants to give "a million creative artists the opportunity to live off their art". But only about 0.2% of the 7m-plus musicians on the platform make more than $50,000 a year in royalties; just 3% make more than $1,000. There are 20m gaming "experiences" on Roblox, but nearly 15% of all play takes place on one game, "Brookhaven RP", according to analysis by Ran Mo of Electronic Arts, a game developer. On Patreon, where people can subscribe to creative services of all sorts, 200,000 creators earn a total of $1bn a year. The top earner makes around $2m, but about 98% make less than the federal minimum wage of $1,257 a month.

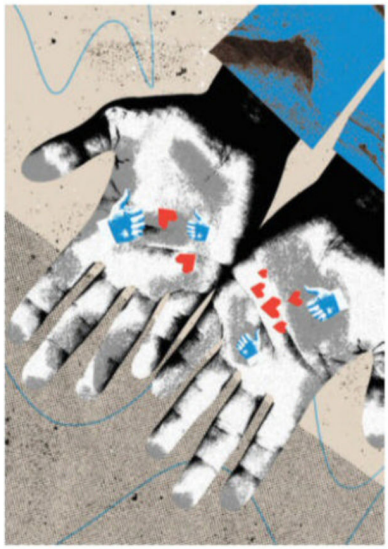
The main way to monetise online content has been advertising. Making real money requires a huge audience: even 1m views on YouTube might make the poster only about $2,000. Some types of content attract even lower ad rates. PornHub says its amateur contributors earn an average of $0.60 per 1,000 views; 1m hits would net just $600. Ads can make megastars rich, but cannot provide a living for small-time foot goddesses and other niche creators.

The trend towards subscriptions, and other models of monetisation, is changing that, bringing with it the possibility of a creator middle class. Consider Craig Morgan. The sports journalist was laid off last year by the *Athletic*, an online publication, after the pandemic put live sport on hold. A friend suggested he try writing a newsletter. AZ Coyotes Insider was launched on Substack in July. Its detailed updates about a single National Hockey League team—everything from goaltender Darcy Kuemper's knee injury to the immigration woes of defenceman Ilya Lyubushkin—are not designed for a wide audience. But with a subscription model, they don't need one.

Ten months on, Mr Morgan has more than 1,000 people paying a minimum of $5 a month (about 18% voluntarily pay more, he says), close to his old salary on the *Athletic*. Mr Morgan misses bouncing ideas off colleagues, and the safety-net of an editor. But he can write what he likes—and, he adds, "No one can lay me off anymore."

Mr Morgan is a living example of the observation in 2008 by Kevin Kelly, a technology writer, that any artist could make a living with just "1,000 true fans" willing to spend $100 a year or so on whatever the creator makes. With that, he wrote, "You can make a living—if you are content to make a living but not a fortune." The broadening range of online monetisation methods is making it easier to wring that sort of money out of devotees. Video-gamers can top up the money they make from streaming by working as paid wingmen on gaming platforms such as China's Heizhu Esports. Some creators see non-fungible tokens, a method of certifying digital creations, as a way to earn more from their superfans. With platforms like Teachable or Podia, which deal in pricey online courses, creators can plausibly get by with more like 100 true fans, Ms Jin reckons.

The more possible it becomes to make a living out of online content, the more precarious becomes the position of the companies that have acted as intermediaries between creators and consumers. Newspapers, which solved a physical distribution problem that no individual writer could hope to overcome, are one example. Substack's leaderboard includes journalists such as Glenn Greenwald and Matthew Yglesias who have found that readers are willing to pay them far more than the outlets that used to employ them (and that newsletters give them greater editorial freedom, too). Some newspapers, most recently the *New York Times*, have forbidden writers from launching personal newsletters without permission. A tyrannical few deny their writer-serfs bylines, ensuring that the value from every article accrues to the brand and not the author.



Record labels are another endangered middleman. They have historically taken care of turning a song into a hit, in return for an ongoing share of revenues. But more and more artists are going it alone. More than 60,000 new songs are uploaded to Spotify every day, most by bedroom-based rockstars who can use new online services to handle the logistics themselves. UnitedMasters, a music-distribution platform which bills itself as "a record label in your pocket", recently raised $50m in a venture-capital round led by Apple. Tools like Splice make recording easier. Companies like Fanjoy take care of merchandise.

And financing is getting simpler. One startup, HIFI, helps artists manage their royalties, paying them regularly and fronting them small sums to make up shortfalls. Another, Karat, extends credit to creators based on their follower count. Helped by such services independent artists took home 5.1% of global recorded music revenues last year, up from 1.7% in 2015, calculates MIDiA Research, a consultancy. In the same period the share of the three largest record labels fell from 71.1% to 65.5%.

### What has been will be again

Just as the internet allowed brands to bypass physical shops and sell directly to customers online, social platforms "offer a path for creators to communicate directly with their audience," says Mr Shmulik. Yet they still need the new media platforms, which are becoming more like old media companies. Rather than simply helping consumers navigate a mass of commoditised online content, they play an active role in commissioning and curating it.

Substack insists that advances are determined by "business decisions, not editorial ones". Yet it offers writers mentoring and legal advice, and will soon provide editing services. YouTubers can post what they like, within broad guidelines, but they cannot monetise content around what YouTube deems "controversial" subjects, including abortion. Twitch has imposed rules for its streamers' behaviour offline. On May 5th Facebook's "oversight board", which rules on editorial matters, upheld Donald Trump's ban from the platform.

Mr Zuckerberg has said that his social network ought to be treated like something between a phone company, through which information merely flows, and a newspaper, which has editorial control of its content. As his and other platforms more actively court and compensate creators, they are moving further towards the newspaper end of that continuum. ■

India's second wave

# Paper tiger

DELHI

**Confronted with catastrophe, the national government looks increasingly hapless**

TWO SHORT months ago Narendra Modi's government was one of the most popular and confident in India's history. Now, judging by fresh election results, by the eruption of criticism even in the largely docile mainstream media, by sharp reprimands issued by top courts, by thumbs-down judgments by seasoned analysts and by a level of rage on social media unusual even for India's hothouse online forums, the prime minister and his government are in trouble.

It is not simply that evidence has mounted of repeated failures to heed warnings of an impending second wave of covid-19, including from the government's own health experts. Nor is it just that Mr Modi and his team have struggled to respond to a calamity greater than India has experienced in generations. Indians are accustomed to ineptitude and meagre support. Rather it is a sense of utter abandonment, especially among the politically noisy middle class, that is driving the anger.

The epidemic continues to worsen. On May 5th the country reported over 412,000 new infections, its highest number yet. Half of all cases of covid-19 recorded around the world are in India, up from one in 25 at the start of March. The number of covid deaths tripled in March, and then in April leapt by a factor of ten. With a quarter of all tests in the country returning a positive result, up five-fold in the past month, it is clear that India's monster second wave has yet to reach its peak. Already nearly a quarter of a million Indians have died after being infected by the virus, and that is going by the government's own numbers.

For any country to suffer such devastation is awful enough. But even as the official death toll has mounted, faith in its accuracy has sunk. Epidemiological and anecdotal evidence point to massive undercounting. Journalists across India have detailed scores of cases where official tallies are much lower than those gathered from hospitals, crematoriums and obituaries. In rural areas, where two-thirds of the population lives, both data and health care are even harder to come by. Partly as a result, a curve that has moved as sharply as the one describing infections is the one tracing the reputation of India's government, albeit in the opposite direction.

Mr Modi has done himself no favours. During much of March and April he devoted far more energy to campaigning in one state election, in West Bengal, than to increasingly urgent cries of panic. In response to the revelation that his government had hugely miscalculated the availability of vaccines, he turned to showmanship, declaring a national "Tika Utsav" or Inoculation Festival. Since it was launched, the number of people getting vaccinations every day has fallen by half, owing to shortages. Belatedly addressing the public on April 20th, Mr Modi warned against lockdowns and called instead for testing, isolating the infected and tracing their contacts. Recognising that it was too late for such measures to have any effect, most Indian states and big cities locked down anyway.

The crisis has forced Mr Modi's government into embarrassing policy reversals. Its vaccine campaign, touted in January as the world's biggest and most generous, has been sharply adjusted. After banning vac- ▸▸

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cine exports to address the national shortfall, the government abruptly declared that individual states and private actors would have to bear half the burden. Despite proclaiming self-reliance as the hallmark of his new India, Mr Modi broke with a policy begun by the previous government of rejecting foreign aid, and welcomed planeloads of medical supplies donated by more than a dozen foreign governments. The severity of shortages, particularly of oxygen, and the wrenching and very public misery caused by this growing disaster made it impossible not to.

But the misfortunes of Mr Modi's government have been compounded by haplessness. The public, overwhelmed with anguish at death on so vast a scale, has been flabbergasted by repeated revelations of incompetence. Initial shipments of aid, they discovered, had been held up by officials wanting to impose duties. These were eventually removed and local sales taxes abolished or reduced. (But on oxygen concentrators, a life-saving instrument, this was from a crushing 28% to a merely gouging 12%.) In the state of Gujarat it was revealed that factories making gas-storage tanks, which use oxygen in the manufacturing process, had halted production of the desperately needed containers because the government was allocating all oxygen to hospitals.

The state's displays of pure callousness have also been shocking. Residents of Delhi, whose hospitals are completely full, have been treated to the spectacle of the solicitor-general arguing that its state government, which needed help with oxygen supplies, was being a "cry baby". With the capital under strict curfew, Mr Modi's government has also given special licence for work to continue on a $2.6bn project to overhaul the grand government buildings of the city centre, including a fancy new residence for the prime minister.

Meanwhile the chief minister of Uttar Pradesh, tipped by some as a successor to Mr Modi, has not only declared that there is no oxygen shortage in his poor state of 225m people, but that individuals and even hospitals that spread "rumours" of shortages would be vigorously prosecuted. "This government has lost its mind," shouts a man who has just lost his niece in a hospital in Meerut, a city in north-western Uttar Pradesh, in a scene captured by Newslaundry, an investigative news group. "They talk of being a superpower, but what kind of superpower can't even find oxygen for its people?"

Elections, of course, will prove the real test of what this change in fortunes may mean for Mr Modi and his Bharatiya Janata Party (BJP). He does not face a national one until 2024, so he may have enough time to repair damage and right his ship. But early omens are not good. Results of state elections announced on May 2nd left the BJP and allies with just one out of four prizes.

More tellingly, the party was hammered in West Bengal, the state it had fought hardest to win. This was not a referendum on Mr Modi's handling of the pandemic: many Bengali voters dislike the BJP's thinly disguised bigotry and see its Hindi-speaking, ostentatiously religious leaders as culturally alien. The voting was in eight phases, meaning that many ballots were cast before the deadliness of the second wave became clear. Significantly, the margin seems to have widened as the voting went on and deaths mounted. In Uttar Pradesh, meanwhile, village-level elections showed a sharp tilt against BJP-endorsed candidates in parts of the state considered its fiefs. One of them was Varanasi, Mr Modi's own parliamentary constituency. ■

City administration in India

# Urbs prima in Indis

DELHI

**Why Mumbai is handling its second wave better than Delhi**

WHEN THE world sees images of India's covid-19 crisis, it is through the eyes of the citizens of Delhi. That is not just because most foreign correspondents and photographers live—and are stuck—there. The capital's caseload has been among the highest and deadliest of any city in the country. On May 3rd alone, 448 deaths were reported and untold numbers died unrecorded. One in every four tests is coming back positive, typical of an outbreak that is out of control.

On May 5th the Supreme Court, situated in Delhi, told the national government, which is there too, to "look to Mumbai and take note" of its successes in managing the supply of oxygen. But the city has a lot more to teach. Even proportional to its somewhat smaller, if denser, population, a fifth as many people are dying there each day as in the capital. The positivity rate of tests, at around 11%, is less than half of Delhi's. There are thousands of vacant beds. Of the beseeching tweets and WhatsApp messages asking for beds or oxygen, few give an address in Mumbai.

In interviews with the local media, the commissioner of the Municipal Corporation of Greater Mumbai (MCGM), an enthusiastic marathon-runner named Iqbal Singh Chahal, describes an immense, data-driven operation in which information and action-plans are managed and co-ordinated through a distributed network of 23 "war rooms", or control centres, one for each of the city's administrative districts. An online dashboard, visible to the public, is constantly updated by each war room and every hospital, displaying the availability of beds and a trove of other data. About 40% of Mumbai's present capacity is in "jumbo" field hospitals, built during the first wave and wisely kept in a state of readiness even as emergency operations in other cities were closing shop. Mr Chahal's task-force is already at work drawing up plans to combat an inevitable third wave, which it expects will arrive in July. Seen from Delhi, such foresight sounds like science fiction. How did the fates of India's two biggest cities diverge so much?

The answer comes down to administration, in three different ways. The first is the structure of government. Mumbai has a

unitary municipal corporation, whereas Delhi is a morass of overlapping authorities. There is no equivalent of Mr Chahal in Delhi. Instead, executive functions are divided messily between the national government; the elected quasi-state government, currently run by Arvind Kejriwal, its chief minister; and five municipal corporations, including one controlled by the armed forces. The national parliament voted recently to grant veto power over Mr Kejriwal's government to a lieutenant-governor appointed by Narendra Modi, the country's prime minister.

It is bad enough that Delhi has no dedicated government looking out for the city. Worse is that the overlap of interests means it also lacks what Yamini Aiyar of the Centre for Policy Research, a think-tank in the city, calls "political maturity". Mr Kejriwal's government is hamstrung at the best of times but, at times like this, the politicking between different levels of government is frantic. Party workers are hiring auto-rickshaws to deliver oxygen to hospitals and tweeting evidence of their heroics, since it is parties, not administrators, that are top of mind.

By contrast, Daksha Shah, a senior health officer at the MCGM, explains that one of the biggest benefits of her city's unified chain of command is apparent in its system of triage. People who are afraid that they may not be able to get life-saving treatment are inclined to hoard it, like Westerners with loo roll last year. The MCGM's war rooms see test results before any of the city's patients do. That way their field agents can bring the news to the identified cases and escort them to and from hospital beds exactly when and where the best treatment can be provided, to maximise efficiency.

Second, Mumbai may have had an advantage of administrative boundaries, too. India's second wave started in the state of Maharashtra, of which the city is the capital. When cases began to rise in the central and eastern parts of the state, that caused warning lights to flash early for the local government. Likewise some of Delhi's disadvantages may be because of its neighbours. The city spills over its borders to take in the most urbanised bits of two states with much worse health care. Neelkanth Mishra, a strategist for Credit Suisse, a bank, guesses that Delhi may be absorbing desperate cases from a wider area.

Lastly, the fact that the national government has some role to play in directly running Delhi may have contributed, too. When it gets it right, the city benefits. But when it is sluggish and dithering, as in recent weeks, that affects the people of Delhi more directly than those of any other region. The result has been to make India's capital, in normal times a synonym for the country, the face of its catastrophe. ■

Korean vibes

## Let there be mood lighting

SEOUL

**South Koreans are discovering a taste for understated illumination**

WALKING AROUND Seoul at night, Suzie Son noticed a curious change. The city's high-rise residential blocks usually emit a harsh white glare from the fluorescent lights fitted in every South Korean flat. But in recent years she has seen an increasing number of soft yellow rectangles appearing in the grids of windows. "My foreign friends always complained about the cold bright light in their homes," says Ms Son, who runs the lighting division at IKEA Korea and goes on night-time walks as part of her market research. "None of the Koreans ever thought about changing them."

That is no longer the case, especially among younger Koreans. "I have those bright ceiling lights in my place but I never turn them on," says Kim Yeon-soo, a 24-year-old paralegal who recently moved into a small flat in Seoul. Instead, she uses lamps with low-wattage yellow lights to create what she considers a more calming atmosphere. Her new bed was chosen for the soft, indirect reading light built into the headboard. Her friends have similar tastes, she says: "Young people just pay more attention to light and mood."

Their parents are not far behind. Ms Kim says her mother shares her distaste for white lights. A shopkeeper in Euljiro, Seoul's lighting district, says his most popular product—single-bulb pendant lamps inspired by mid-century European designs—is sought by 20-somethings and middle-aged housewives alike.

Countless pictures of impossibly sumptuous interiors, shared on social media, have helped home decor join handbags and cars as a way of displaying status, reckons Minsuk Cho, an architect in Seoul. "People used to pay little attention to their homes in that respect," he says. Most South Koreans work long hours and socialise outside the home. "But now there's Instagram and YouTube, so even if you're rarely there your home is something else you can put on display to compete with others."

The pandemic has had an effect as well. Like their counterparts elsewhere, South Koreans have spent more money on their homes the longer they have been stuck in them. Sales in Ms Son's division rose by 20% over the past year, she says. Department stores run by Lotte, a local conglomerate, report a similar increase in demand for lights. Monthly sales of designer lamps at the Conran Shop, a pricey British retailer, have grown five-fold since it opened in Seoul's glitzy Gangnam district two years ago. Gentice, a purveyor of bedroom furniture, is expanding its range of bedside tables "because people want somewhere to put their reading lights", says a saleswoman at an interior-design fair at a mall in Gangnam.

Soft yellow lights are casting their glow outside the home, too. Though most Korean restaurants and pubs remain in thrall to white striplights and multicoloured LEDs, the self-consciously hip coffee shops, wine bars and noodle joints popping up across the country are aiming for a more sophisticated vibe. Their owners scour traditional markets and the internet for vintage Tiffany lamps and knock-off versions of Bauhaus light fixtures, importing design trends beloved by cool kids across the globe. For long-suffering aesthetes such as Mr Cho, that is some light relief.

Charity in the Philippines

# Reds under the veg

MANILA

**How to make a political meal of food banks**

PRECAUTIONS AGAINST covid-19 have constricted the livelihoods of millions of Filipinos. So a recent sprouting of hundreds of local food banks meant to keep their hunger at bay should, on the face of it, be widely welcome. Instead, it has stirred up a storm of political controversy. Lieutenant-General Antonio Parlade, a leading defender of the Philippine state against communist rebels, denounced the food banks, called community pantries, as the work of the devil. The general's suspicion that communist plotters are behind the food banks may seem far-fetched. But the pantries are nonetheless a threat to elected politicians, who would prefer to preserve a monopoly on handing out goodies to voters near election time.

The pioneer of community pantries is Ana Patricia Non (pictured), who set up a tiny stall in the Quezon City area of metropolitan Manila in mid-April, and invited anybody in need to take the food arrayed on it, which was supplied by donors. She was responding to the government's tight lockdown of Manila and nearby provinces during a second wave of covid-19 that swelled in March, which had choked off economic activity and slashed incomes. Within days, similar stalls were springing up all over the country, stocked with donated provisions and attracting long queues. Admittedly Ms Non did post a variation on a Marxist maxim on her stall, asking people to take according to their need and give according to their ability.

The phrase caught the eye of Lieutenant-General Parlade, the spokesman for the National Task Force to End Local Communist Armed Conflict, who inferred that the community pantry movement was a communist conspiracy. "It's all over the country, with a similar theme. It looks like it was packaged with the same strategy," he said. He compared those supplying Ms Non with food to Satan tempting a gullible Eve with forbidden fruit in the Garden of Eden, to bring about humanity's downfall.

The general speaks for the body that President Rodrigo Duterte hopes will end a half-century-old communist rebellion in the Philippines. This insurgency is moribund. Its leaders are nearing the end of their natural lives and its dwindling rank and file survive by extorting money from businesses at gunpoint. While attempting to overthrow the state by force of arms is against the law, simply being a communist

The spectre haunting Manila

is perfectly legal. But being labelled as a possible communist or communist sympathiser—called red-tagging—can put the suspect at risk of becoming a casualty of the now mostly clandestine conflict.

The uproar caused by Lieutenant-General Parlade's remarks means that Ms Non, her community pantry and their imitators are now so firmly fixed in the public eye that they should all be safe to carry on feeding the needy unmolested. Mr Duterte ignored the general. Harry Roque, the president's spokesman, lauded the community pantry movement as an admirable manifestation of Filipino neighbourliness, while rejecting the idea that it revealed the inadequacy of the government's lockdown-relief scheme. That effort makes a single payment of 1,000 pesos (around $21) to each of 23m people in Manila and nearby provinces. "The position of the president is clear," Mr Roque said. "Let a thousand community pantries bloom." Whether any irony was intended by paraphrasing a Maoist slogan is unclear.

Still, the food banks put local politicians in a fix. Local governments have the task of distributing official relief, affording politicians planning to run for re-election next year a chance to curry favour with voters. To prevent community pantries from putting the official relief in the shade, local politicians could try to stamp them out by regulating or red-tagging them. Or they could simply jump on the bandwagon as food donors, hoping that the recipients will remember their charity, come election time. The stance of Mr Duterte, ever the populist even though the law forbids him from running for a second term, forces local governments to accept that the needy must receive both the official relief and charitable aid. Who will succour the politicians hungry for the people's gratitude? ■

Development in Bangladesh

# Thirst trap

**A new set of ideas to fix Bangladesh's long-running water crisis**

BANGLADESH, WHICH sits within the world's largest river delta, has no shortage of water. Alas, barely any of it is drinkable. Much of the country's surface water contains high levels of poisonous arsenic, owing to both man-made and natural causes. The effects of climate change increasingly sully the rest with salt, even in wells dug deep. As cyclones and tidal surges from the Bay of Bengal intensify, sea water fills the delta. Salt-ridden soil makes growing rice impossible, forcing Bangladeshis to abandon low-lying regions—home to a quarter of the country's 170m people—in favour of more fertile areas or cities.

Too much salt is as bad for humans as it is for crops. It causes hypertension, raising the risk of strokes, heart attacks and miscarriages. Those who remain on the coast collect rainwater to drink and cook with. This is hard in the dry season, says Shikha Rani Mala, who lives in Morrelganj, in the coastal district of Bagerhat. A nearby pond offers a substitute for rain, she says, but quickly becomes stagnant. This is when Ms Mala turns to one of the many vendors who travel around peddling pricey bottled water from cycle rickshaws.

Various groups are trying to fix this state of affairs. The Department of Public Health Engineering (DPHE), a government agency responsible for managing water infrastructure outside big cities, has bought expensive new nanofiltration machines, which use a membrane to remove most organic matter, bacteria, viruses and salts. It is trying them out in three districts, including Bagerhat, and providing the water, for now, without charge. Brac, Bangladesh's biggest NGO, has teamed up with a Welsh business, Hydro, to install equipment that purifies water using a process called electrocoagulation. The machines cost about the same as those used by DPHE, but treat water twice as fast. This allows Brac to sell the water at the relatively affordable rate of ten taka ($0.12) for 20 litres. Yet even where water can be cleaned cheaply, middlemen like Ms Mala's rickshaw vendor end up as distributors, pushing up prices by as much as 250%.

Nor is access to clean water guaranteed

**Correction** In a recent article about colonial place names in Australia, we referred to "an especially grizzly slaughter". Many eagle-eyed readers wrote in to point out that we meant "grisly". Thank you for bearing with us.

for the 300,000 to 400,000 migrants who move to Dhaka, the capital, each year. Some 4m of the city's 18m residents, mostly in the slum districts, do not have piped connections to their homes. Most still pay a premium to the city's water mafia for illegally tapped water, which is often contaminated in the process.

Minhaj Chowdhury, a Bangladeshi-American entrepreneur, thinks he has found a way to cut out unscrupulous middlemen. His company, Drinkwell, works with state water utilities in Dhaka and Chattogram (formerly Chittagong) but sells directly to consumers using vending machines and a pay-as-you-go card system for between $0.09 and $0.14 a litre. The utilities provide the untreated water, the land and the electricity, but "we do everything else," says Mr Chowdhury, including purifying the water. A bigger prize than keeping costs low, however, is ensuring the long-term sustainability of the system. Many worthy attempts to provide cheap, clean water eventually run out of funding. Drinkwell's profit-based model and tie-ups with utilities should help make its operation pay for itself.

It will be a while before Drinkwell's success in the cities can be applied to places like Morrelganj. Half of all water-treatment projects fail because, whether set up by the government or an NGO, "the running and maintenance are then left to fall on the community", says Saifur Rahman of DPHE. The costs are usually too high. Local governments are supposed to provide water to rural areas. Often they do not. Mr Rahman and his colleagues are in the process of reminding elected officials—most of whom live in Dhaka and rarely visit their rural constituencies—that this is their job. ■

## Banyan Closing argument

*Australia's debate about China is becoming shrill and one-sided*

CHINA'S COMMUNIST PARTY has given Australians plenty to be dismayed about, from its vituperative anger when the Dalai Lama visits, to buying off Australian politicians, to trying to influence academic research at Australia's universities. China is not best pleased, either. In an extraordinary outpouring of bile last year, the Chinese embassy in Canberra enumerated 14 grievances against Australia. These included the passing of a law against foreign interference in politics and calling for an independent international inquiry into the murky origins of the novel coronavirus. Putting Australia firmly on the naughty step, China has blocked a raft of Australian exports to China, the unlucky country's biggest trading partner.

Australia long needed a public debate about China, but politicians were loth to broach one. Even as China's power and reach grew under President Xi Jinping, Australia's leaders, and voters, were happy striking an awkward balance in which it got its prosperity from China—through vast exports of iron ore and coal and imports of Chinese students—and its security from an America-led order. But, given Chinese rage, having it both ways is no longer an option.

The government of Scott Morrison, prime minister since 2018, relishes calling China out. By now, though, the rhetorical flourishes are starting to sound as though it were girding for war. Mr Morrison says Australia must speak with "one voice" on foreign policy, as if scrappy debate was uncalled for, or even unpatriotic. The new defence secretary, Peter Dutton, told the *Sydney Morning Herald* (*SMH*) that Australia was "already under attack" in the cyber domain. He warned that a war over Taiwan could not be discounted and that the priority was defending Australia's waters. A senior civil servant, Michael Pezzullo, weighed in with talk of the "drums of war", pointing the finger at China without naming it.

Yet if war is not actually imminent, which it is not, then the government line is not helpful. Natasha Kassam of the Lowy Institute, a Sydney think-thank, argues in the *Guardian* that while the reasons for talking about regional challenges are sound, "there are also real risks...from causing panic and hysteria." Not even Taiwan talks of imminent war.

Kevin Rudd, a former prime minister and cogent observer of China's rise, goes further. Australia's "highly problematic" relationship with China is certainly because of Mr Xi's much more assertive posture. But it is also, Mr Rudd argues in the *SMH*, because Mr Morrison and his team "are addicted to the drug of 'standing up to China'." That may play well at home, but "the public language on China, Taiwan and the possibility of war...serves zero national security purpose."

What is more, the line from Canberra poisons a wider domestic discourse over China, in which those arguing for engagement, nuance or open debate are shouted down. A furore erupted when Jane Golley, a prominent academic at the Australian National University, argued that debates about China were being stifled by a "dominant narrative". She was perhaps unwise to choose the topic of China's brutal treatment of Uyghurs in Xinjiang, which she does not contest, as her example. But the outcry seemed to bear out her broader point.

Separately, a researcher and prolific tweeter at the Parliamentary Library, Geoff Wade, has claimed widespread Communist Party influence over Australian life. When a handful of commentators, including one with former business ties to China, challenged the basis of his claims, Mr Wade issued defamation suits against them. James Paterson, a senator who is part of a group of China hawks in Parliament, claimed Mr Wade was the object of "state-backed coercion". (Also without evidence, Mr Wade's critics counter that murky forces are paying for his legal campaign.)

One veteran Canberra hand describes a dangerous "ideological intolerance" in which moderate voices are drowned out and the debate about China is reduced to emotion. Another senator, Eric Abetz, last year even called on Chinese-Australians appearing before his committee to denounce the Communist Party. That points to a further risk, says Greg Barns, a lawyer: pinko paranoia plays to a xenophobic, racist undercurrent that has long run through Australian life.

Such an undercurrent risks resurfacing if Chinese-Australians face questions or abuse about their loyalty. If the hawks' tactics end up making Australia seem a less civil, tolerant or welcoming place, then the country will be the poorer for it.

Propaganda

# The new scold war

**The Communist Party pushes back against critics of its policies in Xinjiang**

Not long before the Beijing Olympics of 2008, the Chinese government carried out a vicious crackdown on demonstrations in Tibet. Foreign media drew attention to it, and people outside China held protests. A Chinese academic popularised the idea of "three afflictions": two that China had faced in the past ("being beaten" by foreign powers and "being starved" by poverty) and a third that it faces now: "being scolded" by the rest of the world. Later President Xi Jinping adopted the concept, arguing that China faces a "fight for international discourse".

On no subject has China been more scolded than Xinjiang, where it has interned some 1m Uyghurs, a mostly Muslim ethnic group, for such things as being too pious or talking to relatives overseas. Media in democracies uniformly portray this as a grotesque abuse of human rights. The Communist Party is pushing back, in an effort to break what it calls the "discourse hegemony" of the West. To treat the "third affliction" it has marshalled vast resources, including official media, think-tanks, diplomats and security organs, and spent billions of dollars over the past decade.

A notable feature of recent propaganda about Xinjiang has been relentless attacks on China's critics. In March the government imposed sanctions, such as bans on visiting or doing business with China, on elected officials, researchers and think-tanks in Europe and North America that had caused offence. Chinese officials also stirred up online nationalist boycotts of Western firms that had acknowledged the possibility of Uyghur forced labour in Xinjiang's cotton industry.

Since then authorities have made Uyghurs in China make videos begging their dissident relatives overseas to shut up; announced a lawsuit against Adrian Zenz, a prominent researcher into the abuse of Uyghurs; and harassed a BBC journalist, John Sudworth, into leaving China.

The campaigns are getting personal. In April Xinhua, the official news agency, called Mr Zenz a "puppet of anti-China forces". An entity called the Xinjiang Development Research Centre issued a report titled "Slanderer Adrian Zenz's Xinjiang-related Fallacies Versus the Truth". *Global Times*, a party tabloid, denounced Vicky Xu, an Australian researcher who has written about forced labour. It accused her of stoking sentiment that puts Chinese people in Australia "in peril", and quoted a Chinese student who said she was "bewitched by the anti-China forces in the West".

In the past, when the party was accused of specific abuses, its propagandists would issue general denials. They would also try to recast repressive policies as examples of the party's wisdom and munificence, producing what a vice-president of Xinhua once called "fairy tales". And they have long tried to change the subject by playing up human-rights abuses in America. State media still produce fairy tales about happy Uyghurs doing traditional dances. But now, at almost any critical mention of Xinjiang, China pushes back hard.

David Bandurski of the China Media Project, a research group in Hong Kong,

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says this verbal ferocity is partly aimed at a nationalist audience within China, which likes to hear the motherland robustly defended (as does Mr Xi). That helps explain a blustery performance by Yang Jiechi, China's top diplomat, at a summit in Alaska in March with America's secretary of state, Antony Blinken. After Mr Blinken raised the subject of Xinjiang, among other concerns, Mr Yang unleashed an 18-minute tirade about the virtues of "Chinese-style democracy" and the effrontery of those who try to "smear" it.

A fragmented global media landscape makes it easier to spread disinformation. Conventional outlets are struggling financially, and conspiracy theories proliferate on social media and YouTube. China has spent hundreds of millions of dollars annually over the past decade to take advantage of this, expanding its media footprint abroad under a "Great Foreign Propaganda Campaign", says a working paper for the Brookings Institution by Rush Doshi (now a China specialist on America's National Security Council). He notes that, since 2009, Xinhua has doubled the number of its foreign bureaus to 200; China Radio International, a state broadcaster, has more than tripled its hours of programming in 65 languages; and China Global Television Network (CGTN) has established itself as a new brand overseas, with 24 channels in five languages.

Equally important have been state media's deals to place content in other media outlets around the globe—what propaganda officials call "borrowing the boats to reach the sea". *China Daily* paid handsomely to place inserts in such newspapers as the *Washington Post* and *The Economist* (though both ended the arrangement in 2020). Since 2018, Xinhua has struck content-exchange deals with print, radio and television outlets in Australia, Egypt, India, Italy and Nigeria, to name just a few, writes Sarah Cook of Freedom House, a watchdog. She adds that many consumers of these outlets may not know that some of their news (especially about China) comes from Chinese state media.

The authorities in Beijing recognise that the most persuasive voices are not their own. They prefer to "borrow a mouth to speak"—promoting online the voices of useful foreigners, some of whom have made YouTube videos about their travels in Xinjiang, challenging reports of Uyghur suffering. A particular favourite is the Grayzone, an outlet that has sought to discredit the Western narrative on Xinjiang as a product of American imperialism.

Perhaps unsurprisingly, the propaganda push does not appear to have won hearts and minds in rich democracies. But bullying critics may work in a way that is hard to measure—that is, in future silence. Many firms were quiet in the wake of the online boycott in China. The Better Cotton Initiative, a global apparel-industry consortium, took down an online statement of concern about Xinjiang cotton. In 2019, after an executive of a National Basketball Association team tweeted in support of protests in Hong Kong, China's main broadcaster stopped showing NBA games. Since then, players and executives have been almost completely silent on China.

"Not only Adrian Zenz, but all anti-China forces who attempt to inflict pain on Xinjiang through slanders must pay the price," Xinhua wrote on April 30th. Such threats may cow some critics, but others will be emboldened. The new scold war could last a while. ■

Plastic surgery

# Nipping and tucking

**Why so many young Chinese try to change the way they look**

HANNAH TANG, a company manager in Beijing, first went under the knife when she was 18. The surgeon made an incision across each of her eyelids, then stitched folds of skin back to transform her monolids into "double eyelids". The result was eyes that look bigger, rounder, and in Ms Tang's opinion, more beautiful. Now 35, Ms Tang (not her real name) has since had two more eyelid surgeries, as well as botox injections in her neck and monthly non-invasive "skin booster" treatments. "Pretty much everyone I know around me has had fillers or surgery," she says.

China's cosmetic-surgery market is booming. Some analysts think it is now the world's biggest. In 2019 the Chinese "medical-aesthetics" industry (which includes surgery, injections and skin treatments) had revenue of $27bn, around one-fifth of the global total, estimates Deloitte, a consultancy. It reckons the average annual rate of growth in China's market between 2015 and 2019 was 29%, compared with a global average of around 9%. By 2023, Deloitte estimates revenue will reach $48bn.

Figures can be vague partly because "there is a huge hidden market" that goes unreported, says Yi Wu of Maastricht University in the Netherlands. For example Dongguan, a city in southern China, has over 6,000 unlicensed clinics but only 43 licensed ones. The International Society of Aesthetic Plastic Surgery has not included detailed data on China in its global reporting since 2011.

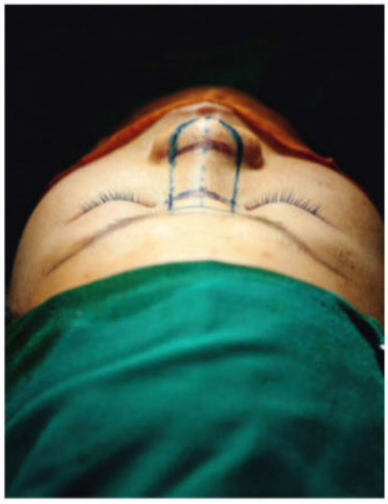
Starting young is common. In 2020 61% of patients were aged 16-25, up from 48% two years earlier. More than 90% are under 35, and 85% are female. In America, 81% of cosmetic-surgery patients are over 30 and nearly one-quarter are over 55. Ms Wu believes part of the reason young people have surgery is the influence of Confucian parenting, which means that children grow up without unconditional approval. This normally leads to academic pressure, she says, but it can also be internalised so that children feel the need to improve their appearance from a young age.

Double-eyelid surgery accounts for half of all treatments. (In America breast augmentations are the most popular procedure, although in 2020, the year of Zoom, more Americans fixed their noses than their breasts.) Some say the desire for rounder eyes is about looking more Western. But women care more about achieving the "golden ratio" of facial proportions, a more Chinese requirement, reckons Joyce Xu, who works in marketing in Beijing.

The golden ratio is an upside-down triangle: big eyes, relatively flat cheekbones, a narrow jaw and a small mouth. Ms Xu (also not her real name) started Botox injections to that end when she was 27.

As middle-class incomes have risen, surgery has become more affordable. Ms Xu's quarterly injections are 3,000-5,000 yuan ($460-$770) each time, which she deems a bargain. However, the popularity of such things has led to widespread fakery. An estimated two-thirds of injectables in China are unlicensed. In February Gao Liu, an actress, shared shocking pictures on social media of her botched nose job. It resulted in the tissue on the tip of her nose dying and turning black.

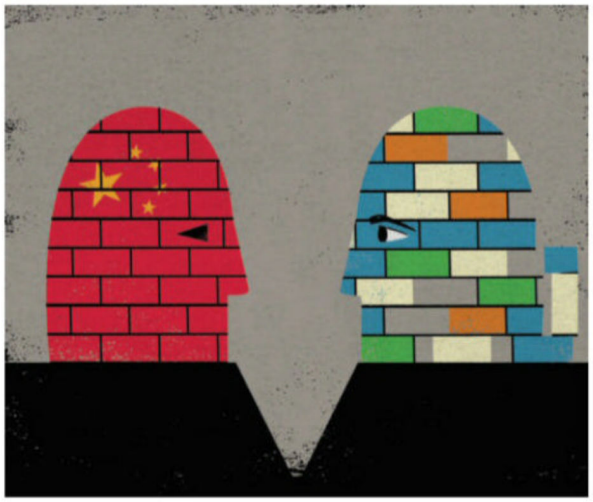
Horror stories such as Ms Gao's may not slow growth. One consequence of starting on treatments so young is that your "baseline appearance gets forgotten," notes Ms Wu. As a movie character almost said, there's a great future in plastic surgery. ■



Not losing face, but gaining a new one

# Chaguan | Resistance is not futile

*China fears containment by American-led alliances. It should worry more about why it is distrusted*



Leaders of China and America share an obsession: the notion that a large enough coalition of Western democracies might have the heft to confront a rising China about its authoritarian, state-capitalist ways, and demand that it follow a new trajectory, one that does less damage to norms and universal values that have governed the rich world since 1945.

China fears a broad, American-led coalition as the one force that might still be able to contain it. Not so long ago its foreign minister, Wang Yi, mocked the Quad, an informal group uniting America, Australia, India and Japan, as so much "sea foam". After America hosted a Quad-leaders summit, China has called the group a destabilising scheme to build an Asian NATO. The Trump administration expanded the role of the Five Eyes, an intelligence-sharing pact between America, Australia, Britain, Canada and New Zealand. The group issued a statement in November 2020 about the crushing of political freedoms in Hong Kong. But the Five Eyes should be careful not to be "poked and blinded", a Chinese foreign ministry spokesman growled. Australia and Canada are being punished with trade sanctions and detention of their citizens to teach them the cost of helping America in disputes with China.

Under President Joe Biden, American enthusiasm for coalition-building has only grown. The secretary of state, Antony Blinken, explained to CBS News recently why America seeks allies to confront China's government about repression at home and aggression overseas, as well as its adversarial approach to trade. "We're much more effective and stronger when we're bringing like-minded and similarly aggrieved countries together to say to Beijing: 'This can't stand and it won't stand'," Mr Blinken said.

In fact, these two rival powers are obsessing about something that is not likely to happen. For one thing, America's allies have few illusions that any group of outsiders, even one led from Washington, can tell today's China what will and will not stand. As a Western diplomat in Beijing glumly notes, such countries as Britain, France and Germany "are close to accepting the inevitability of China's rise", and so are out of alignment with America. For another, lots of Western democracies are fractious and mistrustful, especially after four years of Trumpian bridge-burning. European and Asian democracies alike are wary of joining America in anything resembling a cold-war effort to check China's aggression—especially if it jeopardises profitable trade relationships.

France's president, Emmanuel Macron, said this year that it would be counter-productive for Western powers "to join all together against China". The German chancellor, Angela Merkel has also spoken out against the "building of blocs". In recent telephone and video calls with President Xi Jinping and other Chinese leaders, there is no record of her raising sweeping sanctions imposed by China on European politicians and researchers, in retaliation for EU sanctions targeting officials accused of brutally repressing Muslims in the north-western region of Xinjiang.

Official read-outs instead record Mrs Merkel talking of co--operation and praising a draft trade pact agreed with China last year, the Comprehensive Agreement on Investment, which would offer more access to China's market for some EU firms, notably German carmakers. Ironically, the agreement may be doomed by the sanctions that Mrs Merkel wants to ignore. Those punished by China include members of the European Parliament, which must approve the pact. The EU trade commissioner, Valdis Dombrovskis, said on May 4th that efforts to finalise the deal are on hold.

EU unity is further undermined by members with close investment ties to China, such as Greece. One member does not conceal its admiration for Chinese autocracy, charges a European diplomat in Beijing: "The EU has its traitor in the ranks: Hungary." Nor is there consensus within the Five Eyes. In recent weeks, New Zealand's government declared itself uncomfortable with the intelligence-sharing pact's releasing geopolitical statements.

China loves all such signs of disunity, praising European nations for seeking "strategic autonomy", a French phrase that means not marching in lockstep with America. Yet in its paranoia about American-led alliances bent on containment, China risks missing a change that is actually happening in the real world.

Even as they concede that the time for trying to change China is over, rich-world democracies are defensively China-proofing their economies and their societies. They are setting up new investment-screening laws, investigating whether foreign powers are meddling in their domestic politics and universities, and writing public-procurement rules to block bidders who raise national-security concerns. The EU is proposing new curbs on state-subsidised firms wanting to compete in European markets. Such policies do not always name China, but it is the target.

### Standing together, sort of

Foreign ministers of the G7 countries—America, Britain, Canada, France, Germany, Italy and Japan—met in London on May 3rd-5th. Their closing communiqué condemns Chinese abuses in Xinjiang, including "the existence of a large-scale network of 'political re-education' camps, and reports of forced labour systems and forced sterilisation". The solutions offered are purely defensive, and make no pretence that the G7 can change Chinese policies. The risk of importing goods made with forced labour will have to be tackled through "our own available domestic means", the ministers say, by raising awareness and advising businesses.

Such words do not frighten China. Confident in the power offered by its vast market, it hopes that foreign governments will hurry up and realise that resistance to its rise is futile. If resistance means forming blocs to contain China, then America's allies already agree. But those same democracies are also channelling a growing distrust into defences that will introduce new frictions into relations with China. Friction is a form of resistance, too. ■


Permitless-carry gun laws

# The firearms free-for-all

DALLAS

**Faced with a spike in murders and frequent mass shootings, many states are pushing through more permissive gun laws**

AFTER A YEAR spent at home in pyjamas and fitness clothes, the question of what to wear outside is on the minds of many. Some also have in mind an unexpected accessory: handguns. Across the country states are trying to make it easier for people to carry guns in public without applying for a permit, being subject to a background check or going through training. Since February five states have passed new or expanded "permitless-carry" laws.

Some states, such as Utah, where permitless carry went into effect on May 5th, require guns to be concealed (for example, in holsters tucked underneath a jacket). Others, such as Tennessee, will allow people to carry their handguns in plain sight. Five more states, including Louisiana and South Carolina, are considering permitless-carry bills, as is Texas, where the state's Senate followed the House in passing such a bill, also on May 5th.

Twenty years ago only Vermont allowed people to carry handguns without a permit. By the end of this year, at least 20 states will. Three-quarters of them have passed permitless-carry laws in the past six years. The new laws unwind safeguards and trump "concealed carry" licensing schemes already in place. To carry a concealed handgun in Texas today requires a licence, which includes a background check, fingerprinting, training, a written exam and shooting test. Under the proposed legislation, all that would go.

The rise of permitless carry is notable because so many states are loosening gun laws at a time when mass shootings are frequent, violent crime is rising and gun sales have reached new heights. In 2020 a record 39.7m federal background checks were conducted for firearm sales. The first three months of this year set another record. In its most recent quarter, Smith & Wesson, a gun manufacturer, recorded sales that were double—and gross profits triple—what they were a year earlier.

The pro-gun lobby, including the National Rifle Association (NRA), has armed Republican state politicians with arguments that more citizens with guns could help boost public safety and that the government should have no say in whether someone can carry a gun in public. Proponents have rebranded it "constitutional carry", instead of "permitless". But it was not so long ago that Republican states banned people from carrying handguns in public at all.

In the 1980s and 1990s the NRA pushed for new laws allowing people to carry concealed guns with a permit, and then, having achieved that, pushed through a new set of "shall-issue" laws that gave law enforcement less discretion over restrictions on who should receive a permit, even for people with histories of mental illness and crimes. Permitless carry is the "next frontier" for the gun lobby, says Adam Winkler of the University of California, Los Angeles, Law School. "Permitless carry is taking off because gun-rights supporters don't have many rights left to loosen," he says.

Permitless carry is spreading even though the NRA is besieged by problems, including an investigation by New York's attorney-general into financial fraud by the non-profit's leadership that has led it to file for bankruptcy in Texas. But the trend

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shows how far the NRA has already changed the political culture and interpretation of the Second Amendment through its lobbying. It also reflects how moderates have been weeded out of the Republican Party, helping radical stances on guns get more support, says Daniel Webster of the Johns Hopkins Centre for Gun Violence Prevention and Policy.

Those championing permitless carry argue that having more armed citizens will help save lives. Tennessee's governor, Bill Lee, called his state's new law "core to a strong public-safety agenda". Yet in Tennessee and elsewhere police have campaigned against permitless carry, saying it endangers them and makes it more likely that criminals and felons could walk around armed. As Stan Standridge, the police chief in San Marcos, Texas, has pointed out, the Lone Star state requires licences to drive a boat and cut hair. Yet guns can wreak far more havoc than boats or hair-clippers. This is a rare issue where Republicans have split from the interests of the police in favour of pleasing their base.

**Annie get your AR-15**

At the risk of stating the obvious, permissive gun laws do not make people safer. There are several reasons why armed citizens rarely interrupt shooting rampages, including fear that the police may believe them to be the shooter, says Kris Brown of Brady, a gun-control organisation. A study by researchers at Stanford looked at the impact of "right-to-carry" laws and found that ten years after adoption, they were linked to a 13-15% increase in violent crime.

The full effects of permitless carry on Americans' safety would probably take many years to establish. So many guns are already in circulation that it is difficult to discern the effects of specific changes to laws. This was not helped by the NRA successfully preventing federal funds from being spent on any firearms research that might point towards the need for more gun control from 1996 until 2020.

With Congress unlikely to pass federal gun-control regulation because of Republican opposition, the states are where gun laws are being reshaped. Some, including Colorado, New Jersey, and Virginia, have tightened gun policies in response to mass shootings and safety concerns. But more states are going in the direction of gun deregulation than regulation, says Mr Webster of Johns Hopkins.

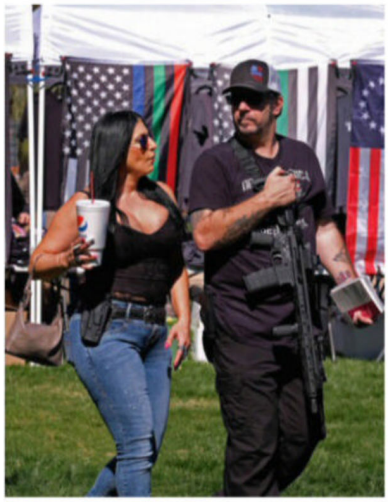
Meanwhile a growing number are also becoming "Second Amendment sanctuaries", as Oklahoma and Arizona have already done this year, resolving not to comply with any new federal gun laws. Much of this is symbolic, says Mark Jones, a professor at Rice University. Ms Brown of Brady disagrees, saying that the "Second Amendment sanctuary" laws will have a "concerning, chilling effect" on police officers.

Her group may challenge them in court. But gun help will probably not come from the judicial branch either. This autumn the Supreme Court will hear its first gun-rights case in years. Justices will rule on whether a New York law, which makes it difficult to receive a permit to carry a gun in public for self-defence, is legal. Donald Trump's three conservative nominees to the court may well have shifted the balance of views on guns towards gun-owners.

Texas, the country's largest Republican state, will be an important test of how far politicians are willing to push their pro-gun agenda. The state is so gun-friendly that there is a separate "fast track" at the Capitol building allowing those with concealed-handgun licences to bypass metal detectors and bring their guns in. The governor, Greg Abbott, has said that Texas should become a "Second Amendment sanctuary state" and has recently come out in support of permitless carry.

The Texas legislature is considering a raft of gun bills in addition to permitless carry. These include a bill that prohibits hotels from banning guests from bringing guns to their rooms and one that prevents the state from doing business with companies that discriminate against firearms firms and groups.

Yet even in Texas, permitless carry is controversial. According to a recent survey from the University of Texas and *Texas Tribune*, only 34% of Texans said that the state should change its law to allow people to carry their handguns without permits, while 59% were opposed. However, most Republicans are more worried about outflanking conservative rivals in the primaries than they are about winning a general election. If Texas does pass permitless carry, it will become the most populous state to do so. But not the last. ■



Feeling safer?

Facebook and Donald Trump

# Speechless

SAN FRANCISCO

**Facebook's Oversight Board says that Donald Trump can be kept off—for now**

"SAVE AMERICA" is the slogan at the top of Donald Trump's newly launched blog, where anyone nostalgic for 2020 can find tirades resembling those he plastered on social media before he was kicked off Facebook, Instagram, Twitter and YouTube for his statements during the storming of the Capitol on January 6th. Next to his posts are icons for users to click and share Mr Trump's messages on Facebook and Twitter, reminders of how those platforms confer the widest reach and influence.

For now, Mr Trump's blog is all he has. On May 5th Facebook's independent content-review body, the Oversight Board (OB), issued its most anticipated ruling since it began hearing cases last year, upholding the company's decision to suspend Mr Trump's accounts but saying that doing so indefinitely was inappropriate.

In essence, the OB has returned the burden to Facebook, telling it to devise clearer rules and more consistent penalties, and giving it six months to make a final decision regarding Mr Trump's access to the platform. It also asked Facebook to review its role in helping spread Mr Trump's lies about November's election being stolen, and in fomenting the riot of January 6th.

Those hoping for a final verdict on whether Mr Trump could return to Facebook will be disappointed. But the OB's decision is significant nonetheless. It points to the difficult three-way balance online platforms must strike between free speech, online misinformation and real-world harm—a quick calculus made by too few people with too little transparency. It also highlights the influence that the OB is trying to exert by speaking snark to power. "In applying a vague, standardless penalty and then referring this case to the Board to resolve, Facebook seeks to avoid its responsibilities," the OB wrote in its decision. According to Michael McConnell, a former judge who is co-chair of the OB, Mr Trump's "is not the only case in which Facebook has engaged in *ad hoc-ery*".

The OB was conceived in 2018 by Facebook's founder, Mark Zuckerberg, as a "supreme court" for content decisions. Cynics view it as an attempt to deflect responsibility for the company's thorniest decisions, but it is a worthwhile experiment in creating a middle ground between corporate autonomy and government intervention. The 20 members of the board have an independent streak. Of the nine cases on which the


(BLS) surveys. That is almost 12 minutes more than those earning over $150,000 a year. The gap adds up to an extra hour and 20 minutes a week or ten full working days per year. Add the time spent waiting for transport, and the inequality would probably be even worse.

Rich or poor, Americans may have it better than others. In Britain, where queuing is a national pastime, a survey found the average person wastes 44 hours a year waiting. However this included time spent in traffic, which the estimates for America leave out, perhaps on the grounds that caraoke and texting really ought to count as time well-spent.

In America, it is the difference across racial groups that is most striking. Mr Holt's calculations suggest wealthy white Americans get what they want quickly. But among black Americans, those earning at least $150,000 actually spend more time cooling their heels than those earning $20,000 or less. That could be because they live in under-served predominantly black neighbourhoods, but use services like shops and salons more often. Whether it's about being asked to produce more paperwork for a mortgage or waiting while someone white is bumped to the front of the queue, says Elizabeth Cohen, a professor at Syracuse University and author of "The Political Value of Time", "waiting is part of the experience of racism in the US".

Darren Hromadka, founder of In-Line4You, sees it first-hand. It was this week four years ago at Berkshire Hathaway's annual shareholder meeting that he got the idea for his business. The Omaha resident spotted investors paying people to wait in line overnight to bag a plum spot when Warren Buffett took to the stage. His app extends that service to all sorts of other things, from gigs and new iPhone launches to coronavirus tests.

Mr Hromadka has spotted a trend: it is almost always white Americans who pay for so-called "line-standing" services. Meanwhile, 80% of those willing to wait around for $25-100 an hour are black or Hispanic. "Minorities are used to waiting for things," he says. ■

Tech trade policy

# Assuming the position

**Joe Biden has not yet chosen a path on trade in technology with China**

THE PROCESS of filling vacancies at the Bureau of Industry and Security (BIS) does not normally make the news. An agency of the Department of Commerce, BIS is tasked with running America's export-control regulations. These rules were originally designed to prevent the components of weapons of mass destruction from being shipped off to terrorists. The work of overseeing them was important public service, but carried out in the background, away from the public eye.

Donald Trump's presidency changed that. He and the China hawks in his administration repurposed BIS and its regulations as a weapon against China's technological ascendancy. They rewrote the rules several times between 2018 and 2020 in an escalating series of attempts to cut off Huawei, a Chinese technology giant, from global semiconductor supply chains. Huawei has reported declining revenue in its two most recent financial quarters as a result, proving that America can use export controls to disrupt Chinese technological development, at least in the short term.

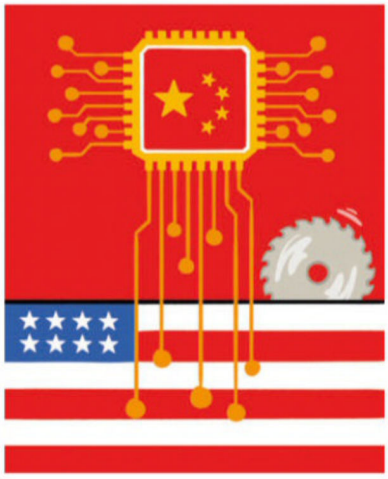
This put BIS right in the middle of America's biggest foreign-policy challenge, containing China's rise. Speculation about its leadership began soon after Mr Biden took office. But the chaotic methods of Mr Trump's administration created a new political dynamic around the agency. The repurposing of regulations often left gaps between what the new rules actually said and what the Trump administration claimed they meant for China in speeches and press releases. Lawyers advised their clients to follow the rules to the letter, thereby allowing them to carry on doing business with Chinese entities where it was still legal to do so.

The result is that many export-control experts were seen as "soft on China". On May 4th a Republican congressman from Texas, Michael McCaul, called on the president to nominate a candidate that has "real national-security experience, deep knowledge of the CCP, and will not be conflicted by deep ties to industry".

It is this sort of rhetoric that has driven the administration's consideration of "outsider" candidates who do not carry the damaging expert label. The archetype is James Mulvenon, a defence analyst who became known in Washington last year for authorship of a report linking SMIC, China's leading chipmaker, with the People's Liberation Army. That Mr Mulvenon has even been under consideration demonstrates how far the role of BIS and the politics around it have shifted, as he is not a lawyer and has no experience administering or complying with export-control regulations. Barack Obama appointed a lawyer, George W. Bush a tech-company boss. The post was vacant for most of Mr Trump's term; hence, in part, the chaos.

Political appointees do not determine policy, but rather implement what flows from the government, and from the National Security Council (NSC) in particular. Mr Biden's NSC contains plenty of expertise on China and technology. Saif Khan, the council's Director for Technology and National Security, published a paper in January which laid out a plan for curtailing Chinese semiconductor development. Its other members want to develop a tough new line, less for the industrial-competition reasons that motivated Mr Trump and his administration than because of the technology-enabled human-rights abuses that the Chinese government is perpetrating in Xinjiang and beyond. Yet the plan, at present, appears to be unfinished. People close to Mr Biden's staff say that policy on China and technology remains undecided.

The choice of an under-secretary to run BIS, when it is made, will be a sign of whether the Biden administration has a real plan. If the president chooses someone with little to no experience with export-control law, but who has a hard line on China, that will indicate that domestic politics are dominating the administration's thinking and that it lacks the confidence to fend off critics like Mr McCaul. The appointment of someone who knows the law and can carry out the government's bidding quickly would suggest that Mr Biden does, indeed, have a plan for redrawing the lines of technological trade with China, and that he intends to use the most experienced people possible to do so. ■



Unsolved murders in St Louis

# Crime without punishment

ST LOUIS, MISSOURI

**America's homicide rate has declined since the 1990s. So have clearance rates**

"I TRY TO keep them close," says Maria Miller (pictured), holding out her wrist to display a bracelet composed of tiny framed pictures linked by a gold chain. They show her oldest and youngest brothers, Larry Miller and Harrol Berry, and her son Courtney Williams. All were murdered in 2014. Mr Miller was stabbed while in prison; two people have been tried for his murder. The killers of Mr Berry and Mr Williams, who was shot on a visit home from college, have never been caught.

Sadly, that is not unusual. St Louis is a violent city, and its homicide unit is overworked and understaffed. Ideally, a homicide detective should be the primary investigator on no more than five murders per year. Heather Taylor, a recently retired homicide supervisor in St Louis, said that her detectives had as many as 19.

Last year, 262 people were killed in St Louis, giving it a murder rate of 87.2 per 100,000 people—probably higher than any other American city. But police in the city cleared (meaning, generally, arrested and charged someone for) just 36% of those homicides. By contrast, last year police in St Louis County, just west of the city, closed 87% of their murders. As of May 3rd this year, things are looking up, but police have still closed only 31 of the city's 68 murders.

This problem is not unique to St Louis. Nationally, around two in every five murders go unsolved, with troubling consequences for families, neighbourhoods and cities all over the country.

This was not always the case. Richard Rosenfeld, a criminologist at the University of Missouri-St Louis, notes that up until the early 1980s homicide-clearance rates in many cities were around 90%. Then, beginning in the 1990s, crime of all sorts began to decline—but so did clearance rates.

Murders within families and marriages, which are comparatively easy to solve, decreased. Murders involving drugs and gangs (in which victims, offenders and those with knowledge of the crime might all have criminal records, and hence want to avoid the police) came to comprise a larger share of all homicides. Those killings are harder to solve, and in any given year, when murders rise, clearance rates tend to fall, suggesting that more murders stretch police manpower, resulting in fewer clearances.

What explains the low rates in St Louis? "Fear," says Sharon Williams. Her apartment is festooned with pictures of her oldest son Mikey, an artist and painter shot to death by young men who mistakenly believed he had stolen some guns or drugs. Ms Williams used to run a gang-abatement centre in north St Louis; her son's funeral was the 46th she had attended for a young person killed in the city. In many cases, she explains, just because the murder is officially unsolved does not mean the killer is unknown. People say to themselves, "I live in this neighbourhood. I work in this neighbourhood. My kids go to school here. We know the perpetrators; we just can't say it. Nobody's offering us protection."

Kim Gardner, St Louis's chief prosecutor, agrees, arguing that Missouri does not give her office adequate resources to protect or move witnesses. Mr Rosenfeld calls this "a genuine chicken-and-egg problem. When overall levels of violence come down, people become more willing to co-operate with the police because the neighbourhood is less risky. But how do you drive down the level of violence? People have to co-operate with the police."

As a result, families often see their loved ones' killers walk free. Ms Williams has spoken with other grieving families who say, "We know where the person is, but we're trying to do things the right way. We don't want to take street justice, but nobody is helping us."

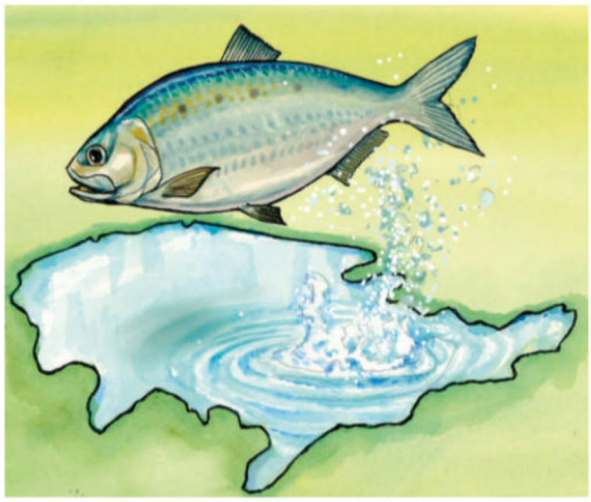
Mistrust, built up over decades, between the city's majority-white police force and the majority-black population of north St Louis also makes people reluctant to come forward. One St Louis-based FBI agent argues that "failure to handle violent crime invalidated everything else. Too many police officers try to reduce violent crimes by saying, 'We'll knock more heads'." This agent favours a programme of "focused deterrence [and] call-ins", in which police bring in young men at risk of perpetrating or being victims of violent crime to offer them job training and other social services, but also to warn them that if they continue on their current path, they will face serious consequences. The FBI agent says a former police chief deemed that plan "too soft".

But a strategy like this has worked before. In the early 2000s, St Louis had more people and fewer murders (its murder rate in 2003 was less than a quarter of last year's), for which Ms Gardner credits an effective anti-gang unit within the police. When the unit made arrests, these were "strategic prosecutions of violent individuals that brought the crime rate down". The community trusted the officers, says Ms Gardner, because "they weren't just putting everyone into the system. They would help people. If they needed jobs, they'd get them jobs...They built neighbourhoods of trust." Political disputes, she said, led to the unit being disbanded.

When running for office, the city's new mayor, Tishaura Jones, expressed support for focused deterrence, as well as increasing investments in job-training and mental-health services. She will find eager partners in women such as Ms Miller and Ms Williams, both of whom have started charities to advocate for their causes. But she will also doubtless find that many people share Ms Miller's view: "I have completely lost faith in St Louis city homicide. They don't care." ■

# Lexington | A shad state of affairs

*The Potomac river is a more vivid symbol of American history than any of the monuments along it*



SINCE MARCH 12th, when the first hickory shad of the year succumbed to a sparkly lure, anglers of both sexes, several races and all sizes have been lining the bank of the Potomac in Washington, DC, like salmon-hungry bears. When early-bird attorney anglers leave for the office their spots are taken by mask-wearing housewives from Bethesda. Frazzled lobbyists (who prefer the river to the swamp) silently cast their fluorescent jigs alongside grizzled Trump voters from Virginia, and also three-generational Hispanic families, with their umbrellas and coolers and music.

Lexington and his children are sometimes among them. Any fool can catch a shad when the mood takes it. Hence the popularity of the fish, a sort of outsized herring that migrates up America's east-coast rivers to spawn. And the deep, churning three-mile stretch of the Potomac that runs from Fletcher's Boathouse, at the top of Georgetown, to the Little Falls dam is some of the best shad water there is. 'It's kind of sad," says Alex Binsted, who caught that first hickory and is, at 34, a master angler, "but I've caught 95% of every fish I've ever caught right here." He gestures, as he rows, to a 100-yard stretch of river in front of the boathouse, which has been renting wooden fishing skiffs to Washingtonians since the mid-19th century and which he now manages. "When the fishing's so good here, why go elsewhere?"

An osprey and juvenile eagle circle, looking for exhausted fish, as Mr Binsted noses the boat onto the skirt of the current, where a line of skiffs are anchored. "Hey Lois!" he calls out to a small white-haired woman, a retired patent lawyer who is known as the "shad queen". This is where the serious fishing takes place, among Fletcher's "inner circle", whose members know shad—where they lie and when and how to induce a reluctant bite—almost as well as each other. "Hey Dad!" Mr Binsted hollers at another boat. Within a minute he is into the first of a dozen silver American shad, the biggest of the species, two-to-six pounds of ocean-going muscle. Your columnist, fishing the same lures in the same spot, and so far as he can tell in exactly the same way, draws a blank.

Americans know Washington for its monuments. Yet the capital's closeness to nature—on a vast and fecund American scale—is far more unusual. Kinshasa, skirted by the turbid Congo river, is one of the few great riverine cities that compares to it. And this proximity is as redolent of history as any memorial. The Potomac's fishy bounty was one of the earliest and most fabulous New World discoveries. In 1608 John Smith of the Jamestown colony described trying to ladle shad aboard his boat with a frying-pan, so thick was the river with them. Intercepting the migrating fish, by brush trap, weir and horse-drawn net, was soon an industry of continental importance.

Following their native guides (who called the shad "Tatamaho"—"Inside-out porcupine"), the Pilgrim Fathers manured their fields with shad. George Washington's wealth was based on his shad fisheries; his troops at Valley Forge were said to have gorged on the fish. So did William Penn, Thomas Jefferson (born in Shadwell, Virginia), Abraham Lincoln and so many other great men that the shad has been called the "founding fish". In 1823, 11om pounds of it were harvested from the Potomac. To watch the river boiling with spawning fish is to connect with that history.

It is also to contemplate a great conservation success, however. During the 19th century, a time of dam-building, Potomac shad stocks fell by over 80%. By the 1960s, the river had become so black with pollution that Lyndon Johnson termed it a "national disgrace". The shad, a species more numerous and formative than the bison, was almost eradicated from it. Yet this helped spur the Clean Water Act of 1972, which began a cleanup of America's rivers. And that federal law was in turn augmented, along the Potomac and elsewhere, by local authorities and an army of volunteers.

In the 1980s and 1990s Washington, Maryland and Virginia closed their shad fisheries and cut a fish-passage through the Little Falls dam. Shad roe was later milked from fish caught downstream, hatched in Washington's schools, and millions of fry released into the river's upper stretches. The tactic worked. By the early 2000s the shoals were recovering so strongly that Potomac shad roe was being carted to other depleted rivers.

This success has helped spawn a culture, as well as fish. For centuries, individual shad were valued in proportion to their plenitude. The first president fed the fish to his slaves; but he himself preferred to eat beef and angle for trout. Hardly anyone fished for shad with a rod until the 20th century. Yet the fish's brush with extinction has encouraged a new understanding of its qualities. Its seminal role in the ecology of east-coast rivers is now manifest—and illustrated by flourishing birdlife wherever it has returned. Its sporting qualities are equally prized.

### Scales of justice

For shadding greenhorns, it may be enough that when the fish chooses to bite, it is hard not to catch. For experts, when and why it sometimes snaps at a green dart but not a red one, then vice versa, before it suddenly stops snapping altogether, is as fascinating as its fight is daunting. "Look at how it's using the current!" cries Mr Binsted respectfully, while tussling with his umpteenth fish (each of which he returns tenderly to the water).

Henry Thoreau, a great fish lover, predicted the much-abused shad, "armed only with innocence and a just cause", was "reserved for higher destinies". He has been proved right. Continent-wide, the founding fish is still struggling. But, year-by-year, its recovery is continuing on the Potomac and spreading further. Last year the shad and other migratory fish were free to swim up the Brandywine Creek in Delaware for the first time in 300 years. The founding fish appears to have been saved and at last appreciated. It is a story of fruitful co-operation and hopeful progress, emanating from a city too rarely known for either. ■


El Salvador

# Bukele's bulldozer

MEXICO CITY

**The millennial president is proving to be even less of a democrat than his opponents feared**

When Nayib Bukele's New Ideas (NI) party won a sweeping majority in El Salvador's elections in February, fans of democracy held their breath. Mr Bukele, who with a 90% approval rating is the most popular president in Latin America, has shown little regard for checks and balances since he came to power in 2019. On May 1st, the day new lawmakers first took their seats in the legislative assembly, fears about the 39-year-old president appeared well founded. The assembly promptly voted to sack the attorney-general and the five judges who sit in the constitutional chamber of the Supreme Court, which oversees most laws. Mr Bukele crowed on Twitter: "And the Salvadorean people, through their representatives, said 'DISMISSED!'"

The assembly's decision was quickly declared unconstitutional by the court itself. Hundreds of protesters took to the streets to denounce "the coup". Officials in the United States including Kamala Harris, the vice-president, condemned it. Juan Gonzalez, an envoy of President Joe Biden, tweeted "Así no se hace" ("That's not the way you do things"). Nonetheless, five new judges and a new attorney-general were escorted to their desks, flanked by armed police. Four of the six sacked officials then resigned, suggesting no way back. Mr Bukele now controls all three branches of the state. "Democracy has died in El Salvador," declared *Revista Factum*, a local magazine.

The assault on the judicial system is part of a pattern. Mr Bukele is impatient with any institution that appears to stand in his way. Last year he entered the assembly, then controlled by the opposition, with gun-waving police to force it to approve a loan. When the Supreme Court ruled as unconstitutional some of his harsh covid-19 measures, such as soldiers and police picking people off the streets and throwing them into quarantine, he called on officials to disobey the ruling. Raúl Melara, the sacked attorney-general, had annoyed Mr Bukele by investigating claims of graft within his government.

But the speed and boldness with which NI moved was surprising, says Juan Meléndez of the Netherlands Institute for Multiparty Democracy, an NGO. In the election NI won 56 of 84 seats—more than any recent government—which, along with the eight held by its allies, allows it to pass whatever laws it likes. This year the assembly was due to pick a new attorney-general and one of the five Supreme Court judges.

Mr Bukele has almost certainly breached the constitution, if not other laws. When the votes happened, police were surrounding the chambers of the Supreme Court and the offices of the attorney-general to prevent the embattled officials from entering. And although the assembly is allowed to dismiss judges, it neglected to hold the requisite hearings. It named the new magistrates and a new attorney-general without following the correct nomination process. They seem likely to side with Mr Bukele. The new president of the constitutional chamber has little experience in constitutional law. Another is a former adviser to the president.

The firing lays bare not only Mr Bukele's authoritarian urges, but also the weakness

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of the system set up after the civil war, which ended in 1992. A secretly negotiated amnesty law that helped bring the war to a close set a precedent of impunity. Politicians saw institutions not as independent bodies but as spoils to be shared among the main parties: the Farabundo Martí National Liberation Front (FMLN), a left-wing outfit that started as an umbrella group for guerrilla forces, and the Nationalist Republican Alliance (Arena), a conservative party that was founded by a former soldier to oppose those guerrillas.

Other governments have tried to do similar things in the past. In 2012 the Supreme Court and the assembly, then dominated by the FMLN, clashed over appointments of judges, leading to a standoff. But no one in the country has ever wielded as much power as Mr Bukele. The opposition parties, which hold only 20 seats between them, have been sidelined. They were left out of the planning meetings for the first legislative session. Opposition MPs had their microphones and voting screens turned off for most of it. Both the police and the army appear to be under Mr Bukele's sway, too.

The president is likely to go after remaining state institutions, such as the human-rights ombudsman and the supreme electoral tribunal. On May 3rd he tweeted: "The people did not send us to negotiate. All are going." Journalists fear they will be muzzled. Mr Bukele has already denounced some, threatened criminal charges against others and launched a money-laundering investigation against *El Faro*, an influential digital newspaper.

Criticism from abroad does not seem to worry the president, who increasingly behaves like a modern-day *caudillo*. He said it was no concern of the rest of the world that El Salvador was "cleaning" its house. Even so, the reaction from the United States—home to 2.3m Salvadoreans and, most importantly, a source of cash—will still matter. But the administration of Mr Biden is in a tricky bind, since it wants help from Central American countries to reduce northbound migration.

Mr Bukele's weak point is the economy. He does not have the cash he needs to fund his ambitious social and infrastructure programmes. Some members of the United States Congress and Human Rights Watch, an NGO, are calling on the IMF to call off or make conditional a $1bn bail-out that El Salvador is currently negotiating (it received $389m in emergency loans during the pandemic). Rumours swirl that China, which did not condemn the ransacking of the court, would be willing to finance El Salvador's short-term needs.

An economic squeeze might also be the only thing that can dent Mr Bukele's incredible popularity. Salvadoreans point to tangible things he has done for them, such as sending out laptops for students and food parcels for many families during the pandemic. But even if people now regret voting for an authoritarian leader, it may be too late, as Mr Bukele will have already captured the state, says Celia Medrano, a Salvadorean candidate to head the Inter-American Commission on Human Rights, a regional body. "We are at the start of a long night." ■

A terrible accident in Mexico City

**On May 3rd a section of Mexico City's metro collapsed into the street below. At least 25 people were killed; many more were injured. The accident occurred on Line 12, the newest part of the system, which has been plagued by problems since it opened in 2012. The political fallout could affect Claudia Sheinbaum, the mayor, and Marcelo Ebrard, the foreign minister, who was mayor during the construction of the line. Both are seen as potential successors to President Andrés Manuel López Obrador.**

Protests in Colombia

# Taxing times

BOGOTÁ

**An unpopular but much-needed tax reform is scrapped**

SINCE APRIL 28TH protesters have defied an 8pm curfew, and the risk of catching covid-19, to take to the streets of Bogotá, Colombia's capital. They have burned buses and police stations and looted banks and shops. Protesters also blocked all the main roads leading to Cali, the country's third-largest city, for several days, resulting in empty shelves in grocery shops and a shortage of medicine in hospitals. At least 24 people died and more than 800 civilians and police officers have been injured. On May 1st Iván Duque, the president, sent in the army to quell the violence.

The protests were triggered by a tax-reform bill the government sent to Congress on April 15th. On May 2nd Mr Duque withdrew the unpopular bill. The next day the finance minister, Alberto Carrasquilla, resigned. But resentment against the president, whose approval rating is 33%, means that the unrest is likely to continue.

Mr Duque's reform was sorely needed. Because of the pandemic, Colombia's deficit has tripled to nearly 8% of GDP. The reform would have removed many VAT exemptions and lowered the threshold for starting to pay income tax. (Income-tax revenues in Colombia are among the lowest as a share of GDP in the OECD, a club mostly of rich countries.) Pensions would have been taxed, too. Spending on social programmes would have increased, potentially benefiting 19m people. Mr Carrasquilla claims the bill could have reduced the share of Colombians who are extremely poor (earning less than 145,000 pesos a month, or $38) by six percentage points.

Most Colombians, however, saw it as unfair. One of the longest lockdowns in the world has emptied wallets and sapped morale. Last year 2.8m people fell into extreme poverty. More than 500,000 businesses have closed. Even though the tax increases would hit the wealthiest hardest, 80% of people, when surveyed, opposed the bill.

The bill was not the protesters' only grievance. Colombians are frustrated, particularly with Mr Duque. The president promised to make the country safer. But violence is getting worse. Colombia is exporting record amounts of cocaine and illegal armed groups are growing stronger. Since 2016, the year a peace deal was signed with the FARC, the country's biggest rebel army, other armed groups have driven a growing number of rural people from their homes and murdered hundreds of local

leaders. Colombians also blame the government for mishandling the pandemic.

Indeed after Mr Duque withdrew the reform, the protests became far more violent. The government has been chided for its excessive use of force. An armoured vehicle was filmed in Bogotá firing live ammunition in a residential neighbourhood. The ombudsman is investigating the disappearance of around 40 people.

On May 4th Mr Duque said he would set up a "forum for national dialogue", where the government will meet protesters and other civil groups. As *The Economist* went to press, it seemed that some of the protesters would meet with the government on May 10th. But as their list of demands has grown longer—to include withdrawing a health-reform bill, introducing a guaranteed minimum income and an end to the forced eradication of coca crops, among other grievances—so too has the likelihood that they will not leave the streets.

All this will make Mr Duque weaker. Unlike his predecessors, he does not have a stable majority coalition in Congress. Even his mentor, Álvaro Uribe, a former president, has distanced himself from Mr Duque; he was one of the first to speak out against the bill.

Gustavo Petro, a left-winger, is gaining momentum in the polls. He lost against Mr Duque in the presidential elections of 2018, but is planning to run again next year. He has proposed that the central bank print more money to deal with the aftermath of the pandemic, and has praised the late Hugo Chávez, the despotic socialist who set Venezuela on the path to ruin. Instead of a bold tax reform, Mr Duque's legacy may instead turn out to be ensuring that Colombia gets its first socialist president. ■

## Bello Whose fish are they anyway?

*A bid to protect part of the Pacific raises legal conundrums*

AT 7.30AM ONE February morning last year, the great Bay of Paracas shimmered in the light from the desert. Storms of seabirds—small Inca terns and petrels, large cormorants and Peruvian boobies—swirled over the shore, retreating like a mirage on approach. Flamingos flew javelin-straight. Pelicans bobbed on the water, so ungainly that they seem designed by a committee until they took flight, elegantly skimming the waves.

All take advantage of a food chain centred on great shoals of *anchoveta* (Pacific anchovies), which in turn feed on the nutrient-rich plankton provided by the upwelling of the cold Humboldt current along much of Peru's coastline of 2,500km (1,600 miles). These riches have given the country one of the world's great fisheries, the third-biggest after China and Indonesia. Exports of fishmeal, oil and frozen and canned fish are worth around $3bn a year. All told, the fishing industry supports around 700,000 jobs. And fresh fish and seafood are at the heart of Peruvian cuisine, one of the world's tastiest.

Peru has many problems at the moment. The pandemic has hit it hard. It is suffering political instability that a presidential run-off election next month is unlikely to resolve. But sustainably managing the country's marine resources is a vital medium-term task. It is also a matter of current dispute.

Last month the government of Francisco Sagasti, the president since November, published a draft decree to establish a marine reserve, known as the Nazca Ridge. It would cover an area of the Pacific about the size of Latvia 100km offshore that contains a submerged mountain range up to 4kms down. This undersea massif is a refuge for endangered species, such as the loggerhead turtle, sharks, orcas and the blue whale, as well as yellowfin tuna and swordfish.

Environmentalists have pushed for this for years. Peru has been a pioneer in managing the *anchoveta* fishery. In 2009 it introduced a transferable quota system. The marine research institute fixes the total catch and monitors boats closely. The stock has remained roughly constant. But the country has been a laggard in creating marine protected areas. Under the International Convention on Biological Diversity, it signed up to a target of protecting 10% of its seas by 2020. But so far it has only designated four small coastal reserves (Paracas, the first, dates from 1975). That contrasts with a regional average in Latin America of almost a quarter.

The Nazca Ridge covers 7.3% of Peruvian waters. Both environmentalists and the fishing industry back it in principle. But a big row has broken out over the details. Article 5 of the draft decree separates the reserve vertically into two zones. It would allow commercial fishing for the first kilometre below the surface and ban it below that, with one exception: a single family with six boats would be allowed to continue deep-sea long-lining for Patagonian toothfish, as that family has done for a dozen years. The fishing industry has pushed for Article 5. "It's important that the specifics are set out and not left open to interpretation," says Cayetana Aljovín of the National Fisheries Society.

For some environmentalists Article 5 pre-empts a scientific discussion about the management of the reserve. For others it undermines the whole point of it. "It's a power battle for the fishing industry," says Patricia Majluf of the Peruvian branch of Oceana, an NGO. "They think Peruvian waters are theirs and they manage everything perfectly." International experience shows that banning all fishing in an area leads stocks to regenerate and quickly increases catches nearby. And enforcement is easier if all boats are prohibited.

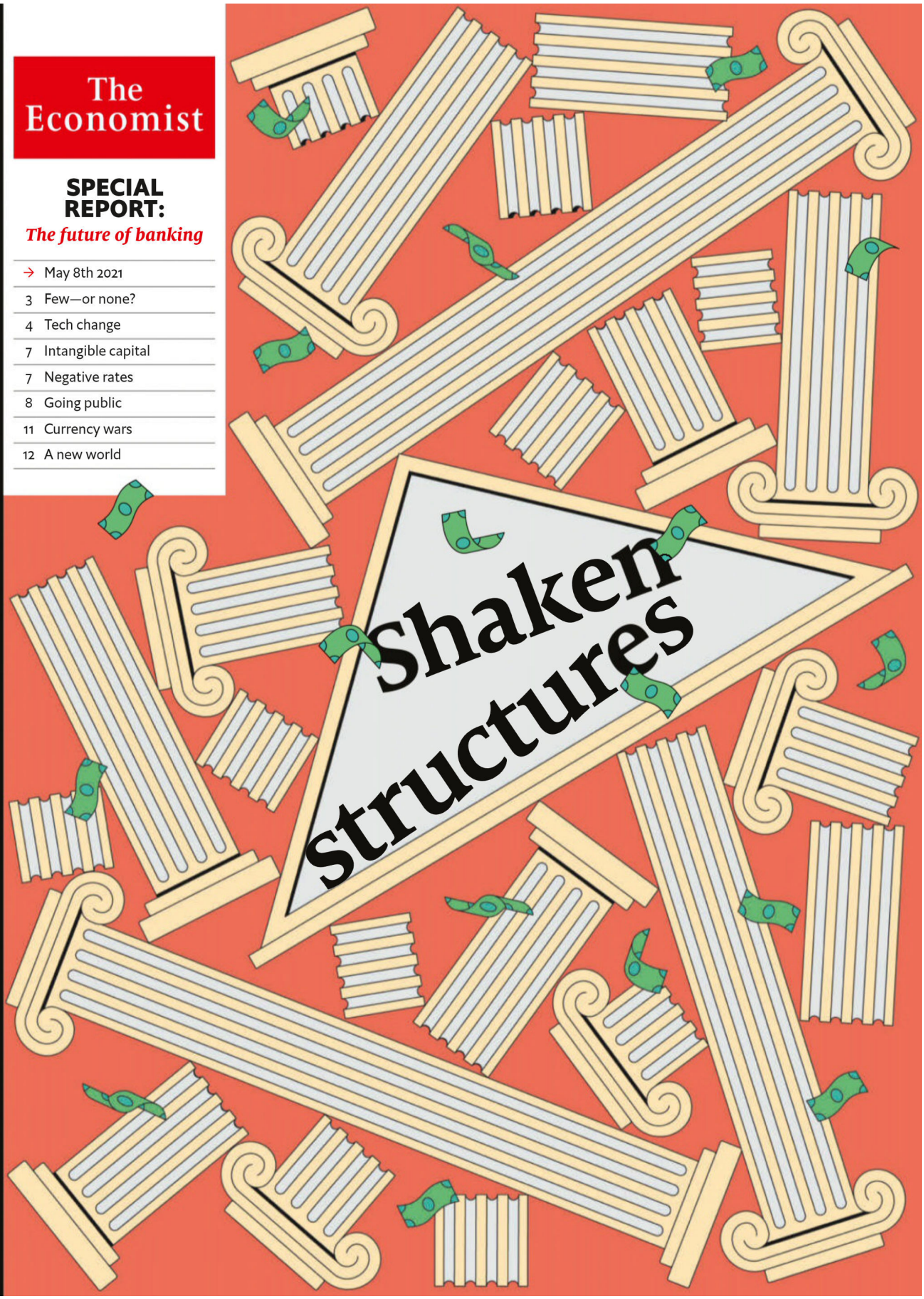
The problem is that Peruvian law recognises prior rights, even in protected areas. Officials are worried that a total ban would be legally unenforceable. "You have to allow a very small amount of activity to protect a very large area," says a senior official. He says the government will try to prevent the toothfishing family from transferring their permit to any other fishermen.

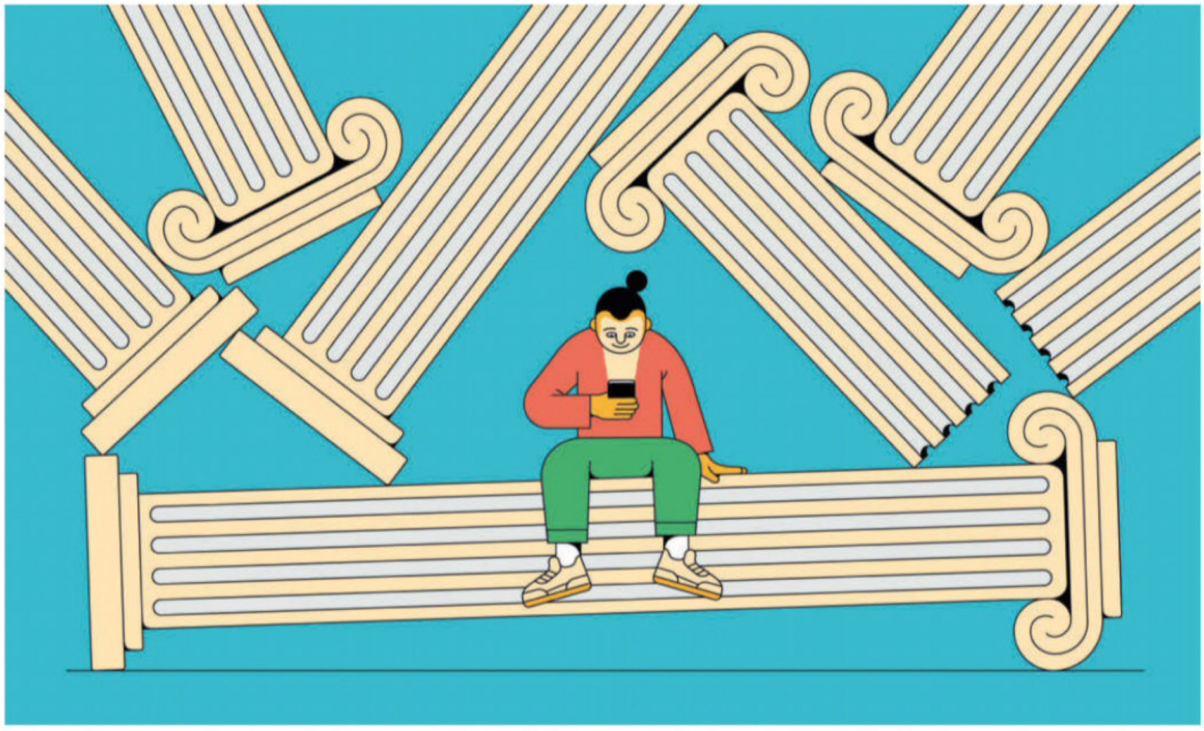
Mr Sagasti's government has done a creditable job of trying to mitigate the pandemic and organise vaccinations. But it is only a caretaker. An imperfect reserve may be the most it can manage before it leaves office on July 28th. Yet the issues at stake will surely recur. According to some scientists, climate change is likely to lead to fewer *anchoveta*. Peru should find a way to organise watertight reserves. Private property rights cannot be as absolute over the fish in the sea as they are on land.

The Economist

**SPECIAL REPORT:**
*The future of banking*







# Fewer—or even none?

**Imagine there were no banks—it is possible, says Alice Fulwood**

IT IS HARD to conceive of a world without banks, partly because they are so visible. Picture the horizon of any big city, and the skyscrapers in view are usually banks. Commuters emerge from Grand Central station in New York in the shadow of the Park Avenue base of JPMorgan Chase. Morgan Stanley looms over Times Square; Bank of America over Bryant Park. In London the skyline is dominated by odd-shaped towers in the City and Canary Wharf. In Singapore the top floors of the offices of Standard Chartered and UOB house rooftop bars looking out over the entire city. Even in places like Auckland, Mexico City or Jakarta, the logos adorning the tallest buildings are those of ANZ, BBVA or HSBC.

The physical dominance of banks symbolises their importance. Most people interact with their banks for such mundane transactions as buying groceries. Companies pay their workers, suppliers and landlords through banks. Banks are also there for bigger decisions, such as buying a house or getting a student loan.

For almost as long as there has been money (whether cowrie shells, gold, banknotes or digital deposits),there have been institutions providing safe storage for it. And for as long as deposit-taking institutions have existed, their managers have realised how in normal times not all depositors will demand their money back at once. That means they do not have to keep cash on hand for every deposit—instead they can use the money to make loans. Thus bankers provide funding for private investment and earn interest for themselves. This was a marvel to classical economists. "We have entirely lost the idea that any undertaking likely to pay, and seen to be likely, can perish for want of money," wrote Walter Bagehot, then editor of *The Economist*, in his 1873 book "Lombard Street". "Yet no idea was more familiar to our ancestors."

The "fractional reserves" that banks hold against their deposits have another effect, however: to make them inherently unstable institutions. The history of capitalism and of money is thus one of relentless economic enrichment, pockmarked by the scars of frequent bank runs and financial crises.

Much has changed about banking since Bagehot's day. Then the biggest banks were in London; now they are in New York, Beijing and Tokyo. Technological change means nearly all payments are settled digitally, rather than with notes or cheques. The banks are also far bigger. The total assets of the world's biggest 1,000 banks were worth some $128trn in 2020, dwarfing annual global gross product of $84.5trn.

And yet a world without banks is also visible on the horizon. As never before, their role is under threat from new technology, capital markets and even the public sector. Central bankers have seen tech giants develop quicker and easier payments systems that could pull transactions out of the banking system. They worry that digital payments may bring about the end of cash. Financial regulation and monetary policy have traditionally operated through banks. If this mechanism is lost, they may have to create digital central-bank money instead.

Because technology has disrupted so many industries, its impact on banking may seem like one more example of a stodgy, un-

competitive business made obsolete by slick tech firms. But money and banking aren't like taxis or newspapers. They make up the interface between the state and the economy. "The deep architecture of the money-credit system, better known as banking, hasn't changed since the 18th century, when Francis Baring began writing about the lender-of-last-resort," says Sir Paul Tucker, formerly deputy governor of the Bank of England and now at Harvard. "Which means it has not, so far, depended on technology at all, because Francis Baring was writing about it with a quill pen."

Now a new architecture is emerging that promises a reckoning. "Economic action cannot, at least in capitalist society, be explained without taking account of money, and practically all economic propositions are relative to the *modus operandi* of a given monetary system," wrote Joseph Schumpeter in 1939. Yet it is possible to see a future in which banks play a smaller role, or even none at all, with digital money and deposits provided by central banks, financial transactions carried out by tech firms and capital markets providing credit.

## Bad change or good?

The question is whether such a world is desirable. Banks have many flaws. Scores of the unbanked are too poor to afford them. They can be slow and expensive. They often make more money from trading and fees, not normal banking. Negligent banks can create boom-and-bust cycles that inflict economic hardship. So it is easy to assume that the sidelining of banks might be just another shackle broken by technological advance.

Yet a world without banks poses some problems. Today central banks provide very little to economies. Around 90% of the broad money supply is in bank deposits, underpinned by small reserves held with the central bank and an implicit central-bank guarantee. This makes it easier for central banks to instil confidence in the system while still keeping at arm's length from credit. Widely used central-bank money would bring them nearer the action, causing their balance-sheets to balloon. This creates risks.

Banking and capitalism are closely linked. Economists still debate why Britain industrialised first, but it is hard to read Bagehot and not conclude that the alchemy of banks turning idle deposits into engines for investment played a part. The question is what happens if central banks play a bigger role instead. It might be possible for them to avoid actually distributing loans, but it is hard to see how they could avoid some interference in credit markets.

There are broader social risks as well. Banking is fragmented, with three or four big banks in most countries, plus lots of smaller ones. But state-issued digital currencies and private payments platforms benefit from network effects, potentially concentrating power in one or two institutions. This could give governments, or a few private bosses, a wealth of information about citizens. It would also make the institutions a lot more vulnerable. A cyber-attack on the American financial system that closed JPMorgan Chase for a time would be distressing. A similar attack that shut down a Federal Reserve digital currency could be devastating. And there is the potential use of money for social control. Cash is not traceable, but digital money leaves a trail. Exclusively digital money can be programmed, restricting its use. This has benign implications: food stamps could be better targeted or stimulus spending made more effective. But it also has worrying ones: digital money could be programmed to stop it being used to pay for abortions or to buy books from abroad.

The scope of the issues this special report will consider is vast. It includes the role of the state in credit provision, the concentration of power in tech firms or governments, the potential for social control and the risk of new forms of warfare. A world without banks may sound to many like a dream. But it could turn out to be more like a nightmare. ■

Banks v big tech

# Regime change

**Bankers, once the kings of capital, may be dethroned by payment platforms**

"THE DISTINCTIVE function of the banker 'begins as soon as he uses the money of others'; as long as he uses his own money he is only a capitalist," wrote Walter Bagehot in 1873, quoting Ricardo. This distinction may seem outdated. Institutional investors (hedge funds, mutual funds, pension funds, private equity) all use other people's money. Yet Ricardo's point matters.

Modern institutions are the interface between individuals and their capital. Gains (or losses) are returned to individuals. By investing in this way, people typically deploy their own money, with the fund acting as a mere tool. Banks also use deposits, the money of others, to extend loans. But customers expect to get their deposits back in full: they do not expect to bear the bank's loan losses in bad years, nor to reap greater rewards in good ones. It is the banks that take both losses and gains.

This process may make banks unstable, but it also gives them a big advantage in financial services, since deposit-taking and lending are complementary. Banks have as a result become providers of any and all financial services that a client needs, from a credit card to a mortgage to investment advice. Yet all these are now under threat. The clout of non-bank financial firms is growing, making the balance-sheets that banks use to support lending less valuable. And tech giants are using the competitive power of their platforms to muscle into banks' main business. It is as if the entire industry were in a pincer grip that might one day kill it.

It is as if the entire industry were in a pincer grip that might one day kill it

Consider such tech apps as Grab in Singapore or Gojek in Indonesia, which both started as ride-hailing services, or Mercado Pago, the financial arm of MercadoLibre, Latin America's largest e-commerce site. Their model of financial services starts by being a dominant provider of a service that customers use daily. The most advanced examples are AliPay and WeChat Pay in China. Ant Group, the financial offspring of Alibaba, was born out of the fact that shoppers flocking to Alibaba lacked a safe payment method. Alipay was initially just an escrow account to transfer money to sellers after buyers had received their goods, but it was soon launched as an app for mobile use. In 2011 it introduced QR codes for payments, which are trivially easy to generate. Now a shop owner need only display the code to accept money.

This means of payment proliferated, supercharging Alipay's growth. It has more than 1bn active users and handled $16trn in payments in 2019, nearly 25 times more than PayPal, the biggest online-payment platform outside China. A competitor arrived in 2013 with Tencent, which added a payment function to WeChat, China's main messaging app. Together the two process some 90% of mobile transactions in China.

The first blow to banks is that both companies earn as little as 0.1% of each transaction, less than banks do from debit cards. Interchange fees around the world have tumbled because of such firms. "It was very lucrative for fintechs to come in and compete these fees away," says Aakash Rawat of the bank UBS. "In Indonesia they have fallen from 200 basis points to just 70." But the bigger threat is that payment platforms may become a gateway allowing

tech platforms to attract more users. Using data that payment transactions provide, Ant, Grab and Tencent can determine a borrower's creditworthiness. Ant began consumer lending only in 2014. By 2020 it had already grown to account for about a tenth of the consumer-finance market in China, though regulators are now reining it in.

Banks have traditional ways to assess borrowers' creditworthiness, such as credit history or current wealth. Often they secure loans against collateral, like homes or cars, minimising the need to monitor an individual borrower. Bob Hope, a comedian, quipped that "a bank is a place that will lend you money if you can prove that you don't need it."

Yet as Agustín Carstens, boss of the Bank for International Settlements, a club of central bankers, said in March, "Data can substitute for collateral." The information that payment platforms have on users is so plentiful and, until recent crackdowns, the restrictions so lax in China, that Markus Brunnermeier, of Princeton University, talks of "an inverse of the information asymmetry", in which lenders know more about whether borrowers will repay than borrowers themselves. Big tech and fintech firms have lent $450 per head in China, around 2% of total credit, in five years.

As banks found decades ago, there are synergies between loans and other financial products, like asset management and insurance. Ant muscled into asset management in 2013 with the launch of Yu'e Bao, where shoppers with cash in Alipay earn a small return by parking it in a money-market fund. In 2019 Yu'e Bao briefly became the world's biggest money-market fund by size, before the central bank put pressure on Ant to shrink it. Ant supplemented this with other investment options and also expanded into life, car and health insurance in partnership with other firms.

Tech firms are using their platforms to reverse-engineer banking. This has even caught on in America, where credit-card sweeteners keep users hooked and payments tech has lagged. Enthusiasm for payment platforms has accelerated during the covid-19 pandemic, which forced shoppers online. PayPal has almost doubled in market value over the past year to more than $310bn, making it the world's most valuable payment platform.

Stripe, a business-payment provider, is now valued at $95bn, making it the largest private tech company in America. Stripe's success as a business platform suggests it is not just retail banking that might be under threat, but corporate banking as well. The firm won favour with tiny businesses by making it easier to embed payments in their websites. It has expanded into payroll and cash-management services.

## Knowledge can be power

Such platforms cannot do everything a bank does, because they do not have a balance-sheet to sustain lending. A bank's advantage lies in having deposits to exploit, even if they do not know whom they should lend them to. Tech firms' advantage is that they know whom to lend to, even if they do not have the funds. So some platforms have decided they would like a balance-sheet. Grab, which is about to go public at a valuation of some $40bn, has acquired a banking licence. If many others took this path banks might remain at the heart of the financial system, though the biggest could be Ant, Grab or Mercado Pago, not HSBC, DBS or Santander Brasil.

But most tech firms have opted against banking licences. They are instead skimming the cream off the top. "Core banking", the heavily regulated, capital-intensive activity of banks, makes around $3trn in revenue worldwide, and generates a 5-6% return on equity (ROE). Payments and product distribution, the business of the tech firms, yields $2.5trn in sales but with a ROE of 20%.

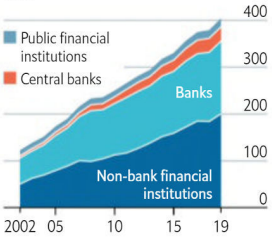
Ant initially made loans and packaged them as securities sold to other financial institutions. But Jack Ma, its founder, fell foul of the government and regulators. So they demanded that originators of securities hold capital against them, trimming Ant's margins. The firm's next approach was to act as a conduit, connecting borrowers with banks, which made the loans. But regulators worried that Ant had too little skin in the game, so demanded it hold more capital. Ant must now rethink its business model.

Banks are not the only institutions that may bid for loans or securities that tech platforms want to flog. The balance of power has

**Money out of the bank**
World

Non-bank financial institutions as % of total global financial assets


Financial assets by sector, $trn




Source: Financial Stability Board

shifted towards non-banks. According to the Financial Stability Board (FSB), a group of regulators, the capitalists are often bigger players. In 2007 global assets of non-bank financial firms stood at $100trn, equivalent to 172% of gross world output and 46% of total assets. In 2019 these assets, at $200trn, constituted 228% of gross world output and half of the total. "The banking system is smaller, as a share of finance, than it was before," notes Jamie Dimon, boss of JPMorgan Chase.

Banks still dominate the holding of credit and lending assets. Just shy of 40% of all credit assets, including securities and loans, are held by non-banks, though their share is growing fast. It rose by nearly 9% in 2019, whereas banks' credit assets grew by just 4.6%. Yet banks remain the largest source of specific loans, holding 83% of global lending assets at the end of 2019.

The switch is most obvious in America, which has a history of capital-market growth as far back as the 1940s, when the pots of money raised by mutual-fund managers swelled. The 1980s brought a rush of debt issuance, especially of junk bonds, by companies. And there was a boom in household debt via securitisation, the bundling of loans into bonds that can be bought and sold. Yet nervousness about securitisation after the financial crash means that now, in America, just 20% of financial assets are on banks' balance-sheets.

Other countries are following America, not least because regulators want banks to reduce their holdings of risky assets. In the euro area, the share of financial assets held by banks fell from around 60% of the total in 2007 to below 40% in 2019. Much of the world still has a long way to go. "In emerging markets, it is a different story. They are very bank-dependent with very limited capital markets. Some of their capital markets are still in their infancy," says Carmen Reinhart, chief economist at the World Bank.

The rise of tech firms and capital markets is mostly good news. Access to banks can be costly. Some 7m households in America are unbanked, relying on cheque-cashing firms, pawn shops and payday lenders. Credit and debit cards levy fees of 1-4% on merchants, which are remitted to the rich via air miles and credit-card points. This means that the average cash-using household in effect pays $149 over a year to card users, and each card-using household receives $1,133 from cash users, partly in the form of rewards, said a paper in 2010 by economists at the Federal Reserve Bank of Boston.

**Fragmentation to a wider range of participants makes life harder for regulators**

New payment systems are also easier to use. UPI in India, which links mobile-phone numbers to biometric data and bank accounts, has helped provide cheaper access to financial services for millions of people. Between 2014 and 2018, 315m previously unbanked Indians have opened accounts, depositing more than 800bn rupees ($12bn), and received 237m debit cards.

Most non-banks do not undertake the maturity and liquidity transformation that makes banks vulnerable to runs. According to the FSB, 29% of the $200trn in assets held by non-bank financial institutions take risks typical of banks, though the share is growing. Most assets are held in investment funds that promise more liquidity. They try to match maturities: a pension fund paying retirement income in 30 years is happy to lock its money up in a private-equity fund for a decade or more.

The triumph of these competitors brings clear benefits, but also some risks. There are economies of scale for both banks and tech firms. Big banks spread the fixed costs of branches and marketing over many customers. Payment platforms spread costs over many users. The value proposition for a customer to join a bank scales with size. A bank can offer cheaper products because it has lots of customers. Yet the value proposition for a payment platform grows exponentially with the network, as each new user makes the system more valuable.

Regulators often complain about concentration in the American banking system, but there are four large banks and thousands of smaller ones. Payment platforms' comparative advantage makes these businesses more likely to reach a winner-take-all end state (rather like Facebook).

## Tech monopolies

Today's debate over technological monopolists focuses on interoperability, particularly of user data. If online behaviour were able to uncover helpful information about whether a customer qualifies for a loan, it would be more useful if it could be accessed by all potential financial providers. The idea of sharing data in this way, called "open banking", has already been embraced by regulators in Europe. Another concern could be that platforms might exploit their market dominance to create silos that made it easy to do things within a platform, but well-nigh impossible to use stored money elsewhere.

Regulators in China have turned sharply against its fintech giants. Ant's troubles began last November when they kiboshed its initial public offering. The firm and its peers are now being forced to retract some credit products, to obtain new business licences and to raise more capital—in short to look and act more like a traditional bank. In Europe regulators are similarly nervous. "The authorities are facing the prospect that an increasing amount of data will be collected through payments for other use," says Jean-Pierre Landau, a former deputy governor of the Banque de France. "Then it becomes impossible to think of the organisation of payments separately from data priorities, which in Europe are focused on protecting the privacy of individuals."

The risks from the rise of capital markets are different. It may be that bank balance-sheets will fund a smaller share of lending in future, but as banks are the only institutions that can take deposits their role would not disappear. Yet the arrival of a wider range of participants makes life harder for regulators. In 2007-09 the Federal Reserve intervened in capital markets, but went to much greater lengths to prop up commercial and investment banks. In March 2020, banks went unscathed when capital markets seized up. Rather than acting as lender-of-last-resort only to banks, the Fed became market-maker of last resort, intervening directly in credit markets. The scale of this quantitative easing, to the tune of $23.5 trn, surpasses any other in the Fed's history. Such efforts to stabilise financial markets make it harder for the Fed to avoid picking winners and influencing credit. As the world changes, regulators' toolkit will have to adapt. ■

Debt v equity

# Intangible capitalism

### Why bankers are scarce in Silicon Valley

TO UNDERSTAND WHAT was a risky venture in 19th-century America, visit the Whaling Museum in Nantucket. The industry thrived on this Massachusetts island, now transformed from an outpost for coarse sailors into a swanky beach spot. Two centuries ago, whales were valuable because of the lucrative oil in their head-cases. Captains amassed fleets of sloops and dozens of men armed with harpoons to hunt them. For lucky crews that found their "white whales" the rewards were enormous, but so were the risks of losing ships and souls in the hunt. In "Moby Dick" Herman Melville admonishes the reader: "for God's sake, be economical with your lamps and candles! Not a gallon you burn, but at least one drop of man's blood was spilled for it."

The risk of losing all was too great for bankers, who refused to lend money to whalers. So a new breed, the whaling agent, stepped in to provide captains with capital in return for a share of profits. Although stakes in many voyages might be lost they spread the capital so that one successful voyage made up for it. This model was an oddity in the 1800s, but the trade-off will sound familiar to venture capitalists today. In their business low-probability, high-pay-off outcomes are the "allure of the long tail". Venture capitalists fund startups by investing in a broad portfolio in hopes of finding the next Google or Amazon.

The difference between whaling agents of 19th century New England and today's venture capitalists is their importance. Even at its peak in the 1850s, whaling contributed only 1.7% of American industrial output. Bankers financed the behemoths such as railroads, manufacturers and farmers. The first recognisable venture-capital fund, ARD in Boston, was created in 1946, but its successors loom much larger. Just shy of half all listed American companies were once venture-backed. The ascent of venture capital has come, in some ways, at the expense of other financiers. Bankers are conspicuous by their absence in Silicon Valley.

Why has venture capital boomed? One theory, posited in "Capitalism without Capital" by Jonathan Haskel, at Imperial College

# Time is cheap

*Banks do less banking with interest rates at zero*

BANKING COULD be called the business of time travel. When savers deposit money in a bank, they postpone consumption. When borrowers take out loans they pull future consumption forward. Banks facilitate this by the magic of interest. When they make loans and charge interest, or pay interest on deposits, they are really putting a price on time itself. But when interest rates are zero, or even negative, this trick becomes much harder to pull off.

This phenomenon is not new. Interest rates have trended lower for decades and have been below zero in Japan and Europe for half a decade. "We have complained for years about the low interest-rate environment, and I cannot hear that any more", says Christian Sewing, boss of Deutsche Bank in Germany. "This is a new normal."

In the short term low interest rates can be a boon for profits by stimulating an economy and pushing up asset prices, both of which boost banks. But persistently low interest rates are a thorn in bankers' side, as they are associated with lower net interest income. It can be hard for banks to pass low deposit rates on as interest rates decline, but they must often lower rates on loans.

Mr Sewing understands this well. Although policy rates in Europe have been negative since 2014, it was only last year when he told his employees to grit their teeth and charge negative rates to clients. Bankers across Europe had long worried "well, if we do this, we will lose the client." This fear proved unfounded. In the past year, many banks have levied negative rates on clients, including Deutsche Bank, which charged them on more than €80bn ($97bn) of deposits.

For most banks a "lower-for-longer" environment requires other changes. Starved of net interest income, bankers seek revenue from fees for investment management or security issuance. "The more diversified your set-up the better," says Mr Sewing. The impulse to diversify seems universal. Michael Brei, Claudio Borio and Leonardo Gambacorta, of the Bank for International Settlements, sampled the activities of 113 large banks in mostly rich countries, where interest rates have been lowest. They found that, as rates approached zero, banks rebalanced away from deposit-taking and lending, which are interest-generating, to intermediation activities that produce fee income. These effects were larger over the long term, suggesting it is not just the mechanical drop in interest income as a share of profits that prompts it, but a deliberate effort to adjust activity.

So what if skinny profits irk the bankers? The problem is that their troubles can cause difficulties for everybody else. As bank margins are compressed, their capital is often eroded, which can stymie banks' ability to lend. Economists have long worried that these dynamics conflict with monetary policy at the lower bound. Cutting interest rates is supposed to stimulate lending, not curtail it. Markus Brunnermeier, at Princeton, and Yann Koby at Brown, call the interest rate below which a further rate cut has depressive effects the "reversal rate". And they find that the effects are exacerbated where capital constraints are tight, penalising the big banks, and in countries engaging in quantitative easing, which forces banks to hold even more deposits.

**Down, down**

Ten-year government-bond yields, %


Source: OECD

London and Stian Westlake, a researcher at Nesta, a think-tank, begins with the shift in how businesses invest. Firms once mostly invested in physical stuff ("tangible capital") like railroads, equipment, vehicles or machinery to make things. Now they increasingly invest in research, branding and software ("intangible capital") to produce intellectual property. According to data from Lee Branstetter of the Peterson Institute for International Economics and Dan Sichel of Wellesley College, 13-14% of the output of businesses in 1980 was invested in tangible assets and just 9% in intangible assets. By the mid-2010s these shares had switched: around 14% was spent on intangibles, and 9% on tangibles.

The rise of intangible capital may explain several capital-market trends, including the fact that private firms are tending to stay private for longer and the popularity of mergers. Software companies find it easier to protect intellectual property in private markets. Rigid accounting rules do not cope well with intangible capital, for instance by mostly booking spending on research as an expense, discouraging it.

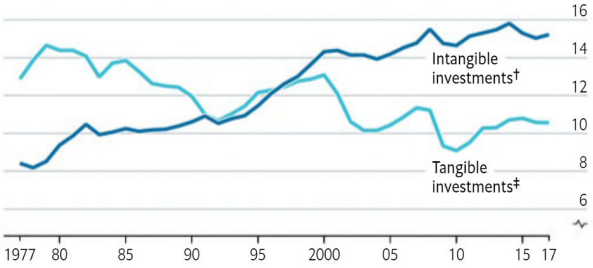
The shift has other broad implications. Lenders like collateral: whenever financiers make loans they worry about being repaid, but they can take valuable property in case of default. Most consumer lending is secured against houses or cars. But businesses that create intangible assets do not have such collateral. This can make it harder to secure debt-financing, which is often not available unsecured for new businesses at a reasonable rate. Stephen Cecchetti, an economist at Brandeis University, calls this the "tyranny of collateral".

American software firms have debt worth just 10% of equity. By contrast restaurants often have debt worth 95% of their assets. Tech firms frequently rely on seed funding and venture capital. This cannot be explained solely by a lack of demand: the tech firms might like to borrow if they could. "The companies that we are talking to today believe their valuations will be a lot higher next year," says Scott Bluestein, boss of Hercules Capital, which lends to software and biotech firms. "If they can use structured debt to get there without having to raise equity, they can limit a significant amount of dilution, which can be very valuable for management and early investors."

Some niche lenders manage. "We do lend secured," says Greg Becker, boss of Silicon Valley Bank in Santa Clara. "We are often secured by intellectual property which, for a software company, is their ability to generate revenue from code." This comes with other risks. "We will take losses in situations where software once had value, but the industry was disrupted in a way that it no longer does. That is just harder for traditional banks to get their arms around versus hard assets." Most banks are less flexible. ■

**Out of touch**

United States, business investment as % of output*




*Non-residential business investment as a share of gross value-added
†Non-scientific research & development, branding, training ‡Physical assets, machinery and equipment
Source: Corrado and Hulten (2010), INTAN-Invest

Public v private money

# Going public

### Will banks survive the transition to a new monetary system?

EAGLE-EYED BEACHCOMBERS may recognise the round white shells etched with a five-petal flower. These erstwhile homes of sea urchins resemble a silver dollar, earning them the nickname "sand dollars" and the myth that they are the money of mermaids or the long-lost city of Atlantis. They pile up on the shores of the 700 islands in the Bahamas, so its central bank picked the sand dollar as its logo. In October 2020, when the Bahamas launched the world's first central-bank digital currency (CBDC), the authorities chose to adorn the app with the familiar floral pattern and call it the sand dollar.

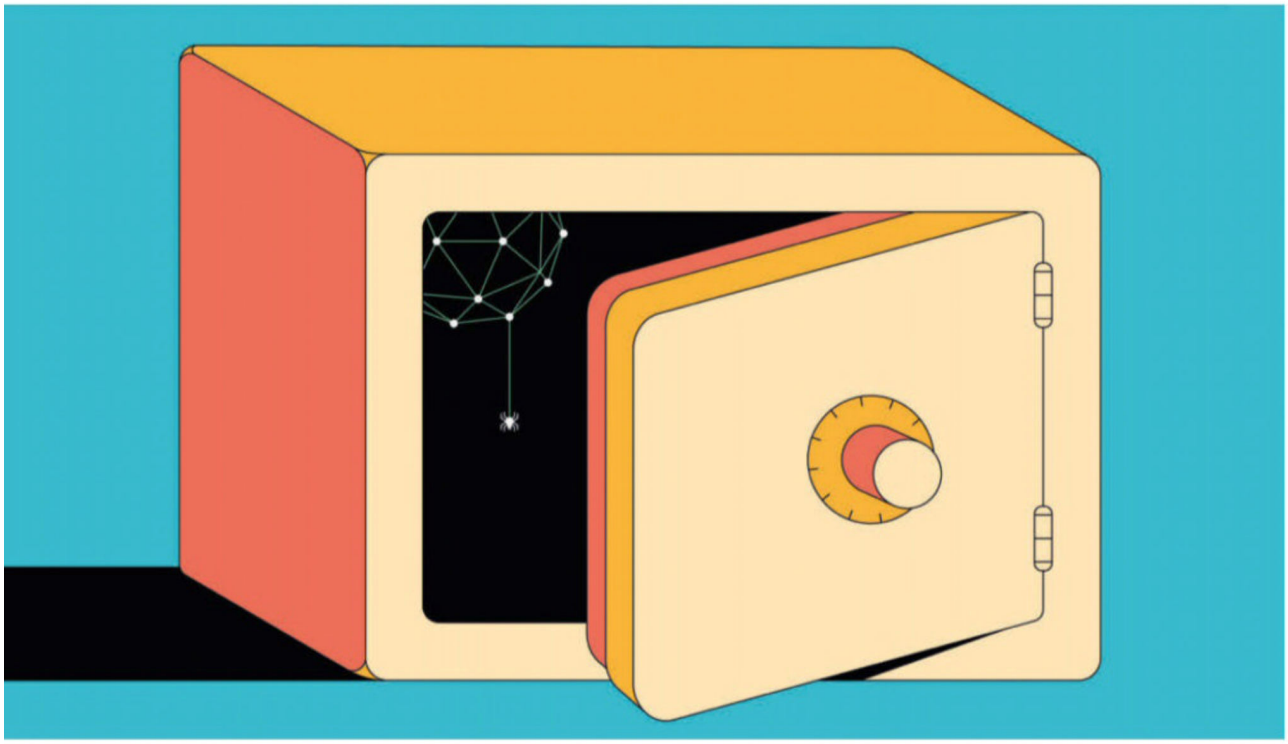
CBDCs are a digital version of cash—the physical money issued by central banks. In most countries, their design will resemble existing online platforms, but with a difference: money held as a CBDC is equivalent to a deposit with the central bank. In China more than 100,000 people have downloaded a similar trial mobile-phone app, enabling them to spend small government handouts of digital cash, or "e-yuan". The app, like the paper yuan, depicts Mao Zedong. European officials want to launch a digital euro by 2025. On April 19th the Bank of England and the British Treasury launched a taskforce to consider the idea. In America the Fed is also looking into it. A survey by the Bank for International Settlements finds a large majority of central banks researching or experimenting with CBDCs. They may be in use by countries with a fifth of the world's population in as little as three years' time.

Until recently the concept of a retail CBDC was the province solely of starry-eyed economists, an interesting but impractical idea. But "in just two years we have seen a dramatic change in the way people and authorities think and talk about money," says Jean-Pierre Landau, a former deputy governor of the Banque de France. "I cannot think—in peacetime and outside of a crisis—of a recent period where so much has changed in the way people think about money."

What has prompted the shift? Mr Landau thinks it was "the wake-up call that Libra represented." Libra was the first name for a digital currency and payments network announced in June 2019 by Facebook, which planned to issue tokens backed by a basket of currencies. "This was a real shock for most of the international monetary community," says Mr Landau. A second driver was the decline in the use of cash. If cash can no longer be used for transactions it loses much potency, as it has to be a means of exchange if it is to be a store of value.

Yet it is still a radical intervention to issue CBDCs, which threaten the traditional banking system. This underpins much lending, especially in poorer countries, so its displacement could undermine the provision of credit. For two centuries most monetary systems have relied on the framework of a lender-of-last-resort in the form of a government-backed body that can step in to save solvent financial institutions. The modern iteration of this is an independent central bank. It provides money both in cash and by creating bank reserves (cash deposits that banks hold with it).

The private bits of the monetary system are the banks. They provide banking services by collecting deposits and making loans. By holding only a portion of these deposits and lending the rest, banks create money: the original deposits remain ready to be called on in full, but there are now new deposits from the proceeds ▸▸



of the loans. All deposits can be used as money to make payments. But the new money is created by the mere stroke of bankers' pens. "The process by which banks make money is so simple that the mind is repelled," wrote J.K. Galbraith in 1975. "Where something so important is involved only a deeper mystery seems decent."

The discovery that banks could create money "came early in the development of banking," said Galbraith. "There was that interest to be earned. Where such reward is waiting men have a natural instinct for innovation." Most money is created by banks. In America the quantity of broad money stayed the same as a share of GDP for 100 years (though the pandemic spurred a dash for cash). Some 90% of it is in private bank deposits. In other economies the share is higher: 91% in the euro area, 93% in Japan and 97% in Britain.

This system has flaws. Because loans are long-term illiquid assets, whereas deposits are short-term liquid liabilities, banks need a lender-of-last-resort in a crisis. This creates other concerns because it fosters moral hazard through greater risk-taking. Regulators may try to curb this through prudential oversight, but this has not always worked.

Facebook threatened all this, with its huge network of users potentially meaning that more than 2bn people could adopt a new currency. This made Libra instantly credible as a medium of exchange. Its network would have been cross-border. And in its original incarnation it would have introduced a new unit of account. This raised the prospect of citizens using currencies over which central banks had no control. Regulatory authorities duly resisted the idea. It has now been reimagined as Diem, pegged 1-for-1 with global currencies such as the dollar or euro. In the cryptocurrency world such tokens are called stablecoins. Diem has yet to launch, but "even if that project never sees the light of day it has changed the world dramatically," says Mr Landau.

Parallel payment systems, especially supra-sovereign ones, threaten the usual channels for monetary policy, which run through the banks. "It really depends on what happens with regard to digital payments and whether those are entirely outside the banking system," says one senior central banker. "To the extent that they are, I think that would create a real gap in terms of monetary-policy transmission. If digital payments are entirely done within the banking system, then the monetary-policy transmission mechanism would be retained, but I do not think that is the world we are headed into."

The redundancy of cash makes matters worse. Cash is the safest form of money. "Confidence in the system rests on the ability of the holder to transfer their money into the safest asset, even though they may never do that. The fact that they know they can just anchors the whole system," says Sir Jon Cunliffe, deputy governor of the Bank of England. "When stress really comes the knowledge that they could is what matters."

The hard truth is that monetary authorities have long felt uneasy about the weaknesses of banks. These include the share of people that are unbanked, even in rich countries, the high costs of payment methods and the inordinate cost of cross-border transactions (which eats into remittances to poorer countries). The appeal of a cheaper, seamless system has accelerated faster payment projects around the world. These include the FedNow system, a real-time payment system for America due to enter into use in 2023.

Both fear and opportunity are key motivators for the Bahamas. It would be easy to envisage residents relying exclusively on a convenient currency like Diem, circumventing the ability of the central bank to regulate the money supply. "We want to provide an infrastructure in a very small country that may not be justified on just business considerations if left entirely up to the financial institutions and individuals," said John Rolle, governor of the Baha-

mian central bank, in March. Because of its scattered island geography, the Bahamas has many remote communities with limited access to banking services.

Central-bank wallet apps may not sound revolutionary, but the idea of a central bank providing digital money directly to citizens is radical. If citizens can convert bank deposits into central-bank money with a simple swipe, the technology "has the potential to be run-accelerant," said Lael Brainard, a Federal Reserve governor, in 2019. This could pull deposits out of the banking system and onto the central bank's balance-sheet, disintermediating the banks.

## Enter the bigger central bank

This might not be a problem if take-up of CBDCs were low. Bank deposits in America are worth $16.8trn. Banks hold more reserves with the Fed than they need, an excess of around $3.3trn. Any initial movement of deposits from a bank to the Fed would come from these. "You could get a significant amount of migration to the Fed in the current high-reserve environment really without affecting bank lending," says Morgan Ricks, of Vanderbilt University in Nashville, Tennessee.

One idea proposed by researchers at the Bank of England and the European Central Bank is to limit how much can be held in a CBDC. But Sir Paul Tucker, formerly at the Bank of England, suggests this would face a credibility hurdle. "The hardest thing for the government or the state generally is to stick to a commitment of restraint."

If CBDCs proved popular, they could suck all deposits out of the banking system. In America this would stretch the central bank's balance-sheet from $8trn to a whopping $21.5trn. Who, then, would provide the $15trn of loans that banks now extend to the American economy? Perhaps a central bank could simply pass the funds back to the banks by lending at its policy interest rate. But it is hard to see the idea of the Federal Reserve extending trillion-dollar loans to the likes of JPMorgan Chase or Bank of America as being politically uncontroversial.

A radically different world, at least in rich countries, would eliminate fractional-reserve banks as the source of most or even all lending. "Narrow banking" is the name for the idea that banks should be required to hold sufficient liquid assets to back all their deposits. It was put forward in 1933 as the "Chicago Plan", after the devastation of the Depression. It would end the system of fractional-reserve banking by breaking the link between the extension of credit and the creation of money. As the monetary theorist Irving Fisher summed up the idea: "In short: nationalise money but do not nationalise banking."

The appeal of narrow banking has continued, with support for the concept coming from the likes of Milton Friedman, James Tobin and Hyman Minsky. The idea of CBDCs has led to a further revival. Yet beyond the problem of transitioning from one system to another, narrow banking has its own difficulties. What banks do with fractional reserves is to turn short-term liquid funds into long-term illiquid loans. Deposits are not much good sitting idle, but they are when used as the basis for riskier lending. The benefits of linking savers, who prefer safety and liquidity, with borrowers, who like flexibility and security, are enormous.

Joseph Schumpeter wrote in the 1930s that it was "one of the most characteristic features of the financial side of the capitalist evolution to 'mobilise' all, even the longest maturities" so that they are financed by short-term borrowing. "This is not mere technique. This is part of the core of the capitalist process." Banks liberate innovation and investment, the engines of Schumpeter's creative destruction, from the "voluntary abstinence routine of the savers."

If authorities were to curb liquidity and maturity transformation through narrow banking, they might damage growth. But if liquidity and maturity transformation is as useful as many claim, "I think you would just find it replicated elsewhere," says Peter Fisher of Tuck School of Business at Dartmouth. And in such a case the central bank could find itself in the position of having to intervene in all sorts of institutions other than banks.

Although other institutions could lend to businesses and households, they could not promise to do so instantly. "The key credit facility is an on-demand facility or an overdraft facility. I am running a small business and I might need more working capital right now!" notes Sir Paul. Businesses now get this from banks, which offer it because they make money. "Because they can create money instantly, they can provide liquidity via credit facilities instantly. A pension or other fund cannot do that. For them it is resources in, resources out," he says.

With diminished or no banks, it is hard to see how firms would retain access to immediate credit in times of crisis—as they did in March 2020, when corporate treasurers across America drew down billions of dollars-worth of credit lines overnight. That is the superpower of banks. In their absence the role of the central bank would have to swell further.

Mervyn King, a former governor of the Bank of England, has proposed that central banks should lend, with various haircuts, to anyone who could supply collateral, a "pawnbroker for all seasons" to replace the lender-of-last-resort. But existing collateral systems have become fraught with complexity. Europe has a collateral framework to enable refinancing operations. "This system told you what you could post and what the haircuts were," says Stephen Cecchetti, of Brandeis University. "Over the past 15 years it has anywhere from 25,000-30,000 securities in it, many of which were fabricated in order to actually meet the requirements of the collateral policy." It stretched to include many things. "At one point, somewhere deep inside, there was a security that included Lionel Messi's contract."

**The idea of a central bank providing digital money directly to citizens is radical**

Mr Cecchetti argues that no central bank could cope with such variety, with securities in different buckets, each with a discount to their market value. "Collateral systems can end up distorting the price of credit. This could become a concern with a pawnbroker system." Sir Paul thinks that "Deep in the political economy of the money and credit architecture there is a choice." The choice most countries have made is to have fractional-reserve banks. "We choose, as a society, to have the financial-stability problem (which becomes an urgent priority) in order to keep the state out of or minimise the role of the state in credit allocation," he says.

The provision of easier direct access to central banks, through CBDCs, is likely to pull more assets into the central bank. It is hard to see how this does not lead to more central-bank intervention in credit. And keeping distance between the state and credit allocation in a world without banks is only the start. "The three biggest problems I have [with CBDCs] are disintermediation of the banking system, privacy and currency substitution across borders," says Mr Cecchetti. "China has fewer concerns about privacy, they have state-owned banks, and they have capital controls."

The magnitude of these issues make the idea of introducing CBDCs one that central bankers cannot decide by themselves. Nor do they believe they should. "The bottom line is that to move forward on this we would need buy-in from Congress, from the administration, from broad elements of the public," said Jerome Powell, the Fed chairman, in March. "That would ideally come in the form of an authorising law, rather than us trying to interpret our existing law to enable this." A new era of public money would, in short, require public approval. ■

Monetary sovereignty

# Hege-money

**Digital money may pose a new threat to dollar hegemony**

A MILE FROM the White House stands the Capital One Arena, a 20,000-seat stadium for basketball and ice-hockey games. The arena is in the Chinatown district of Washington, surrounded by Chinese restaurants and the "Friendship Archway", built to celebrate the American and Chinese capitals becoming sister cities in 1984. One afternoon in March, this correspondent arrived at the arena and went to buy a Diet Coke from the Walgreens opposite. Once at the till she tapped on the azure blue Alipay app: up popped a QR code, scanned by the checkout worker to collect payment. The transaction took a second.

Had it been possible to enter the stadium it would have been just as easy to use Alipay, the payment platform started by Alibaba, to buy tickets or snacks. Nor is the Walgreens in Chinatown unique in accepting the app. Around 7,000 of them across America take it, as do shopping centres like Pier 39, in San Francisco, and several Chinese restaurants in New York and Boston.

These merchants want to make shopping easier for Chinese tourists, not to persuade Americans to use Alipay. The payment app is not easy for English-speakers (even in "English" mode most of the interface is in Chinese characters, so non-natives need screenshots reliant on Google translate). But its growing acceptance outside China, where Alipay and its rival WeChat Pay process 90% of mobile transactions, augurs a shift in financial power.

The dollar is pervasive because everyone uses it as their "unit of account". Oil is invoiced in dollars. Most global trade is paid for in dollars. Most cross-border financial contracts are in dollars. Global travellers keep $100 bills in their socks. Financial markets and trade have grown faster than the global economy for decades, making the dollar ever more dominant. This gives America a clout it exploits through its use of sanctions, as well as unrivalled insight into global finance.

It is hard to see all this giving way to the yuan. But the way a transition could start, says Jean-Pierre Landau, formerly at the Banque de France, is with tourists. "If you have hundreds of millions of tourists moving around South-East Asia, asking to use their Alipay and attracting more attention to the app then, perhaps, progressively, they might want to denominate transactions in yuan." First knick-knacks and museum tickets are sold in yuan. Then businesses start invoicing trade in the Chinese currency. Eventually they write financial contracts in it.

Digital money could thus threaten dollar hegemony. But the motive of many places, including China, for issuing their own digital currencies are mainly defensive. China is resisting the disappearance of public money as cash falls out of use. It is also fighting the concentration of power in the hands of data-savvy tech firms. Perhaps digital money will be used to promote a currency, says Mr Landau, but it can also be a defence against competition from a digital dollar.

A first reason to create a digital currency is "to protect or safeguard our monetary sovereignty," said Mu Changchun, the Chinese central bank's digital-currency boss, in March. He thinks most central banks are keen because they fear a digital dollar. "Digital currency supplied by one central bank should not impede another central bank's ability to carry out its mandate for monetary and financial stability," he said.

Indeed, if internationalisation were their goal, it is difficult to see how China's tighter restrictions on Tencent and Ant would help to reach it. Since 2018 they have had to clear all mobile payments through a central clearing party, in effect overseen by regulators. The government has also demanded that they hand over data on their customers' transactions and borrowing. "You have to think twice before allowing a payments network with its headquarters in China, where privacy laws are different," comments Mr Landau.

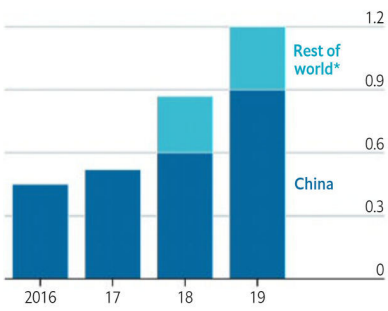
"There are two possible rationales for the government to intervene in this way," says Markus Brunnermeier of Princeton. "The first is that big tech firms should not monopolise the data, and one way to do that is to have them give it to the government...the second is surveillance by the government." Another is to maintain capital controls. A third of economists polled by Mr Brunnermeier think capital controls are an insuperable obstacle to internationalisation of the yuan. Yet it is clear that the Chinese authorities are desperate to keep them, even at the expense of the currency's international role.

A bigger risk is what happens when other currencies go digital. Had Diem, the idea proposed by Facebook, been operating when Turkey's president sacked the head of its central bank in March, it would have been easy for millions of Turks to move their money into dollars or euros. It might also have been possible for businesses to start showing QR codes to accept dollars.

"It feels very significant that the countries which, apart from China, are most advanced, most active and most interested in CBDCs are the medium-sized emerging economies," says Mr Landau. "They are too big to accept the loss of monetary autonomy, and sufficiently small to be exposed to the risk of foreign-currency competition." They may feel they have no choice. ■

**Up in the East**

Alipay, annual active users, bn




Sources: Company reports; press reports *Data unavailable before 2018

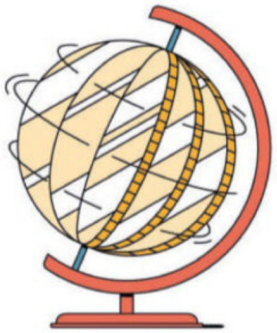
Money on my mind

# A brave new world

**The transition from banking may make financial services cheaper and fairer. But it will threaten privacy and sovereignty**

NOBODY LIKES banks. Their technology is often primitive. Their users are hit with unpredictable fees. Their functions matter, yet their coverage is incomplete. This can relegate swathes of people in rich countries and entire populations of poor ones to the fringes of society. Many of the biggest make most profits from trading and fees, not providing services to ordinary customers. And worst of all, their failures can cause catastrophic damage for which they bear only a fraction of the costs.

It would seem rational, therefore, to cheer the fierce new competition that is reducing banks' traditional role. As capital markets expand, it is becoming easier to match assets with liabilities that naturally fund them, reducing the risk of bank runs or failures. A proliferation of payment technologies is upending how people and firms conduct their lives, giving millions of underserved customers previously unimaginable access to finance. Data can be used instead of assets to secure loans, making it possible for people and businesses to borrow money against their character, not their collateral. The great promise of finance can be offered to many more people. The great costs are diminished. Better-informed firms should also temper the instability inherent in today's form of credit provision.



But this revolution brings with it new problems. Because they benefit from network effects, payment platforms will tend to concentrate into just one or two giant intermediaries. As more activity migrates away from banks, existing monetary-policy mechanisms may become obsolete. The risk of losing control over the monetary system has lit a fire underneath usually staid central bankers. Projects to accelerate fast payment systems have cropped up worldwide. So have efforts to create central-bank digital currencies, a digital form of paper cash to compete with the digital payments of private giants. In China, where payments firms are most advanced, more than 100,000 people are already using a digital yuan in pilot projects.

The roll-out of what amounts to a new monetary system thus comes with risks. Many of the issues it raises are as tricky as the financial stability and inclusion problems of old. As people move their money into CBDCs they will pull it out of banks, threatening the system developed to foster loans without overt state interference in credit allocation. The digital involvement of the central bank in everyday transactions would not only increase the risk of such interference but also be a gift to those wishing to snoop on citizens. And the concentration of the economy in digital money, whether it is run by private firms or by a central bank, could provide a new route for malicious actors to destabilise systems through cyberwarfare.

Yet there should be ways to minimise each of these problems. The best defence against the unhealthy spreading of state influence over lending decisions is to keep the current fractional-reserve system alive. This may mean constraining the scope of CBDCs and managing them at arm's length from the central bank—perhaps through third parties. They should not pay interest and the value of their balances should perhaps be capped. CBDCs may risk empowering authoritarians, but in democratic countries there is usually adequate separation of powers within government to stop this.

To some observers, it might seem better if central bankers in democratic, capitalist countries eschew this thicket of problems altogether. But the problem with abstaining from creating CBDCs is that network effects do not stop at national or currency boundaries. Ant can reach 400m customers outside China through its partners. Imagine a currency crisis in an emerging country a decade from now, when people and businesses can choose to make and collect payments in yuan instead of in their local currency, in the time that it takes to generate a QR code on a phone.

For small countries, CBDCs may seem necessary merely to hang onto their monetary sovereignty. The bigger question is what the central bankers behind the world's reserve currencies should do. If they do not issue their own digital money they leave open two possible paths. One is that they become reliant on private firms such as Facebook. The other is that their currencies are sidelined by those with easy-to-use digital money, notably China.

This risk may seem quite small for now. And Chinese capital controls still stand in the way. Moreover global citizens might value privacy more than cheap, instant, cross-border payments. But it is still unsettling, especially since digital money could become a method of social control. China has already experimented with programming digital cash: it issued stimulus payments that expired if they went unused so as to kick-start the economy more effectively. In a world without physical cash, programmed money could restrict its use to stop it being spent on, say, foreign books or newspapers.

Central bankers that run reserve currencies can head off the potential nightmare of leaving Facebook or China's government in charge of global payment systems by issuing digital currencies of their own. If they do it sensibly, digital money could even become a force for good, not just a defence against disaster. "There is a parallel with biological evolution," said Sir Jon Cunliffe of the Bank of England in March. Evolution is generally slow, but at times of geological or environmental change it can be rapid. A bewildering number of life forms may appear and many do not survive. This is "a helpful lens through which to look at what's happening now," Sir Jon suggested. When people look back at this period they will see banking in a period of very rapid change. The hope is that it may emerge in a better state. ■

**ACKNOWLEDGMENTS** A list of acknowledgments and sources is included in the online version of this special report



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Somaliland

# Out of the rubble, 30 years on

BERBERA AND HARGEISA

**An unrecognised state wins friends abroad but faces problems at home**

On July 1st 1960, five days after it cut its colonial ties, the former British Somaliland merged with the one-time Italian Somaliland to form a united Somalia. It was a bad move. The dictatorship of Siad Barre, who took office in 1969, marginalised and massacred Somalilanders. On May 18th 1991, five months after his fall, what was by then simply Somaliland declared independence. It was a statement of intent—and regret. Exiles returned home to rebuild their nation. "Hargeisa had been destroyed to rubble," recalls Suad Ibrahim Abdi, a campaigner for women's rights. "There were no buildings, no water."

What happened next is Somaliland's founding story. At confabs—under trees or desert stars—clans agreed to share power. Presidential elections followed with regularity. The country is poor but, without much aid, it has developed somewhat. Hargeisa is not the prettiest capital, but it serves a fine camel-milkshake. All of this contrasts with the chaos in Somalia, where foreigners have lavished money and guns.

This month Somalilanders will mark 30 years of peace. The country of 4.5m people is winning friends abroad. But its sovereignty remains unrecognised. When discussing it, the West defers to African countries, which defer to Somalia, which is dead against ceding suzerainty. "The big question", says Ms Abdi, is "fine, we've made progress. But where are we going from here?"

One answer can be seen in Berbera, on the Gulf of Aden. "We call it our hope," says Khalifa Ibrahim, an adviser to the mayor, pointing to the expanded port opened in 2018 by DP World. Somaliland hopes that the investment of $442m (the largest in its history) by the Dubai-based port operator will prove catalytic for its economy. Port fees and custom taxes already account for 70-80% of government revenues. Planned alongside the new facility are a free-trade zone, an airport, hotels, an oil terminal and a park for 1,000 lorries. Land values have soared ten-fold.

Somaliland sees the port as bringing political benefits, too. "It has upgraded our position in the region," argues Abdishakur Mohamoud Hassan, the mayor. Ethiopia under Abiy Ahmed, its prime minister, has grown closer to Somalia. His landlocked country depends on the port of Djibouti for most of its imports. The new facility at Berbera, in which Ethiopia has a 19% stake, gives it another option.

Berbera also gives the United Arab Emirates (UAE) an alternative foothold in the region. After a long dispute, Djibouti seized the DP World facility there in 2018. Somalia's government in Mogadishu is allied to Turkey and Qatar, which are rivals to the UAE, which in March became the first Arab country to send a permanent diplomat to Hargeisa.

It has joined others in establishing a presence. Kenya recently announced it will set up a consulate in the capital. In August Taiwan opened its East Africa office there and pledged aid for its fellow sovereignty-challenged country. China tried to block the move. But Somaliland said it would not support the principle that there is only one China, with Taiwan a part of it. "Somaliland showed backbone," says Allen Chen-hwa Lou, the Taiwanese representative.

Such diplomatic advances show how

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far Somaliland has come in 30 years. Yet some locals worry about whether its clan-based political system that established stability is still the right one. "Somalilanders always say that we're a good model for the continent," says Guleid Jama of the Human Rights Centre, a local NGO. "But I don't think we are any more."

The constitution passed in 2001 was meant to loosen the grip of clans on politics. It limits the number of political parties to three, encouraging coalitions. But most voters still invariably vote by clan.

It is a system that "makes us less prosperous", argues Mohamed Fadal of the Social Research & Development Institute, a local think-tank. Jobs and contracts are spread around on the basis of clan, not merit. "You cannot leave a clan behind" is the founding principle of Somaliland's politics, explains Mohamed Farah of the Academy for Peace and Development, another think-tank. It may be a better model than the winner-takes-all ethnic politics in some countries, but many citizens feel it stunts the development of true democracy.

Institutions meant to hold government to account are weak. Judges bow to the executive and rarely prosecute corruption. Parliament is a rubber stamp. On May 31st Somaliland will hold parliamentary elections for the first time for 16 years. Media could be much freer. Foreign journalists are treated with grace and kindness, but local ones can be arrested for upsetting the wrong person. Last year a court ordered a local social-media star to be deported for a post in which he drank tea from a mug with a picture of Somalia's flag.

In the courtyard of the Hargeisa Cultural Centre, young Somalilanders are dancing and making music videos. Jama Musse Jama, the centre's director, points at them through his office window, noting that 70% of the country is under the age of 30. "Peace is not enough for these young people," he says. "They need jobs and opportunities." An estimated 75% do not have a job.

Women are neglected, too. Sucaad Odowa spent 24 years in London before returning to Hargeisa. "But I didn't count on the status of women in my country," she says, citing how women lack rights to divorce and need the consent of a male relative for caesarean sections. Women's inequality has led her to run for parliament against the wishes of her clan elders. The 82-member lower house has but a single female MP.

Islam is another conservative force. A women's football tournament was called off last year for apparently transgressing sharia. In the city of Burao a "vice-prevention committee" has closed several female-owned businesses.

Some Somalilanders privately admit that the lack of international recognition is a handy excuse for domestic shortcomings. Yet so long as it is unrecognised, it is


hard for the government to get aid and loans, and for businesses to sell things abroad. Travelling on a Somaliland passport, which many countries do not recognise, can be a nightmare.

Soon Somaliland will have spent longer as a de facto independent country than it did as part of a united Somalia. Most Somalilanders know no other status. And they want their country to write its own story, even if it is not always a fairy tale. ■

Cleaner cookery

# Fire escape

KASAI

**Donors make it harder for Africans to escape deadly wood smoke**

YVONNE KAYAYA has never seen a gas cooker. In a poorly ventilated room in her home in Kasai, Congo, she stews potato leaves over a charcoal stove no bigger than a small stool—as generations before her have done. "I sometimes cook with firewood. If I have money, I always buy charcoal," she says, unaware that both fuels are clogging up her lungs.

Ms Kayaya is one of the 4bn people who heat their food over a smoky fire. In sub-Saharan Africa nine out of ten people cook with dirty fuel, such as wood, charcoal or kerosene. This is unhealthy. Some 2.5m-4m people die prematurely every year because of indoor air pollution, most of which is from cooking, according to the Paris-based International Energy Agency (IEA) and the World Health Organisation. Breathing soot is particularly dangerous for infants: worldwide it may cause almost half of all fatal cases of pneumonia among children under five.

There are environmental costs, too. Wood may be renewable, but chopping down trees for firewood or to make charcoal contributes to deforestation. The charcoal industry is one of the main reasons why the rainforest of the Congo basin is shrinking. The damage done to this rainforest, the world's second largest, is not just a tragedy for Congo; it is also one for the world, since the forest removes hundreds of millions of tonnes of carbon from the atmosphere each year.

How Africans can cook more healthily for more than a billion stomachs is a conundrum. The poor need energy to have comfier, more prosperous lives. How can they do so without cooking the planet?

Africa's population is growing faster than any other continent's. It is urbanising faster, too. As people move to cities, they tend to switch from firewood to charcoal, which, because it is made from wood that is then heated by burning more wood, destroys forests still faster.

Since few Africans, whether in cities or villages, have grid-connected electricity, the obvious way to wean them off wood and coal is to encourage the use of bottled gas. India and China have managed to reduce pollution from cooking fires in this way in the past decade. But markets for gas have been slow to take off in Africa because rural folk in countries like Congo, where almost three-quarters of people live on less than $1.90 a day, do not see the need to pay for gas when wood is free. "I only cook with wood," says Martin Batumala, a Congolese farmer. "I go and collect it every day on a bicycle with my children."

By contrast, refilling a canister of 12kg with liquefied petroleum gas (LPG) costs $20, almost as much as farmers make in a month. Charcoal can be bought in small quantities, which makes it easier for the cash-strapped to afford. And cost is not the only consideration. Charcoal creates distinctive flavours, which many people like and do not wish to give up.

Advocates of clean cooking hope eventually to change people's habits. It would

Keeping the home fire burning

be easier if gas were cheaper, but to make it so will require lots more public and private investment. One big obstacle is that donors in rich countries are reluctant to back investment in any fossil fuels, even though the alternatives to gas—wood and charcoal—are worse for the environment, for the cooks and their children.

Opponents of gas note that it contributes to climate change, which is true. They suggest that Africa should "leapfrog" to powering itself primarily with solar, wind and other renewable sources of electricity. But some perspective is in order. The continent is responsible for less than 2% of global carbon emissions. Its people, the world's poorest, are in effect being asked to bear the costs of a sudden energy transition that many rich countries have been reluctant to embark on. Switching millions of Africans away from charcoal and firewood to a cleaner fuel would still mean Africa is helping to reduce carbon emissions, says Mansoor Hamayun, the boss of Bboxx, an international energy company that initially provided only rooftop solar systems in Africa, but now also offers LPG cookers. Gas "is not a perfect choice", he says. "But it's part of a journey to net zero." ■

Vaccine manufacturing in Africa

# Home brewing

**Covid-19 has exposed Africa's reliance on vaccines from abroad**

UNTIL RELATIVELY recently, India had seemed to have evaded the worst impacts of covid-19. This inspired hope that Africa, with its young population, might also fare well. Yet what is happening in India is a "wake-up call for the continent", says John Nkengasong, the director of the Africa Centres for Disease Control, a pan-African body. The calamity overseas has also brought another problem into focus: India has stopped exporting covid-19 vaccines in order to serve its own citizens, leaving Africa in a "very dicey situation", says Dr Nkengasong.

Alarm at the lack of vaccine-making capacity on the continent has been growing for some time. South Africa has been pushing hard for a waiver on the patents on covid-19 vaccines through the World Trade Organisation. On May 5th America backed a temporary suspension.

Although Africa's 1.3bn people offer a huge market for medicines, it imports 99% of the vaccines it uses (and 70% of its pharmaceutical products). Poor countries elsewhere such as India show that it is possible to make vaccines almost anywhere.

Bottling it in the face of a pandemic

Yet with reliable and cheap supplies from abroad, there was little incentive for Africa to make them. Since the pandemic began, that calculation has changed.

The quickest way to boost production would be to invest in sites that currently make other vaccines or supplies for them. Last year Aspen Pharmacare in South Africa agreed to make the Johnson & Johnson covid-19 vaccine at an existing facility. It can churn out 300m doses a year. Its first have already arrived.

There is also potential in Senegal, Egypt, Tunisia, Morocco and Algeria. All have experience in making vaccines, such as those used for yellow fever, tetanus and cholera. Ghana, Kenya and Rwanda are also seen as promising locations for vaccine-making. There are plans afoot in Nigeria and Ethiopia, too. The Institut Pasteur in Dakar, Senegal's capital, is working with France and the European Investment Bank to produce about 300m covid vaccines a year starting in 2022. Algeria has agreed to start making the Russian Sputnik vaccine from September.

Rwanda is particularly eager to make MRNA vaccines, which use the latest technology. Paul Kagame, its president, has been talking to two MRNA vaccine manufacturers about setting up in his country. Other new vaccines, such as a protein-based vaccine for malaria, might also offer long-term business opportunities.

Because setting up takes time, Africa's covid-19 jabs will still need to come from overseas for years. The goal of the AU is that 40% of Africa's vaccine needs could be met on the continent within 20 years. This expansion will be challenging, but the world has done something similar before. In 2006 a technology-transfer programme overseen by the World Health Organisation ramped up production of flu vaccine in developing countries. The ingredients for success were a long-term commitment from governments, collaboration with private firms and an experienced partner.

It also takes finance. New projects need contracts to supply vaccine for 10-15 years, says Solomon Quaynor of the African Development Bank. Financiers also look at "soft" infrastructure, such as good governance, stable politics, government spending on health care and support for scientific research.

One of the challenges to the business case is what a vaccine manufacturer will do when there is no pandemic. The solution is to make some of the hundreds of millions of doses of childhood vaccines that Africa uses every year. Yet any new facility will struggle to compete with the economies of scale at India's Serum Institute, the world's largest vaccine producer.

Private firms are showing interest. The Serum Institute plans to start production outside India, though it has not said where. Stéphane Bancel, the boss of Moderna, which makes the high-tech MRNA covid-19 vaccine, has said he is looking at how to set up a plant in Africa. Beyond covid-19, Moderna is interested in making vaccines for yellow fever, chikungunya, dengue and Zika.

One inducement is Africa's Continental Free Trade Area, which came into effect at the start of this year and is a big step towards creating a huge single market for vaccines on the continent. But a missing piece needed to make this market work is the establishment of a continent-wide African Medicines Agency (AMA), a proposed regulator that would be able to certify vaccines and root out fake or low-quality medicines. A treaty to establish the AMA was drafted two years ago, but not enough countries have ratified for it to come into force. "If African countries are serious about vaccine manufacturing they have to ratify," says Mr Quaynor. "It has to happen." When it does, that will be the strongest signal so far that Africa is ready to make more of its own vaccines. ■

Qatar's labour laws

# Free to quit

**Foreign workers get some basic rights**

In most countries a worker's best bargaining tool is the ability to say: "Take this job and shove it." Knowing staff can go elsewhere gives employers an incentive to treat them well. But foreign workers in Qatar have long lacked this basic freedom. Under the emirate's *kafala* system, their visas were linked to specific employers: if they wanted to change jobs (or leave the country), they needed their boss's permission. So the boss could abuse them with near-impunity.

But things are changing for the gas-rich emirate's 2m migrant workers, who are 95% of its labour force. Legions of Indians and Pakistanis mop floors, chop onions and lay bricks. The *kafala* system kept their wages low. That made it cheaper for Qatar to build new stadiums for the football World Cup, which it hosts next year. However, the tournament has also brought global attention. Activists denounced the *kafala* system and called for reforms. At last in 2020, Qatar made a big one.

Today foreign workers can quit their jobs and find new ones without risk of deportation. Qatar also raised the minimum wage and mandated a food-and-housing allowance for poorer workers who are not lodged by their employers. The UN's International Labour Organisation (ILO) says the reforms are already showing results. By the end of March, 119,000 foreign workers had already changed jobs. Nick, 32, came to Qatar from Uganda to work as a cleaner, despite training in computer science. Recently he found a new job as a data analyst. It's a dream come true, he says.

The ILO helped with the reforms. It argued that they would make Qatar more attractive to skilled foreigners, whom the government wants to lure, and keep more blue-collar workers in the country. That would make it easier for local firms to find help. Previously, they had to spend months recruiting and training new immigrants.

It is too early to tell if Qatar will develop a functional labour market, says Zahra Babar of Georgetown University in Qatar. The workers most likely to take advantage of the reforms in the near term are those in the service sector, where word of new job openings gets around. Construction workers are less likely to have enough information to shop for new employers.

Bosses are pushing back. Some have required workers to sign contracts with non-compete clauses. In other countries these are used to prevent high-fliers from handing company secrets to a competitor. In Qatar they are being used to stop blue-collar workers from changing jobs. The emir's advisory council has tried to water down the reforms. This year it recommended a cap on the number of times a worker could switch employers and an annual limit on the proportion of workers who could leave a company. The government, though, has not accepted these changes.

Migrants face other complications. The labour ministry's website, where workers go to get approval for new jobs, still asks for a resignation letter authorised by their previous employer, though this is no longer necessary. Nick, for example, waited for his old firm to certify his resignation. Now he is waiting for the government to renew his identification card, a process that cannot start until the ministry approves his new position. Fortunately, his new firm has allowed him to start working—at double his old salary. ■

Next, longer lunch breaks

The war in Yemen

# Peace on hold

**The Houthi rebels have little reason to lay down their arms**

Just two years ago, from the mountains to the east, forces loyal to the Yemeni government could see the capital, Sana'a. It was the closest they had got to the city since the Houthis, a group of Shia rebels, overran it in 2014. But now the government's forces are on the defensive. They have been pushed back to Marib, the last big city in the north still held by the government (and seat of a province with the same name). The Houthis are within 4km of it (see map). Only air strikes by Saudi Arabia, which supports the government, slow their advance.

Marib had until recently been one of Yemen's safer cities. Those displaced by fighting elsewhere took shelter there. The Saudis made it a base for operations. But the battle for it shows just how badly things have gone for the government and its backers. They would gladly accept the UN's call for a ceasefire. The Houthis, who control much of the country, ignore it. If they take the city, they will control the north's only oil refinery and the gateway to oilfields in the east and south. "It will be a disaster," says a Western diplomat who was in Marib last month.

The territory controlled by the Houthis is home to 70% of Yemen's 30m people. The rebels have been installing a repressive theocracy like the one in Iran, which arms them. Political opponents and curious journalists are locked up or executed. Students are taught to hate the West. Cafés where men and women once mixed have been closed. An actress who modelled without a veil was arrested this year. Some of Yemen's last remaining Jews were expelled by the Houthis in March.

A Saudi blockade has crippled the economy in the north. But the Houthis compound the suffering. They divert aid and sell it for profit. The UN's rollout of covid-19 vaccines in the north has been suspended because the Houthis want to control delivery. Across the country, at least 400,000 Yemeni children could die of starvation this year without urgent intervention, warned four UN agencies in February.

The Houthis still manage to keep their war machine humming, though. Smugglers haul fuel to the north from ports in the south that are controlled by the government or its nominal allies. Houthi checkpoints double as customs posts, raising revenue to pay fighters. Iran uses the same route to smuggle "significant volumes of ▸▸


weapons and components to the Houthis", according to a UN panel of experts. It supplies parts for their drones and missiles that are used to attack Saudi Arabia.

Marib's loss would further demoralise the pro-government coalition, which is already fragmented. Yemeni soldiers complain about unpaid salaries and a lack of arms, while the president, Abd Rabbo Mansour Hadi, remains in gilded exile in Saudi Arabia. A separatist movement called the Southern Transitional Council (STC) is ostensibly a member of the coalition, but it has fought the government for Aden and now controls much of it. Many of the STC's leaders cheer on the Houthis. Some of the tribes around Marib flirt with them, if only to extract more cash from the government.

The government's international backers are losing interest in the war. The United Arab Emirates pulled most of its troops out of Yemen in 2019. Shortly after taking office, President Joe Biden said he would end "all American support for offensive operations in the war in Yemen". The Saudi campaign, launched in 2015, has fallen into a quagmire. Instead of curbing Iranian influence, as intended, the war has enhanced it. In an interview last month Muhammad bin Salman, the Saudi crown prince and de facto ruler, appealed to the Houthis to join him at the negotiating table.

So far the Houthis have refused. The UN's envoy to Yemen, Martin Griffiths, has been *persona non grata* in Sana'a for a year. In February Mr Biden removed the Houthis from America's list of terrorist organisations, a move aimed at increasing the flow of aid and kickstarting the peace process. But since then the Houthis have marched towards Marib.

Taking the city would strengthen their bargaining position. But it will not be easy. Marib's defenders and most of its inhabitants detest the Houthis' politics and reject their religious beliefs. The open ground around the city makes the attackers easy targets for Saudi jets. Like the war more broadly, the battle for Marib could be long and bloody. ■

Arab elections

# How despots pick their opponents

DUBAI

**Strongman seeks pleasant short-term partner with no ambition**

CANDIDATES FOR president often need no introduction: a run for the top job is the capstone on a long, striving career in the public eye. Not so for Faten Ali Nahar, who seems to have found ambition late in life. On April 20th the speaker of Syria's parliament announced that Ms Nahar had registered to stand in this month's presidential election. Hardly anyone in Syria had heard of her. Searches on social media yielded little. A widely circulated photo of a woman said to be her also appears on a Facebook post about a Russian pharmacist who committed suicide in 2017.

If Ms Nahar's bio and agenda were a mystery, they were also irrelevant. The incumbent, Bashar al-Assad, has spent a decade destroying his country to stay in power. He has no intention of losing.

For much of the past half-century, Arab authoritarians preferred to hold yes-or-no referendums on their rule. Lopsided margins meant the people adored them, they claimed. In 1995 Saddam Hussein attracted a mere 3,052 "no" votes out of 8.4m cast. The next time, in 2002, he did better, with 100% support and a record-setting 100% turnout. His campaign song, a rip-off of Dolly Parton's "I will always love you", expressed the obligatory attitude.

Since the mid-2000s, though, some autocrats have begun to let other candidates run. Free elections, these are not. There are restrictions before the vote, irregularities on election day and often ruthless crackdowns afterwards. But rulers hope the veneer of democracy will fend off discontent at home and criticism from abroad. However, even fake elections pose a conundrum: how do you choose the candidate who will lose?

The first rule is to avoid genuine challengers. Under pressure from America, Hosni Mubarak allowed opponents to run in 2005. One was Ayman Nour, a reform-minded member of parliament who formed Egypt's first licensed opposition party. Widespread fraud ensured that Mr Nour won less than 8% of the vote, and he was soon sent to prison (for election fraud, ironically). But he remained a political nuisance until the revolution of 2011.

Egypt's current president, Abdel-Fattah al-Sisi, takes no such chances. When he ran for a second term in 2018, most opponents were arrested or intimidated before the vote. The only man permitted to run was a nobody who had previously endorsed Mr Sisi.

It helps to find an opponent even more unloved than you are. In 2014 Algerians had to choose between Abdelaziz Bouteflika, an ailing, unpopular incumbent, and Ali Benflis, an ex-prime minister widely blamed for a massacre of protesters. Mr Bouteflika romped to victory from his sickbed.

Zine El Abidine Ben Ali, a Tunisian dictator, allowed a few opponents who shared his politics. One admitted before his race in 2009 that he could not compete against the president's "extraordinary" achievements. Candidates must not resemble the incumbent too closely, though. To avoid any embarrassing mix-ups, authorities in Yemen disqualified a man in 1999 because his name was similar to the president's.

As for Ms Nahar, she seems to have enjoyed her turn in the spotlight. She introduced herself in an interview with a Russian news channel. A Facebook page purporting to be her campaign website outlined a plan to launch a Syrian space mission by 2025, never mind that Syrian motorists these days are struggling to find petrol for their cars.

Alas, her ambitions were soon grounded. On May 3rd Syria's high court approved just two candidates from the list of 50 who had applied to run against Mr Assad. Her name was not on the list. Perhaps she should count herself lucky. Hours after the court made its decision, the regime leaked nude photos of one of the approved challengers.

Assad and a potential rival


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Spain

# From rage to disillusion

MADRID

**A decade after the *indignados* the country is still searching for a new politics**

On May 15th 2011 some 20,000 mainly young, middle-class Spaniards occupied the Puerta del Sol, in the heart of Madrid, angry at austerity and the sense of entitlement among politicians and bankers. Organised through social media and calling themselves *los indignados* ("the indignant ones"), it was a new kind of protest movement, one that would be swiftly copied elsewhere, notably by Occupy Wall Street and Occupy London later that year.

Initially enjoying broad public support, the *indignados* shook Spain to the core. Within three years they helped to spawn two new national political parties, Podemos on the left and Ciudadanos on the centre-right. In 2015 these parties grabbed 34% of the vote between them. A stable political system long based on the Socialists and the conservative People's Party (PP) fragmented. The result has been four general elections in the past six years, none of which has produced a majority government.

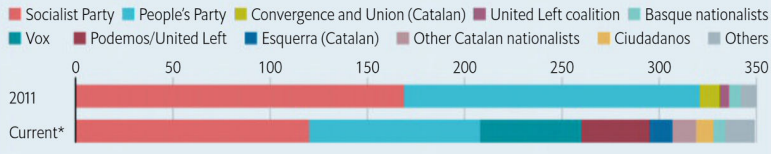
A decade on, Spain is in many ways a different country. The legacy of the *indignados* is palpable but far from straightforward. "May 15th was a great outburst of dismissal," says Carolina Bescansa, a sociologist who took part and was one of the founders of Podemos. "The consensus was on what we didn't want. We didn't want more cuts, we didn't want corruption and we didn't want that way of doing politics behind the backs of citizens."

On the first two points the movement achieved changes. Unlike the policy during the slump of 2008-12, Spain's government has spent heavily to protect household income during the pandemic, partly thanks to more accommodating policies from the European Central Bank and the European Commission. "Corruption still exists but there's no longer impunity," says Ms Bescansa. Dozens of politicians and bankers have been jailed over the past decade. Banks treat people with mortgages better. The *indignados* also heralded a generational change, as new political leaders rose through the introduction of party primaries. At 49, Pedro Sánchez, the Socialist prime minister since 2018, is the oldest of the national party leaders.

But in other ways remaking Spanish politics has proved elusive. Last year Podemos entered government as the Socialists' junior partner in Spain's first coalition government since the 1930s. But Podemos itself has changed. It began as a broad left-populist outfit, with some similarities to Italy's Five Star Movement. In 2015 its leader, Pablo Iglesias, hoped to displace the Socialists, just as Syriza, another insurgent party, did in Greece. Podemos peaked in 2016 when it won 21% of the vote. It has declined ever since, as Mr Iglesias ruthlessly sidelined his fellow leaders and mimicked the Communist Party, with which he allied. He stepped down as a deputy prime minister to run in Madrid's regional election on May 4th, but did poorly. He then

**All shook up**

Spanish parliament, lower house by parliamentary grouping, seats




Source: Spanish Congress of Deputies *At May 2021

announced his resignation from politics.

The best chances of renewal were squandered. In 2016 the Socialists and Ciudadanos, with 130 of 350 parliamentary seats between them, agreed on a programme of political and economic reforms but were thwarted when others refused to let them govern. An election in April 2019 gave the two a combined majority of 180 seats. But Albert Rivera, Ciudadanos's leader, had steered his party to the right and was set on a bid to displace the PP. It failed, too. Mr Sánchez showed no interest in wooing him. By then the two "detested each other", writes Ramón González Férriz in a book on why regeneration failed.

"The opportunity for reform is no longer on the table," says Pablo Simón of Carlos III University in Madrid. "Now there's a different logic, of polarisation." That dynamic was at work when Mr Sánchez, with the help of Catalan and Basque nationalists as well as Podemos, toppled a PP government with a censure motion over corruption in 2018. It was intensified by the rise of another new party, Vox, a hard-right splinter from the PP, initially in response to the threat of Catalan separatism.

Polarisation reached a new low in a nasty campaign for the recent snap election on May 4th in Madrid, which saw death threats, mailed with bullets, against six politicians, starting with Mr Iglesias. Isabel Díaz Ayuso, the PP regional president, campaigned against Mr Sánchez, rather than her local rivals, under the banner of "freedom"—to keep taxes light and bars open despite the pandemic. This message and her spontaneous manner resonated far more with *madrileños*, weary of lockdowns, than Mr Iglesias's overheated claim to be fighting "fascism". Ms Díaz Ayuso doubled the PP's vote and came close to an absolute majority of seats. The Socialists suffered a heavy defeat and were overtaken by Más Madrid, a regional party of dissidents from Podemos driven out by Mr Iglesias. Vox failed to gain much. Ciudadanos lost all its seats in the regional assembly, a failure that could prove terminal.

In some ways this result points to the resilience of the old two-party system, wounded though it remains. It suffers from "two very disruptive parties at the extremes" in Vox and Podemos, Mr González warns. Mr Iglesias's departure, like Mr Rivera's last year, underlined their failure to forge a "new politics". A decade on, the politicians look just as disconnected from the voters. But citizens' rage has given way to disillusion, aggravated by the pandemic's destruction of lives and livelihoods. Five years of vigorous economic growth from 2014 to 2019 failed to restore Spaniards' trust in their politicians and their institutions, among the lowest of any country in the European Union. The *indignados* broke more than they managed to build. ■

Germany and climate

# Red in robe, green in thought

BERLIN

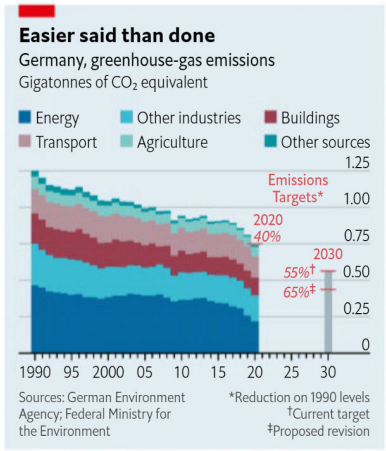
**A court ruling triggers a big change in Germany's climate-change policy**

THE "EIGHT arseholes in Karlsruhe", otherwise known as Germany's Federal Constitutional Court, have been perennial irritants for politicians, as this outburst from an irate minister in the 1970s suggests. Yet on April 29th, when the court's first senate declared Germany's climate-change law partly unconstitutional, ministers in the ruling coalition fell over themselves to hail the judges' wisdom in rejecting an act they had passed less than 18 months earlier. The judgment was "epoch-making", said Peter Altmaier, the Christian Democrat economy minister. "This is a very special day," added Olaf Scholz, the Social Democrat finance minister. The pair then bickered over which of them was to blame for the terrible law in the first place.

Passed after bruising intra-coalition negotiations in 2019, Germany's first climate law decreed that by 2030 carbon emissions must be cut by 55% from the level of 1990, and laid out annual quotas for different sources of emissions. It also stated that Germany, like the rest of the EU, would aim to emit no net greenhouse gases by 2050. (The previous target for 2020 of a 40% cut was narrowly met, thanks to the pandemic.) The law was hopelessly unambitious, howled critics. "Politics is what is possible," shrugged Angela Merkel, the chancellor. But now the constitutional court has redefined the limits of the possible. The judges said the law risked forcing future generations to "engage in radical abstinence" by leaving too much of the burden to the years after 2030.

"No one expected this," says Felix Ekardt, a climate researcher and one of the jubilant plaintiffs. Young activists cheered the court's novel approach to intergenerational justice. Legal theorists were struck by its discovery in Germany's constitution of an obligation to cut emissions, given life by Germany's commitments under the Paris climate deal of 2015. "This judgment shows that the Paris agreement has teeth," says Paul Benson, a Berlin-based lawyer for ClientEarth, an NGO.

The verdict will loom over every climate-policy deliberation of future German governments. It could also, reckons Joana Setzer of the Grantham Research Institute, influence dozens of other climate lawsuits around the world, especially those brought by children. As governments enshrine climate commitments into law, courts are learning how to enforce them by watching each other. Litigants are emulating legal tactics that have worked elsewhere.




Wary of treading on political toes, the judges did not demand a change to the goal for 2030. Instead, Germany's government was given until the end of 2022 to specify binding targets for the years after 2030. Yet rather than leave the job to the government that will take office after September's election, Mrs Merkel's coalition leapt into action, drawing up legislation that far exceeds the court's instructions. The government now wants to lift the 2030 reduction target to 65%, and to bring forward the net carbon-neutral date to 2045. Among other things, this may mean accelerating the phase-out of coal and increasing the new carbon price on heating and transport.

Laying out a tighter emissions pathway now, notes a government source, will help shape post-election coalition negotiations in areas like transport and energy. It will also affect the campaign. The government's scramble to respond to the ruling highlights the power of climate in the political debate, and the threat posed by the opposition Green Party, which is leading in polls and angling to take the chancellery.

As covid fades, the parties will place different bets on what will drive voters in September. Armin Laschet, the conservative aspirant to replace Mrs Merkel, hopes a mildly green-tinged economic pitch will appeal to Germans worried about debt and growth. The Greens think voters mean it when they tell pollsters climate is their biggest concern. Last week, eight judges in Karlsruhe lent them a hand. ■

Ireland and Brexit

# Pluses and minuses

DUBLIN

**The Republic is making the best of Brexit**

THE NEW trade frontier between Northern Ireland and the British mainland was intended as a conflict-prevention measure, allowing Great Britain to leave the European Union's single market without reimposing a hard border between Northern Ireland and the Republic to the south. So far, not so good.

Unionist politicians, angered by disruption to shopping and trade with Great Britain, now call for the protocol that imposed a new Britain-Northern Ireland border to be scrapped. In Protestant areas of County Antrim youths rioted last month, egged on by loyalist paramilitaries. Last week Northern Ireland's first minister, Arlene Foster, was forced to resign by her party, having reluctantly accepted the protocol as the least bad solution.

There has been much less fuss in the south, even though, in terms of trade with Britain, both parts of Ireland are in much the same post-Brexit boat. The Republic of Ireland has been independent from London since 1922, but Britain is still by far the biggest source of Irish imports of goods, at €17.8bn ($21.4bn) last year, and its fourth-largest customer for goods exports: €12.4bn in 2020. Consumers in both countries share many tastes, and until January 1st co-membership of the EU allowed British high-street retailers like Boots and JD Sports to treat the republic as a sub-region of their UK supply chains.

In Dublin, as in Belfast, grocery shelves in British-owned retailers grew notably barer after Brexit kicked in on New Year's Day, although supplies have since recovered as businesses find ways to navigate the new system.

The mood is calmer in the south, partly because it saw the problem coming. Arnold Dillon of Retail Ireland, a trade group, says that the Irish government began planning for a worst-case hard Brexit right after the referendum in 2016. Northern Ireland was less well-prepared, not least because it had to wait until Christmas Eve to see the outlines of a last-minute trade deal. Boris Johnson, Britain's prime minister, made planning almost impossible by issuing contradictory statements, asserting that there would be no new customs border on the island of Ireland, no new regulatory checks between Britain and Northern Ireland, and yet also regulatory divergence between the UK and Europe. "Our experience is that the UK has been woefully, awfully, badly, naively underprepared for Brexit," says Simon McKeever, the boss of the Irish Exporters Association.

Another difference in the south is that businesses and politicians expect to see benefits from Brexit, as well as losses. Kieran Donoghue, head of financial services at Ireland's industrial-development authority, a state booster for investment, said that Ireland has already secured around 100 new investments and 6,000 jobs, half of them in finance, as UK-based businesses shift their headquarters out of London so as to retain an EU domicile and access to the European single market.

While red tape and delays have roughly halved lorry traffic on Ireland's traditional "land bridge" across Britain to the rest of the EU, the number of direct ferry sailings from the Republic to the continent has gone up from around 12 a week to more than 40. Irish trade groups hope that Irish chains will now source more products locally, and replace UK supply hubs with local depots, creating new jobs.

Yet, as with Brexit itself, this isn't all about money or trade. For a century since it won independence, the Republic of Ireland has tried to escape the shadow of its former colonial power and to reach out to the world. By contrast, Northern Ireland's unionists and many pragmatic businesses have no interest in distancing themselves further from the rest of the UK.

"Even though most Irish people think that Brexit is crazy, the government here is realistic that you have to deal with what you get," says Bobby McDonagh, a former Irish ambassador to London and senior diplomat in Brussels. "We still need to cooperate with London on Northern Ireland, and in other ways." ■

The scenic route

France and terrorism

# Reform or relapse?

PARIS

**A lot of terrorists will soon be released from French prisons**

"BEING LOCKED up is a piece of piss if the guy was ready to die," said Youssef, who had been jailed for jihadism. "Ten years in prison? It's *fi sabilillah* (in the cause of Allah). I'm going to learn the Koran, and leave even stronger." Youssef (not his real name) was speaking to Hugo Micheron, a researcher conducting a study on jihadism in France. By the time the book was published last year, Youssef had served his term and been set free.

France is grappling with an unfamiliar challenge: how to handle those let out after serving time for terrorist-related offences. Of the 500 or so such detainees now behind bars, 58 are due for release this year, and a total of some 100 by 2023. Most were convicted for joining jihadist groups in Syria or Iraq, or helping others to do so. They were often sentenced to terms of only five to six years. Far stiffer sentences, including life, were handed down last December to accomplices in the terrorist attacks in Paris in 2015.

Last year Jean-François Ricard, the chief anti-terrorist prosecutor, told the National Assembly that he had "a real fear" about what would happen to the "dozens of peo-

ple who will leave prison, who are very dangerous". Current law enables such prisoners, after a risk assessment, to be put under surveillance and their movements limited for up to a year after their release. A new anti-terrorism bill, which entrenches and extends measures introduced in 2017 to end a state of emergency, would increase this to two years. It would enable courts to compel freed offenders to check in with probation officers and other authorities, and to enrol in training schemes, work or psychological support, for up to five years.

France's Constitutional Council last year rejected a previous version of some of these measures as a breach of fundamental freedoms, and told legislators to revise the bill. A reworked version is now going through parliament. Critics nonetheless worry about the mixed evidence of recidivism among released jihadists. A Belgian study, cited by Marc Hecker in a report for the French Institute of International Relations, suggested that just 2% of the 557 individuals convicted of jihadist terrorism between 1990 and 2019 re-offended.

In France, however, out of a sample of 137 individuals sentenced for cases related to jihadism between 2004 and 2017, at least 22 re-offended, left for jihad, attempted to kill a prison warden or breached the law against justifying terrorism. One of those released, Chérif Kouachi, took advantage of his freedom to help shoot and kill 12 people in 2015 at *Charlie Hebdo*, a magazine that had published cartoons satirising the Prophet Muhammad.

France is giving itself extra means, as well as legal powers, to fight terrorism. Since 2017 it has recruited an extra 1,900 intelligence officers and increased their budget. It has a new post of national counter-terrorism and intelligence co-ordinator. Fully 36 attacks have been foiled.

Yet the security services worry that there is nonetheless a pool of potential recruits to jihad on French soil who are increasingly difficult to detect. Each of the past eight terrorist attacks in France has been carried out by an individual who was previously unknown to the services. These include the fatal stabbing of a female police official in Rambouillet, west of Paris, last month, and the decapitation of Samuel Paty, a schoolteacher, in October.

Terrorism, according to a poll, is now a greater worry for the French than unemployment. Marine Le Pen, the nationalist leader who polls suggest will in 2022 again reach the second-round run-off of the presidential election, misses no chance to stir up panic. President Emmanuel Macron's term in office, she recently declared, has been marked by "terrorist chaos", and if he were re-elected this would provoke an "explosion". Less than a year before the vote, Mr Macron cannot afford to appear timid towards terrorism. ■

Turkey's lockdown

# Erdogan's no-wine situation

ISTANBUL

**An Islamist president sees the pandemic as a reason to ban booze**

EUROPE'S AUTOCRATS have different views on covid-19 and strong drink. Alexander Lukashenko, Belarus's president, says vodka might ward off the virus. Turkey's president, Recep Tayyip Erdogan, begs to differ. Shortly after he ordered Turks to stay at home for 18 days, starting on April 29th, after a record surge in covid cases, his government said it would ban alcohol sales during the entire lockdown.

The reaction was as predictable as a hangover after too many glasses of raki, a local aniseed-flavoured firewater sometimes called "lion's milk". Thirsty Turks besieged supermarkets and liquor stores. Beer and wine disappeared from shelves at a record pace. Secular types accused Mr Erdogan of using a health crisis to impose an Islamist policy. Similar accusations flew when, a few weeks ago, the government ordered all eating and drinking establishments to shut down over the holy month of Ramadan, ostensibly to curb the virus.

"This is a clear attempt to interfere with people's private lives and their way of life," said Veli Agbaba, the deputy chairman of Turkey's main opposition party, referring to the alcohol ban. It also has political undertones. Opposition supporters tend to be metropolitan and secular; ruling-party supporters are more likely to be rural, pious and teetotal.

The case for the new lockdown is hard to dispute. Covid infections and deaths soared to record levels in April. Over the last two weeks of the month, Turkey reported the highest number of active cases per head of any big country. The government's handling of the pandemic has gone from decent to bad to worse. The spike in infections came after the authorities relaxed restrictions in March. Mr Erdogan and his ministers flouted their own rules by attending large funerals and holding rallies in stadiums packed to the rafters.

They have not explained exactly how banning booze sales will help. When Turkey imposed similar measures during weekend lockdowns last year, the interior minister, Suleyman Soylu, claimed that "all Western countries" had limited alcohol sales during the pandemic and that the decision was "consistent with scientific views". In fact, only a handful of countries, including Thailand, India and South Africa, have imposed such bans. And though the WHO recommends that people avoid alcohol to protect their immune system, it does not recommend that governments decide for them.

The backlash has been surprisingly strong. Scores of supermarkets and liquor shops across Turkey have ignored the restrictions, arguing they have no basis in law. But the authorities have started to double down. At least one liquor vendor has been arrested. And on May 4th, the government not only confirmed the booze ban but extended it, "so as to prevent overcrowding" at supermarkets, to other goods it deemed "unessential". The newly proscribed items range from toys to electronics to gardening tools. Turks will have to brace for two weeks without raki or rakes.


Beer cans are banned. Watering cans, too

# Charlemagne | The anti-Orban

*Meet the other politician from Budapest*

GERGELY KARACSONY, the mayor of Budapest, and Viktor Orban, the prime minister of Hungary, could not be less alike. Mr Karacsony presides over the cosmopolitan capital; Mr Orban counts on the rural hinterland as his base. Mr Orban has near-total control over Fidesz, the party that has had near-total control of Hungary since 2010; Mr Karacsony owes his job to an ungainly alliance of six parties. The football-mad Mr Orban built a 3,800-seat stadium in his home village (population: 1,700); Mr Karacsony, a former academic, campaigned against an expensive athletics stadium in his city (population: 1,000 times larger). For anyone still struggling to tell the difference, Mr Karacsony helpfully points out that: "He is short and fat, and I am tall and slim."

Like the differences between Mr Karacsony and Mr Orban, Hungarian politics is now refreshingly clear-cut. It is Mr Orban's Fidesz party versus everyone else. After losing badly in all three general elections since 2010, Mr Karacsony's party and the other main opposition groups have teamed up to bring down Mr Orban in next year's vote. Individually, these parties were happy to poll in double digits. Together the alliance, which ranges from the formerly far-right Jobbik to socialists via centrist liberals, is polling level with Fidesz, in the high 40s. For the first time in more than a decade, someone has a chance of booting Mr Orban out.

Attention has turned to who will lead the charge. A primary to choose the opposition's candidate for prime minister will kick off the process this summer. Mr Karacsony's surprise victory in Budapest in 2019 was the first example of this approach succeeding. The 45-year old pollster-turned-politician won the primary on the basis of being the least objectionable candidate, able to garner support from voters with often wildly different views. Two years on and Mr Karacsony polls ahead of potential rivals for prime minister, yet he is still coy about whether he will eventually stand. Dithering adds to the common criticism of Mr Karacsony that his natural meekness looks more like weakness to some voters.

The choice of candidate will dictate the choice of strategy. Mr Karacsony revels in a reputation as a peacemaker, able to heal differences between his diverse supporters. He is reluctant to fight Mr Orban on his own terms. If Mr Orban feeds on confrontation, then it is best not to feed him, runs the logic. Other potential candidates adopt a more abrasive tone. Peter Jakab, the leader of the formerly far-right Jobbik, recently told Mr Orban: "I've never seen a coward such as you." (He was also once fined for trying to hand Mr Orban a sack of potatoes in parliament, accusing him of vegetable-based electoral bungs.)

Whether Mr Karacsony's manner will work outside the capital is unknown. In Hungary, politics is as much about geography as ideology. In Budapest, home to one in five Hungarians, residents rely on still-vibrant online Hungarian media; in the countryside, pro-government radio and tabloids rule. Last October the opposition failed to win a by-election in a rural seat, despite ganging up. As well as picking a potential prime minister, the parties must also arrange 106 primaries for individual constituencies this summer.

Those keen on helping from abroad should steer clear. Well-meaning foreign interventions are not always welcome, says Mr Karacsony. Mr Orban loves to portray his enemies as globalist puppets, taking their orders from Brussels. Over-enthusiastic international support for the opposition can backfire. But a change in the international atmosphere does help. Patience among Mr Orban's European allies ran out earlier this year, when the Hungarian leader quit the powerful European People's Party club of centre-right politicians before he was pushed. Mr Orban's reputation as a canny operator on the European stage has been dented.

Elections in Hungary are free but unfair. Ballot boxes are not stuffed; opposition politicians are not disappeared. Still, gerrymandering is rife, state media spout propaganda and opposition parties find their state funding cut at short notice. Even so, talk of dictatorship is overdone: Mr Orban can lose and he knows it. Recent steps such as shunting Hungary's universities into private structures run by Mr Orban's cronies show he plans to cling to some power, even if he loses office. "They are building a deep state," says Peter Kreko of Political Capital, a think-tank. "If you are confident, then you do not build that."

**And now for something completely different**

Yet winning will still be the easiest part of the process. If it reaches office, the opposition will have the task of "de-Orbanisation": unpicking a state that Mr Orban has devised to enrich his friends and entrench his politics. This will take years. To explain the challenge, Mr Karacsony quotes Ralf Dahrendorf, an Anglo-German political scientist, who once said it takes six months to write a constitution, six years to develop a market economy and 60 years to change a society. Keeping the coalition together in the country at large will prove harder than in Budapest. At the moment, the opposition parties have little choice but to stick together. If they do, they could win. If they don't, they almost certainly won't. This concentrates minds. Once in office, they may find the slow task of unpicking of Mr Orban's deep state less thrilling than the campaign trail, so they will have to strain to stay united.

Get it right, however, and there is a bigger prize than reforming Hungary. Mr Orban provided a how-to guide for the EU's band of wannabe autocrats. A small, poor landlocked country with an impenetrable language became one of the most influential countries in the bloc, for entirely negative reasons. The Hungarian method of grinding down democratic norms has been adopted elsewhere, from Poland to Bulgaria to Slovenia. Infighting and ineptitude from the opposition allowed Mr Orban to embed himself in the Hungarian state over a decade. For years, Hungary has provided an example of what not to do. If Mr Karacsony and his allies succeed, it could for once prove an example worth following. ■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Sadiq v Boris

# Why London's bridge is falling down

**Relations between the capital and the national government have worsened. That affects the whole country**

HAMMERSMITH BRIDGE has been closed to all traffic for the past nine months. The fine Victorian structure in west London is cracking and could collapse at any moment; the borough that owns the bridge cannot afford to fix it. In a rational world, the government would shell out for repairs, says Tony Travers of the London School of Economics. But Hammersmith Bridge happens to connect one wealthy part of London with another part, and the government is loth to be seen spending money for their benefit.

From a great height, London has fallen hard in the past year. Covid-19 hit the capital first, killing people before doctors understood the disease. Commuters and tourists have vanished, hobbling the city's large service economy—no British region has suffered a sharper rise in unemployment. Yet the capital's biggest problem is political. The government of London has badly fallen out with the national government. That is already harming the city; eventually, the entire country will suffer.

On May 6th, as *The Economist* went to press, London was going to the polls. Bookies had been offering odds on the re-election of Sadiq Khan, the Labour mayor, at 1/100—if you put £100 on him and he won, you would make £1. Shaun Bailey, the Conservative candidate, ran a poor campaign, and the government appeared to have abandoned the city to Labour. Mr Khan spent much time attacking not his opponents but his predecessor, now the prime minister, Boris Johnson.

His manifesto claimed that Mr Johnson leads "the most anti-London government in recent history". The prime minister bashes the mayor whenever possible; in early April he even criticised Mr Khan's transport policies during a press conference about covid-19. Mayors and prime ministers have tussled before. But "the tension has never been quite as visible or quite as vocal," says Jack Brown, who studies the city at King's College London.

The row began soon after the Brexit vote in 2016, when the newly elected Mr Khan tried to position himself as a champion of business-friendly internationalism. He argued that the then-prime minister, Theresa May, was "a disaster" for London because she was neglecting infrastructure, impoverishing public services and pursuing a hard Brexit that would harm the city.

That was a crude caricature of Mrs May, but a fairer analysis of Mr Johnson. The current prime minister personally dislikes the mayor, who he believes is inexplicably popular, and has long wanted him cut down to size. The covid-19 pandemic and a change in Britain's political geography have given him the means and the incentive to do just that.

Covid-19 has scared Londoners off trains and buses, forcing Transport for London (TfL) to beg the Treasury for money. The government has extracted a heavy price for its support. It has forced the mayor to raise the congestion charge paid by drivers entering central London, insisted on fare increases on public transport, and allowed itself to appoint two special representatives to TfL's board. Since the mayor has more power over transport than anything else, this clips his wings. And it certainly looks as though that is the government's aim. Railway and bus companies outside London were given longer-term bail-outs, with fewer conditions.

The other big thing that the mayor controls is strategic planning. There, too, the government has crimped his power. In March 2020 the housing secretary, Robert Jenrick, rejected the London Plan—a document that sets priorities for development. Mr Khan was forced to rewrite parts of it. He had wanted the London green belt to be off limits to new housing, for example.

Building there will now be allowed in "very special circumstances".

The changes to the London Plan are not hugely consequential. But Mr Jenrick's argument that he had to intervene because London's record on homebuilding under Mr Khan was "deeply disappointing" is dubious. In the 2019-20 fiscal year London added 42,000 net dwelling units—more than any other English region and the highest figure since the turn of the century. The point of the intervention seems to have been simply to demonstrate that the government could overrule the mayor and hold up his plan for a year.

In March the government announced that it would introduce a "first past the post" voting system in London and other metropolises for future elections. At present Londoners can cast two votes for mayor. If a voter's first preference is not among the front-runners, his or her second-preference vote is counted. Moving from that "supplementary vote" system to first-past-the-post is unlikely to produce different winners, says Patrick Dunleavy, a political scientist who helped create London's voting system two decades ago. But it will reduce mayors' personal mandates and their legitimacy. Mr Khan is usually said to have won 57% of the vote at the last election in 2016, not the 44% he got before second-preference votes were tallied.

That change will endure even in the unlikely event that Mr Khan fails to win a second term. So will another one. The government used to assess bids for large infrastructure projects largely by using benefit-cost ratios. That suited the capital: because it is so productive, dealing with a travel bottleneck there often seems like excellent value for money. But last year the Treasury rules changed. The government will now conduct "place-based" analyses. It might, for example, consider that boosting incomes in a poor area would make a bigger difference to people's lives than boosting incomes in a richer area. The changes will make it easier to justify funnelling money to parts of Britain that are poorer than London—which is to say, almost everywhere.

Not surprisingly, the current mayor has accused the government of doing London down, and the government has not exactly denied it. It is more interested in courting voters in the former industrial heartlands of the north and Midlands, some of whom resent London's power. "It plays well to Boris's base to be seen to be tough on London, and it plays well with Sadiq's base to be seen to be standing up to the government," says a former London Tory MP.

But the fracas is not at all good for London. When the mayor blames the central government for the capital's problems, and the government retorts that London is badly run, the overall effect is to tarnish the city in the eyes of potential investors and immigrants. "Everyone can have policy differences, but being engaged in a tribal war is not helpful," says Richard Burge, head of the London Chamber of Commerce and Industry, a lobby group.

What harms London is likely to harm the entire country in the long run. The capital funds the rest of Britain: in 2018-19 its net fiscal surplus amounted to £4,350 per person, far more than any other region. And together with Manchester and Scotland, London is one of the engines of devolution. Responsibilities and powers are handed out to them first, then handed to other regions. If Westminster grabs power back from London, the engine is thrown into reverse.

"Cities can turn," says Rory Stewart, a former Tory minister who ran for mayor as an independent but dropped out of the race a year ago. London has been badly damaged by covid-19; parts of it, such as the West End, might not recover for years. And if the capital struggles, Britain will lose one of its remaining claims to global greatness. Mr Stewart says that many people would laugh at the idea that Britain has one of the world's greatest armed forces. But Britain can reasonably claim to have one of the world's greatest cities. ■

Body parts

# Water, water everywhere

**The pandemic has resulted in a shortage in of cadavers**


PRESS A KNIFE into human flesh and, as the blade slides in, the sensation subtly changes. Human skin, says Claire Smith, professor of anatomy at Brighton and Sussex Medical School, "feels like chicken skin"; it is "slightly rougher" and "not always slippery". Slice into a human artery, meanwhile, and you will feel "a little bit of springback"; while veins just feel "flat" and nerves, says Dr Smith, "feel like a noodle".

This complex stew of sensations that travels from blade to brain is known in the trade as "haptic feedback" and, in surgery, it matters. It has also, this year, been hard for trainee medics to come by. Because the covid-19 pandemic has caused—and the irony of this hardly needs to be laboured—a shortage in cadavers.

Britain has experience of such shortages, and of attempts to fix them. An enterprising early attempt to increase supply in Edinburgh by Burke and Hare ended with the execution of Burke, the introduction of the 1832 Anatomy Act and a general sense that dissection was a bit ghoulish. (Burke died as he lived: his body was publicly dissected and his skeleton still stands in Edinburgh's anatomical museum.)

Supplying the market remains tricky. Squeamishness is undoubtedly one problem: people rarely like to think of their own death, still less of what happens to their own all too solid flesh after it. Anatomy departments, unlike organ donation programmes, do not advertise for custom. Strict quality-control standards also act as a brake on the numbers accepted. All men may be born equal but they do not, in the eyes of anatomists, die so. Bodies are rejected for a large number of reasons, including being too thin (not enough to dissect); too fat (anatomy tables have weight limits); too tall (cadavers come inconveniently off the ends of those tables) and for having a large unhealed wound (the embalming fluid pours out).

And the regulations are getting ever tighter. Before 2004, so-called "second-person consent" was allowed, meaning that bodies could be donated on the word of the next of kin—and that families who wished to donate an irksome aunt, thus saving on funeral costs, could do so. Now, only first-person consent, in the form of a form, signed by the individual, will suffice.

To fill the gap in its market, Britain imports parts from America, where rules are looser—second-person consent is permitted, as is the use of unclaimed corpses from prisons and elsewhere—but is at-

tempting to become more self-sufficient. In 2015 a National Repository Centre was established in Nottingham to source and store cadavers. It couriers parts around the country, using undertakers. International transport is done by specialists—not, says Dr Smith, "DPD or anything".

Though supply is constrained, demand for corpses has been growing as the numbers training to be doctors have increased. In 2005, medical schools bought 600 cadavers; in 2017, 1,300. Given both rising demand and supply constraints, it is perhaps surprising that arms and legs do not cost an arm and a leg. Nor do heads: the going rate for one in America is around $500; a foot is $350 (prices are similar in Britain).

Covid-19 has made things trickier still. Body donation in Britain paused, since no one was certain whether bodies would be infectious. Besides, medical schools had other priorities. Dr Smith gained a temporary mortuary in a car park and around 400 deceased victims of the pandemic. She and her lecturers tended them between teaching sessions.

Despite deaths of more than 100,000 in excess of what the country would normally have experienced since the pandemic began, the nation's anatomy departments have therefore struggled to fill their fridges. Dr Smith's department usually requires around 70 donors a year: so far it is around 30 short. The London Anatomy Office, which provides cadavers for seven medical schools in and near the capital, normally receives and processes 150 or so bodies every three months. Between March and June last year it took none.

During the pandemic this lack of cadavers didn't matter, as many training courses were being paused and operations cancelled anyway. Now that the pandemic is easing, surgical training is starting to pick up again, as is donation, but anatomy departments are still struggling to meet demand. Shortages are contributing to what the *British Medical Journal* has called a "crisis" in surgical training.

There are ways around the shortage of cadavers: surgeons can and do train in other ways, such as 3D computer simulations. But though these are good they are not, says Neil Mortensen of the Royal College of Surgeons of England, "yet good enough for advanced surgical training."

Other nations use different solutions. In some countries, surgeons still train on live animals, a practice that has many advantages—including realistic haptic feedback: if you cut a dog, it will bleed. Unfortunately for medics, so too do the hearts of animal-loving Britons at the thought of such things, and the practice is not done here. Although even if it were, it might not help. Pet ownership has increased so rapidly in the pandemic that dogs, like cadavers, are now in short supply. ■

Brexit

# Fish fight with France

**Jersey is the centre of a row over fishing rights**

IT IS NOT exactly the Royal Navy task force steaming towards the Falklands, but the news that the prime minister has sent ships to protect an island threatened by an angry neighbour has historical resonance. As *The Economist* went to press, two navy vessels were heading for the Channel Island of Jersey from the north, while a flotilla of French fishing boats was sailing towards it from the south.

The Channel Islands were part of the Duchy of Normandy that stuck with Britain after the French lost them in the 13th century. Crown dependencies whose foreign affairs are run by Britain, they never joined the EU, but relations between Britain and Europe have shaped their history—Germany occupied them in the second world war—and now Brexit is causing tension.

The problem is fishing. Under an agreement between Britain and the EU, French fishermen must acquire licences to fish in Jersey's waters. To get them, they must provide data showing that they were doing so for five years before the referendum in 2016. But they say smaller boats lack the necessary equipment, and that the licences are arbitrary and restrictive. A member of the French parliament cited the case of a fisherman who used to catch sole and scallops 40 days a year, and had been told he could now catch only scallops, on only 11 days a year. Gregory Guida, Jersey's assistant environment minister, said the problem was that the boats' data were "very bad" and that he gave small boats extra time to prepare data using log books if they did not have electronic records.


Annick Girardin, France's minister of maritime affairs, said she was "revolted" by the fishermen's treatment: "We're ready to resort to retaliatory measures...concerning Jersey, I'll remind you of the transport of electricity via submarine cables." Jersey gets 95% of its electricity from France. Clément Beaune, France's junior minister for European affairs, said earlier that if Britain broke its commitments on fishing, retaliation could include action on financial services. A hundred French fishing boats were said to be heading for St Helier on May 6th to protest, while a source in the French presidency said that France was hoping for "a return to calm and *sang-froid*".

Before this incident, relations between Britain and the EU were improving. Britain had climbed down over its refusal to grant ambassadorial status to the EU's representative, and the two sides were taking a more pragmatic approach to solving the post-Brexit problems in Northern Ireland. But, as Britain discovered during the Cod Wars with Iceland that sputtered on and off from the 1950s to the 1970s, fishing is a dangerous business, liable to slip out of control at any moment. ■

Trafalgar all over again?


Organised crime online

# Spam, scam, scam, scam

**A decentralised dark economy makes cyber-crooks more effective and harder to catch**

NOBODY LIKES a call from the taxman. Donald Rumsfeld, who as America's defence secretary oversaw a budget bigger than the economy of a typical country, nonetheless finds the rules so confusing that he writes to the Internal Revenue Service each year complaining that he has "no idea" whether he has filed his taxes correctly. So it is hardly surprising that, when the phone rings and an official-sounding voice says you have underpaid your taxes and will be connected to an adviser to pay the balance, ordinary folk tremble.

It is, however, invariably a scam. Few tax authorities call individuals about their taxes. If you are lucky, they will send you a letter a year later, to the wrong address. They will certainly not menace you, as bogus calls often do, with the threat of arrest if you do not stump up the cash right now.

Such scams have become vastly more common. Phone calls from tricksters claiming to be taxmen almost doubled in number last year, according to UK Finance, a trade association of banks. Other countries show increases at least as dramatic.

Even as rates of most crimes remain low in rich countries, the spectacular growth of cyber-crime—crime committed mostly or entirely by digital means—stands out. According to the Crime Survey of England and Wales, the best indicator of long-term trends in Britain, in 2019 there were 3.8m incidents of fraud, mostly online, representing a third of all crimes committed. That figure has increased every year since 2017 when the government started collecting data. Around 7% of all adults were victims. Three-quarters lost money, and 15% lost more than £1,000 ($1,390). In America the number of reported cases of internet fraud increased by 69% last year. Reported losses there (excluding bank or credit-card fraud) reached $4.2bn, three times higher than in 2017.

Other kinds of internet-enabled crime are growing too. Computer-enabled spam phone calls and text messages, typically trying to defraud people, extract billions of dollars a year. Illegal gambling websites, many of which steal from their customers, have multiplied. And new technology makes many old-fashioned crimes easier to perpetrate. Drug-dealers use Bitcoin, a cryptocurrency, to take payments and move money around. They rely on specialised criminal encrypted-communications software to organise their affairs. "There is no serious organised crime that does not have a digital component," says Nigel Leary of Britain's National Crime Agency (NCA).

Most significant over the past year is the growth in "ransomware"—hacking attacks where victims' files are locked up until money is paid. Such attacks were once crude. Ransomware arrived in spam emails and targeted ordinary people's computers. The sums demanded were often small, to encourage people to pay up.

These days hackers focus on large organisations and demand big ransoms (see chart). Malicious software is injected into specific computer systems. It steals data before locking them. A ransom is then demanded to unlock the files or, increasingly, to prevent them from being leaked (back-ups of important data are common now). It is almost always in Bitcoin. Chainalysis, a cyber-security firm, says the amount paid in Bitcoin ransoms increased by 311% last year compared with 2019, to around $350m. Victims are usually businesses but more and more include governments and their departments, including the police. On April 27th Washington DC's coppers revealed that they had been hit by hackers, who say they will expose police informants to gangs if the authorities do not pay up.

Ransomware is "the single biggest threat" in the organised-crime world, says Alan Woodward, a computer scientist at

the University of Sussex who advises Europol, the EU's police agency. On April 29th Alejandro Mayorkas, America's secretary of homeland security, described it as "a threat to national security". The damage is enormous. Maersk, a global shipping company, wrote down $300m in losses related to a ransomware attack in 2017. Travelex, a British currency trader, collapsed last year, with the loss of 1,300 jobs. An attack that took its systems down at the end of 2019 was partly to blame. Despite coughing up 285 Bitcoin—then worth around $2.3m—the firm lost about £25m that quarter. It attributed most of that to the attack.

Ransoms can be eye-watering: an attack in March on the Broward County school system, which includes Fort Lauderdale in Florida, came with a demand for $40m in Bitcoin. In messages leaked by the hackers, one of the district's negotiators was incredulous: "You cannot possibly think we have anything close to this."

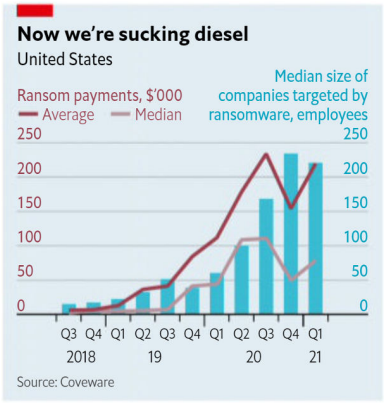
Most government bodies do not. But the consequences of not paying can be just as costly. In Baltimore County, in Maryland, schools had to stop online teaching last year for several days after their systems were locked by a ransomware attack. In 2019 an attack on the neighbouring City of Baltimore cost its taxpayers $18m. During the pandemic, hospitals have been hit, too. France reported 27 attacks on hospitals last year, as part of a 255% increase in ransomware attacks generally. Medical treatments have been delayed in Germany and America because of attacks.

### Bitcoin buccaneers

The criminals who do it are a mixed bunch. Many seem to be based in Russia, other parts of eastern Europe, or China. In Russia and Belarus, cyber-criminals thrive because the state tolerates them, as long as they scam only foreigners. Some reportedly have links to the security services.

But cyber-criminals do not seem to operate in tightly organised crime groups, like drug cartels or mafias. Their strength comes from their decentralisation. Individual elements of each crime are provided as a service to organisers. One lot may write and sell the software. Others may get it into targets' computers. Others may collect and launder the ransom. And a few kingpins may finance the entire operation. And yet they may never know each other's names or locations.

Crimes such as bank robbery used to be artisanal, says the NCA's Mr Leary. Big jobs like the Brink's-Mat robbery of 1983, when gold, diamonds and cash worth £26m (£100m in today's money) were stolen from a warehouse at Heathrow airport in London, required a large specialist staff who all knew and trusted one another. These days large-scale crime is being industrialised by technology. "The barriers to entry




are really very low," says Mr Leary.

That is largely because an entire internet infrastructure has developed to facilitate attacks. Cryptocurrency is key. Ransomware criminals like to use Bitcoin, says Kemba Walden, a lawyer with Microsoft's digital-crimes unit because it is very liquid and relatively anonymous. The end recipient is anonymous unless his real-world identity can be connected to his virtual address. Criminals can trade Bitcoin between themselves. Cashing out their earnings into real money is risky; in most rich countries Bitcoin exchanges apply strict "know your customer" requirements. But it is not impossible. Some exchanges in less-regulated countries apply looser criteria. And coins can be "tumbled"—swapped between cryptocurrencies by money-launderers—to conceal their origins, and then sold on well-regulated exchanges. In Russia and China "it's just incredibly difficult" to trace stolen money, says Ms Walden.

Other technological innovations are vital, too. SIMboxes, which allow people to "spoof" (conceal the origin of) phone calls, are sold for legitimate purposes, to marketing firms, for example. But they also allow criminals to spam people or communicate without revealing their location. TOR, software which anonymises internet connections by bouncing data around the world, lets the "dark web" thrive, hosting the forums on which criminals anonymously trade their wares. "Bulletproof hosting"—server farms with a high level of security and privacy—operate like virtual safe houses, where compromising data can be moved off at a moment's notice, invariably before the police are able to get to it.

What is the future of such crime? As ransomware has grown, so has the industry promising to protect firms from it. The crime is "becoming more high-profile", says Michael Levi of Cardiff University, because of attacks such as the one on Maersk. Organisations are trying to buttress their defences. But many do not want to report hacking attempts or fraud. Data breaches are not only damaging in themselves; they are embarrassing, too. Individuals rarely think to report cyber-crimes to the police. The costs may be borne indirectly. Banks and insurers will often compensate people for losses. Security is improving but the crimes are increasingly profitable.

The police fret that more traditional criminals are moving into cyber-crime, and vice versa. "Now the dark web is used for the commodity trade [fencing of stolen goods], the drugs trade and firearms," says Mr Leary. In raids in Belgium in March police seized 28 tonnes of cocaine, as well as cash, guns, police uniforms and a torture chamber in a shipping container. The criminals had reportedly been using Sky ECC, an encrypted phone network sold by a Canadian firm. The phones were seemingly designed to hide criminal activity, with end-to-end encryption, disappearing messages and no GPS data. Subscriptions were paid in Bitcoin. That gave them a great deal of anonymity—at least until European police forces managed to inject their own malware into the phones to spy on them.

Governments are starting to take cyber-crime more seriously. America's Justice Department has appointed a team to tackle ransomware. The "five eyes" allies—America, Australia, Britain, Canada and New Zealand—are sharing intelligence on it. But there is a long way to go. In Britain only one in 200 police officers focuses on fraud, despite its outsized footprint, according to figures revealed through the Freedom of Information Act by the *Times* newspaper.

And the opportunities are growing. In the past six months the value of the world's Bitcoin has soared to over $1trn. That surge of liquidity makes it even easier to hide crime. And as Mr Woodward puts it: "Why would you walk into a bank with a sawn-off shotgun to steal £30,000 when, if you've got some money to invest, you can go on the dark web and start a ransomware campaign and make millions?" ■



Berkshire Hathaway

# Honky Tonk Warren

**There are growing questions over the governance and performance of the world's most famous conglomerate**

THE ANNUAL shareholders' meeting of Berkshire Hathaway has been dubbed "Woodstock for capitalists", so large is the throng it usually attracts. For the second year running, though, thanks to covid-19, the groupies have been denied their close-up love-in with Warren Buffett. The event on May 1st was online only, with Mr Buffett joined on screen by his longtime sidekick and fellow nonagenarian, Charlie Munger—a headline act that makes the Rolling Stones look like striplings.

Nevertheless, Warren and Charlie outdid Mick and Keith for stamina, taking more than three hours of questions, covering everything from Berkshire's first-quarter results, announced earlier that day, to the ways in which its subsidiaries do and don't resemble children. For Buffettologists, the highlight was an apparent slip of the tongue by Mr Munger: "Greg will keep the culture". The following day Mr Buffett, who had hitherto refused to publicly name an heir apparent, confirmed that the nod had gone to Greg Abel, the 58-year-old head of Berkshire's non-insurance operations.

Mr Buffett has long held the stage as the world's most celebrated investor, having turned a troubled textile firm purchased in the mid-1960s into a conglomerate worth $645bn spanning everything from railways and real estate to insurance and ice cream. Berkshire—a collection of owned or controlled businesses employing 360,000 people, and a $300bn portfolio of minority stakes in blue chips—has done long-term investors proud. Under Mr Buffett's stewardship its stock has enjoyed a compounded annual gain of 20%, double that of the S&P 500 index (including dividends).

## On with the show

Berkshire's more recent record looks less stellar, however—leaving some wondering if the company, like the Rolling Stones, is trading on its back catalogue, its greatest hits a thing of the distant past. That prompts another concern. At 90, Mr Buffett is still sharp and seemingly in good health. But no one lives forever. The change of front man, when it comes, will be a test of the endurance of Berkshire's unique culture and its quirky (some would say anachronistic) governance.

It will also test whether the sprawling group can remain in one piece at a time when conglomerates are out of fashion. Berkshire has long enjoyed a sort of corporate exceptionalism, thanks to the halo over Mr Buffett. With disquiet growing over so-so returns, poor disclosure and more, that benefit of the doubt looks threatened.

Start with the financial performance. Operating profit—the number Mr Buffett urges shareholders to focus on—fell by 9% in 2020, to $22bn, after a flat 2019 (though it rebounded in the latest quarter, up by 20% year on year). Berkshire's shares badly underperformed the S&P 500 index in both years. Over the past ten years, its per-share market value has handily beaten the index just twice, while lagging far behind it four times. In truth, Berkshire's performance relative to the S&P has been slipping for decades (see chart on next page).

This loss of oomph is partly explained by the law of large numbers: the bigger Berkshire grows, the harder it is for any single successful investment to move the needle. Another factor is the dwindling of a past advantage. Berkshire has long used the float (premiums not paid out as claims) from its giant insurer, Geico, to funnel low-cost capital to its other operations. But these days capital is cheap for everyone.

Some wounds have been self-inflicted. Big bets on Occidental Petroleum and Kraft Heinz soured quickly. The consumer-goods giant, of which Berkshire owns 26.6%, is weighed down by $28bn of debt and bloated goodwill after a mispriced merger in 2015. Mr Buffett has admitted that he overpaid for Precision Castparts, an industrial-parts-maker that Berkshire bought in 2016, which subsequently triggered an $11bn write-down. Some of his timing has looked awry, too. Having built a ▸▸

big position in American airline stocks, Berkshire bulked up on more at the start of 2020, but lost its nerve as the pandemic spread, dumping its holdings and crystallising a loss of $3bn-4bn. Within months the sector's share prices had rebounded.

Indeed, the past year has given the lie to the received wisdom that Mr Buffett thrives in adversity. That was certainly true during the financial crisis of 2007-09, when Berkshire acted as an investor of last resort, striking highly lucrative deals to bail out GE and Goldman Sachs; the GE investment yielded a 50% return, most of it within three years. This time, though, with market liquidity less constrained, Berkshire has had less opportunity to pounce.

Nor has it been able to find an acquisition that is both good value and big enough to move that needle. Identifying "elephants" on which it could spend a sizeable part of its $145bn cash pile has become a parlour game in investment circles. When covid-19 first struck, many thought Mr Buffett would be spoilt for choice. But buoyant stockmarkets mean fewer bargains for value investors like him to snaffle up. And Mr Buffett eschews corporate auctions as they often involve paying big premiums.

Another turn-off is increased competition from private equity and SPACs. Berkshire's biggest deal of 2020 was more bolt-on than blockbuster: the $10bn purchase of a gas-pipeline operator by its utility, Berkshire Hathaway Energy (BHE). That was less than half of what Berkshire spent over the year on buying back its own shares.

Perhaps the clearest sign that Berkshire may have lost its touch when it comes to finding attractive targets was the rapid in-and-out of Bill Ackman. The star hedge-fund manager, a lifelong Buffett fan, built a $1bn position in Berkshire in 2019 but had fully sold out by mid-2020, apparently after concluding he could find overlooked gems more effectively himself.

Berkshire has also taken flak for largely missing out on the tech boom of the past decade owing to Mr Buffett's preference for mature businesses. There is one glaring exception, though: its 5.4% stake in Apple, which has produced a whopping $90bn gain over five years. Moreover, the economic pendulum may be swinging back towards the industrial firms he favours: they should benefit from trillions of federal dollars earmarked for infrastructure upgrades. BNSF, Berkshire's railway network, can expect to profit as more heavy stuff needs shifting for all these projects.

Some investors have grown increasingly vocal in pressing Berkshire to eke out more from its main divisions. Mr Buffett has described BNSF as one of the conglomerate's four "jewels", along with Geico, BHE and the Apple stake. But when Mr Ackman crunched the numbers in 2019, he found the railway's operating margins to be five percentage points below the average of its peers. Geico has many virtues, including making a profit on its underwriting most years. But its margins, and use of analytics, lag those of an arch-rival, Progressive.

## Shine a light

The answer, says one large investor, is for Mr Buffett to be more hands-on with subsidiaries. That, though, would go against the grain of the idiosyncratic management structure and governance long in place. Bosses of subsidiaries are given almost total autonomy; it is not unheard of for them to go months without speaking to Mr Buffett. Berkshire's head office is tiny, with just 26 people; divisions have their own legal, accounting and human-resources departments. They report to head office, but it reports little to the outside world. Berkshire does not hold analyst calls or investor days. It gives out scant financial information beyond mandatory filings, says Meyer Shields, an analyst with KBW (who has long been shut out of Berkshire's annual conclave because of his sceptical views).

Mr Buffett is proud of being different. Whereas other big firms have moved to a command-and-control approach, Berkshire's remains rooted in trust: he trusts the divisions to get on with it, and shareholders are expected to trust that he will make more right calls than wrong ones.

This approach is increasingly at odds with corporate trends. At this year's AGM, Berkshire faced shareholder proposals on its skimpy climate-risk disclosure and diversity policies (both were defeated). It is also under fire over executive pay, which at Berkshire is heavily weighted to base salary, owing to Mr Buffett's long-held suspicion that stock incentives encourage managers to manipulate the share price. Big proxy-advisory firms like ISS have backed some of these criticisms. Some have also taken aim at the board for being too old (five of its 14 members are 89 or over), too entrenched and too close to the boss.

Mr Buffett has little time for ESG metrics, diversity targets and the like. He has said he doesn't want his managers to have to spend their time "responding to questionnaires or trying to score better with somebody that is working on that". A lot of what is considered good governance today doesn't fit with Berkshire's heavily decentralised approach.

Yet pressure for change is growing, and will surely intensify further once the founder no longer calls the shots. Moreover, the post-Buffett leadership is likely to be more diffuse, which those hoping to shake up Berkshire may see as an opportunity to apply more leverage. Mr Abel is CEO-in-waiting, but Mr Buffett's role as chairman is set to go to his son, Howard. His third role, as investment chief, will probably go to one of the group's two top equity-portfolio managers, Todd Combs and Ted Weschler.

The most forceful efforts to impose change may come from those seeking to break up Berkshire. When he is gone, Mr Buffett conceded last year, "everybody in the world will come around and propose something, and say it's wonderful for shareholders, and by the way it involves huge fees." Some on Wall Street would see it as a coup to "release value" by, for instance, splitting the conglomerate into three bits, focused on insurance, industrial assets and consumer businesses.

Few doubt that Berkshire trades at less than the sum of its parts. But even the sceptical Mr Shields thinks the discount is only around 5%. Others think it may rise above 10% once its leader departs. Mr Buffett insists that a well-run conglomerate has enduring advantages. One is not being associated with a given industry, meaning it feels less pressure to maintain the status quo—"if horses had controlled investment decisions, there would have been no auto industry," as he once put it.

A crunchier benefit relates to tax: Berkshire can move capital between businesses or into new ventures without incurring any. And taxable income at one subsidiary can help generate tax credits at another. Mr Buffett has claimed this gives BHE a "major advantage" over rivals in developing wind

**You can't always get what you want**
Berkshire Hathaway


Sources: Refinitiv Datastream; company reports

power and solar-energy projects.

How vulnerable to centrifugal forces Berkshire proves to be will depend more than anything else on the composition of its shareholder base. Currently, it affords protection. The typical large American listed company is mostly owned by institutional investors. Berkshire is different. Mr Buffett has around 30% of the voting share; another 40% is held by an estimated 1m other individuals, many of them long-term loyalists (with whom he has spoken of having a "special kinship"); the rest is owned by institutions. If a vote were held today, it would overwhelmingly reject a break-up or wrenching strategic shift.

Mr Buffett and his retail kinsmen may not form such a powerful block for much longer, however. Many of the loyalists are getting on in years. The children who inherit their shares may show less zeal. Even some of the faithful may sell once the Oracle of Omaha has gone. Moreover, Mr Buffett's stake will be sold into the market after his death, albeit over more than a decade. He has bequeathed it to various foundations on condition that they sell the shares and spend the proceeds on good causes. Posthumous shifts in the shareholder base are Berkshire's "Achilles heel", reckons Lawrence Cunningham of George Washington University.

As a keen student of corporate history, Mr Buffett will doubtless know that James J. Hill, a 19th-century railroad baron who led an operator that would later become part of BNSF, once declared that a company only has "permanent value" when it no longer depends on "the life or labour of any single individual". Berkshire's greatest challenges will come only after its grizzled rock star has left the stage. ■

# Bartleby The human touch

*Crafts and the future of work*

In "The Repair Shop", a British television series, carpenters, textile workers and mechanics mend family heirlooms that viewers have brought to their workshop. The fascination comes from watching them apply their craft to restore these keepsakes and the emotional appeal from the tears that follow when the owner is presented with the beautifully rendered result.

Perhaps the idea of craftsmanship is not simply nostalgic. In a new paper* in the Academy of Management Annals, five academics examine the idea of crafts as a way of remaking the organisation of work. They define craft as "a humanist approach to work that prioritises human engagement over machine control". Crafts require distinct skills, an all-round approach to work that involves the whole product, rather than individual parts, and an attitude that necessitates devotion to the job and a focus on the communal interest. The concept of craft emphasises the human touch and individual judgment.

Essentially, the crafts concept seems to run against the preponderant ethos of management studies which, as the academics note, have long prioritised efficiency and consistency. Frederick Winslow Taylor, a pioneer of management studies, operated with a stopwatch and perceived human workers as inefficient, and potentially disobedient, machines. Craft skills were portrayed as being primitive and traditionalist.

The contrast between artisanship and efficiency first came to the fore in the 19th century when British manufacturers suddenly faced competition from across the Atlantic as firms developed the "American system" using standardised parts. Initially these techniques were applied to arms manufacture but the worldwide success of the Singer sewing machine showed the potential of a mass-produced device. This process created its own reaction, first in the form of the Arts and Crafts movement of the late 19th century, and then again in the "small is beautiful" movement of the 1970s. A third crafts movement is emerging as people become aware of the environmental impact of conventional industry.

There are two potential markets for those who practise crafts. The first stems from the existence of consumers who are willing to pay a premium price for goods that are deemed to be of extra quality. This niche stretches all the way down from designer fashion through craft beers to bakeries offering "artisan" loaves. To the extent that automation takes over more sectors, this niche seems likely to become more lucrative; there is "snob value" in owning a good that is not mass produced. The second market lies in those consumers who wish to use their purchases to support local workers, or to reduce their environmental impact by taking goods to craftspeople to be mended, or recycled.

For workers, the appeal of craftsmanship is that it allows them the autonomy to make creative choices, and thus makes a job far more satisfying. In that sense, it could offer hope for the overall labour market. Let the machines automate dull and repetitive tasks and let workers focus purely on their skills, judgment and imagination. As a current example, the academics cite the "agile" manifesto in the software sector, an industry at the heart of technological change. The pioneers behind the original agile manifesto promised to prioritise "individuals and interactions over processes and tools". By bringing together experts from different teams, agile working is designed to improve creativity.

But the broader question is whether crafts can create a lot more jobs than they do today. Demand for crafted products may rise but will it be easy to retrain workers in sectors that might get automated (such as truck drivers) to take advantage? In a world where products and services often have to pass through regulatory hoops, large companies will usually have the advantage.

History also suggests that the link between crafts and creativity is not automatic. Medieval craft guilds were monopolies which resisted new entrants. They were also highly hierarchical with young men required to spend long periods as apprentices and journeymen before they could set up on their own; by that time the innovative spirit may have been knocked out of them. Craft workers can thrive in the modern era, but only if they don't get too organised.

* "Configurations of Craft: Alternative Models For Organising Work" by Jochem Kroezen, Davide Ravasi, Innan Sasaki, Monika Zebrowska and Roy Suddaby

Vaccine patents

# A shot in the arm

WASHINGTON, DC

**America proposes waiving patents on vaccines**

AMERICA HAS long been the global protector-in-chief of intellectual property. But on May 5th it sought to tear up the rule book. "The extraordinary circumstances of the covid-19 pandemic call for extraordinary measures," said Katherine Tai, the United States Trade Representative. To help battle the pandemic, the administration of President Joe Biden said it supported waiving some intellectual-property protections for vaccines. Jaws dropped—along with the share prices of vaccinemakers.

Investors shuddered at the idea that other manufacturers might pounce on unprotected intellectual property. Only a day earlier, Pfizer forecast vaccine revenues of $26bn in 2021, with profits around $7bn. Splitting such spoils could blunt the incentive to invest and undermine innovation. And if firms fear that their know-how can be pilfered with impunity, it could undermine collaborative efforts. Just as bad, botched imitations by generic manufacturers could fuel vaccine hesitancy.

The waiver's advocates argue that a pandemic is not the time to be thinking about profits. Moreover, existing commercial agreements should be unaffected. Beyond that, it is unclear how much extra supply of vaccines a waiver could unlock. The complexity of some production processes means that copycats will need cooperation from originators. James Love of Knowledge Ecology International, an advocacy group, hopes that the threat of weaker protections could encourage more voluntary-licensing agreements, in which companies transfer their know-how. There are untapped suppliers such as Teva, an Israeli generics firm, which recently said that it would give up looking for a production partner. But even these sort of voluntary agreements are likely to take around six months to set up.

American support for a waiver is the first step in what could be a lengthy process. Several countries, including members of the European Union, Britain and Switzerland, which opposed such a move at the WTO last year, must be persuaded to change their minds. They will struggle to hold the line against America, so may agree to a narrow exception to trade rules. A broader waiving of the rules, as proposed by India and South Africa, to include the removal of patent and trade-secret protections for all covid-related products, including therapeutics and diagnostics, is not on the table. In her comments Ms Tai mentioned waiving intellectual-property protections, but only for vaccines.

Consensus at the WTO could take months to secure, and after that countries will still have to change domestic laws. Meanwhile, the pandemic will be raging, while other constraints on vaccine supply continue to bite, including the availability of special inputs from plastic tubing, filters and even specialist bags. Investors may worry about a fall in profits. If negotiations at the WTO suck energy away from other initiatives to transfer technology and increase vaccine supplies, that would really be something to fear. ■

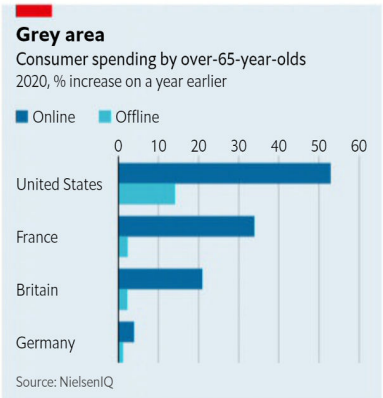
Ageing consumers

# The boomer boom

**Older consumers have learned new tricks in the pandemic.**

BABY BOOMERS, aged 57-75, are as the name implies, plentiful. Healthier and more adventurous than similarly aged cohorts in the past, since 2018 over-65s have outnumbered the under-fives. They are also wealthier. America's boomer-led households spend $64,000 a year, almost twice as much as those headed by youngsters born from 1997 onwards. Together with the earlier "silent" generation, they account for two-fifths of American consumer spending. Yet brands and retailers have long given older shoppers short shrift, focusing most of their attention on the wrinkle-free. As with many things, the pandemic is demanding a rethink.

For one thing, fear of covid-19, more deadly for the elderly, has ushered oldies online. Last year British over-65s made up 30% of consumer-goods purchases online, up from 20% in 2019. In August Britain's Office for National Statistics reported that 65% of them had shopped online in the preceding 12 months, compared with 54% the year before. America's over-65s spent 53% more on internet shopping than the year before, according to NielsenIQ, a research firm (see chart).




Hinge, an e-commerce consultancy, says that sales of products disproportionately bought by older people, from meal replacements to adult nappies, have jumped by 50% or more, outpacing overall sales. Businesses catering to older consumers are adapting. The staple of GoGoGrandparent used to be helping greying North American technophobes book ride-sharing services by phone. With social distancing this business dwindled, says Justin Boogaard, its co-founder. In April 2020 the firm diversified into delivering food to old folks with dietary restrictions; these are up by 300% since then, it says.

It isn't just products aimed specifically at the old that the elderly are snapping up on the internet. Their online spending on booze nearly quadrupled in America, estimates NielsenIQ. SilverSingles, a dating website, reports healthy growth in the number of new monthly users. Virtual first dates featuring wine tasting, food deliveries and film streaming are all the rage, affording brands the chance to offer their wares to oldies who have signed up.

Brands are also attempting to appeal to the elderly through such things as "healthy ageing" products, which the pandemic has turned into a craze. Nestlé, a Swiss consumer-goods giant, has launched a milk drink in China, which supposedly aids mobility. Reckitt Benckiser, a British rival, is marketing one that targets immunity. Danone, a French yogurt-maker, is investing in developing similar products. Companies are also thinking about spending more on wrinkle-friendly adverts; just 3% of America's ad spending is aimed at people over 50, reckons Joseph Coughlin, who runs the AgeLab at the Massachusetts Institute of Technology.

Some innovations welcome in a pandemic may be less so once it passes, especially for retailers. Maintaining priority slots for online deliveries to the elderly, and not charging them a delivery fee on what tend to be small orders ferried at a loss, is going to be costly, warns one supermarket boss. Yet companies will face pressure to keep them to retain custom, especially with ever more physical shops shut for good.

They may also need to make online shopping easier than it already is. That could mean fewer forms that the elderly (and everyone else) find fiddly, and more options as to how and when to pay, to reassure older shoppers who worry about sharing credit-card details. Having taught oldies some new tricks during the pandemic, firms must now learn a few themselves. ■

Epic Games v Apple

# Battle royal

SAN FRANCISCO

**The iPhone-maker may win a court battle but lose a regulatory war**

Is Apple's online store for smartphone apps akin to a private club, where the firm can set the rules no matter what, even if this means it can exclude people it does not like and overcharge the rest? Or is the app store more like a town market square, meaning among other things that any firm is allowed to do business there?

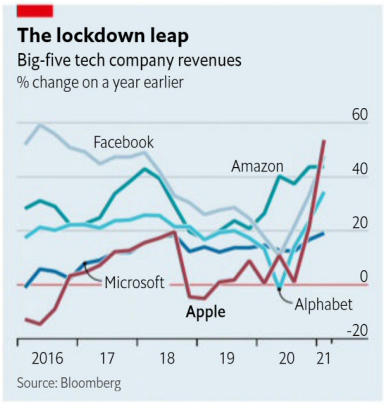
The devilish details of antitrust law aside, this is the main question before a judge in California in a trial that started on May 3rd. It will be a battle royal between Epic Games, the maker of Fortnite, a popular online video game, and Apple, the world's most valuable technology company. Epic accuses the tech giant of having abused its dominance when it kicked Fortnite off the app store last year after Epic attempted to offer a separate payment system. Apple counters that the games firm is just trying to avoid paying its commission rate of up to 30% and free ride on the tech giant's inventions.

An Epic win would up-end the economics of smartphone apps. Epic, and others, would probably be allowed to use their own payment systems in iPhone apps and perhaps even offer alternative app stores. Both would put pressure on the profitability of Apple's services business, of which the app store is a large part—estimates put its margins at well above 70%.

Yet legal experts expect Apple to prevail: antitrust precedent is stacked against Epic and the judge has voiced scepticism about the firm's position. Even if she indeed sides with Apple, however, the victory may well turn out to be a setback for the firm. It would add further fuel to a debate among regulators around the world: how durably to rein in the biggest tech firms, which are increasingly seen not just as powerful platforms, but as gatekeepers for growing parts of the economy.

Gatekeepers are as old as the economy itself. Toll bridges qualify, as do railways and even nationwide supermarket chains such as Walmart. Nor are they necessarily bad. Without Apple's largely effective policing of its platform, the app business would be much smaller: users would have to worry a great deal more about scams and system crashes. And allowing rival app stores, which Epic wants, may increase competition, but with the risk of causing security problems.

Digital gatekeepers come with drawbacks, too, says Tommaso Valletti of Imperial College in London. For starters, they never seem to stop growing, as last week's round of blockbuster financial results again shows, although pandemic-induced digital demand also played a big role (see chart). Gatekeepers benefit from strong network effects which mean that size begets size. As the economy becomes increasingly digitised, they can also move more easily into adjacent markets than their analogue brethren.




The bigger problem, however, is that digital gatekeepers are not the benevolent dictators they pretend to be. To protect its commission (or "take rate") of up to 30%, Apple forces app developers to use its payment system and prohibits any links to their websites, where they might offer customers a better deal. This is the core complaint in another case against the iPhone-maker, brought by Spotify, an audio-streaming service, and taken up by the European Commission on April 30th. Apple's rule book is also getting hellishly complex and seems arbitrarily enforced. "Every developer can tell a horror story," says Benedict Evans, who publishes a widely read tech newsletter.

In its defence, Apple argues that it is well within its rights: it built the app store, can make its rules and, crucially, is not a monopoly. If developers do not like the rules, they can go to Android's Play Store or create an app that runs in a browser. Not so, counter the firm's critics. Any developer that wants to make good money needs to be in the App Store. As for consumers, switching from an iPhone to an Android device is in most cases tricky—in any case harder than changing supermarkets, a comparison Apple's defenders often draw. And in America the iPhone is now dominant, boasting a market share of nearly two-thirds.

Such back and forth about the "relevant market" and other wonkish concepts is at the centre of most antitrust cases. In Epic's suit against Apple, predicts William Kovacic of George Washington University, this will be enlightening: arguments have to be made in public over a few weeks. But most other cases drag on forever. And once a verdict is finally reached and a remedy is found, it is often too late, as the European Commission in particular has found in recent years. It has convicted Alphabet, Google's parent company, three times, imposed fines of more than €8bn ($10bn) and demanded far-reaching remedies—only to see that not much has changed. Although European Android users are now asked to pick their default search engine on a "choice screen", Google's market share has hardly budged.

Understandably, the commission is now trying to go down another path. Proposed in December, its Digital Markets Act (DMA) avoids lengthy debates about such things as the "relevant market" by explicitly defining a gatekeeper: firms that have annual revenues in the EU of at least €6.5bn in the past three financial years and have at least 45m users in at least three member states. Any company that meets these criteria will have to follow a set of strict rules. Among many other things, barring app developers from linking to their own website would be prohibited, as would be efforts by gatekeepers to give their own offerings a leg up (which Apple stands accused of doing with its music-streaming service).

Although they think along similar lines, regulators in other countries are not as convinced a thick rule book will do the trick. Britain, for instance, is likely to go for more flexibility, paired with a strong regulatory agency, called the Digital Markets Unit (DMU). In America the Federal Trade Commission could become a DMU, although Congress may yet turn growing bipartisan tech hostility into action and pass a DMA-like law.

It will still take several years before this is settled, but it would come as a surprise if digital gatekeepers, like many of their analogue predecessors, do not end up being regulated in some manner. Even if it wins its fight with Epic, Apple may want to start changing some of its policies. This may be good business anyway, Bill Gurley, a noted venture capitalist in Silicon Valley, has long argued. Maximising the take rate may backfire because it tends to weaken a platform, he wrote a few years back in a blog post. "There is a big difference between what you can extract versus what you should extract." ■

# Schumpeter | Losing the mystique

*Whatever happened to the bad boys of private equity?*

THERE HAS long been an element of the gentlemen's club about the private-equity (PE) industry. It is still predominantly male. It has a buccaneering history filled with mystique. It cherishes discretion. And its fees are exorbitant compared with the services it provides. If anything covid-19 has made it even more exclusive. Despite what Preqin, a data gatherer, says was a slowdown in fundraising during the pandemic as in-person meetings stopped, the firms with the longest pedigrees have had the least trouble raising money, doing deals and earning bumper profits.

That includes KKR, a 45-year-old pioneer of the leveraged buyout market, which in five months has just amassed its biggest private-equity fund ever, at about $18.5bn, according to Reuters. It extends to Apollo, which on May 3rd agreed to spend $5bn acquiring two digital-media brands, Yahoo and AOL, from Verizon, a telecoms firm, weeks after taking part in a $6.25bn deal for casinos in Las Vegas. Meanwhile Blackstone, the biggest PE company of all, raised $95bn across all its funds in 2020, on a par with three previous years, and recently reported record quarterly profits.

These companies have vivid pasts that have helped burnish the industry's reputation for gutsy dealmaking. KKR is the legendary "barbarian" behind the buyout in 1988 of RJR Nabisco, a food conglomerate. In 1990 Apollo emerged from the ashes of Drexel Burnham Lambert, a collapsed junk-bond firm. Blackstone's founder, Stephen Schwarzman, is on schmoozing terms with many world leaders. Yet no longer does he nor many of his counterparts play the role of company frontman. In March, Leon Black, longtime leader of Apollo, relinquished control of the firm, following revelations of his links to the late, disgraced financier, Jeffrey Epstein.

On earnings calls, a younger generation is at the helm. Their talk is as much of the reliable fees earned from managing vast sums of money, including those coming from financial acquisitions (KKR recently bought Global Atlantic, an insurer, and Apollo merged with Athene, an annuity provider) and credit funds, as it is about the swashbuckling world of buyouts. Increased predictability has helped the firms' share prices easily outperform America's S&P 500 over the past five years. Yet they also make the once-snazzy "alternative investment" market look more mainstream. Coupled with pressure on the industry at large to become more transparent, to adopt environmental, social and governance (ESG) standards, and to pay more taxes, it is increasingly hard to tell where public markets end and where private equity begins.

The impetus for transparency comes first from investors—for good reason. One of the articles of faith of private equity is that it is worth the high fees because it reliably outperforms public markets over long periods. Yet recent evidence from Josh Lerner of Harvard Business School, among others, shows that in America, private equity's biggest market, it has performed only slightly better than public markets during the past decade, and that returns are on a downward trend. Hugh MacArthur of Bain, a management consultancy, says that at the start of the pandemic there was a lot of discussion between private-equity firms and their investors about returns as asset prices plunged, which led to a relatively unprecedented level of disclosures.

But questions remain. They revolve around the flakiness of private-equity data and the industry's internal measurements of return. These will get fiercer as retail investors, in America in particular, are allowed greater access to private markets that were once the exclusive domain of sophisticated investors. Buyout returns will come under more scrutiny because deals in America and Europe last year were among the priciest ever, making it harder to make money on them. It won't help, either, if inflation is rising and higher interest rates raise buyout firms' borrowing costs.

More financial transparency is one thing. PE firms are also under pressure from investors to demonstrate their environmental and social credentials. Some of the biggest firms, such as KKR and Apollo, were early converts to ESG. But scrutiny has always been haphazard. Blackstone has recently taken measurement seriously: within the last year it has set out to cut the carbon footprint of firms it acquires by 15% within three years, as well as instructing companies it owns to report on ESG risks to their boards.

Some will see such efforts as a wise risk-mitigation strategy, as well as a way of appealing to consumers and employees. Others will deride them as a pesky box-ticking exercise. Inevitably, they will be subject to accusations of "greenwashing". So like it or not, governments are stepping in. From March 10th the European Commission has been phasing in a regulation that obliges asset managers, including private-equity firms, to meet ESG requirements. Since President Joe Biden took office, the Securities and Exchange Commission, America's markets regulator, has also taken the matter more seriously. Soon even buyout firms without an ESG mandate may be under the cosh.

### From PE to PC

The need to be seen as good citizens becomes all the more important as private equity engages in more consumer-sensitive digital businesses, such as health care and fintech, as well as doing more work on behalf of governments, including bankrolling an infrastructure boom in America proposed by Mr Biden. The administration already has the industry in its sights. It is hoping to raise tax revenues by getting rid of "carried interest"—a perk of private-equity investment managers whereby they can pay low rates on long-term capital gains. It is a threat the industry has long evaded. But it has yet to contend with a Democratic Party whose left-wing regularly accuses it of "looting".

Such accusations are nonsense. By funding and reshaping companies, private equity generates wealth, jobs and growth. It used to do so, though, while revelling in its bad-boy image. It no longer has the option of being so politically incorrect. ■

China's digital money

# The new yuan: a lot like the old yuan

SHANGHAI

**Some expect a revolution in the yuan's status abroad and its role at home. Don't count on it**

With a few taps on her phone, Lu Qingqing, a 24-year-old office worker, leapt into the monetary future. She was one of 50,000 people in Shenzhen selected late last year for a trial of China's digital currency, called eCNY. She downloaded an app, received 200 yuan ($30) from the government and went shopping for books. The app's display showed a traditional banknote. "It felt like real money," she says.

Legally, it is as real as hard cash. All the money in an eCNY app, offered by one of six commercial banks, is backed by an equivalent deposit at the People's Bank of China. Just as the central bank stands behind any paper yuan, so does it guarantee eCNY. If, say, the commercial bank that made Ms Lu's digital wallet went bust, her eCNY—linked to her personal-identity number—would be transferred to a new wallet.

Central banks worldwide are considering issuing digital versions of notes and coins. Although China will not be the first (that honour goes to the Bahamas), it is the most important launching ground. It is the world's leader in mobile payments (see chart 1 on next page). More than half a million people have already received eCNY in trials since last year. China's central bank is studying how to spread it abroad. Niall Ferguson, a historian, has called on America to wake up to the peril of letting China "mint the money of the future".

China's digital currency was first conceived as a way to curb the big mobile-money providers. Now three bold claims are being made about it: that it will dramatically enhance China's surveillance capabilities; that it will allow the state to wield far more control over money; and that it will challenge the dollar for prominence.

Within China, however, many economists are far less bullish. The design of the eCNY, and the nature of China's economic system, mean that each of these claims is unlikely to be realised soon. "The digital yuan is not magic, so we don't expect magic from it," says Gary Liu of the China Financial Reform Institute in Shanghai.

Start with the first claim, that digitisation offers unmatched surveillance abilities, letting the state track all spending. It is not entirely wrong. But it is a limited gain compared with its existing powers.

Most mobile payments today involve a bank card, tethered to users' accounts on Alipay or WeChat. These must pass through NetsUnion, a central clearing platform. Similarly, foreign-exchange transactions take place on the China Foreign Exchange Trade System. In both cases regulators can see how people spend in real time. For mobile payments that do not touch banks, officials can demand a record and, says an industry insider, may soon require real-time reporting, too.

The upshot is that, even without eCNY, regulators have no real blind spots left, apart from old-fashioned cash. And so long as millions of older citizens do not much like paying for things with smartphones, the government will not phase out cash.

The second bold claim about eCNY is that it will reshape monetary policy in China. According to this view, the central bank will be able to program money to be used

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for specific purposes and at predefined times. This, however, both understates what the central bank can already do and overstates what the ecny will let it do.

China already manages both the money supply and interest rates with different sectors in mind. Since 2015, for instance, it has created hundreds of billions of yuan for the construction of affordable housing. More recently it has instructed banks to lower interest rates for small firms.

The ecny, one might assume, will make targeting more precise. But its design will circumscribe its role. The central bank will replace only a small portion of base money, known as M0, with ecny, leaving the rest of the money supply undisturbed (see chart 2). It will distribute ecny through commercial banks, which in turn will make it available to the public. It will not pay interest on ecny. And it will probably place low ceilings on how much people can hold.

Granted, the central bank may in time expand the ecny's role. But the limitations exist for a reason. The government is wary of undermining the financial system. It does not want savers to switch out of bank deposits en masse into ecny, which would make it harder for banks to fund themselves. Moreover, few serious economists in Beijing like the idea of a 100% ecny money supply, in which the government could directly control how banks lend. "We don't want to go back to central planning. That would be a mistake," says Yu Yongding, a former adviser to the central bank.

The final bold claim is that ecny will catapult the yuan to global status. But that misunderstands why it accounts for just 2% of international payments today, about the same as the Canadian dollar. When deciding which currencies to use, companies and investors consider how easily they can make conversions to other currencies; how freely they can invest them; and whether they trust the issuing countries' legal systems. China's insistence on maintaining far tighter capital controls than any other major economy, as well as deep-seated doubts about its political system, blunt the yuan's appeal. The limiting factors are policy and politics, not technology.



Even the technological case for ecny is far from clear-cut. When companies transfer money in and out of China, they already use currency in a digital format: electronic messages on the SWIFT payments network instruct banks to credit accounts in one country and debit them in another. What slows things down is complying with China's capital controls and with international regulations such as those aimed at stopping money-laundering.

The ecny will not eliminate such checks, and the Belgium-headquartered SWIFT system, which connects more than 11,000 financial institutions, is likely to remain the most efficient conduit for sharing payment information across borders. "Even in the long term, SWIFT will remain indispensable," says Liu Dongmin of the Chinese Academy of Social Sciences.

The three more radical claims about it may not be realised, but will the ecny fulfil the original aim, of giving the central bank a foothold in the digital-payments universe? Probably, but not a giant one. After the ecny trial in Shenzhen, Ms Lu said that she would use it for some payments, but that Alipay and WeChat were far more convenient because of how they tie into commercial and social-messaging networks. Mr Liu of the China Financial Reform Institute expects others to concur. He predicts that in three years the ecny will account for less than 5% of mobile payments.

Western governments and central bankers mulling digital currencies of their own may wonder if the outcome of the e-cny experiment will contain any lessons for them. But China is unusual in so many ways—from its sheltered financial system and intricate capital controls to the size of its mobile payments—that its experience could well prove to be unique. And other countries are sure to implement different designs for their digital currencies. Still, China's caution with the ecny, if nothing else, hints at how disruptive the technology, if unconstrained, could be. ■

Foreign banks in America

# Farce and furious

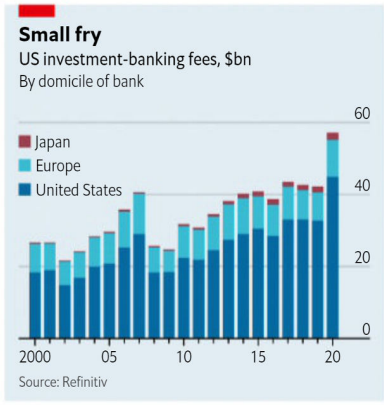
## Why foreign banks' forays on Wall Street have gone wrong—again

The implosion of Archegos Capital, a New York-based investment firm, in April splashed egg on many faces. Banks that had lent it vast sums to bet on volatile stocks have revealed over $10bn in related losses in recent weeks. America's leading investment banks, barring Morgan Stanley, were largely absent from the big casualties, though. Instead the grim league table featured foreign champions. Most notable, because of its huge loss of $5.4bn, was Credit Suisse, a Swiss bank; also among them were UBS, its compatriot, and Nomura and Mitsubishi UFJ Financial Group, two Japanese banks.

This humiliation is the latest in a long series of foreigners' setbacks on Wall Street. That they would covet its spoils is understandable. Much of American economic activity is funded through capital markets, in contrast to Asia and Europe, where bank lending reigns supreme. That makes America the world's largest and most profitable investment-banking market, accounting for 53% of global revenue, according to Dealogic, a data provider.

Challengers have gone at it with gusto. Credit Suisse fired first, taking control of First Boston, an investment bank, in 1990. Deals accelerated around the turn of the millennium. Deutsche Bank bought Bankers Trust for $10bn, followed by UBS's purchase of Paine Webber, a broker, and Credit Suisse's swoop on DLJ, a private-equity specialist. Japanese banks bought stakes in Wall Street institutions. A symbolic moment seemed to come in 2008, when Barclays, a British bank, picked up the spoils of Lehman Brothers.

The campaign, however, soon turned



into a rout. Overstretched foreign lenders were the hardest hit by America's subprime meltdown. As regulators forced them to raise capital, they culled American assets and jobs. Their share of investment-banking fees in America has shrunk. Even in their heyday, most outsiders never made it into the top-five fee earners on Wall Street. The one that did, Credit Suisse, has fallen from third in 2000 to sixth, and looks set to recede further.

Still, as the Archegos debacle illustrates, foreigners have not fully given up on Wall Street. Rock-bottom interest rates at home, and thus fewer opportunities to make money, make it tempting to chase lucrative deals abroad. But, as was the case during their previous offensive, the foreigners still lack a clear competitive advantage, be it on the cost of capital, technology or talent. Incumbents' powerful brands and deep local networks, meanwhile, allow them to lure customers and staff without taking on too much risk and cost.

In an attempt to compensate, challengers have often made three bad decisions. One is to overpay for acquisitions. In 2000 Credit Suisse offered about twice as much for DLJ as did Lehman Brothers, the closest bidder, says a former investment-banking boss at the defunct firm. Another is to lure staff with golden pay packages, buoying costs and attracting cowboys. The third is to take too much risk by accepting business locals do not want: Deutsche Bank, for instance, continued to lend to Donald Trump's ventures long after rivals deemed them to be too risky. It does not help that investment banking, especially in America, is a more complex business than the foreigners are used to.

The odds are now stacked against them.

## Buttonwood Red hot

*The broader lesson from booming copper prices*

BLESSED ARE the cheesemakers. A revival in restaurant visits in America has fed demand for one of the more obscure financial instruments—cheese futures. The number of contracts traded on the Chicago Mercantile Exchange surged last month. It is not only cheese that has melted up. A year-long rally in broader commodity markets shows few signs of cooling. Iron-ore prices are at record highs. A boom in American housing has driven timber prices to a new peak. Corn and soyabean prices are at their highest since 2013.

If you are looking for a paradigm for the immediate post-virus economy, in which supply snags lead to higher prices as activity revives, then commodity markets provide it. Bottlenecks are everywhere. Corn production has been hurt by dry weather. The supply of industrial metals has been held back by slower ore production in virus-hobbled South American mines. The archetypal commodity is copper, which has broad uses in industry and construction. "Dr Copper" is closely watched in markets because of its ability to diagnose important shifts in the world economy.

Amid excitement about a new commodity "supercycle", copper has one of the stronger bull cases. Plans for fiscal stimulus in America and Europe lean heavily towards greening the economy, which in turn favours copper demand. A bigger question-mark hangs over the supply response. Here Dr Copper may offer some uncomfortable lessons.

Commodity prices are subject to wild swings, reflecting periodic gluts and shortages. The market for copper and other commodities, including oil, is currently in "backwardation", a state in which futures prices are below cash prices (see chart). In theory stock levels should respond to the spread between cash and future prices. In a backwardated market, the marginal benefit of adding to copper stocks is low. So backwardation is a prompt for stocks to be run down to meet immediate demand. It is a telltale sign of physical shortages. The opposite condition, in which futures prices are above spot, is "contango". A market in steep contango signifies a short-term glut.

**Pedal to the red metal**

Copper price, $'000 per tonne


Source: Refinitiv Datastream

Some analysts believe that the current copper shortage will prove to be a structural feature. A recent note from Goldman Sachs, a bank, predicts that prices will rise to $15,000 per tonne by 2025, from $10,000 today, as the red metal undergoes a new supercycle, a longish period in which demand outstrips supply. The spur to rapid demand growth will come, not from China, whose urbanisation lay behind the supercycle of the first decade of this century, but from the greening of richer countries. As a pliable, cost-effective conductor of heat and electricity, copper is a vital input to green tech. It takes four or five times as much copper to build an electric vehicle as a petrol-fuelled one. Copper goes into the cabling for EV charging stations, and into solar panels and wind turbines. At present, annual "green" demand for copper is 1m tonnes, or just 3% of supply. Goldman reckons that will reach 5.4m tonnes by 2030.

For some people, the case for another commodity supercycle has more holes in it than Swiss cheese. Policymakers in China, the world's largest consumer of raw materials, are already putting the brakes on. Without a boom in China, there cannot be a supercycle. And high commodity prices are often their own nemesis. The response in agricultural products is simply to grow more crops. In the oil market, shale production can ramp up if prices warrant it.

But copper supply is far less flexible. It takes two to three years to expand output at an existing copper mine and a decade or more to develop a new one. And mining firms, burned by the commodities bust of the early 2010s, have focused more on paying out dividends than on investing in new supply. "Capital discipline" is an industry slogan. It will take further rallies in copper prices to chip away at this mindset.

That brings us to the wider lesson. The view of central bankers is that today's supply shortages are likely to be temporary and inflation will prove transient. Recent history is on their side. Supply shocks have generally washed out of inflation quickly. If this time proves to be different, it will be because of a peculiar clash. Habits of capital discipline formed in the previous, slow-growth business cycle are not obviously well suited to an economy running hot. As the cycle unfolds, copper prices will signify just how smoothly supply is responding to demand. Dr Copper's most important diagnosis may yet lie ahead.

Investment banking has become a game of scale; the market value of BNP Paribas, Europe's biggest investment bank by market capitalisation, is 17% of that of JPMorgan Chase, America's biggest. European banks are no longer exempt from the leverage ratios that once constrained only American rivals (an edge they held in the 2000s, before it backfired spectacularly). Their fickle shareholders, who often slam the brakes at the first sign of problems, do not help craft consistent overseas strategies, says Ronit Ghose of Citigroup, an American bank.

This leaves European and Japanese champions in a tricky spot. They have become too small to be global, but are too big to be regional players. One idea might be to merge their investment-banking arms into a super-bank that can take on the Americans. But, notes Stuart Graham of Autonomous, a research firm, shareholders would probably want to own the bank that gets out, rather than the one that stays in.

More likely, Europe's big investment banks will muddle through. Some reckon progress towards a capital-markets union and the rise of green finance will bolster Europe's domestic market. (Japanese banks, whose home market remains tiny, cannot entertain such visions.) Yet Wall Street giants, which have been nabbing market share in Europe of late, would also no doubt win some of the new business. The battle is being fought on the home front, too. ■

Greece

# Clean-up operation

ATHENS

**The bumpy road to financial respectability**

THESE ARE anxious days for Kyriakos Mitsotakis, the Greek prime minister. The country is due to welcome tourists from around 35 countries from May 15th, but hotel bookings are looking thin and covid-19 lingers. Unless tourism recovers, the economy will shrink for a second year.

There is some good news, though. On April 23rd S&P, a rating agency, upgraded the country's sovereign rating to BB. (That is still below investment grade, which officials expect to reach next year.) The agency also upgraded the country's four big banks, though all remain in junk territory because of high levels of non-performing loans. These came to about 33% of the banking sector's loan book, before provisions—the legacy of the debt crisis of 2010-18.

Piraeus, the largest and most fragile lender, won a breathing space thanks to an unexpectedly successful capital raising on the same day. Foreign investors covered 75% of a €1.4bn ($1.7bn) offering that was more than three times subscribed. It was the largest rights issue by a European bank since 2017, says Piraeus, and will more than cover expected new bad debt this year.

Not everyone agrees that Greece is on the path to financial respectability. Some observers are worried that the government helped broker an alliance of so-called "cornerstone" investors in Piraeus: the family office of John Paulson, an American former hedge-fund manager; Telis Mistakidis, a former head of copper trading at Glencore, an Anglo-Swiss metals trader; and Helikon Investments, a small fund based in Italy.

Mr Paulson's office increased its stake in the bank from just under 5% to 19.2% and hopes to recoup losses on its earlier investments. Together with Helikon and Mr Mistakidis, it will be able to outvote the Hellenic Financial Stability Fund (HFSF), a nominally independent repository for the state's shareholdings in the big banks. The three investors will, in effect, control the bank, says a veteran Greek banker. (Alexander Blades, a partner in Mr Paulson's firm who sits on the board of Piraeus, says that they intend to provide private-sector oversight to help the bank succeed.)

The HFSF cut its stake from 61% to 25.6% by agreeing to limit its participation in the rights issue, realising losses of €2.6bn. Its boss, Martin Czurda, an Austrian banker who tried to protect the HFSF from political interference, was ousted in February. Curiously, the finance ministry then pushed through a law absolving HFSF staff of any criminal charges that might arise from the capital-raising.

Greek bankers already have reason to be grateful to the government. A tweak last year to the penal code banned the public prosecutor from pursuing criminal investigations of fraud and breach of trust at banks, without a specific request from the lender that allegedly suffered damages. Probes involving more than 300 bankers were closed; investigators say that none of the banks asked for any to be pursued.

Investors' enthusiasm for Piraeus's share offering could at least signal interest in officials' efforts to clean up bad loans using securitisations. Around €31bn of securitised dud loans, some backed by state guarantees, have been sold to asset managers at home and abroad. Another round of sales of similar size is expected soon.

But it could all have been so much easier, says Miranda Xafa of the Centre for International Governance Innovation, a think-tank. In 2015 the EU allocated €25bn to fully recapitalise the banks, as part of Greece's third bail-out programme. Only a fifth was disbursed. "With hindsight, early recapitalisation would have helped clean up balance-sheets sooner, making room for new lending to support the recovery." ■

Women and investing

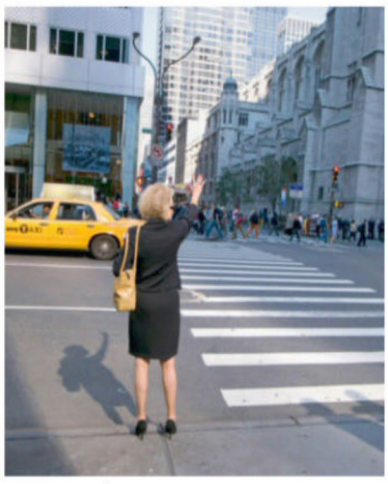
# Rich pickings

**Older women are getting wealthier. What does that mean for their bankers?**

ELLA PRICHARD found herself rebuilding the family fortune after Lev, her husband of 46 years, died during the global financial crisis. She went from having little to do with the finances to firing the family's longtime advisers at JPMorgan Chase, interviewing banks and eventually hiring a team at Brown Brothers Harriman. "That move from smiling spouse to client was not easy," the 80-year-old says.

Older women like Ms Prichard control a growing share of the world's wealth. In 1989 the median American household headed by a woman over 65 was poorer than average. By 2019 it was 20% richer. That partly reflects the fact that older women today are more likely to have had careers of their own than their mothers and grandmothers. But inherited wealth also plays a role—and indeed will become more important in the years to come.

Some $68trn in wealth is estimated to change hands in America alone by 2042, in large part as baby boomers die, according to Cerulli, a research firm. A lot of it will flow first to widows, who in heterosexual couples tend to be younger and live longer than their husbands. Researchers estimate that about half of women over 65 outlive their husbands by 15 years. In a report last year McKinsey, a consultancy, reckoned that much of boomers' wealth would be managed by women by 2030. These huge transfers are forcing wealth managers, long used to serving men, to rethink their approach to clients.



In search of a new adviser

There is little evidence that older women invest drastically differently than men, or have radically different views towards risk or asset allocation. The stereotype may be of a kindly, cautious granny. But American tax data suggest that wealthy older women are as likely to hold stocks, which are riskier than bonds, as the average rich person. Women seem to place more emphasis on sustainable investing, but seem less bothered by charity. A global survey by the Economist Intelligence Unit, our sister organisation, found that 22% of boomer women think charitable giving is not important to how they manage their wealth, compared with 16% of men.

What is clear is that boomer women want a different experience at the bank. Many women say they resented the way advisers treated them when their husbands were still alive, making no eye contact at meetings or printing just the one copy of financial reports. Once they are calling the shots, they want personal service. In a recent McKinsey poll of rich investors, over half the women surveyed said it was "extremely important" to find an adviser who matches their personality, compared with around 40% of men. Advisers say these women want help meeting goals, be that paying grandchildren's college fees or buying another home in Cap Ferrat, not just beating the market.

Another requirement seems to be financial education: three-quarters of wealthy widows and divorcees say they don't feel knowledgeable about investing, according to a survey by UBS. The problem may be confidence rather than competence, though. Women think it is really important not to shoot from the hip, says Sharon Oberlander of Merrill Lynch Wealth Management.

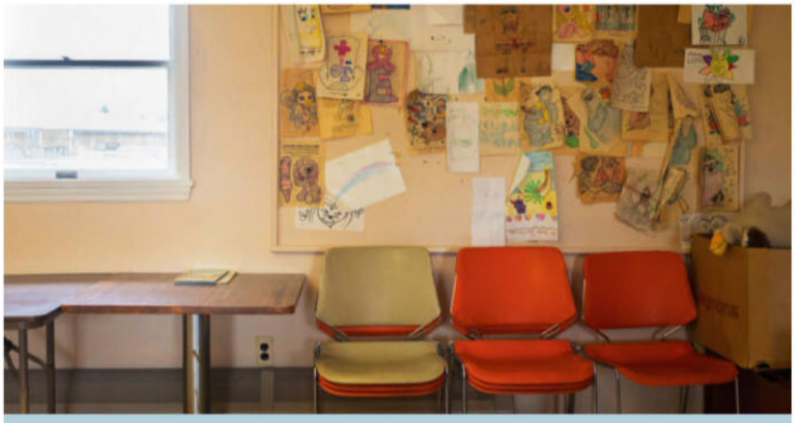
Banks are sitting up. Wealth management, which generates steady fees and does not require as much capital as lending or trading securities, is an increasingly important part of their business. And dissatisfied clients, like Ms Prichard, vote with their feet: over a fifth of widows who had a financial adviser with their husbands go on to find a new one, reckons a survey by Spectrem Group, a research firm. Losing a client means losing a shot at managing her heirs' wealth, too.

Banks are trying lots of things in response. One is simply to understand what clients want. UBS produces reams of research on female investors. Goldman Sachs tells its advisers to get to know the accountants and lawyers of the ultra-rich; JPMorgan's training for advisers begins with a section on getting into investors' hearts and minds.

Another approach is to offer more female-friendly service. On a superficial level, golf is out, and spa days are in. Most banks are hiring more women and training advisers to interact with families, not just men, and to manage personal conversations better.

No one knows yet what strategy will prove most successful, but the gains from experimentation seem likely to extend beyond older women. Financial decisions are no longer the preserve of men alone. Women control about a third of household wealth in America, and the share is likely to rise. Surveys suggest that millennial investors too want financial education and, when they seek advice, want it to be tailored to them. The firm that adapts the fastest could reap the rewards for generations to come. ■

**Correction** In a leader last week ("Biden's taxing problem") we wrote that nearly half of the earnings of investors in American pass-through entities are classified as dividends or capital gains. In fact, the figure applies only to partnerships, not to all pass-throughs. Sorry.



The economics of prisons

## The parent trap

**Could sending criminals to prison be good for their kids?**

In a forthcoming paper in the *American Economic Review*, one of the discipline's most prestigious journals, three economists conclude that "[p]arental incarceration has beneficial effects on some important outcomes for children." Unsurprisingly the study has provoked outrage from keyboard warriors. Some are uncomfortable with the very notion that prison could have anything other than wholly malign effects. Others worry that the research, however well intentioned, gives politicians ammunition to double down on punitive penal policy. In reality, though the study has some uncomfortable findings, it should help governments devise better policy.

The authors analyse 30 years' worth of high-quality administrative data from the state of Ohio. They study children whose parents are defendants in a criminal case. Using a clever methodology, they in effect divide the children into two groups, which are identical except in one crucial respect: whether or not one of their parents was sent to prison. In some cases, parents who committed relatively minor crimes were on the wrong side of harsh judges, whereas others got off scot-free for the same offence.

The paper reports a number of outcomes, not all of which are improved by a parental stay in prison. The "estimates on academic performance and teen parenthood are imprecise," the authors say. But a parent's incarceration lowers the chance of their child going to prison from 12.4% to 7.5%. It also appears to cause the children to go on to live in better-off neighbourhoods, which could be a sign that household earnings rise. Perhaps having a parent go to prison scares a child straight; or perhaps removing a bad influence from a family allows those left behind to thrive.

Does this mean that America would benefit from even tougher penal policy? Hardly. The paper's findings suggest that the overall costs of the prison system, including the money spent on housing inmates, are likely to outweigh the benefits. The true messages of the paper are subtler. Any effort to reduce America's sky-high incarceration rate, though noble, would need to reckon with the costs that it might impose on some children. It is a sorry state of affairs that American kids could stand to gain when their parents are locked up. The challenge for economists and politicians is to find policies to help them that are not as socially destructive.

# Free exchange | Escape from the city

*A new age of suburbanisation could be dawning*

THOUGH THE pandemic has not fully released its grip on America, signs of an incipient boom are everywhere: in surging demand for workers, imports and, above all, houses. Residential property prices rose at an annual rate of 12% in February—the fastest pace since 2006—buoyed by rising incomes, low interest rates and the belated plunge into housing markets by a crisis-battered generation of millennials. A clear preference for large but affordable suburban homes over pricey city-centre flats seems to be emerging. That covid-weary Americans might be eager for suburban life is hardly surprising. Yet the latest pursuit of leafiness and expansive floor plans contains hints of a potentially transformative shift in how Americans choose where they live.

People's housing decisions incorporate much more than mere economic concerns. Yet the geographical distribution of households reflects some rough balancing of the costs and benefits of living in one place rather than another. Other things equal, people flock to areas that provide access to good jobs or desirable amenities, like pleasant weather, or a lively arts scene. Movement towards attractive places is ultimately checked, however, by the associated costs—congestion, say, and the price of housing—which rise until there is no longer much to be gained from relocating.

From time to time, however, economic shifts disrupt the prevailing equilibrium and trigger large-scale movement. In the mid-20th century cars and highways enabled people to obtain more for their money by moving into suburbs while still maintaining access to city-centre jobs and amenities. Explosive suburbanisation followed. In 1940 about half of Americans lived in metropolitan rather than rural areas, and most metropolitan residents—about one-third of the total population—resided in city centres rather than suburbs. By 2000, in contrast, 80% of all Americans lived in metropolitan areas, but the vast majority—accounting for half the total population—lived in the suburbs.

In the past two decades, shifts in demand have given rise to a new equilibrium. Rising incomes in knowledge-economy industries attracted workers to a few highly productive places (like New York and the Bay Area), and increases in congestion and commuting costs encouraged many to live near work. Housing costs in high-wage cities rocketed, propelled by restrictive zoning policies that prevented housebuilding from keeping up with demand. Highly paid elites were concentrated in pockets of wealth, while many other Americans settled in places offering jobs of middling productivity and pay, but where housing was more affordable.

Though it is early days yet, covid-19 may have disrupted this pattern. Before the pandemic, about 5% of full-time-work days in America came from people working at home. That figure rose above 60% last spring; though it has since fallen back, it remains well above pre-pandemic levels. Broad adoption of remote work stands to drastically alter households' locational calculations. Recent research by Jan Brueckner of the University of California, Irvine, and Gary Lin and Matthew Kahn of Johns Hopkins University considers two ways in which a transformation might unfold. People with high-productivity jobs could work remotely from anywhere, potentially severing the link between a local economy's productivity and the demand to live there, and thus enabling a large-scale migration from high-cost cities to low-cost ones. And remote work could allow workers to spend more time at home while still occasionally commuting into the office. In that case, remote work would reduce the cost of a given commute and might thus lead metropolitan areas to become more sprawling.

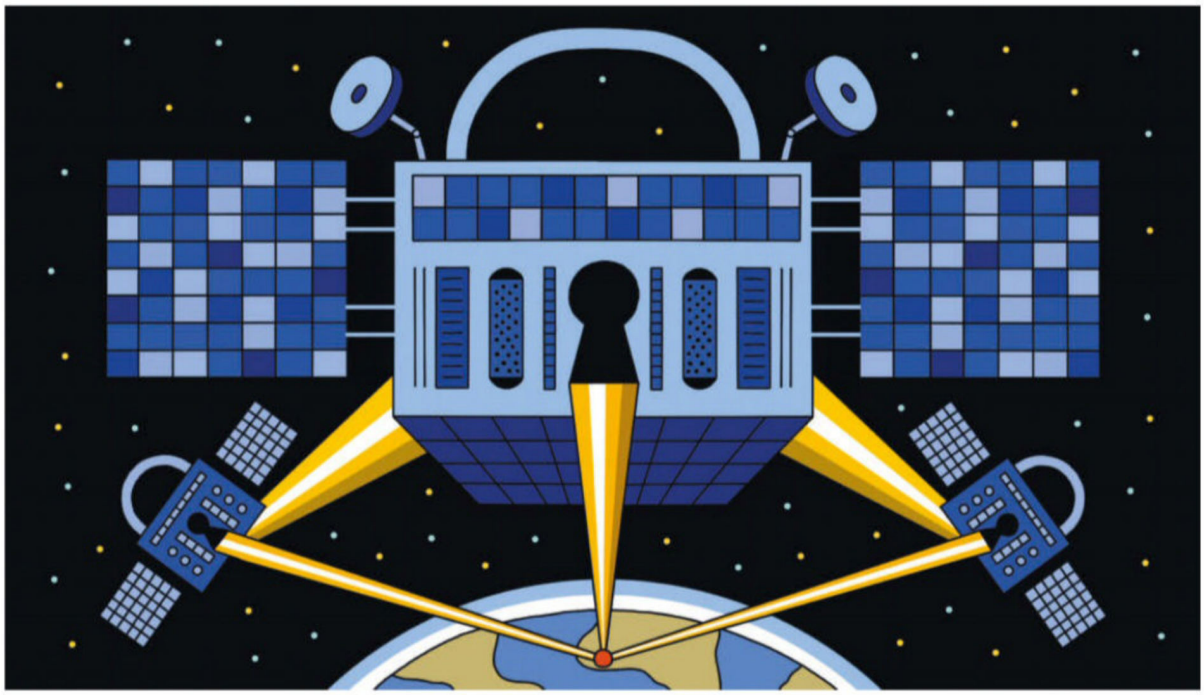
In fact, both appear to be occurring. In 2020 price gradients flattened between metropolitan areas, as house prices in low-cost cities rose faster than those in high-cost cities, and also within them, as prices in low-cost suburban counties rose faster than those in high-cost urban ones. Another recent paper, by Arpit Gupta and Jonas Peeters of New York University and Vrinda Mittal and Stijn Van Nieuwerburgh of Columbia University, arrives at a similar conclusion. In the year to December 2020 and across America's 30 largest metropolitan areas, house prices rose faster the farther one moved from urban hubs. Prices of properties 50km from a city centre grew by 5.7% more than those in centres.

Whether these trends continue depends on the extent to which remote-working habits stick. But even a modest persistent change would have large knock-on effects. One recent estimate, by Jose Maria Barrero of the Instituto Tecnológico Autónomo de México, Nicholas Bloom of Stanford University and Steven Davis of the University of Chicago, suggests that the share of hours worked remotely is likely to stabilise at about 20%. In that case, dense city centres could face a cycle of straitened circumstances like that which accompanied car-driven suburbanisation, as local spending and tax revenues decline, leading to cutbacks in amenities. Spending within city centres could drop permanently by 5-10%.

**Sometimes I wonder if the world's so small**

A new equilibrium might also yield striking macroeconomic benefits, however. Slow growth in housing supply in high-productivity cities has weighed on the economy by rationing access to high-wage jobs. Had building rules in New York and the Bay Area been no stricter over the last third of the 20th century than those of the typical American city, then the growth rate of national output would have been a third higher, according to one estimate. Remote work stands to relax this constraint on growth, by allowing workers to take high-wage jobs without having to buy costly homes within easy commuting distance.

The geographically disruptive potential of information technology has long been apparent. In a book published in 1997 Frances Cairncross, formerly of this newspaper, imagined that it might yield a "death of distance". It may have taken the public-health imperative to stay away from others to help realise it at last. ■



Back-ups for GPS

# Locking out the bad guys

**Global-navigation satellite systems such as GPS are under threat from jamming, both accidental and deliberate. Alternatives are needed**

THE PHRASE "critical infrastructure" conjures up solidly earthbound images: road and rail networks, water and sewage pipes, electricity grids, the internet, and so on. Such stuff is so wound into the warp and weft of life that it is simultaneously both essential and taken for granted. One piece of infrastructure which has become critical over recent decades, though, is anything but earthbound. This is the various constellations of satellites, the most familiar of which is probably America's Global Positioning System (GPS), that orbit about 20,000km above Earth, broadcasting to the world precisely where they are and exactly what time it is.

The original purpose of the GPS and its European (Galileo), Russian (GLONASS) and Chinese (BeiDou) counterparts was to enable suitably programmed receivers on or near the ground to calculate their whereabouts to within a few centimetres, by comparing signals from several satellites. In this role they have become ubiquitous, running everything from the navigation systems of planes, ships and automobiles, both military and civilian, to guiding the application of water and fertiliser in precision agriculture. But global-navigation satellite systems (GNSS), to give their collective name, now do much more than that. By acting as clocks that broadcast the time accurate to within a few dozen nanoseconds, they are crucial to jobs ranging from co-ordinating electricity grids and mobile-phone networks to time-stamping financial transactions and regulating the flow of information in and out of data centres.

## Location, location, location

GNSS networks do, though, have a weak spot. The satellites' transmitters broadcast with the wattage of a refrigerator lightbulb. Their signals are so vanishingly faint that they arrive "beneath the noise floor" of ambient electromagnetic radiation, as engineers like to put it. This makes them vulnerable to interference, both accidental and deliberate. The more uses which GNSS constellations are put to, the more this matters. So those engineers are looking at ways to harden and back up the whole idea.

Jamming sometimes happens accidentally. In January, for instance, it emerged that GPS failures which had been plaguing aircraft near Wilmington International Airport, in North Carolina, were caused by wireless equipment at an unnamed nearby utility. GNSS networks are also vulnerable to "natural" jamming by the arrival from the sun of coronal-mass ejections of electrically charged particles. Most often, though, jamming is deliberate.

Local problems can be caused by personal privacy jammers (PPJS). These are devices—widely available for sale even though generally illegal to use—which scramble GPS signals to stop vehicles being tracked by nosy employers or suspicious spouses. Thieves also find them useful. They are, for example, involved in 85% of vehicle thefts in Mexico.

Further up the commercially available scale are wide-area jammers. These devices, which are about the size of suitcases, do have legitimate quasi-civilian uses, such as protecting potential targets, public or private, from attack by GNSS-guided drones or missiles. But misused, whether deliberately or accidentally, they can disrupt GNSS across an area the size of a city. In this context it is notable that the north-

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ern Black Sea, where many Russian bigwigs, supposedly including the country's president, Vladimir Putin, have country estates, is a hot-spot for GNSS outages that affect shipping in the area.

At the high end of GNSS disruptors are military systems, which can muddle signals for hundreds of kilometres around. Collateral effects from these are a growing problem. A paper published in March by Eurocontrol, an air-traffic-control body based in Brussels, noted a "massive rise" in GNSS interference reported by airline pilots. In 2019 the number of recorded incidents reached 3,564—nearly 22 times more than had been noted two years previously. Most hotspots were near war zones. But long-range jammers are also used deliberately for low-level "asymmetric" warfare. South Korea's capital, Seoul, for instance, often experiences GNSS outages for which the only plausible explanation is jamming from North Korea, the border with which is only about 40km away.

All this jamming, both actual and conceivable, together with the more subtle problem of spoofing, in which bogus GNSS signals are generated to confuse navigation systems, has led to a search for alternative, more robust means of geolocation and time-stamping. In America that search has been reinforced by the National Defence Authorisation Act, which became law on January 1st. This obliges the country's armed forces to generate "resilient and survivable" positioning and timing capabilities by 2023.

One approach to doing so is to upgrade the satellites themselves. America's air force, for example, has begun launching a generation of new "GPS III" satellites built by Lockheed Martin, a defence giant. The first of these began transmissions in January. GPS III offers somewhat stronger signals than its predecessor. But its main advantage is an encryption system, the details of which remain classified, that makes those signals more resistant to jamming. Both of these features will help military users. They will, however, be of less use to civilians, who will not be able to benefit from the encryption.

### Signalling for help

Private enterprise is, however, coming to the rescue of those who are willing to pay for reliable geolocation and time stamping by pressing alternative satellite networks into service. Satelles, a firm in Virginia, is using Iridium, a constellation of 66 satellites orbiting at an altitude of just 800km, to re-broadcast encrypted time data sent from a network of high-precision clocks on the ground, together with data about the satellites' locations (thus mimicking the functions of a GNSS network), to clients including telecommunication firms, data centres, stock exchanges and banks.

The timekeeping and positioning data offered by Satelles' system are, respectively, a little, and notably less, precise than GNSS. But because Iridium satellites orbit at a mere 25th of the altitude of GNSS constellations, the signals from them are more than 1,000 times stronger, thus shortening jammers' effective ranges. Satelles' clients are concentrated in America. That, says Michael O'Connor, the firm's boss, is where the realisation, "oh shoot, we need backups", has taken greatest hold. He says, though, that if Satelles had clients in Seoul, they would continue to receive signals during North Korea's periodic jamming of the city.

Spoofing can be made harder, too. A Belgian firm called Septentrio is designing anti-spoofing antennae that can distinguish signals which have come from the sky, and thus carry tiny distortions imposed by the ionosphere, from cleaner ones generated nearby on the ground as spoofs. Septentrio's wizardry relies on hardware in the form of a complex array of conductors and insulators inside the antennae. But software can do the job as well. America's Department of Homeland Security recently released a set of algorithms intended to help signal engineers develop anti-spoofing programs, and Galileo's masters are testing, with help from Septentrio, what is intended to become a publicly available anti-spoofing encryption service called Open Service Navigation Message Authentication, or OSNMA.

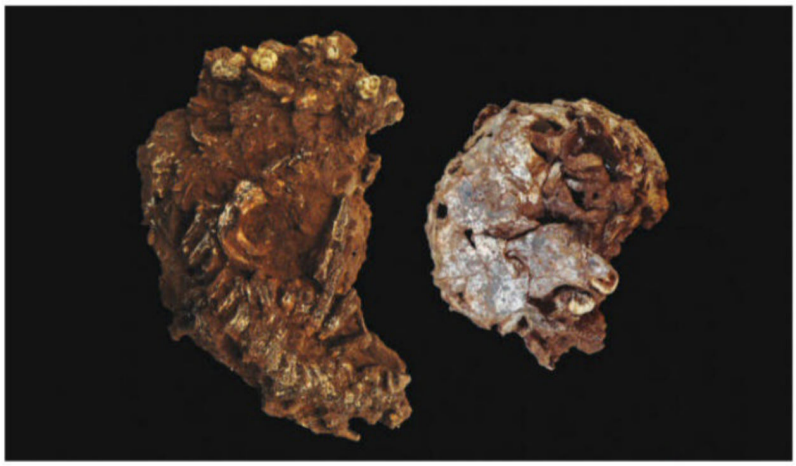
The securest approach of all, though, is surprisingly old-fashioned. It is to back GNSS up with systems on the ground. And the development of cheap, reliable atomic clocks makes this increasingly possible.

### Light the beacons

Orolia, a French firm that makes such clocks for satellites, reports high demand for a line of ground-based versions called miniaturised rubidium oscillators, which went on sale last June. These have half the volume of a pack of cigarettes, so are widely deployable. According to Thierry Delhomme, Orolia's European general manager, they typically drift less than a microsecond per day. That is not bad for a unit sold for a few thousand dollars (as opposed to the $1.5m cost of the best clocks used in satellites), and would certainly tide a user over a temporary outage. But anything more than a day or two and even one of these new devices would get sufficiently out of synch with reality to cause trouble.

OPNT, a Dutch company, has another idea. This is to deliver the precise time as signal pulses sent through fibre-optic cables, rather than by satellite. That could be done using existing fibre-optic networks, by isolating one strand within a cable and dedicating it to the purpose.

To turn the clock back properly, how-



**An early burial**

**These are the remains of an infant *Homo sapiens*, nicknamed Mtoto by their discoverers, found buried in Panga ya Saidi, a complex of caves near Mombasa, Kenya, in 2013. They are 78,000 years old, making them the most ancient human burial yet unearthed in Africa. The lefthand group of bones are the child's spine and thorax; those to the right, the skull and some vertebrae. They were excavated and analysed by a team led by researchers from the National Museums of Kenya and the Max Planck Institute for the Science of Human History, in Jena, Germany, who published their findings in this week's *Nature*. Mtoto, whose sex cannot be determined but whose name means "child" in Swahili, was about three years old. That the burial was deliberate seems clear. The skeleton was in a circular pit and the child is thought, from the way the bones were arranged, to have been laid out with its head on a pillow.**

Ecology

# Roadkill stew

**A novel way to sample an area's animals**

TRAFFIC AND wildlife do not mix. Anyone who keeps an eye on the verges while driving along a country road knows that. But such carnage does bring zoologists an opportunity. Counting roadkills is a rough and ready way of sampling local animal populations, and is the basis of so-called citizen-science endeavours such as Project Splatter, in Britain, in which members of the public report what they have found dead on the road, and where.

Pablo Medrano Vizcaíno and Santiago Espinosa at the Catholic University of Ecuador, however, have taken the matter further by going out to look for themselves. And, as they report in *Biotropica*, monitoring roadkill can yield information about creatures that are otherwise almost completely elusive.

Once a week, for six months, Mr Medrano Vizcaíno and Dr Espinosa surveyed three 33km segments of roads weaving in and around tropical forests and mountains near the Ecuadorian national parks of Cayambe Coca and Sumaco Napo-Galeras. Every time they came across a dead animal they stopped, photographed it, noted its GPS co-ordinates and identified it as accurately as possible. If they could not manage a field identification, they collected the carcass and brought it back to their laboratory for further study.

In total, they found 445 specimens. Some, such as the 153 opossums, were the sorts of large critter that the average passer-by might notice. But many were not. There were, for instance, 43 amphibians. Frogs are common in tropical forests, but by and large these were not frogs. Rather, some 80% of them were caecilians, a little-understood group of wormlike burrowing animals. Ecuador harbours 24 species of caecilian. Exactly which of them were represented in the researchers' collection is hazy, as individual species require specialist identification. But studying roadkill might be a way of adding to knowledge about them.

Snake's alive!

More extraordinary than this, among the 88 reptiles seen by Mr Medrano Vizcaíno and Dr Espinosa, one was a snake previously unknown to science. They also found an example of the northern tiger cat, a species thought to be on the brink of extinction.

A sampling method that relies on finding endangered animal species dead is obviously suboptimal. But Mr Medrano Vizcaíno and Dr Espinosa hope that one outcome of their work might be to identify roadkill hotspots, and then try to find ways to discourage animals from going there.

That could, though, be tricky. The data they have collected so far suggest these hotspots are often bridges over rivers. If the creatures themselves are using these as crossing-points, deterring them from doing so might be difficult.

ever, some people are trying to revive the idea of land-based navigation beacons similar to the Loran (long-range navigation) towers used by the American and British navies during the second world war. According to George Shaw of the General Lighthouse Authorities of the UK and Ireland, which runs the British Isles' coastal-navigation system, several countries are now constructing enhanced "eLoran" networks. These include China, Iran, Russia, Saudi Arabia and South Korea. And, on a smaller scale, private enterprise is interested, too. NextNav, a firm based in Silicon Valley, is building in San Francisco a network of about 100 small beacons that will broadcast timing and position signals around the city. This network's density, and the fact that it can draw power from the grid rather than relying, as GNSS satellites do, on solar panels, means that the signals are roughly 100,000 times stronger than those from such a satellite—and thus hard to jam or spoof. ■

Biomarkers for depression

# Unlucky 13

**A blood test may improve the diagnosis and treatment of depression**

MAJOR DEPRESSION is a serious illness, but also an elusive one. It wrecks lives and may drive people to suicide. It sometimes, though not always, alternates with periods of mania in a condition called bipolar disorder. And it is disturbingly common. Reliable figures are hard to come by, but in some parts of the world as many as one person in four experiences major depression at some point during their life.

Depression's diagnosis has, though, a worryingly arbitrary quality to it, depending as it does on a doctor's assessment of a patient's mood against a checklist of symptoms which may be present in different combinations and are often, in any case, subjective. This has led to a search for reliable biochemical markers of the illness. Not only might these assist diagnosis, they may also improve assessments of prognosis and point towards the most effective treatment in a particular case. Now, a group of neuroscientists at Indiana University, in Indianapolis, led by Alexander Niculescu, think they have found a set of markers that can do all this.

As they write in *Molecular Psychiatry*, Dr Niculescu and his colleagues have been working with data and blood samples collected over the course of 15 years from hundreds of patients at the Indianapolis Veterans Administration Medical Centre. The targets of their investigation were small pieces of RNA, a molecule similar to DNA which is copied from the DNA of genes as part of the process by which the information encoded in those genes is used by cells to make proteins.

Tracking levels in the blood of relevant RNA molecules shows the activity of the underlying genes. That let the researchers identify, in an initial sample of 44 patients' records, which genes were becoming more and less active as people's mood disorders waxed and waned. To start with, they found thousands of possible candidate genes in this way, but they first narrowed these down to those that seemed to show the best prediction of mood and then, by turning to the corpus of published research on genes associated with depression, narrowed the selection still further to 26 that had previously been suspected of involvement in the illness. They then followed this clutch up in eight groups of patients, ranging in size from 97 to 226, to see which best predicted the course and details of a patient's illness.

Thirteen markers survived this final winnowing. The genes they represent are involved in a range of activities, including running circadian rhythms (the endogenous clocks which keep bodily activities synchronised with each other and with the daily cycle of light and darkness); regulating levels in the brain of a messenger molecule called serotonin, the activity of which is well known to get out of kilter in depression; responding to stress; metabolising glucose to release energy; and signalling within cells.

Together, these 13 RNA markers form the basis of a blood test that can not only diagnose depression, but also predict who will go on to develop bipolar disorder, who is likely to become ill enough to need hospital treatment in the future, and which drugs will most probably be effective in particular cases. Six of the RNAs were good predictors of depression alone. Another six predicted both depression and mania. One predicted mania alone.

On top of their potential role in diagnosis, three of the genes identified are known from previous work to be affected by lithium carbonate, an established treatment for bipolar disorder, and two others are affected by a class of antidepressant drugs called selective serotonin reuptake inhibitors, of which Prozac is probably the best-known example. It is for this reason that Dr Niculescu thinks his blood test may help to pick appropriate treatments.

### Tests of reason

The results even indicate some non-psychiatric drugs that might be worth trying, since the analysis showed they had characteristics which could affect some of the biomarkers. A beta blocker called Pindolol, for example, is currently used to treat high blood pressure. But this drug is also known to affect serotonin activity, and Dr Niculescu and his colleagues found, from a search of the published literature, that it has been seen to affect levels of all six of the depression-only biomarkers. That, he thinks, might make it a good candidate for the treatment of depression.

To turn all this into practical help for patients, Dr Niculescu and his colleague and co-author Anantha Shekhar have founded a company called MindX Sciences and are seeking regulatory approval for the test's medical use. If all goes well, future versions might incorporate additional biomarkers, and might use saliva rather than blood as the fluid sampled. Biomarker-diagnosis of depression is unlikely to replace assessment by checklist, which would still be needed to see who should be sent for screening in the first place. But as a way of confirming and refining diagnoses, and also of suggesting treatment in what is both an uncertain and a sensitive area, it seems an important advance. ■

Civil engineering

# How to knit a road

**Researchers find a way to make roads with string**

SINCE THE Romans began doing it with great panache more than 2,000 years ago, road-building has been a sweaty, grubby business, involving heaving great quantities of rocks and stones into place and, in more recent times, covering the surface with asphalt or concrete. Now a group of Swiss researchers think they have come up with a more elegant solution. Strange as it may seem, this involves knitting.

Martin Arraigada and Saeed Abbasion of the Swiss Federal Laboratories for Materials Science and Technology use a robotic arm to lay out string in a series of elaborate patterns. As the knitting takes shape, layers of stones are added and tamped down. The string entangles the stones, keeping them in place. The result is a structure that is surprisingly stable and strong. In one experiment a section of pavement put together in this way withstood a load of half a tonne. The encapsulated stones hardly moved at all.

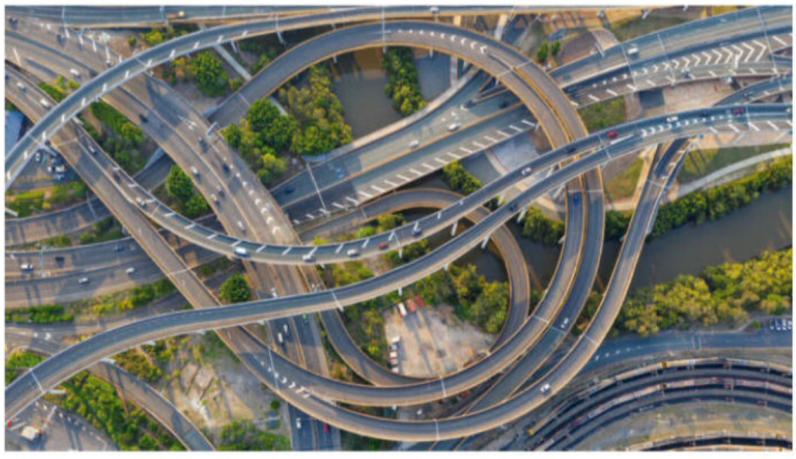
Roads and pavements are usually made from layers of different grades of sand, gravel and stones. Once these are in place the surface is treated with an aggregate that is sealed and bound together with cement to form concrete, or mixed with bitumen to make asphalt. Neither method is environmentally friendly. Making cement produces huge amounts of carbon dioxide, while bitumen, a sticky tar-like substance, is obtained from oil.

Knitting roads creates fewer emissions. And the stones and string are easily recyclable, says Dr Arraigada. The group tried various materials for the string, settling eventually on recycled textiles reinforced with polyester, a type of plastic. Polyester resists rotting and can also be recycled, although the group hope to find biological materials which can do the same job.

They got the idea of knitting roads from work carried out by the Gramazio Kohler architectural research group at ETH, a university in Zurich. In one of this group's projects, led by Gergana Rusenova, now at Swinburne University of Technology, in Australia, a Stonehenge-like structure with 11 columns was built in a similar way. A mobile robot, which moved on caterpillar tracks, laid down 120km of string in geometric patterns while 30 tonnes of crushed stones were added. The resulting three-metre-high columns comfortably supported a nine-tonne capping stone.

There is, though, some way to go before knitted roads become a commercial proposition, cautions Dr Arraigada. He and his colleagues are testing various set-ups and modelling on a computer how different patterns of string can be used to hold the stones. They will then carry out more tests—including ones that apply the sorts of rolling pressure generated by the wheels of moving vehicles.

Concrete and asphalt road surfaces are usually impervious to water, and are shaped so that rain flows off them into gutters running alongside. If water gets caught in surface cracks, it can cause potholes—especially if it freezes and thereby expands, opening up more cracks. Binding aggregates with string would produce a permeable road surface, which might result in fewer potholes. It might have other advantages, too. The researchers think, for example, that a porous road could help water reach the subsoil below, reducing the impact that covering so much land with roads has on local hydrology. Just like knitting a nice cardigan, success will depend on starting with a good pattern. ■



Gordias eat your heart out



"The Brothers Karamazov" on stage

# Sins of the fathers

ST PETERSBURG

**A masterful director brings Dostoyevsky's characters into the Russian 21st century**

A SPOTLIGHT SEARCHES the dark stage of the Maly Drama Theatre in St Petersburg. It picks out a young man in a monk's robe sitting on a chair, a suitcase on his lap. He rises, changes into secular clothes and steps towards a metal wall. The wall, in turn, moves towards the character; he passes through it, as if being x-rayed, and into the world of Fyodor Dostoyevsky's final novel, "The Brothers Karamazov".

The monk is Alyosha, youngest of the three legitimate sons of Fyodor Karamazov, an avaricious "buffoon" who wallows in sin and is murdered by one—or more—or all—of his offspring. Karamazov has a fourth, illegitimate son, Smerdyakov, an epileptic servant whose mother, a homeless halfwit, he raped. The story of patricide has the outline of a country-house murder mystery. But in what became one of the world's most influential novels, Dostoyevsky, who was born 200 years ago in 1821, weaves in profound themes of faith, temptation and inherited guilt.

Of the three brothers, readers usually sympathise most with Dmitry, the impulsive, passionate and archetypally Russian eldest, or Ivan, a cold, rational Westernised intellectual who repudiates God before going insane and conversing with the devil. Alyosha, a blushing monk who shuttles between the brothers and their lovers, carrying messages and receiving confessions, can seem too wholesome to vie with his siblings for attention.

Yet in a short introduction it is Alyosha whom Dostoyevsky names as his main character. Lev Dodin, one of Europe's greatest theatre directors, agrees. "The introduction is perhaps the most important part of the novel for me," he says. Marking the author's bicentenary, his production distils the 1,000-page saga into a three-hour spectacle, sweeping audiences from breathless passion to the darkest recesses of the human condition. A gripping reimagining of an elemental tale, it evokes traumas fictional and real, in Dostoyevsky's era and today's. And here, sweet, devout Alyosha is the greatest sinner of all.

Set in the mid-19th century, "The Brothers Karamazov", wrote Dostoyevsky, was only the first part of a "life-chronicle" of Alyosha. "The principal novel is the second—an account of my hero's doings in our own times, that is to say, at our present-day current moment." The book was published in 1880; Dostoyevsky died that winter and never revealed what happens to Alyosha in the "present day". According to some accounts, the character was to become a revolutionary and help kill the tsar before being executed himself.

Neither did Dostoyevsky live to see the real-life assassination of a tsar later in 1881 or the murder of another during the Russian revolution. But his anguished writing is widely thought to have anticipated the horrors of the 20th century. Mr Dodin, who was born in 1944 into a Jewish family that had fled the siege of Leningrad, has lived and worked in their shadows. Four years in the making, his version of "The Brothers Karamazov" is less an adaptation than an engrossing conversation with an author who has preoccupied him all his life. Almost all the words come from Dostoyevsky, but the arrangement is Mr Dodin's. In that opening sequence, he places Alyosha in the "current moment", then sends him back into the world of the novel.

Alyosha's father and brothers emerge from beneath the stage, as though brought back from the dead. A timeless heap of old chairs in the corner are the principal props. Mr Dodin dispenses with many of the book's characters, retaining only the men of the Karamazov household and two ▸▸

women who are the source and subject of love, lechery and hatred. Stripped down to its essence, this is strictly a family affair, the looming sense of an ancestral curse recalling Greek tragedy. There is no small talk. Played by the virtuoso actors of Mr Dodin's regular ensemble, the characters get straight down to business. "Have you come to save the world? I don't think that is possible," Ivan tells Alyosha.

Not only will Alyosha fail to save the world; in the play, at least, he discovers that it is not worth saving. He learns that all these people who profess to live, die and kill for love in fact love nobody. As for himself, "the more I love humanity in general, the less I love man in particular." He is the ultimate Karamazov brother, he realises, the embodiment of all three in one. "It is not that I rebel against my God," he says, echoing Ivan's views, "but I don't accept and can't accept the world He has created." Alyosha gives in to temptation, convulsing in shame and ecstasy when Grushenka—his brother Dmitry's mistress and the object of his father's lust—seduces him.

"I am the same as you in kind," he tells Dmitry, who observes this scene. "The ladder's the same. I'm at the bottom step, and you're above...Anyone on the bottom step is bound to go up to the top one." Virtue is merely a mirage, and unbridled human nature can divert even the best intentions. Afterwards, Alyosha sits between Grushenka's spread legs, the tableau suggesting a sexual clinch but at the same time, shockingly, resembling an icon of the Madonna. As Mr Dodin summarises, in this story, "people don't just talk about Hell". They are living in it.

Dressed in period costumes, Mr Dodin's characters make no explicit comment on contemporary Russian politics. But as with all great art, the production is a cardiogram of its time, registering modern Russia's rhythms and defects. Dostoyevsky, says Mr Dodin, is always an inescapable presence, "but today he is screaming", amid "the crushing of humanism, the cliff-edge of despair". The life unfolding on stage pulsates with energy. Equally, the world of the play is devoid of kindness or mercy.

### Into the darkness

The contrast with another celebrated production is telling. In 1910 the Moscow Art Theatre, under the brilliant leadership of Konstantin Stanislavsky and Vladimir Nemirovich-Danchenko, put on a version of "The Brothers Karamazov" that spread over two evenings. Hailed as a milestone in Russian cultural life, it captured a widespread premonition of cataclysm yet was filled with compassion. Critics likened it to an epic mystery play. "The spirit of God is in the air," thought Alexandre Benois, a writer and artist, who was reminded of ecclesiastical light and Easter bells. For Stanislavsky and Nemirovich-Danchenko, the story "opened the door not so much to Greek tragedy, but to the Bible".

Mr Dodin reveres their theatre and shares its aim of excavating the truth. But he does not open any biblical doors. There are no Easter bells. There is no God and no devil here, "only destiny", as Smerdyakov says when confessing to finishing off old Karamazov. Doubling as a suicide-note, his speech is addressed as much to the audience as to his brothers: "You are very clever. You are fond of money, you are far too fond of female charms, and you mind most of all about living in undisturbed comfort."

His eyes glistening, Alyosha gets the last word. "Everyone is guilty," he proclaims, in a rare interpolation by Mr Dodin.

> I am more guilty than all. I want to burn this city. I will set it ablaze and watch. No: I will set it ablaze and burn with it, because I *am* this city.

Through the alchemy of Mr Dodin's craft, the bleakness is offset by the vitality of the performance, which culminates in a dance that sweeps up the other characters and carries them offstage. Left alone, Alyosha passes back through the wall. The spotlight is turned off. ■

Allusive fiction

## Second is nowhere

**Second Place.** By Rachel Cusk. *Farrar, Straus & Giroux; 192 pages; $25. Faber; £14.99*

"I ONCE TOLD you, Jeffers, about the time I met the devil on a train leaving Paris." Rachel Cusk's latest novel, "Second Place", begins with this arresting recollection. At the end of the book a brief note informs readers that it "owes a debt to 'Lorenzo in Taos', Mabel Dodge Luhan's 1932 memoir of the time D.H. Lawrence came to stay with her in Taos, New Mexico". It is not necessary to be familiar with this antecedent, however, to enjoy the oddly compelling (if intermittently baffling) story that Ms Cusk tells in the pages in between.

Only ever referred to as M, the narrator is living happily with her second husband Tony "in a place of great but subtle beauty" in an unnamed country. It is 15 years after she encountered the devil (Jeffers, to whom she confides this hallucinatory experience, is her implied interlocutor throughout). Ms Cusk keeps the details of the landscape vague but the "woolly marsh" does not sound like New Mexico. M invites L, a painter and a friend of a friend, to stay at her "second place", a cottage M and Tony have built on their land.

"Second place" also sums up how M feels about her own life: "it had been a near miss, requiring just as much effort as victory but with that victory always and forever somehow denied me." Why she feels this way is never exactly elucidated, but L's presence seems set to help. Tellingly, M saw his paintings just before her demonic visitation on the train.

The power games begin when L accepts M's invitation, only to change his mind; when at last he does materialise he brings along a gorgeous young girlfriend, Brett, whom he hadn't mentioned. M's attempt to confront him over this leaves her feeling "acutely conscious of my own unattractiveness, as I would in all my dealings with L". His arrival also means that M has to turf Justine, her 21-year-old daughter, and Justine's boyfriend Kurt out of the second place and back into the main house with her.

Strange meeting

The three couples circle each other uneasily. Individuals form surprising alliances; Kurt warns M that L "says he intends to destroy you". The dread that is evoked forms the basis of a plot, a feature that was missing from the author's much-praised but dreamlike "Outline" trilogy of autofictional novels. Her prose, though, is again as spare as bone. M envies the "aura of male freedom" in L's work—and in delineating these frustrations so piercingly, Ms Cusk's allusive and elusive story makes its own unorthodox claim to freedom.

Renaissance art

# A world of wonders

**Albert and the Whale.** By Philip Hoare. *Pegasus Books; 304 pages; $28.95. Fourth Estate; £16.99*

MARVELS WERE commonplace in Albrecht Dürer's world. As Philip Hoare writes in his captivating study of the German artist, the potentates of early 16th-century Europe traded wonders like playing cards. Erik Walkendorf, an archbishop in Norway, presented Pope Leo X with "the head of a walrus, salted in a barrel like a dead admiral". Meanwhile, a Portuguese ambassador sent a rhino from India to his king in Lisbon, who tired of his pet and passed it on to the pope. En route to Rome, the ship sank in the Ligurian Sea; shackled on deck, the animal went down with it.

Dürer probably never saw either creature. But his luminous sketches of them are among the works Mr Hoare considers in "Albert and the Whale". More slippery than a straight biography, the book instead swoops cormorant-like into Dürer's life and times. Above all, Mr Hoare is interested in the afterlives of Dürer's art in the five centuries since his death. It enraptured William Blake, Herman Melville and Oscar Wilde and inspired Thomas Mann's novel "Doctor Faustus".

He was born in Nuremberg in 1471. His Europe, explains Mr Hoare, was both recognisable and deeply alien. It was "a place of taxes and printing presses", but an ordinary person could expect to see fewer human-made images in a lifetime than today's internet mavens encounter in a minute. Dürer was perhaps its first internationally recognised artist, seizing on the new technologies of woodcuts and printing to market his sizeable body of work—100 paintings, 300 prints and over 1,000 drawings. He mechanised his genius.

Mr Hoare's portrait glitters with arresting details. He recounts a visit Dürer made to the Archduchess Margaret of Austria to sue for her patronage. He was deterred by her retinue, which included a greyhound, a green parrot and a beady-eyed marmoset. Her habit of displaying the embalmed heart of her late husband, a Spanish prince, as a charm may also have put him off.

"Dürer was living on the edge of new revelations, a world shifting nervously in space," Mr Hoare writes. In 1493 Christopher Columbus returned from the New World; 50 years later Copernicus published his heliocentric theory of the cosmos. Yet death and disease were incessant. Dürer saw the sky shot through with blood-red streaks, "auguries of the plague". His woodcuts of the end times were bestsellers. Apocalypse crackled in the air.

In his previous writing, on subjects including "Moby Dick", Mr Hoare pioneered a hybrid style that merged memoir, biography and criticism. In "Albert and the Whale" he pushes this technique further than ever. His readings of Dürer's work grow woozy with enthusiasm, dissolving into a kind of modernist poetry. Readers who prefer their art history to have both feet on the ground might be unmoored; others will be intoxicated.

Dürer died in 1528, aged 56. Eight years earlier he travelled to the fen country of Zeeland in search of a stranded whale. The animal vanished before he arrived. Instead he caught "a strange illness", possibly malaria, which would shorten his life. Still, his journey to that haunting landscape fired his art. "Zeeland is wonderful to see because of the water," he wrote. "The great ships sail about as if on the fields." Even then, Dürer saw marvels. ■

Pictured in his mind's eye

Pandemics and other disasters

# With a whimper

**Doom.** By Niall Ferguson. *Penguin; 496 pages; $30. Allen Lane; £25*

A BOOK ABOUT "Doom" that in its first chapter quotes from "Dad's Army", "Beyond the Fringe" and Monty Python, all classics of British comedy, lifts a reviewer's spirit. But although "The Politics of Catastrophe", as Niall Ferguson's latest work is subtitled, takes off with the pacey prose, grand historical sweep and fine detail for which the author is renowned, it does not live up to its early promise. In a big-idea book, which this aims to be, those scholarly and stylistic virtues need to serve a striking argument. That, sadly, is lacking.

Its central contention is that "all disasters are at some level man-made political disasters, even if they originate with new pathogens". A society's character, in other words—its resilience, fragility and ability to manage the fallout of catastrophe—determines the effect on it of even the most apparently natural disasters, such as volcanic eruptions, earthquakes and plagues.

This is the subject of the moment. Many factors shape the way a country copes with covid-19; some have yet to be identified. But its varying impact at least partly reflects societies' different responses—and their underlying strengths and weaknesses. The world has, in effect, been set the same exam. Some places (Taiwan) have passed with flying colours, some (India) have failed dismally and most (America, Europe) could have done better.

But the set of disasters under consideration is key. If it is drawn narrowly enough to include only those that seem natural, such as pandemics, Mr Ferguson's observation is interesting but not original. Amartya Sen, a Nobel-prizewinning economist, made it in 1981 in "Poverty and Famines: An Essay on Entitlement and Deprivation"; his perception that famine is caused not by crop failure but by politics made his name. If the set takes in the *Titanic*, the *Challenger* space shuttle, the war in Syria and a possible conflict with China, and if "politics" includes the way people and organisations work together—which is how Mr Ferguson defines both concepts—his main contention becomes a statement of the obvious. When bad things happen to humanity, humanity is largely to blame.

Mr Ferguson offers a wealth of deep research, some of it gripping—such as Thucydides's account of the unravelling of ancient Athenian society after a plague, the ▸▸

reasons for the lifeboat shortage on the *Titanic* and the views of Richard Feynman, a renowned physicist, on the organisational causes of the *Challenger* disaster. But a book that ranges so widely needs a strong thread to hold it together. Here you may find yourself turning to the long chapter descriptions at the start to see why you are reading about the Battle of the Somme or the decline of the Ming dynasty. Whistle-stop tours of world history succeed if the itinerary plots an arresting case; "Doom" supplies the tour, but the reader is left wondering what the point of it is.

There is also a problem of timing. About a quarter of the book is about covid-19, which is presumably the reason why it was written. Perhaps Mr Ferguson wanted to get in before the competition, but he would have done better to wait. His account of the pandemic is a summary of the story up to last autumn; six months on, his perspective at times feels mistaken. He roundly condemns the American and British governments, praising not just the east Asians' management of the disease but also the benefits of European transnational co-operation. "European institutions", he writes, "rose to the challenge posed by covid-19." That claim is less convincing now.

From within a somewhat misconceived book, a better one is trying to get out. Mr Ferguson's chapter on the growing conflict between the West and China—"cold war II", as he calls it—is forceful, coherent and angry. He dismisses the idea of "co-opetition" and believes that the best way of avoiding a real war is for Western countries to unite and confront Beijing. His prose is best when he is roused. He should write a book on China soon; it may prove more compelling than this one. ■

## Johnson Tongue-twisters

*Some languages are harder to learn than others—but not for the obvious reasons*

When considering which foreign languages to study, some people shy away from those that use a different alphabet. Those random-looking squiggles seem to symbolise the impenetrability of the language, the difficulty of the task ahead.

So it can be surprising to hear devotees of Russian say the alphabet is the easiest part of the job. The Cyrillic script, like the Roman one, has its origins in the Greek alphabet. As a result, some letters look the same and are used near identically. Others look the same but have different pronunciations, like the P in Cyrillic, which stands for an r-sound. For Russian, that cuts the task down to only about 20 entirely new characters. These can comfortably be learned in a week, and soon mastered to the point that they present little trouble. An alphabet, in other words, is just an alphabet. A few tricks aside (such as the occasional omission of vowels), other versions do what the Roman one does: represent sounds.

Foreign languages really become hard when they have features that do not appear in your own—things you never imagined you would have to learn. Which is another way of saying that languages slice up the messy reality of experience in strikingly different ways.

This is easily illustrated with concrete vocabulary. Sometimes the meanings of foreign words and their English equivalents overlap but don't match exactly. Danish, for instance, does not have a word for "wood"; it just uses "tree" (*trae*). Or consider colours, which lie on a spectrum that different languages segment differently. In Japanese, *ao* traditionally refers to both green and blue. Some green items are covered by a different word, *midori*, but *ao* applies to some vegetables and green traffic lights (which, to make matters more confusing, are slightly blueish in Japan). As a result, *ao* is rather tricky to wield.

Life becomes tougher still when other languages make distinctions that yours ignores. Russian splits blue into light (*goluboi*) and dark (*sinii*); foreigners can be baffled by what to call, say, a mid-blue pair of jeans. Plenty of other "basic" English words are similarly broken down in their foreign corollaries. "Wall" and "corner" seem like simple concepts, until you learn languages that sensibly distinguish between a city's walls and a bedroom's (German *Mauer* versus *Wand*), interior corners and street corners (Spanish *rincón* and *esquina*), and so on.

These problems are tractable on their own; you don't often have to refer to a corner in casual conversation. But when other languages make structural distinctions missing from your native tongue—often in the operation of verbs—the mental effort seems never-ending. English has verbs-of-all-work that seem straightforward enough until you try to translate them. In languages like German, "put" is divided into verbs that signify hanging, laying something flat and placing something tall and thin. "Go" in Russian is a nightmare, with a suite of verbs distinguishing walking and travelling by vehicle, one-way and round trips, single and repeated journeys, and other niceties. You can specify all these things in English if you want to; the difference is that in Russian, you must.

Sometimes verb systems force choices on speakers not only for individual verbs, but for all of them. Many English-speakers are familiar with languages, such as French and Italian, which have two different past tenses, for completed actions and for habitual or continued ones. But verb systems get much more exotic than that.

"Evidential" languages require a verb ending that shows how the speaker knows that the statement made is true. Turkish is one of them; others, such as a cluster in the Amazon, have particularly complex—and obligatory—evidentiality rules. Many languages mark subjects and direct objects of sentences in distinct ways. But in Basque, subjects of intransitive verbs (those that take no direct object) look like direct objects themselves, while subjects of transitive verbs get a special form. If Martin catches sight of Diego, Basques say the equivalent of "Martin*ek* sees Diego."

In the end, the "hard" languages to learn are not those that do what your own language does in a new way. They are the ones that make you constantly pay attention to distinctions in the world that yours blithely passes over. It is a bit like a personal trainer putting you through entirely new exercises. You might have thought yourself fit before, but the next day you will wake up sore in muscles you never knew you had.

## Economic data

| | Gross domestic product, % change on year ago: latest | | quarter* | 2021† | Consumer prices, % change on year ago: latest | | 2021† | Unemployment rate, % | | Current-account balance, % of GDP, 2021† | Budget balance, % of GDP, 2021† | Interest rates, 10-yr gov't bonds: latest,% | | change on year ago, bp | Currency units, per $ May 5th | % change on year ago |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| United States | 0.4 | Q1 | 6.4 | 5.5 | 2.6 | Mar | 2.1 | 6.0 | Mar | -2.7 | -13.5 | 1.6 | | 93.0 | - | |
| China | 18.3 | Q1 | 2.4 | 8.5 | 0.4 | Mar | 1.6 | 5.3 | Mar‡§ | 2.7 | -4.7 | 3.0 | §§ | 122 | 6.47 | 9.0 |
| Japan | -1.4 | Q4 | 11.7 | 2.7 | -0.1 | Mar | 0.2 | 2.6 | Mar | 3.2 | -9.0 | nil | | -8.0 | 109 | -2.4 |
| Britain | -7.3 | Q4 | 5.2 | 5.1 | 0.7 | Mar | 1.5 | 4.9 | Jan†† | -4.2 | -12.3 | 0.9 | | 58.0 | 0.72 | 11.1 |
| Canada | -3.2 | Q4 | 9.6 | 4.8 | 2.2 | Mar | 2.1 | 7.5 | Mar | -2.0 | -9.2 | 1.5 | | 95.0 | 1.23 | 14.6 |
| Euro area | -1.8 | Q1 | -2.5 | 4.1 | 1.6 | Apr | 1.3 | 8.1 | Mar | 3.1 | -6.2 | -0.2 | | 34.0 | 0.83 | 10.8 |
| Austria | -5.7 | Q4 | -5.6 | 3.8 | 1.9 | Apr | 1.7 | 5.6 | Mar | 3.0 | -6.1 | nil | | 12.0 | 0.83 | 10.8 |
| Belgium | -1.0 | Q1 | 2.4 | 3.8 | 1.2 | Apr | 1.0 | 5.8 | Mar | nil | -7.0 | 0.1 | | 8.0 | 0.83 | 10.8 |
| France | 1.5 | Q1 | 1.8 | 5.4 | 1.3 | Apr | 1.3 | 7.9 | Mar | -1.8 | -9.0 | 0.1 | | 26.0 | 0.83 | 10.8 |
| Germany | -3.0 | Q1 | -6.6 | 3.5 | 2.0 | Apr | 1.9 | 4.5 | Mar | 6.8 | -3.6 | -0.2 | | 34.0 | 0.83 | 10.8 |
| Greece | -5.9 | Q4 | 11.1 | 2.5 | -1.6 | Mar | 0.1 | 15.8 | Dec | -5.8 | -5.7 | 1.0 | | -123 | 0.83 | 10.8 |
| Italy | -1.4 | Q1 | -1.6 | 3.4 | 1.1 | Apr | 0.7 | 10.1 | Mar | 3.0 | -10.5 | 0.8 | | -104 | 0.83 | 10.8 |
| Netherlands | -2.8 | Q4 | -0.5 | 3.1 | 1.9 | Mar | 1.9 | 3.5 | Mar | 9.0 | -4.2 | -0.3 | | 9.0 | 0.83 | 10.8 |
| Spain | -4.3 | Q1 | -2.1 | 5.8 | 2.2 | Apr | 0.8 | 15.3 | Mar | 1.5 | -8.7 | 0.5 | | -33.0 | 0.83 | 10.8 |
| Czech Republic | -4.8 | Q4 | -1.2 | 3.8 | 2.3 | Mar | 2.2 | 3.4 | Mar‡ | 1.7 | -5.5 | 1.8 | | 59.0 | 21.5 | 16.1 |
| Denmark | -1.4 | Q4 | 2.7 | 3.0 | 1.0 | Mar | 0.7 | 4.5 | Mar | 7.4 | -1.3 | 0.1 | | 38.0 | 6.19 | 11.2 |
| Norway | -0.6 | Q4 | 2.6 | 2.6 | 3.1 | Mar | 1.6 | 5.0 | Nov‡‡ | 2.4 | -1.7 | 1.4 | | 86.0 | 8.36 | 22.9 |
| Poland | -2.7 | Q4 | -2.0 | 4.0 | 4.3 | Apr | 2.4 | 6.4 | Mar§ | 2.1 | -4.9 | 1.7 | | 16.0 | 3.82 | 9.4 |
| Russia | -1.8 | Q4 | na | 2.7 | 5.8 | Mar | 4.6 | 5.4 | Mar§ | 4.0 | -1.7 | 7.2 | | 103 | 74.8 | -1.1 |
| Sweden | -0.8 | Q1 | 4.5 | 2.4 | 1.7 | Mar | 1.4 | 10.0 | Mar§ | 4.0 | -2.3 | 0.4 | | 50.0 | 8.49 | 15.8 |
| Switzerland | -1.6 | Q4 | 1.3 | 2.6 | 0.3 | Apr | 0.3 | 3.3 | Mar | 7.0 | -2.3 | -0.2 | | 29.0 | 0.91 | 6.6 |
| Turkey | 5.9 | Q4 | na | 3.9 | 17.1 | Apr | 11.9 | 14.1 | Feb§ | -2.3 | -3.1 | 17.5 | | 589 | 8.33 | -14.9 |
| Australia | -1.1 | Q4 | 13.1 | 3.1 | 1.1 | Q1 | 2.0 | 5.6 | Mar | 2.2 | -7.6 | 1.7 | | 83.0 | 1.29 | 20.2 |
| Hong Kong | -3.0 | Q4 | 0.7 | 3.5 | 0.5 | Mar | 1.8 | 6.8 | Mar‡‡ | 3.7 | -3.8 | 1.2 | | 57.0 | 7.77 | -0.3 |
| India | 0.4 | Q4 | 42.7 | 10.4 | 5.5 | Mar | 5.2 | 8.0 | Apr | -1.0 | -7.0 | 6.0 | | -9.0 | 73.9 | 2.3 |
| Indonesia | -0.7 | Q1 | na | 3.3 | 1.4 | Apr | 2.8 | 6.3 | Q1§ | -0.3 | -6.4 | 6.4 | | -161 | 14,435 | 4.5 |
| Malaysia | -3.4 | Q4 | na | 4.4 | 1.7 | Mar | 2.4 | 4.8 | Feb§ | 3.5 | -6.0 | 3.1 | | 29.0 | 4.12 | 4.6 |
| Pakistan | 0.5 | 2020** | na | 1.7 | 11.1 | Apr | 8.8 | 5.8 | 2018 | -1.9 | -6.9 | 9.8 | ††† | 175 | 153 | 4.4 |
| Philippines | -8.3 | Q4 | 24.4 | 6.6 | 4.5 | Apr | 4.0 | 8.7 | Q1§ | -0.9 | -7.4 | 4.1 | | 77.0 | 48.0 | 5.2 |
| Singapore | 0.2 | Q1 | 8.3 | 4.8 | 1.3 | Mar | 1.8 | 2.9 | Q1 | 16.5 | -4.1 | 1.6 | | 66.0 | 1.34 | 6.0 |
| South Korea | 1.7 | Q1 | 6.6 | 3.2 | 2.3 | Apr | 1.5 | 4.3 | Mar§ | 4.3 | -4.7 | 2.1 | | 63.0 | 1,123 | 9.5 |
| Taiwan | 8.2 | Q1 | 12.9 | 4.5 | 1.3 | Mar | 1.6 | 3.7 | Mar | 15.1 | -0.5 | 0.4 | | -8.0 | 27.9 | 6.7 |
| Thailand | -4.2 | Q4 | 5.4 | 3.3 | 3.4 | Apr | 0.8 | 1.5 | Dec§ | 4.0 | -6.0 | 1.6 | | 62.0 | 31.1 | 4.2 |
| Argentina | -4.3 | Q4 | 19.4 | 6.2 | 42.6 | Mar‡ | 45.9 | 11.0 | Q4§ | 2.4 | -6.0 | na | | na | 93.8 | -28.5 |
| Brazil | -1.1 | Q4 | 13.3 | 3.2 | 6.1 | Mar | 6.7 | 14.4 | Feb§‡‡ | 0.5 | -7.9 | 9.3 | | 156 | 5.39 | 3.1 |
| Chile | nil | Q4 | 30.1 | 6.0 | 2.9 | Mar | 3.5 | 10.4 | Mar§‡‡ | -0.2 | -6.9 | 3.8 | | 109 | 703 | 18.6 |
| Colombia | -3.5 | Q4 | 26.5 | 4.8 | 1.9 | Apr | 2.6 | 14.2 | Mar§ | -3.3 | -8.9 | 6.9 | | 47.0 | 3,859 | 1.7 |
| Mexico | -3.8 | Q1 | 1.6 | 5.1 | 4.7 | Mar | 3.8 | 4.4 | Mar | 2.4 | -2.8 | 6.6 | | 20.0 | 20.2 | 18.0 |
| Peru | -1.7 | Q4 | 37.9 | 8.0 | 2.4 | Apr | 3.2 | 13.9 | Mar§ | -0.7 | -7.3 | 5.3 | | 118 | 3.83 | -11.5 |
| Egypt | 2.0 | Q4 | na | 2.9 | 4.4 | Mar | 5.7 | 7.2 | Q4§ | -3.3 | -8.1 | na | | na | 15.7 | 0.5 |
| Israel | -1.5 | Q4 | 6.5 | 4.0 | 0.2 | Mar | 1.3 | 5.4 | Mar | 3.4 | -8.8 | 1.1 | | 23.0 | 3.27 | 7.7 |
| Saudi Arabia | -4.1 | 2020 | na | 2.9 | 5.0 | Mar | 2.4 | 7.4 | Q4 | 2.8 | -3.2 | na | | na | 3.75 | 0.3 |
| South Africa | -4.1 | Q4 | 6.2 | 2.0 | 3.2 | Mar | 3.7 | 32.5 | Q4§ | -1.6 | -9.2 | 9.1 | | -62.0 | 14.4 | 27.9 |

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 May 5th | % change on: one week | Dec 31st 2020 |
|---|---|---|---|
| United States S&P 500 | 4,167.6 | -0.4 | 11.0 |
| United States NAScomp | 13,582.4 | -3.3 | 5.4 |
| China Shanghai Comp | 3,446.9 | -0.3 | -0.8 |
| China Shenzhen Comp | 2,298.9 | -0.1 | -1.3 |
| Japan Nikkei 225 | 28,812.6 | -0.8 | 5.0 |
| Japan Topix | 1,898.2 | -0.6 | 5.2 |
| Britain FTSE 100 | 7,039.3 | 1.1 | 9.0 |
| Canada S&P TSX | 19,310.7 | -0.2 | 10.8 |
| Euro area EURO STOXX 50 | 4,002.8 | -0.3 | 12.7 |
| France CAC 40 | 6,339.5 | 0.5 | 14.2 |
| Germany DAX* | 15,170.8 | -0.8 | 10.6 |
| Italy FTSE/MIB | 24,463.9 | nil | 10.0 |
| Netherlands AEX | 714.1 | 0.3 | 14.3 |
| Spain IBEX 35 | 8,967.8 | 1.9 | 11.1 |
| Poland WIG | 60,936.8 | 0.8 | 6.9 |
| Russia RTS, $ terms | 1,535.7 | 1.8 | 10.7 |
| Switzerland SMI | 11,108.9 | nil | 3.8 |
| Turkey BIST | 1,420.0 | 2.5 | -3.8 |
| Australia All Ord. | 7,344.2 | 0.3 | 7.2 |
| Hong Kong Hang Seng | 28,418.0 | -2.2 | 4.4 |
| India BSE | 48,677.6 | -2.1 | 1.9 |
| Indonesia IDX | 5,975.9 | nil | -0.1 |
| Malaysia KLSE | 1,575.7 | -2.0 | -3.2 |

| | index May 5th | % change on: one week | Dec 31st 2020 |
|---|---|---|---|
| Pakistan KSE | 44,943.6 | -0.3 | 2.7 |
| Singapore STI | 3,153.6 | -2.0 | 10.9 |
| South Korea KOSPI | 3,147.4 | -1.1 | 9.5 |
| Taiwan TWI | 16,843.4 | -4.1 | 14.3 |
| Thailand SET | 1,549.2 | -1.7 | 6.9 |
| Argentina MERV | 49,152.3 | -1.8 | -4.0 |
| Brazil BVSP | 119,564.4 | -1.2 | 0.5 |
| Mexico IPC | 48,399.8 | -0.2 | 9.8 |
| Egypt EGX 30 | 10,512.8 | 0.4 | -3.1 |
| Israel TA-125 | 1,729.2 | 1.4 | 10.3 |
| Saudi Arabia Tadawul | 10,252.2 | -2.6 | 18.0 |
| South Africa JSE AS | 67,346.2 | -0.6 | 13.4 |
| World, dev'd MSCI | 2,932.8 | -0.6 | 9.0 |
| Emerging markets MSCI | 1,333.0 | -2.3 | 3.2 |

**US corporate bonds,** spread over Treasuries

| Basis points | latest | Dec 31st 2020 |
|---|---|---|
| Investment grade | 120 | 136 |
| High-yield | 358 | 429 |

Sources: Refinitiv Datastream; Standard & Poor's Global Fixed Income Research. *Total return index.

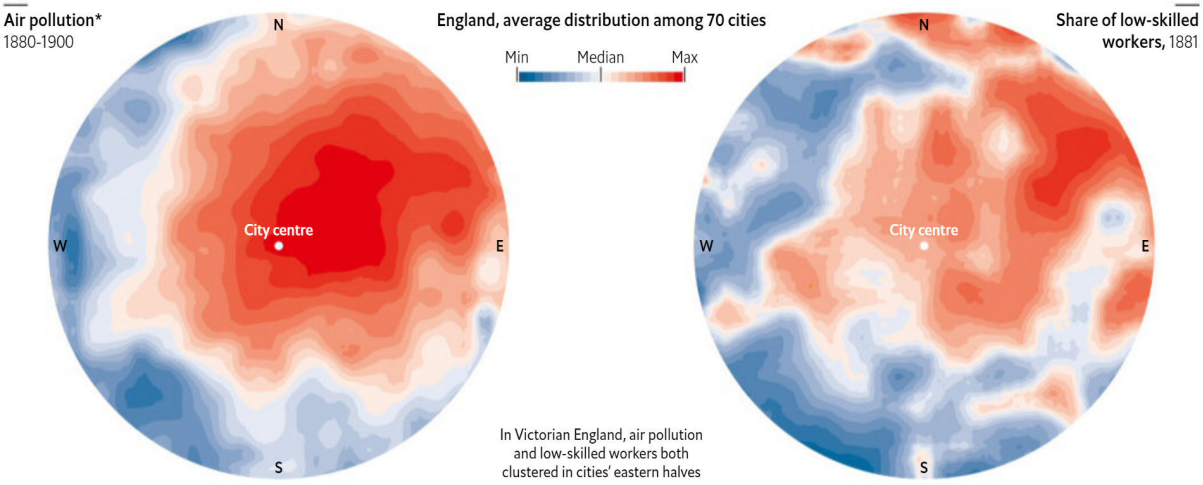
## Commodities

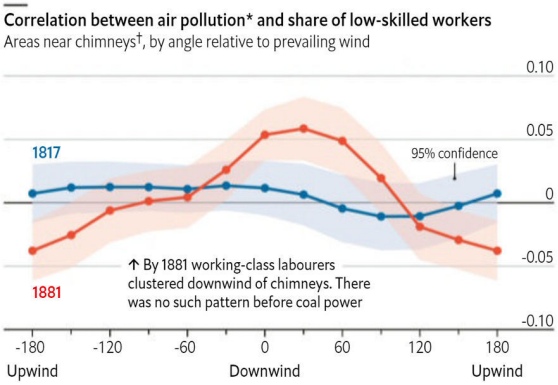
| *The Economist* commodity-price index, 2015=100 | Apr 27th | May 4th* | % change on: month | year |
|---|---|---|---|---|
| **Dollar Index** | | | | |
| All Items | 185.0 | 184.9 | 12.4 | 80.5 |
| Food | 139.9 | 141.2 | 12.3 | 50.3 |
| **Industrials** | | | | |
| All | 227.1 | 225.6 | 12.4 | 104.5 |
| Non-food agriculturals | 173.9 | 179.6 | 18.5 | 110.0 |
| Metals | 242.9 | 239.3 | 11.2 | 103.3 |
| **Sterling Index** | | | | |
| All items | 202.9 | 203.3 | 12.2 | 61.9 |
| **Euro Index** | | | | |
| All items | 169.8 | 170.4 | 10.6 | 62.6 |
| **Gold** | | | | |
| $ per oz | 1,779.8 | 1,777.6 | 1.9 | 4.6 |
| **Brent** | | | | |
| $ per barrel | 66.6 | 69.0 | 9.8 | 122.2 |

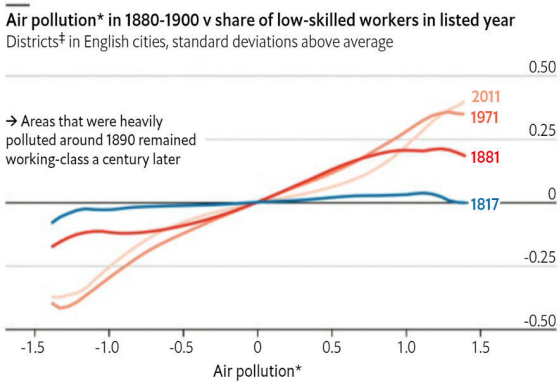
Sources: Bloomberg; CME Group; Cotlook; Refinitiv Datastream; Fastmarkets; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

For more countries and additional data, visit **Economist.com/indicators**

→ **Modern inequality in English cities traces the contours of 19th-century smog plumes**




*$SO_2$, 1880-1900, estimate from model †Locations of chimneys on maps in 1880-1900 ‡Lower layer super output areas Source: "East-side story: historical pollution and persistent neighbourhood sorting", by S. Heblich, A. Trew and Y. Zylberberg, 2021, *Journal of Political Economy*

# Why east has least

### The legacy of Victorian-era pollution still shapes English cities

THE EAST END of London was long an epitome of industrial squalor. Today its smokestacks are gone, but it remains the city's poorest area. This lopsided distribution of poverty is typical in England, where the western halves of metropolitan areas tend to be richer than the eastern ones.

What accounts for this pattern? In London the most intuitive reason is the River Thames. Historically, it carried wastewater from west to east, and its banks downstream from the city centre were lined with docks, which might have drawn low-earning workers to the area. But if the river were the cause, fluvial currents would probably point towards rough parts of other cities too. Instead, the east is poorer even in Bristol and Manchester, where rivers flow west. A newly published paper, by Stephan Heblich, Alex Trew and Yanos Zylberberg, argues instead that wind was the culprit, by blowing air pollution east and causing the rich to flee in the opposite direction.

To solve a 19th-century mystery, their study used 21st-century wizardry. First, it applied an image-recognition algorithm to maps of 70 English cities in 1880-1900, pinpointing the sites of 5,000 industrial chimneys. Next, using census and baptism data, it estimated labourers' average skill levels over time in 5,500 local areas. By 1881 chimneys were often ringed by working-class homes. Before coal power, the low-skilled share of those areas was unremarkable.

But which came first, the factories or the proletariat? To find an answer, the authors drew concentric circles around each smokestack, and measured the share of working-class labourers in different parts of each ring, which all had similar travel times to a given factory. They also used atmospheric-dispersion models to estimate where each chimney's exhaust would wind up, based on local topography.

In 1817 low-skilled workers were evenly spread around these rings. But by 1881 they clustered in the direction of the prevailing wind, which carried noxious fumes. This implies either that factory staff moved into newly polluted areas, or that richer people fled them. And because English winds tend to blow from the south-west, these areas were mostly north-east of the chimneys.

This pattern is remarkably durable. Among otherwise similar regions of a city like Manchester, the share of blue-collar workers in 2011 was 16 percentage points higher in areas in the top decile of pollution in 1880-1900 than in those in the bottom decile. House prices were 40% lower. England cut back on coal decades ago, but Victorian smog casts a long shadow. ■

**Correction** Our story on military spending last week ("Buck for the bang") said that entry-level pay in China's army was $10 per month. It is $108. Sorry.

# The third man

**Michael Collins, astronaut, died on April 28th, aged 90**

THE MOON that filled the window of the spacecraft *Columbia* was not one Michael Collins had ever seen before. It was absolutely three-dimensional, its belly bulging out towards him. Cascading sunlight formed a halo round it. The lighter parts were a lot lighter than usual, the jagged mountains darker. It was electrifying. Then the feeling passed. "Hello Moon!" he quipped. "How's the old backside?"

This was the closest he had come, as the Apollo 11 crew on July 19th 1969 scouted out their best landing place. But he knew all about the Moon: dry, lifeless, rough as a corncob. Sometimes it looked like a sun-seared peach pit, sometimes like smallpox. What it never looked was interesting. He would certainly much rather have flown off to Mars.

It was therefore no hardship, when his colleagues Neil Armstrong and Buzz Aldrin took the lunar module *Eagle* down to the surface and clumped about on it, for him to stay for 27 hours in orbit in *Columbia*. Someone had to get them home. Besides, he loved *Columbia*, finest of ships, commodious and a friend. It pained him to think of Neil and Buzz trailing their grimy moon-goo into it. On his previous spaceflight, the Gemini 10 mission with John Young in 1966 to practise manoeuvering in Earth orbit, the two of them had squashed into a cabin the size of the front seat of a Volkswagen. By contrast *Columbia* almost reminded him, if you took the centre couch out, of Washington National Cathedral. When he later became director of the new National Air and Space Museum, planning and completing it on time and under budget, she had a place of honour, right by Lindbergh's *Spirit of St Louis*.

Ensconced in *Columbia* he could dine in splendour on tubes of his favourite cream-of-chicken soup, drink fairly hot coffee, listen to music and crank up the thermostat to 76 degrees. For 48 minutes in each of 14 orbits, as he passed the Moon's meteor-battered backside, it was a joy to get Mission Control to shut up for a while. So when the press called him the loneliest man in history, or at least since Adam, 65 miles above his comrades, 250,000 miles from home, that was ridiculous. Occasionally forgotten, perhaps.

In any case he had already had his own extra-vehicular adventure on the Gemini 10 mission, going out to retrieve a meteorite-collector from a dead Agena rocket, gliding across the night sky with perfect and stately grace, like a god. It didn't matter that, after Apollo 11, people struggled to remember his name. To be third man then was fine. Together they had done what President John Kennedy had told them in 1961: put a man on the Moon by the end of the decade, and (implied) before those Russians did.

He was at Edwards Air Force Base in California when that challenge came down, testing fighter planes over the Mojave desert. Though some at Edwards scorned the thought of being locked in a can and fired around the world like ammunition, he burned to get into the astronaut programme. He dreamed of circling Earth in 90 neat minutes, like John Glenn; he hungered to explore the realm where his childhood hero Buck Rogers had roared around in his space rocket, tackling the Tiger Men from Mars.

All he needed was a lot of luck. By his own lights he was nothing special, though OK if you were looking for a handball game. As a student he was easily bored, especially when he had to process reams of flight data by hand into reports, or when, during astronaut training, he had to endure mind-numbing lectures on geology. Mathematical calculations destroyed the wonder of things; he would rather read "Paradise Lost". By the age of 35 he was ready for the Gemini launch, but just as well it came no sooner.

He would now pit his little pink body against the hard vacuum of space, with nothing between them but a thin shell of metal or a pressurised suit. The whole business of going there, each manoeuvre leading to the next and each needing to be perfect, was like a long fragile daisy chain looping from Earth and back. If one link failed, all the rest was useless. Rather than be a weak point, as he worried he might be, he was now rigorously precise. Before Gemini 10 he filled a notebook with 138 potential problems, crossing each off as it was solved. Alone on *Columbia* during the Moon mission, he kept a packet of 18 different rescue plans tied round his neck, some so outlandish that they had never practised them.

His mission first commandment was simple: Thou shalt not screw up. Gemini 10 had been a practice run for Apollo, a local thing, but now the world's eyes were on the Moon and on them. The commemorative stamps were already printed, the medals struck; he had sketched the patch-image himself, an American bald eagle with olive branches in its claws. *Columbia* carried a plaque to be left on the Moon, "We came in peace for all mankind". The weight of expectation could not have been heavier.

Yet it came from a planet that seemed to weigh nothing at all. If he stretched out his arm to the window of *Columbia*, Earth was covered by his thumbnail. It floated in a black void, blue with seas, white with clouds, a tiny gem sparkling and shining. The word that kept surprising him was "fragile". He had known Earth all his life as solid, heavy, terrifyingly hard as he fell towards it once when his F-86 was on fire. Now he wanted to take care of it. He wished its bickering politicians could see it from that distance. What would their arguments matter then?

Ever since some gruesome dental work in childhood, he had been able to detach his mind from his body when he needed to. At the dentist's, he hovered near the ceiling. As a test pilot, he found secret spaces in cumulus clouds. In later life, if he needed solace, he would relive what he had seen from *Columbia*. That was his last space trip; being an astronaut took him away from family too much. He liked to recall how the Moon had looked close-to, shockingly spherical, and compared it with the shining dinner-plate he saw from his paddleboat when he was out night-fishing. He did not look often, though; been there, done that. It was the beauty of Earth he most remembered, and now campaigned to save. That first. Then on to Mars. ■